Electronic products for electrical panels

2017/2018 EDITION

cabur®
CONNECTING ENERGY
SINCE 1952

cabur

Electronic products for electrical panels

2017-2018 Edition

UNI EN-ISO 9001

UNI EN-ISO 14001

cabur

WARNING If not specified, the technical data in this catalogue are typical and measured at 25°C (77°F), 230 Vac, Unom, Vdc and rated current; ripple is measured at 20 MHz with probe connected to 0.1 µF. The technical data in this catalogue are typical and are not binding for Cabur and may be modified without prior notice, simply for production or improvement and/or evolution reason. Please contact our technical-commercial offices for any relevant confirmation or updates. For more informations visit our web site www.cabur.eu.

The Company

Founded in 1952, Cabur quickly gained the lead position among national manufacturers of terminal blocks for electrical panels, pursuing a policy which focused particularly on installers' needs and offering cutting-edge technological solutions.

With over 65 years of experience, Cabur develops and creates, based on its own designs, a vast array of products for the electro-technical and electronic industries famous for their reliability even under extreme conditions.

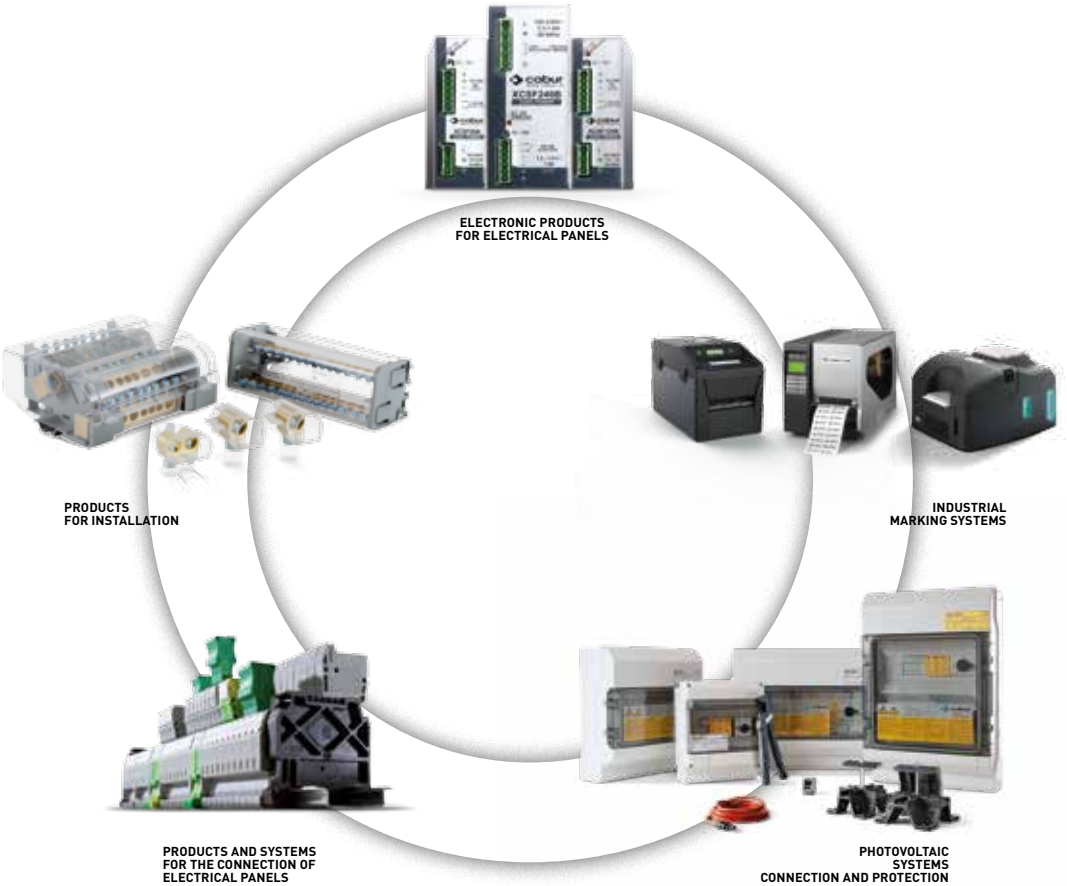
Our current production includes:

- terminal blocks and boards for electrical panels
- electronic products for electrical panels
- terminal blocks for civil and industrial installations
- products for photovoltaic systems
- industrial marking systems

which perfectly meet the various and complex installation needs of users.

Our production, which is wide and diversified, represents the optimal synthesis of Cabur's long experience as a supplier to the main national energy boards and companies, together with activities and collaboration abroad.

In pursuing a corporate culture based on Total Quality, Cabur has adopted the main European directives of the reference market, and collaborates with the most prestigious national and foreign Institutes and Laboratories.



www.cabur.eu

Contents

Electromechanical relay modules

Solid state relay modules

Passive interface modules

Accessories

Teble of contents

Cabur power house

Cabur continues to renew and expand its range of power supplies for use in industrial automation and control of processes and systems, improving product performance and technology to meet the needs created by the continuing changes in applications and regulations.

QUALITY AND SAFETY: Cabur was the first Italian company to obtain UL508 Industrial Control Equipment certification for industrial automation processes and Hazardous Location Class 1 Div. 2 for processes in dangerous areas, as well as to have been certified as conforming to the Directives on Electric Safety. It also has been EMC certified by an accredited laboratory. All of these are indispensable for the CE certified label.

INNOVATION AND RESEARCH:

- 1997 - Cabur is the first Italian company to produce switching power supplies for DIN-rails with 90-264Vac/110-340Vdc universal input.
- 2001 - Cabur is the first Italian company to produce high efficiency power supplies with resonant technology (the 20A 3-phase dissipates only 36W compared to over 75W for our competitors at the time).
- 2009 – With the new generation of power supplies in the catalogue, Cabur has further improved performance using "Synchronous Rectifier" technology, which reduces power dissipation and operating temperature to the minimum, an indispensible factor in minimising the size of the power supplies, which are the smallest on the market.

The lifespan of a power supply is halved by every +10°C increase in operating temperature. Hence, reducing operating temperature is fundamental to endurance and reliability, two objectives that can be achieved only by using circuit technology and next generation components. Thanks to this combination, Cabur has achieved output of over 94% (the new 20A 3-phase dissipates only 28W, compared to the 50-75W in heat dissipation found in other products currently on the market).

HIGH OVERLOAD CAPACITY: the new power supplies have an overload capacity of over +50% for 5 seconds or for several minutes (please see the technical data), while maintaining stable output voltage even under these conditions.

SYSTEM COMMUNICATIONS: all the CSF, CSG, and CSW Series models are provided with "intelligent" alarm contacts that commutate when the output voltage drops below -10% of the nominal value. This allows the controls to activate automated or emergency procedures to reduce machine stoppage, production losses, and the risk to safety.

TOTAL PROTECTION: all models are provided with output protection against overload short circuiting, overtemperature, and overvoltage, both for input and output. Input for the 3-phase models includes the Active Surge Suppressor – Inrush Current Limiter, which avoids malfunctioning in the case of overvoltage generated by commutation of loads or malfunctions on industrial networks, where the value can reach 3-4 times the network voltage, with a duration of 1.3ms (Regulation VDE-0160), which can be destructive for the input components. This increases reliability, especially in networks subject to power surges and power malfunctions.

SHORT CIRCUIT AND OVERLOAD PROTECTION: this serves to protect the power supply from malfunctions due to overloading and overheating of the components. This function can be designed by starting with different application needs, with varying practical results and costs. In automated applications, the operating conditions and the nature of the loads can vary greatly and are only partially known to the power supply designer. Power supplies for automated processes need to meet a number of requirements: they need to be protected from overcurrent, but at the same time they need to be able to supply loads which call for a high peak current, working at temperatures of at least 45° C, according to regulations, and sometimes higher, in critical ventilation situations and guaranteeing high reliability and acceptable costs.
The overcurrent protection must support the high peak currents required by loads such as filament lamps (cold, they make a short circuit), capacitive loads such as dc/dc converters and filter condensators (when these switch on they are seen as a short-circuit for a few tenths of a ms) or inductive loads (engines in dc, electromagnets, etc.) which at peak require currents from 5 – 30 times their nominal power. Frequently, all these loads must be started up at the same time. The breakaway starting current must be provided for a sufficient duration to "start" the load, which can go from a few tenths of a ms up to 5s.
With high-power power supplies, which power various loads protected from overcurrent, the capacity to provide overcurrent is indispensable to guarantee selectivity in protection interventions. This is because it allows the fuse of the malfunctioning load to be "burned" before the electronic protection of the power supply intervenes, disconnecting the output and hence the entire system.

ELECTRONIC OVERLOAD POWER SUPPLY PROTECTION CAN BE OBTAINED USING VARIOUS TECHNIQUES:

– switch off the output as soon as possible: this is cost effective but doesn't allow for either start up of heavy loads nor for protection selectivity for various loads.
– constant power protection: if the allowed overload is sufficiently high, it is possible to start up heavy loads. However, if the condition continues, the power supply will continue to operate in overload and with a high thermal stress level. Hiccup protection: combines the advantages of the techniques described above, while limiting the disadvantages because it allows over +50-100% of the overload for at least 5 seconds, and then switches off output for a longer break. In this way, the peak power necessary for heavy load peaks is obtained while component heating is decreased, as they can cool off during the break. Hiccup protection with high overcurrent output, for durations from 200 ms to over 5 sec., has been proven to satisfy the new requirements established by the Machinery Directive EN 60204-1.

REAL OPERATING TEMPERATURE: the operating temperature range for all Cabur models is between –20 and +50°C at full load without derating (see technical data), certified in accordance with the rigorous UL508 standard.
The project takes into consideration the ambient temperature, allowed overcurrent, and overcurrent duration when determining component size, and is always more than the 45°C required by the standards for electrical panels. Ambient temperature is a fundamental reference parameter, because this influences not only performance, but also component operating temperature and power supply duration.

HOLD UP TIME: this is the time in which the power supply output supplies nominal voltage at nominal load. This performance is important because it limits the cases in which machine/system stoppage can occur due to voltage "holes" in the network. EMC standards establish that Hold Up time must be at least 10ms. For all Cabur power supplies, Hold Up time is greater than that required by the official standards, which ensures better operational consistency in networks with frequent voltage holes.

MTBF: this figure should be taken with care, because it is the result of theoretical calculations that are easy to manipulate. For example, if we know that the mortality rate for 25 year old men is 0.1%/year, the resultant MTBF, calculated in accordance with SN29500 – IEC 61709, would be 800 years. Obviously, this result is highly unrealistic. The significant piece of information is the "life expectancy," which for men averages about 75 years – less spectacular but more realistic. The same reasoning can be applied to electronic products for which, in accordance with the calculation methods, we can use an MTBF of 750,000 hours (85 years), or a life expectancy of about 70,000 hours (7.9 years, on average). The second estimate is less optimistic, but is without doubt closer to reality. As a consequence, data published regarding MTBF must be interpreted based on the credibility of the calculation methods used. In addition to the values according to SN 29500, Cabur has also chosen to declare those according to the MIL HDBKn217F standards, which are much stricter.

CUSTOM POWER SUPPLIES: Cabur designs and produces "custom" power supplies on request to meet the requirements of regulations and the high demanding applications. Furthermore our laboratory offers technical documentation and the measures which prove the conformity of the products with the directives on Electric Safety and Electromagnetic Compatibility, besides the necessary technical support to define the product characteristics on the basis of the client's needs and our own experience.

THE ENVIRONMENT AND ROHS CONFORMANCE:
Cabur was one of the first Italian companies to obtain the International Environmental Certificate UNI EN ISO 14001, certified by CSQ for ecologically compatible treatment of all the materials used in our production.
Since 2007, all Cabur products have been manufactured in conformity with the Rohs Wee directives.

General notes

PARALLEL AND REDUNDANT PARALLEL CONNECTION: all Cabur power supplies can be connected in parallel to combine the power of two or more power supplies. In addition, models that already include an output separation diode (ORing diode) are available for use with redundant parallels (please see the related item in the catalogue).

We recommend adjusting the outputs of all the power supply units to the same voltage (tolerance ± 50 mV), applying the same calibration load, before connecting them in parallel. We also recommend using power supply units of the same model.
If it is necessary to connect two power supplies without internal diodes in redundant parallel, the connection must be completed as in fig. 1.

CONNECTION IN SERIES: all Cabur power supplies can have their outputs connected in series to double the voltage (see fig. 2) or to obtain dual voltage output, for example with ± 12V or ±24 V (see fig. 3).
We recommend that you use power supplies of the same model and an anti-parallel diode, of an appropriate size to resist the maximum current of the power supply.

POWER SIGNAL OK: this is found on all CSF, CSG, and CWS models. The 1A / 30Vdc contact commutates when output voltage falls below the threshold of -10% of nominal voltage, in the case of a short circuit on the output line or an overload that exceeds the specifications, or due to network failure.

100-340Vdc POWER SUPPLY: available for certain models (please see technical data), which respect the following:
– power supply of 110…127 Vdc, reduces output current by 25%
– min. voltage allowed 100 Vdc, max 340 for single phase, 280…775 Vdc for single/2-phase, 564… 775Vdc for 3-phase (please see technical data)
– respect input polarity as indicated in the instructions.

Note for power supplies with secondary input from a transformer

ISOLATION: this series of power supply units is not insulated.
TYPE OF USE: they are suitable for use in PELV (Protective Extra Low Voltage, one pole grounded) and SELV (Safety Extra Low Voltage, no pole grounded).
The transformer used must have double or reinforced isolation in accordance with CEI 14.6 / EN 60742.
In the case of use in PELV circuits, only ground one pole of the 24 Vdc of the power supply unit. In the case of use in SELV circuits, do not ground the input grounding terminal.
Grounding one pole of the secondary of the transformer and the 24Vdc of the power supply would damage the power supply.

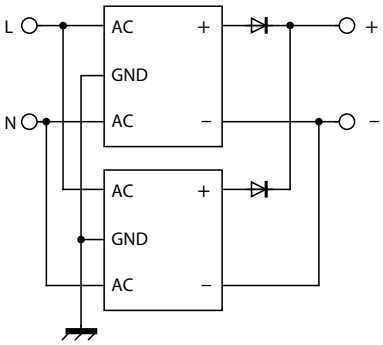


Figure 1

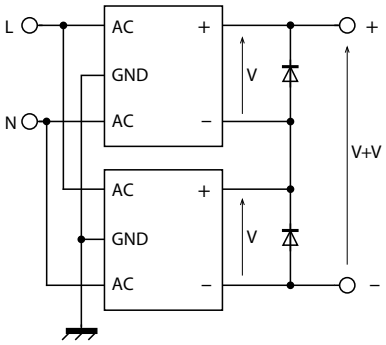


Figure 2

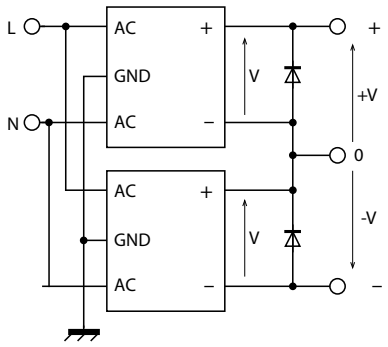


Figure 3

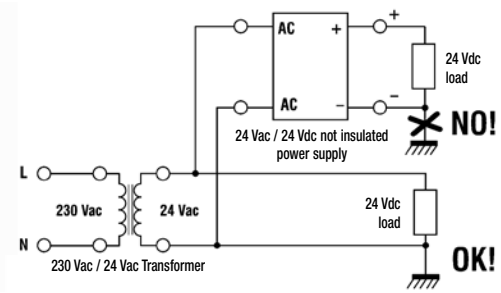


Figure 4

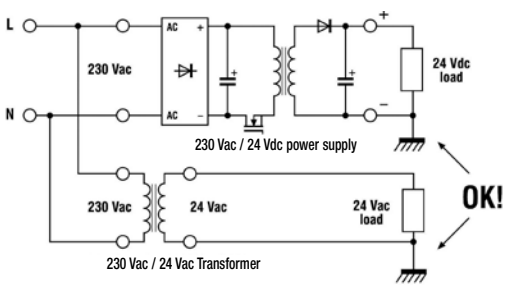


Figure 5

Power supply quick selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

Single-phase switching power supply - Cool Power Series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
12…15 Vdc	6 A	90…264 Vac / 100...345 Vdc	(1) (7) (8) (9)	CSF85B	XCSF85B	17
24 Vdc	1.2 A	90…264 Vac / 100...320 Vdc	(1) (9)	CSF30C	XCSF30C	16
24 Vdc	3.5 A	90…264 Vac / 100...345 Vdc	(1) (7) (9)	CSF85C	XCSF85C	17
24 Vdc	3.5 A	90…264 Vac / 100...345 Vdc	(1) (6) (7) (9)	CSF85CP	XCSF85CP	17
24 Vdc	5 A	90…264 Vac / 100...345 Vdc	(1) (7) (9)	CSF120C	XCSF120C	18
24 Vdc	5 A	90…264 Vac / 100...345 Vdc	(1) (6) (7) (9)	CSF120CP	XCSF120CP	18
24 Vdc	10 A	120 Vac / 230 Vac	(2) (7)	CSF240C	XCSF240C	19
24 Vdc	10 A	120 Vac / 230 Vac	(2) (6) (7)	CSF240CP	XCSF240CP	19
24 Vdc	20 A	120 Vac / 230 Vac	(2) (6) (7)	CSF500C	XCSF500C	20
48 Vdc	2.5 A	90…264 Vac / 100...345 Vdc	(1) (6) (7)	CSF120DP	XCSF120DP	18
48 Vdc	5 A	120 Vac / 230 Vac	(2) (6) (7)	CSF240DP	XCSF240DP	19
48 Vdc	10 A	120 Vac / 230 Vac	(2) (6) (7)	CSF500D	XCSF500D	20

Single-phase switching power supply - Easy Power Series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
24 Vdc	3.5 A	90…264 Vac	(1)	CSL85C	XCSL85C	23
24 Vdc	5 A	90…264 Vac	(1)	CSL120C	XCSL120C	24
24 Vdc	10 A	120 Vac / 230 Vac	(2)	CSL240C	XCSL240C	25
24 Vdc	20 A	230 Vac	-	CSL481C	XCSL481C	26

Single-phase switching power supply - Domotic Power Series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
5…15 Vdc	3...1.5 A	90…264 Vac / 100...345 Vdc	(1) (8) (9)	CSD30E	XCSD30E	12
±12…±15	0.6 A	90…264 Vac / 100...345 Vdc	(1) (8) (9)	CSD30F	XCSD30F	12
12 Vdc	1.2 A	90…264 Vac / 100...315 Vdc	(1) (9)	CSD15B	XCSD15B	11
12…15 Vdc	3.5…3 A	90…264 Vac / 100...345 Vdc	(1) (8) (9)	CSD50B	XCSD50B	13
24 Vdc	0.6 A	90…264 Vac / 100...315 Vdc	(1) (9)	CSD15C	XCSD15C	11
24 Vdc	1.2 A	90…264 Vac / 100...345 Vdc	(1) (9)	CSD30C	XCSD30C	12
24 Vdc	3 A	90…264 Vac / 100...345 Vdc	(1) (9)	CSD70C	XCSD70C	14

Single-phase, 2-phase, 3-phase switching power supply - Universal Power Series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
12…15 Vdc	8…7 A	1-2x 230-400-500 Vac	(1) (3) (7) (8) (9)	CSW121B	XCSW121B	28
12…15 Vdc	16…15 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (7) (8) (9)	CSW241B	XCSW241B	29
24 Vdc	5 A	1-2x 230-400-500 Vac	(1) (3) (7) (9)	CSW121C	XCSW121C	28
24 Vdc	10 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (7) (9)	CSW241C	XCSW241C	29
24 Vdc	20 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (7) (9)	CSW481C	XCSW481C	30
24 Vdc	40 A	1-2x 230-400-500 Vac	(3) (6) (7)	CSW960CP	XCSW960CP	31
48 Vdc	5 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (6) (7) (9)	CSW241DP	XCSW241DP	29
48 Vdc	10 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (7) (9)	CSW481D	XCSW481D	30
72 Vdc	3.3 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (6) (7) (8) (9)	CSW241G	XCSW241G	29
72 Vdc	6 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (7) (8) (9)	CSW481G	XCSW481G	30

Power supply quick selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

3-phase switching power supply - Triple Power Series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
24 Vdc	20 A	3x 400-500 Vac	(4) (7)	CSG481C	XCSG481C	33
24 Vdc	20 A	3x 400-500 Vac	(4) (7)	CSG500C	XCSG500C	34
24 Vdc	30 A	3x 400-500 Vac	(4) (7)	CSG720C	XCSG720C	35
24 Vdc	40 A	3x 400-500 Vac	(4) (7)	CSG960C	XCSG960C	36
24 Vdc	100 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401C	XCSG2401C	37
48 Vdc	15 A	3x 400-500 Vac	(4) (6) (7)	CSG720D	XCSG720D	35
48 Vdc	20 A	3x 400-500 Vac	(4) (6) (7)	CSG960D	XCSG960D	36
48 Vdc	50 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401D	XCSG2401D	37
72 Vdc	6.7 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG500G	XCSG500G	34
72 Vdc	13.3 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG960G	XCSG960G	36
72 Vdc	33 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401G	XCSG2401G	38
170 Vdc	14 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401R	XCSG2401R	38

Switching power supplies in IP65 case

Output voltage	Output current	Input type	Input voltage	Notes	Type	Cat. No.	Page
24 Vdc	5 A	Single phase	90…264 Vac / 100...345 Vdc	(1) (7) (9)	CSF565	XCSF565	21

Power supply with input from a transformer

Output voltage	Output current	Input type	Input voltage	Notes	Type	Cat. No.	Page
1.2…24 Vdc	1.5 A	From transformer	9…26 Vac	(5) (8)	CL1R	XCL1R	41
1.2…24 Vdc	5 A	From transformer	9…26 Vac	(5) (8)	CL5R	XCL5R	41

Filtered power supply with not stabilised output

Output voltage	Output current	Input type	Input voltage	Notes	Type	Cat. No.	Page
12…24 Vdc	6 A	From transformer	9…20 Vac	(5)	AR6	XAR6	42

DC/DC isolated converters

Input voltage	Output voltage	Output current	Notes	Type	Cat. No.	Page
12 Vdc	24 Vdc	5 A	(9)	CSA120BC	XCSA120BC	39
24 Vdc	12…15 Vdc	7 A	(8) (9)	CSA120CB	XCSA120CB	39
24 Vdc	24 Vdc	5 A	(9)	CSA120CC	XCSA120CC	39
48 Vdc	24 Vdc	5 A	(9)	CSA120DC	XCSA120DC	39
110 Vdc	24 Vdc	10 A	(6) (7) (9)	CSA240FC	XCSA240FC	40

(All wide range single-phase power supplies may be powered at 110 Vdc)

Notes

(1) wide range single-phase input
(2) double range single-phase input
(3) 2-phase input
(4) 3-phase input
(5) secondary input from a transformer
(6) redundant version
(7) with failure contact
(8) with adjustable output
(9) DC/DC converter

Modular switching power supply - CSD Series

DOMOTIC POWER

Single-phase switching power supply with power up to 70W for use in civil and industrial automation applications. The technical and design characteristics of the housing, with standard modular DIN measurements for installation in control units **were planned to optimise use in home automation.** The performance level and **compact size** also make it an excellent solution for electrical panels and shallow containers.
High output and a contained working temperature support energy savings and longer component life.

Suggested uses

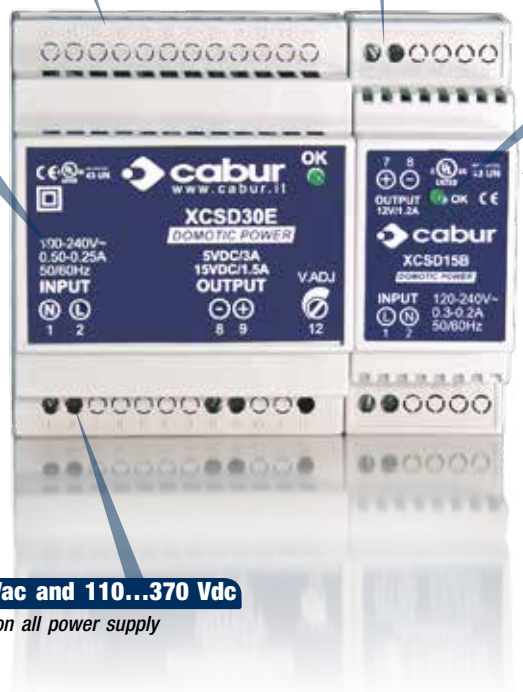
- Industrial automation applications
- Civil automation applications
- General applications in systems installed using small remote panels

Main features

- The 90…264 Vac and 110…370 Vdc inputs, make it suitable for use on all power supply networks.
- These are Isolation Class 2 power supplies that do not require a grounding connection, which reduces the times and costs of installation in remote panels and surveillance and monitoring systems.
- Their high efficiency reduces energy consumption and operating temperature and allows for use in small housings.
- The large power reserve allows continuous current to be supplied up to at least +50% higher than the rated value, ensuring safety and reliability.
- Short-circuit and overload protection designed to deliver peak currents more than 150% higher than the rated value required by heavy loads.
- Thermal protection prevents failure in cases of prolonged overload at high ambient temperatures.
- Thanks to the high performance and excellent ventilation of internal the components, they are greatly reduced in size and have a degree of protection from accidental contacts of IP20 per IEC529.

Short-circuit and overload protection
Designed to deliver the typical peak currents required by medium loads

Compact size
Ideal for modular control units and shallow containers



High efficiency
Designed to save energy and reduce operating temperature

Power boost
The output power supplied reaches up to 130% of the rated value.

Input 90…264 Vac and 110…370 Vdc
Appropriate for use on all power supply networks

Single-phase switching power supply 120-230 Vac - output power 15 W

- Single-phase input 90…264 Vac and DC 100…315 Vdc
- Short circuit, overload, over temperature, input overvoltage protection
- Isolation Class 2, does not require grounding connection
- Compact dimensions
- Suitable for SELV and PELV circuits

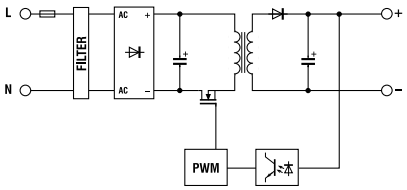
c UL us LISTED E203601

CE

NOTES

The depth measurement includes rail clamp clearance.
(2) Over 45°C apply the following derating:
version C: -0.015 A/°C; version B: -0.03 A/°C.
(3) The current deliverable by the power supply also depends on the line resistance

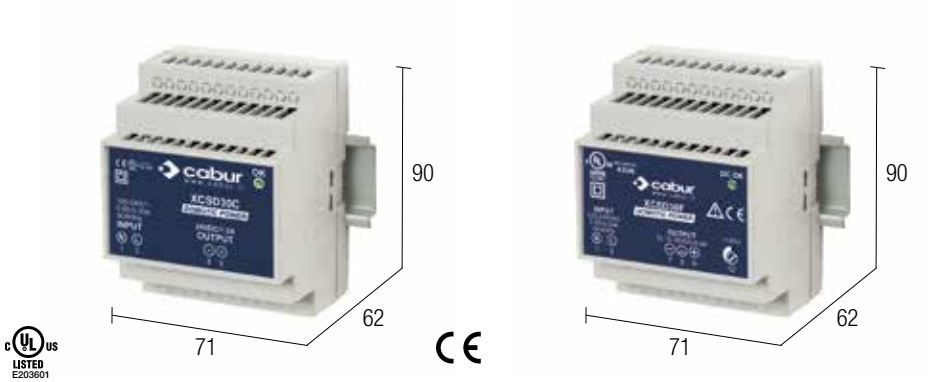
BLOCK DIAGRAM



VERSIONS	Code XCSD15C		Code XCSD15B	
Output 24 Vdc 0.6 A	**CSD15C**			
Output 24 Vdc 0.6 A redundant version		–		
Output 12 Vdc 1.2 A			**CSD15B**	
Output 48 Vdc 0.3 A				–
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…315 Vdc)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	0.3 A / 0.16 A ± 10%			
Inrush peak current	< 5 A			
Power factor	> 0.6			
Internal protection fuse	T 1 A replaceable			
External protection on AC line	circuit breaker 2 A characteristic C - fuse: T 2 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc** ± 1%		**12 Vdc** ± 0.5 Vdc	
Output adjustable range	—		—	
Continuous current	**0.6 A** at 50°C (2)		**1.2 A** at 50°C (2)	
Overload limiting current	1.08 A (3)		2.16 A (3)	
Short circuit peak current	—		—	
Load regulation	< 1%		< 1%	
Ripple at nominal ratings	≤ 30 mVpp		≤ 30 mVpp	
Hold up time (Uin 120 / 230 Vac)	>12 ms / >20 ms		>12 ms / >20 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK"			
Alarm contact threshold	–		–	
Parallel connection	possible		possible	
Redundant parallel connection	possible with external ORing diode		possible with external ORing diode	
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>85% / >87%			
Dissipated power (Uin 120 / 230 Vac)	2.5 W / 2.2 W			
Operating temperature range	–20...+60°C, with derating above 45°C/thermal protection (2)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	class 2 without PE connection			
Output/PE isolation	class 2 without PE connection			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4			
MTBF at 25°C and nominal ratings	>750'000 h according to SN 29500 / >250'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² screw-clamp terminal blocks			
Housing material	UL94V-0 plastic			
Approximate Weight	130 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac - output power 30 W

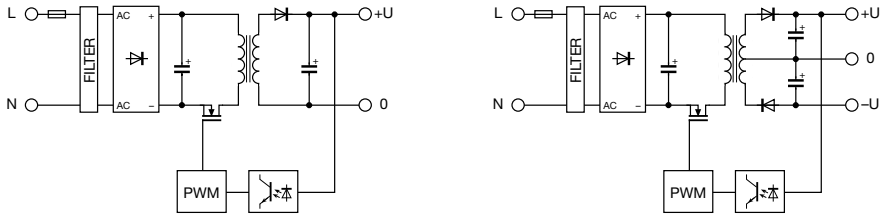
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input overvoltage protection
- Isolation Class 2, does not require grounding connection
- Compact dimensions
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes rail clamp clearance.
(2) Over 45°C apply the following derating: versions C and F: -0.03 A/°C; version E: -0.08…-0.04 A/°C.
(3) The current deliverable by the power supply also depends on the line resistance.
(4) The current depends on the adjusted output voltage: 3.3A at 5Vdc, 2A at 9Vdc, 2.2A at 12Vdc, 1.5A at 15Vdc.

BLOCK DIAGRAM



VERSIONS	Code XCSD30C		Code XCSD30E	Code XCSD30F
Output 24 Vdc 1.2 A	**CSD30C**			
Output 24 Vdc 1.2 A redundant version			–	
Output 5…15 Vdc 3.3…1.5 A		**CSD30E**		
Output ±12...±15 Vdc 0.6 A				**CSD30F**
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	0.55 A / 0.28 A ± 10%	0.45 A / 0.25 A ± 10%		0.4 A / 0.2 A ± 10%
Inrush peak current	< 13 A	< 13 A		< 13 A
Power factor	> 0.6			
Internal protection fuse	Replaceable T 2 A			
External protection on AC line	circuit breaker 3 A characteristic C - fuse: T 3.15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc** ± 1%	**5…15 Vdc**		**±12...±15 Vdc**
Output adjustable range	—	5…15 Vdc		±12...±15 Vdc
Continuous current	**1.2 A** at 50°C (2)	**3.3…1.5 A** at 50°C (2)(4)		**2x0.6 A** at 50°C (2)
Overload limiting current	1.6 (3)	4 A (3)		>2x0.8 A (3)
Short circuit peak current	—	—		—
Load regulation	< 1%	< 1%		< 1%
Ripple at nominal ratings	≤ 50 mVpp	≤ 50 mVpp		≤ 50 mVpp
Hold up time (Uin 120 / 230 Vac)	>30 ms / >60 ms	>50 ms / >100 ms		>50 ms / >100 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK"			
Alarm contact threshold	–	–	–	–
Parallel connection	possible	possible		possible
Redundant parallel connection	possible with external ORing diode	possible with external ORing diode		possible with external ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>85% / >87%	>87% / >89%		>87% / >89%
Dissipated power (Uin 120 / 230 Vac)	5.1 W / 4.3 W	4.0 W / 3.4 W		1.6 W / 1.3 W
Operating temperature range	–20...+60°C, with derating above 45°C/thermal protection (2)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	class 2 without PE connection			
Output/PE isolation	class 2 without PE connection			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>750'000 h according to SN 29500 / >250'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² fixed screw terminal blocks			
Housing material	UL94V-0 plastic			
Approximate weight	200 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac - output power 50 W

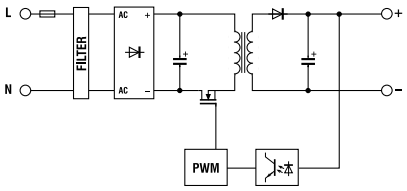
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input overvoltage protection
- Isolation Class 2, does not require grounding connection
- Compact dimensions
- Suitable for SELV and PELV circuits

c UL us LISTED E203601

NOTES

The depth measurement includes rail clamp clearance.
(2) With an input powered at 100...127 Vdc, using constant power and Ta> 45°C, the outrush current is reduced by 25%
(3) Over 45°C apply the following derating: version C: -0.06 A/°C; version B: -0.085 A/°C.
(4) The value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSD50B		
Output 24 Vdc 2.2 A	–		
Output 24 Vdc 2.2 A redundant version			
Output 12…15 Vdc 3.5...3 A		**CSD50B**	
Output 48 Vdc 1.1 A			–
INPUT TECHNICAL DATA			
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (2)		
Frequency	47...63 Hz		
Current with nominal Iout (Uin 120 / 230 Vac)	0.9 A / 0.5 A ± 10%		
Inrush peak current	< 15 A		
Power factor	> 0.6		
Internal protection fuse	Replaceable T 2 A		
External protection on AC line	circuit breaker 3 A characteristic C - fuse: T 3.15 A		
OUTPUT TECHNICAL DATA			
Output rated voltage		**12…15 Vdc**	
Output adjustable range		12…15 Vdc	
Continuous current		**3.5…3 A** at 50°C (3)	
Overload limiting current		4.37…3.75 A (4)	
Short circuit peak current		—	
Load regulation		< 1%	
Ripple at nominal ratings		≤ 50 mVpp	
Hold up time (Uin 120 / 230 Vac)		>20 ms / >40 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection		
Status display	Green LED "DC OK"		
Alarm contact threshold		–	
Parallel connection		possible	
Redundant parallel connection		possible with external ORing diode	
GENERAL TECHNICAL DATA			
Efficiency (Uin 120 / 230 Vac)		>85% / >88%	
Dissipated power (Uin 120 / 230 Vac)		7.9 W / 6.1 W	
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)		
Input/output isolation	3 kVac / 60 s SELV output		
Input/PE isolation	class 2 without PE connection		
Output/PE isolation	class 2 without PE connection		
Safety standards	EN 60950-1+A1+A2+A12, UL 508		
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4		
MTBF at 25°C and nominal ratings	>750'000 h according to SN 29500 / >250'000 h according to MIL Std. HDBK 217F		
Overvoltage category / Pollution degree	II / 2		
Protection degree	IP 20 IEC 529, EN60529		
Connection type	2.5 mm² fixed screw terminal blocks		
Housing material	UL94V-0 plastic		
Approximate weight	200 g		
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		

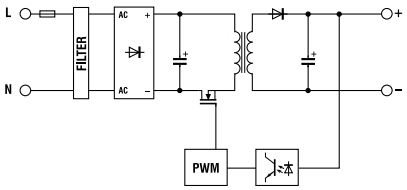
Single-phase switching power supply 120-230 Vac - output power 70 W

- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input overvoltage protection
- Isolation Class 2, does not require grounding connection
- Compact dimensions
- Suitable for SELV and PELV circuits

NOTES

The depth measurement includes rail clamp clearance.
(2) With an input powered at 100...127 Vdc, using constant power and Ta> 45°C, the outrush current is reduced by 25%
(3) Over 55°C apply the following derating: version C: -0.15 A/°C.
(4) The value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSD70C			
Output 24 Vdc 3 A	**CSD70C**			
Output 24 Vdc 3 A redundant version		–		
Output 12…15 Vdc 5…4 A			–	
Output 48 Vdc 1.5 A				–
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	1.25 A / 0.8 A ± 10%			
Inrush peak current	< 15 A			
Power factor	> 0.6			
Internal protection fuse	T 2 A non-replaceable			
External protection on AC line	circuit breaker 4 A characteristic C - fuse: T 3.15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	24...27.5 Vdc			
Continuous current	**3 A** at 55°C (3)			
Overload limiting current	4 A (4)			
Short circuit peak current	—			
Load regulation	< 1%			
Ripple at nominal ratings	≤ 60 mVpp			
Hold up time (Uin 120 / 230 Vac)	>15 ms / >30 ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset			
Status display	Green LED "DC OK"			
Alarm contact threshold	–			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>87% / >89%			
Dissipated power (Uin 120 / 230 Vac)	10.8 W / 8.9 W			
Operating temperature range	–20...+60°C, with derating above 55°C (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	class 2 without PE connection			
Output/PE isolation	class 2 without PE connection			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>750'000 h according to SN 29500 / >250'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² fixed screw terminal blocks			
Housing material	UL94V-0 plastic			
Approximate weight	250 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Switching power supplies - CSF Series

COOL POWER

Single-phase switching power supply with DIN-rail, designed specifically for applications in command and control panels for industrial automation and process control. Capable of delivering +60% to +80% nominal current for a prolonged period of time while maintaining a constant output voltage and equipped with a voltage threshold-controlled failure contact which is triggered when the voltage drops below 90% of the rated value. **With these features and numerous international certifications, this range of power supplies enables designers to meet the requirements of the Machinery Directive EN 60204-1,** allowing the protection devices connected to the output to trigger quickly, safely and selectively, thus ensuring continuity of service to the other parts of the system.

Suggested uses

- Applications in industrial automation with high performance and reliability requirements.
- Applications which require selectable overcurrent protections on DC lines
- Applications in machine automation with high command and control voltage reliability and safety requirements
- Applications in process control
- Uses with heavy loads
- Civil automation applications

Main features

- The 90…264 Vac and 110…370 Vdc inputs, make it suitable for use on all power supply networks.
- Threshold failure contact which is triggered when the voltage falls below 90% of the rated value.
- Versions with integrated ORing diode for redundant parallel connection, preventing the need for external devices and reducing bulk and installation costs.
- High efficiency reduces energy consumption and the operating temperature of components and allows use in small panels and severe environmental conditions.
- Large power reserve allows for delivery of at least +60-80% nominal current and voltage for several minutes, ensuring safety and reliability.
- Output voltage is adjustable and the output is protected against input surge from the DC line generated from inductive loads.
- The output is equipped with dual electronic protection which prevents dangerous voltages for powered components in the event of an internal fault.
- Thermal protection prevents faults in case of prolonged overload with high ambient temperatures.
- Construction ensures excellent ventilation capacity of internal components, with reduced sizes and a degree of protection from accidental contacts of IP20 per IEC529.
- Thanks to their high performance and excellent ventilation capacity, they are among the smallest on the market.

Extremely compact dimensions

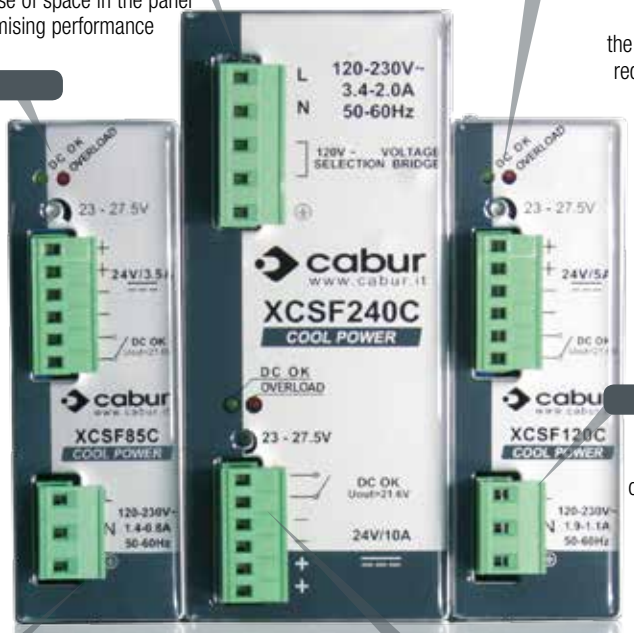
Among the smallest on the market, optimising the use of space in the panel without compromising performance

Short-circuit and overload protection

Designed to deliver the strong peak currents required by heavy loads

Power boost

The output power reaches 120% of the nominal value for several minutes, up to 160% in the event of overload, and up to 300% during a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional modules.



High efficiency

Designed to save energy and reduce operating temperature

Intelligent failure contact

Notifies when the output voltage falls below 90% of the rated value once a threshold is surpassed

Input 90…264 Vac and 110…370 Vdc

Appropriate for use on all single-phase power supply networks

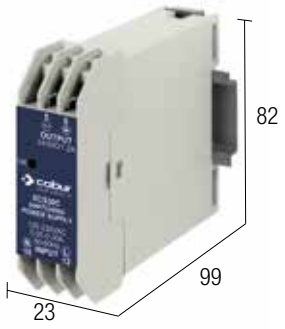
Special power supplies for engines DC, Brushless, and relative drives

New 48Vdc and 72-85Vdc models have been introduced, designed to reliably power engines in DC. They:

- supply peak power equal to even 4-5 times the nominal current, which is required by the engine during the peak phase
- have an output stage protected from overvoltage generated by the engines and drives during braking, which could otherwise cause malfunctions or cause the power supply to lose control over output voltage stability
- Provide output voltage at 48Vdc, and 72…85Vdc. By increasing the voltage of the engine power supply, the same power can be obtained at lower current, with notable advantages for performance, engine construction, connection wires, and drives.

Single-phase switching power supply 120-230 Vac - output power 30 W

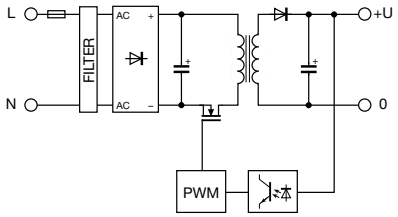
- Single-phase input 90…264 Vac and DC 100…320 Vdc
- Short circuit, overload and overvoltage protection
- Isolation Class 2, does not require grounding connection
- Compact dimensions
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) With an input powered at 100...127 Vdc, using constant power and Ta> 45°C, the outrush current is reduced by 25%
(3) Over 50°C apply the following derating: version C: -0.03 A/°C; version B: -0.038 A/°C; version F: -0.013 A/°C
(4) The value of the current supplied by the power supply also depends on the line resistance.

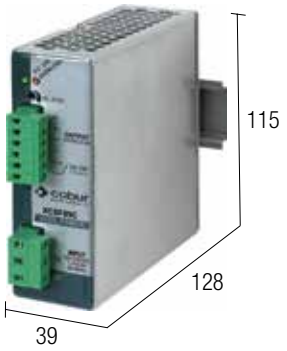
BLOCK DIAGRAM



VERSIONS	Code XCSF30C			
Output 24 Vdc 1.2 A	**CSF30C (1)**			
		-		
				-
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…320 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	0.55 A / 0.3 A ± 10%	0.35 A / 0.2 A ± 10%		
Inrush peak current	< 25 A			
Power factor	> 0.60			
Internal protection fuse	Non-replaceable T 1.25 A			
External protection on AC line	circuit breaker 2 A characteristic C - fuse: T 2 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc** ± 1%			
Output adjustable range	—			
Continuous current	**1.2 A** at 50°C (3)			
Overload limiting current	1.4 A (4)			
Short circuit peak current	—	—		—
Load regulation	< 1%			
Ripple at nominal ratings	≤ 50 mVpp			
Hold up time (Uin 120 / 230 Vac)	>10 ms / >30 ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset			
Status display	Green LED "DC OK"			
Alarm contact threshold	—			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>86% / >87%			
Dissipated power (Uin 120 / 230 Vac)	4.7 W / 4.3 W			
Operating temperature range	–20...+60°C, with derating over 50°C (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	class 2 without PE connection			
Output/PE isolation	class 2 without PE connection			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4			
MTBF at 25°C and nominal ratings	>750'000 h according to SN 29500 / >250'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² fixed screw terminal blocks			
Housing material	UL94V-0 plastic			
Approximate weight	140 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac - output power 85 W

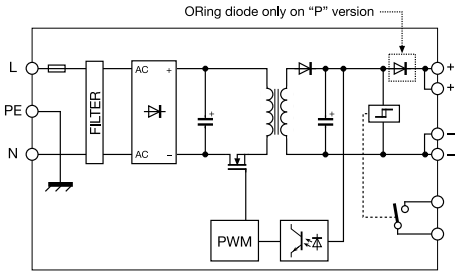
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- Failure contact with threshold Uout -10%
- Compact dimensions
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes rail clamp clearance.
(2) With an input powered at 100...127 Vdc, using constant power and Ta> 45°C, the outrush current is reduced by 25%
(3) Over 45°C apply the following derating: -0.06 A/°C for version C, CP and CPH; -0.10 A/°C for version B
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

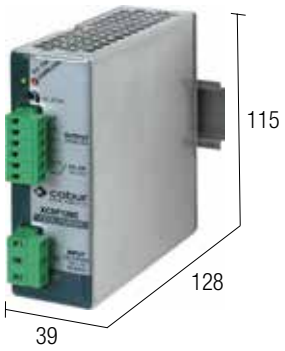
BLOCK DIAGRAM



VERSIONS	Code XCSF85C	Code XCSF85CP	Code XCSF85B	
Output 24 Vdc 3.5 A	**CSF85C**			
Output 24 Vdc 3.5 A redundant version		**CSF85CP**		
Output 12…15 Vdc 6 A			**CSF85B**	
Output 48 Vdc 1.8 A				–
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	1.6 A / 0.9 A ± 10%			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	Replaceable T 2 A			
External protection on AC line	circuit breaker 4 A characteristic C - fuses: T 4 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**12…15 Vdc**	
Output adjustable range	23...27.5 Vdc		12…15 Vdc	
Continuous current	**3.5 A** at 50°C (3)		**6 A** at 50°C (3)	
Overload limiting current	6 A for >30 s with Uout >90% Un (4)		9 A for >30 s with Uout >90% Un (4)	
Short circuit peak current	10 A for 50 ms (4)		10 A for 50 ms (4)	
Load regulation	< 1%		< 1%	
Ripple at nominal ratings	≤ 70 mVpp		≤ 30 mVpp	
Hold up time (Uin 120 / 230 Vac)	>20 ms / >70 ms		>15 ms / >60 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	21.6 Vdc		10.8 Vdc	
Parallel connection	possible		possible	
Redundant parallel connection	possible with external ORing diode	already fitted with internal ORing diode	possible with external ORing diode	
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>86% / >90%		>83% / >87%	
Dissipated power (Uin 120 / 230 Vac)	14 W / 10 W		17 W / 13 W	
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	1.5 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² removable screw terminal blocks			
Housing material	aluminium			
Approximate weight	400 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac - output power 120 W

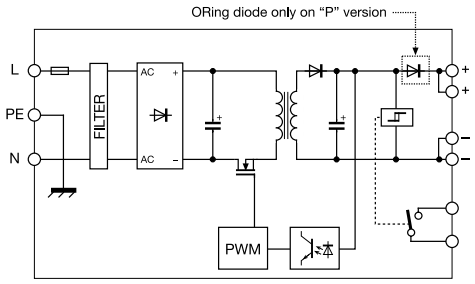
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- Failure contact with threshold Uout -10%
- Compact dimensions
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes terminal block and rail clamp clearance.
(2) With an input powered at 100...127 Vdc, using constant power and Ta> 45°C, the outrush current is reduced by 25%
(3) Over 45°C apply a derating -0.08 A/°C for version C, CP and CPH; -0.12 A/°C for version B; -0.05 A/°C for version DP;
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

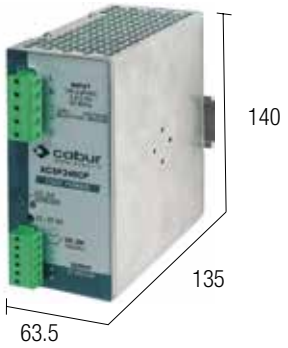
BLOCK DIAGRAM



VERSIONS	Code XCSF120C	Code XCSF120CP		Code XCSF120DP
Output 24 Vdc 5 A	**CSF120C**			
Output 24 Vdc 5 A redundant version		**CSF120CP**		
Output 12…15 Vdc 7 A			-	
Output 48 Vdc 2.5 A redundant version				**CSF120DP**
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	1.9 A / 1.1 A ± 10%			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	Replaceable T 3.15 A			
External protection on AC line	circuit breaker 4 A characteristic C - fuses: T 4 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			**48 Vdc**
Output adjustable range	23...27.5 Vdc			45…55 Vdc
Continuous current	**5 A** at 45°C (3)			**2.5 A** at 45°C (3)
Overload limiting current	8 A for >30 s with Uout >90% Un (4)			8 A for >30 s with Uout >90% Un (4)
Short circuit peak current	15 A for 50 ms (4)			7.5 A for 50 ms (4)
Load regulation	< 1%			< 1%
Ripple at nominal ratings	≤ 30 mVpp			≤ 30 mVpp
Hold up time (Uin 120 / 230 Vac)	>17 ms / >72 ms			>16 ms / >81 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	<21.6 Vdc			<43.2 Vdc
Parallel connection	possible			possible
Redundant parallel connection	possible with external ORing diode	already fitted with internal ORing diode		already fitted with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>86% / >90%			>86% / >90%
Dissipated power (Uin 120 / 230 Vac)	19 W / 13 W			20 W / 13 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	1.5 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² removable screw terminal blocks			
Housing material	aluminium			
Approximate weight	400 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac - output power 240 W

- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- Failure contact with threshold Uout -10%
- Compact dimensions
- Suitable for SELV and PELV circuits



NOTES

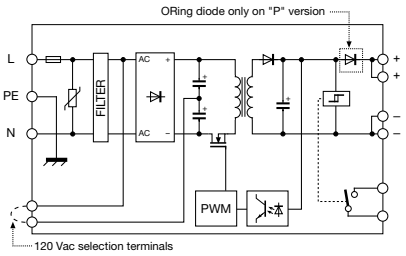
The depth measurement includes terminal block and rail clamp clearance.

(2) Double range input with selection via external bridge, direct current power supply only between 300 and 345 Vdc

(3) Over 45°C apply the following derating: -0.17 A/°C for version C, CP and CPH; -0.27 A/°C for version B; -0.08 A/°C for version DP;

(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

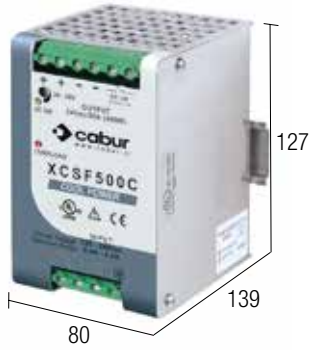
BLOCK DIAGRAM



VERSIONS	Code XCSF240C	Code XCSF240CP		XCSF240DP
Output 24 Vdc 10 A	**CSF240C**			
Output 24 Vdc 10 A redundant version		**CSF240CP**		
Output 12…15 Vdc 16 A			-	
Output 48 Vdc 5 A redundant version				**CSF240DP**
INPUT TECHNICAL DATA				
Input rated voltage	**120 - 230 Vac** (range 90…132 Vac / 185…264 Vac / 300...345 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	3.5 A / 1.8 A ± 10%			
Inrush peak current	< 35 A			
Power factor	> 0.6			
Internal protection fuse	Replaceable T 6.3 A			
External protection on AC line	circuit breaker 10 A characteristic C - fuses: T 10 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			**48 Vdc**
Output adjustable range	23...27.5 Vdc			45…55 Vdc
Continuous current	**10 A** at 45°C (3)			**5 A** at 45°C (3)
Overload limiting current	15 A for >30 s with Uout >90% Un (4)			7.5 A for >30 s with Uout >90% Un (4)
Short circuit peak current	>25 A for 400 ms (4)			>25 A for 400 ms (4)
Load regulation	< 1%			< 1%
Ripple at nominal ratings	≤ 50 mVpp			≤ 50 mVpp
Hold up time (Uin 120 / 230 Vac)	>30 ms / >60 ms			>30 ms / >60 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	21.6 Vdc			43.2 Vdc
Parallel connection	possible			possible
Redundant parallel connection	possible with external ORing diode	already fitted with internal ORing diode		already fitted with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>88% / >90%			>89% / >89%
Dissipated power (Uin 120 / 230 Vac)	32 W / 27 W			28 W / 28 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	1.5 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² removable screw terminal blocks			
Housing material	aluminium			
Approximate weight	920 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac - output power 500 W

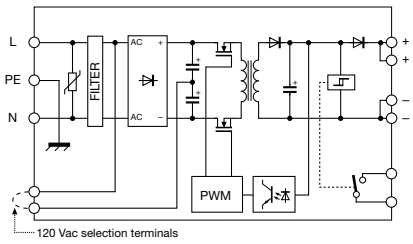
- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- Compact dimensions
- Suitable for SELV and PELV circuits
- Failure contact with threshold Uout -10%



NOTES

The depth measurement includes rail clamp clearance.
(2) Dual voltage input with selection through external jumper.
(3) Over 45°C apply the following derating:
-0.34 A/°C for version C; -0.17 A/°C for version D.
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSF500C			Code XCSF500D
Output 24 Vdc 20 A	–			
Output 24 Vdc 20 A redundant version		**CSF500C**		
Output 12…15 Vdc 40 A			–	
Output 48 Vdc 10 A redundant version				**CSF500D**
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…132 Vac / 185…264 Vac) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 120 / 230 Vac)	4.1 A / 2 A ± 10%			
Inrush peak current	< 25 A with electronic limiter			
Power factor	> 0.75 with PFC			
Internal protection fuse	—			
External protection on AC line	circuit breaker 16 A characteristic C - fuses: T 15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			**48 Vdc**
Output adjustable range	24...28 Vdc			45…55 Vdc
Continuous current	**20 A** at 45°C (3)			**10 A** at 45°C (3)
Overload limiting current	30 A for >5 s with Uout >90% Un (4)			15 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>50 A for 5 s (4)			>50 A for 5 s (4)
Load regulation	< 0.5%			< 0.5%
Ripple at nominal ratings	≤ 50 mVpp			≤ 50 mVpp
Hold up time (Uin 120 / 230 Vac)	>12 ms / >20 ms			>12 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	21.6 Vdc (5)			43.2 Vdc (5)
Parallel connection	possible			possible
Redundant parallel connection	already fitted with internal ORing diode			already fitted with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>92% / >92%			>92% / >92%
Dissipated power (Uin 120 / 230 Vac)	42 W / 42 W			42 W / 42 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	1.5 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	4 and 6 mm² screw-clamp terminal blocks			
Housing material	aluminium			
Approximate weight	1.3 kg			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac in IP65 case

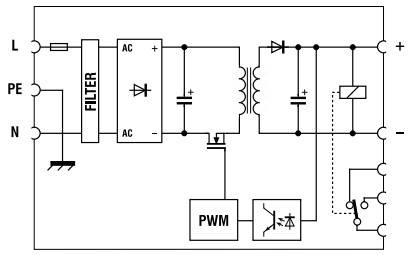
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature and overvoltage input and output protection
- Suitable for installation directly on-board the machine, requiring no protective coating
- With removable screw-fixed IP65 connector
- Suitable for SELV and PELV circuits

LISTED E203601

NOTES

The depth measurement includes terminal block and rail clamp clearance.
(1) With an input powered at 100...127 Vdc, using constant power and Ta> 45°C, the outrush current is reduced by 25%
(2) The value of the current supplied by the power supply also depends on the line resistance.
(3) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



VERSIONS	Code XCSF565
Output 24 Vdc 5 A	**CSF5-65 (3)**

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (1)
Frequency	47...63 Hz
Current with nominal Iout (Uin 120 / 230 Vac)	1.8 A / 1 A ± 10%
Inrush peak current	< 20 A
Power factor	> 0.7
Internal protection fuse	Replaceable T 3.15 A
External protection on AC line	circuit breaker 4 A characteristic C - fuses: T 4 A
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	23...27.5 Vdc
Continuous current	**5 A** at 60°C
Overload limiting current	8 A (2)
Short circuit peak current	—
Load regulation	< 1%
Ripple at nominal ratings	≤ 50 mVpp
Hold up time (Uin 120 / 230 Vac)	>10 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection
Status display	Green LED "DC OK" / failure contact "DC OK"
Alarm contact threshold	—
Parallel connection	possible
Redundant parallel connection	possible with external ORing diode
GENERAL TECHNICAL DATA	
Efficiency (Uin 120 / 230 Vac)	>86% / >90%
Dissipated power (Uin 120 / 230 Vac)	18.6 W / 12.6 W
Operating temperature range	–20...+60°C / thermal protection
Input/output isolation	3 kVac / 60 s SELV output
Input/PE isolation	1.5 kVac / 60 s
Output/PE isolation	0.5 kVac / 60 s
Safety standards	EN 60950-1+A1+A2+A12, UL 508
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² removable screw IP65 connectors
Housing material	aluminium
Approximate weight	1.9 kg
Mounting information	vertical on rail or screwed to panel
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Switching power supply - CSL Series

EASY POWER

Single-phase switching power supply for DIN-rail, for general applications in automation and installation. Offering excellent value for money, these offer a perfect and convenient solution for uses in which the powered loads do not require strong peak currents.
They can deliver over +50% of nominal current for a sustained period, keeping the output voltage stable and ensuring continuity of supply to the system. **With these features, this range of power supplies enables designers to meet the requirements of the Machinery Directive EN 60204-1,** allowing the protection devices connected to the output to trigger quickly, safely and selectively, thus ensuring continuity of service to the other parts of the system.

Suggested uses

- Civil automation applications
- General applications in plant installations

Main features

- Equipped with a 120-230 Vac input, these are suitable for use in all single-phase networks
- High efficiency reduces energy consumption and the operating temperature of components and allows use in small panels and severe environmental conditions.
- Power reserve +50% of nominal current, ensuring safety and reliability.
- Output voltage is adjustable and protected against incoming surge generated by inductive loads on the DC line, and is equipped with a double electronic protection that prevents the powered device from failing in case of an internal malfunction.
- Short-circuit, overload and thermal protection prevents faults in case of prolonged overload with high ambient temperatures.
- Construction ensures optimal capacity of ventilation of internal components, extremely reduced overall dimensions and degree of protection IP20 by accidental contact according to IEC529.
- Offer superior performance, features and reliability compared to other products of a similar power and cost.

-circuit, overload and thermal protection Prevents faults in case of prolonged overload with high ambient temperatures

Adjustable output voltage
Protected against incoming surge generated by inductive loads on the DC line

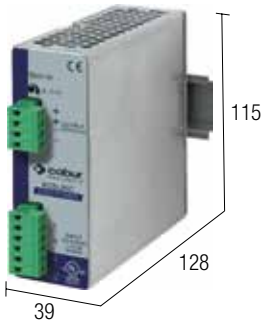
Power boost
The output power reaches 120% of the nominal value for several minutes, up to 150% in the event of overload, and up to 300% during a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional modules.

Extremely compact dimensions
Among the smallest on the market, optimising the use of space in the panel without compromising performance

High performance
Reduces the energy consumption and operating temperature of components and allows for use in small panels and in severe ambient conditions

Single-phase switching power supply 120-230 Vac - output power 85 W

- Single-phase input 90…264 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Ideal for general installation and application environments
- Suitable for SELV and PELV circuits

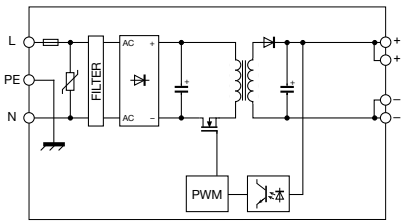


c UL us LISTED E203601

NOTES

The depth measurement includes terminal block and rail clamp clearance.
(3) Over 45°C apply a derating of -0.06 A/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM

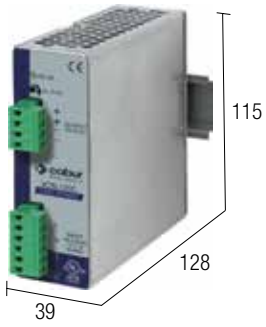


VERSIONS	Code XCSL85C
Output 24 Vdc 3.5 A	**CSL85C**

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…264 Vac)
Frequency	47...63 Hz
Current with nominal Iout (Uin 120 / 230 Vac)	1.6A / 0.9 A ± 10%
Inrush peak current	< 20 A
Power factor	> 0.65
Internal protection fuse	Replaceable T 2 A
External protection on AC line	circuit breaker 4 A characteristic C - fuses: T 4 A
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	23...27.5 Vdc
Continuous current	**3.5 A** at 45°C (3)
Overload limiting current	5.5 A for >30 s with Uout >90% Un (4)
Short circuit peak current	9 A for 50 ms
Load regulation	< 1%
Ripple at nominal ratings	70 mVpp
Hold up time (Uin 120 / 230 Vac)	>20 ms / >70 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection
Status display	Green LED "DC OK"
Alarm contact threshold	—
Parallel connection	possible
Redundant parallel connection	possible with external ORing diode
GENERAL TECHNICAL DATA	
Efficiency (Uin 120 / 230 Vac)	>86% / >90%
Dissipated power (Uin 120 / 230 Vac)	14 W / 10 W
Operating temperature range	–20...+60°C, with derating over 45°C/thermal protection (3)
Input/output isolation	3 kVac / 60 s SELV output
Input/PE isolation	1.5 kVac / 60 s
Output/PE isolation	0.5 kVac / 60 s
Safety standards	EN 60950-1+A1+A2+A12, UL 508
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4
MTBF at 25°C and nominal ratings	>400'000 h according to SN 29500 / >100'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² removable screw terminal blocks
Housing material	aluminium and stainless steel
Approximate weight	400 g
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Single-phase switching power supply 120-230 Vac - output power 120 W

- Single-phase input 90…264 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Ideal for general installation and application environments
- Suitable for SELV and PELV circuits



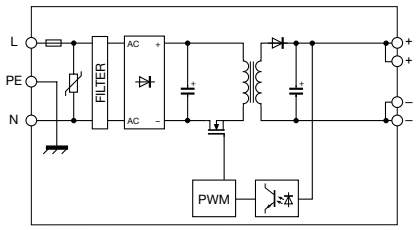
c UL us LISTED E203601

CE

NOTES

The depth measurement includes terminal block and rail clamp clearance.
(3) Over 45°C apply a derating of -0.08 A/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM

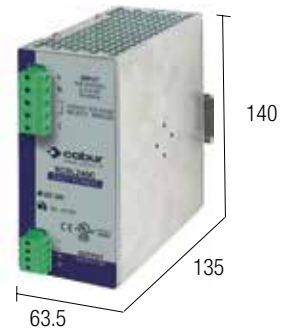


VERSIONS	Code XCSL120C
Output 24 Vdc 5 A	**CSL120C**

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…264 Vac)
Frequency	47...63 Hz
Current with nominal Iout (Uin 120 / 230 Vac)	1.9 A / 1.1 A ± 10%
Inrush peak current	< 20 A
Power factor	> 0.65
Internal protection fuse	Replaceable T 3.15 A
External protection on AC line	circuit breaker 4 A characteristic C - fuses: T 4 A
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	23...27.5 Vdc
Continuous current	**5 A** at 45°C (3)
Overload limiting current	8 A for >30 s with Uout >90% Un (4)
Short circuit peak current	13 A for 50 ms (4)
Load regulation	< 1%
Ripple at nominal ratings	30 mVpp
Hold up time (Uin 120 / 230 Vac)	>17 ms / >72 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection
Status display	Green LED "DC OK"
Alarm contact threshold	—
Parallel connection	possible
Redundant parallel connection	possible with external ORing diode
GENERAL TECHNICAL DATA	
Efficiency (Uin 120 / 230 Vac)	>86% / >90%
Dissipated power (Uin 120 / 230 Vac)	19 W / 13 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)
Input/output isolation	3 kVac / 60 s SELV output
Input/PE isolation	1.5 kVac / 60 s
Output/PE isolation	0.5 kVac / 60 s
Safety standards	EN 60950-1+A1+A2+A12, UL 508
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4
MTBF at 25°C and nominal ratings	>400'000 h according to SN 29500 / >100'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² removable screw terminal blocks
Housing material	aluminium and stainless steel
Approximate weight	400 g
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Single-phase switching power supply 120-230 Vac - output power 240 W

- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Ideal for general installation and application environments
- Suitable for SELV and PELV circuits



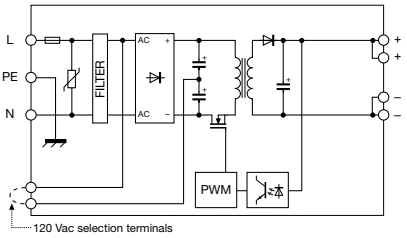
c UL us LISTED E203801

CE

NOTES

The depth measurement includes terminal block and rail clamp clearance.
(2) Dual voltage input with selection through external jumper.
(3) Over 45°C apply a derating equal to -0.17 A/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.
(5) Version available since September 2011

BLOCK DIAGRAM



VERSIONS	Code XCSL240C
Output 24 Vdc 10 A	**CSL240C (5)**

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…132 Vac / 185…264 Vac) (2)
Frequency	47...63 Hz
Current with nominal Iout (Uin 120 / 230 Vac)	3.5A / 1.8 A ± 10%
Inrush peak current	< 35 A
Power factor	> 0.6 / >0.85
Internal protection fuse	Replaceable T 6.3 A
External protection on AC line	circuit breaker 10 A characteristic C - fuses: T 10 A
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	23...27.5 Vdc
Continuous current	**10 A** at 45°C (3)
Overload limiting current	15 A for >30 s with Uout >90% Un (4)
Short circuit peak current	>25 A for 400 ms
Load regulation	< 1%
Ripple at nominal ratings	50 mVpp
Hold up time (Uin 120 / 230 Vac)	>30 ms / >60 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection
Status display	Green LED "DC OK"
Alarm contact threshold	—
Parallel connection	possible
Redundant parallel connection	possible with external ORing diode
GENERAL TECHNICAL DATA	
Efficiency (Uin 120 / 230 Vac)	>88% / >90%
Dissipated power (Uin 120 / 230 Vac)	32 W / 27 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)
Input/output isolation	3 kVac / 60 s SELV output
Input/PE isolation	1.5 kVac / 60 s
Output/PE isolation	0.5 kVac / 60 s
Safety standards	EN 60950-1+A1+A2+A12, UL 508
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4
MTBF at 25°C and nominal ratings	>400'000 h according to SN 29500 / >100'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² removable screw terminal blocks
Housing material	aluminium and stainless steel
Approximate weight	920 g
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Single-phase switching power supply 230 Vac - output power 480 W

- Single-phase input 230 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Ideal for general installation and application environments
- Suitable for SELV and PELV circuits

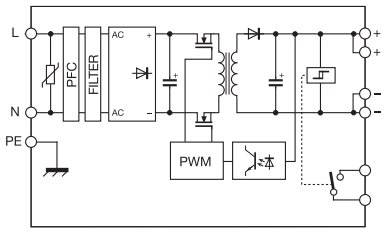
c UL us LISTED E203601

CE

NOTES

The depth measurement includes terminal block and rail clamp clearance.
(3) Over 45°C apply a derating equal to approximately 16 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSL481C
Output 24 Vdc 20 A	**CSL481C**

INPUT TECHNICAL DATA	
Input rated voltage	**230 Vac** (range 187…264 Vac) (2)
Frequency	47...63 Hz
Current with nominal Iout (Uin 120 / 230 Vac)	– / 2 A
Inrush peak current	<20 A
Power factor	> 0.95
Internal protection fuse	-
External protection on AC line	circuit breaker 6 A characteristic C - fuses: T 6.3 A
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	23...27.5 Vdc
Continuous current	**20 A** at 45°C (3)
Overload limiting current	28 A (4)
Short circuit peak current	50 A for 0.3 s
Load regulation	< 1%
Ripple at nominal ratings	≤ 100 mVpp
Hold up time (Uin 120 / 230 Vac)	– / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection
Status display	Green LED "DC OK"
Alarm contact threshold	21.6 Vdc
Parallel connection	possible
Redundant parallel connection	possible with external ORing diode
GENERAL TECHNICAL DATA	
Efficiency (Uin 120 / 230 Vac)	– / >92%
Dissipated power (Uin 120 / 230 Vac)	– / 42 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)
Input/output isolation	3 kVac / 60 s SELV output
Input/PE isolation	2 kVac / 60 s
Output/PE isolation	0.5 kVac / 60 s
Safety standards	EN 60950-1+A11, UL 508
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² removable screw terminal blocks
Housing material	aluminium and stainless steel
Approximate weight	1 kg
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Switching power supply - CSW Series

UNIVERSAL POWER

DIN-rail based switching power supply with universal input 185…550 Vac single/2 /3-phase for industrial automation and process control applications. Input circuit technology makes these immune to overvoltage caused by faults in 3-phase networks with neutral, increasing the reliability of application.
This series offers **greater reliability in industrial environments** compared to single-phase power supplies. The input stage uses components with an operating voltage of 900 V, offering greater resistance to the voltage peaks present in industrial networks than single-phase components. The ability to operate from 185 to 550 Vac allows these power supplies to be used in both 230 V single-phase networks and 400 V 3-phase networks.

Suggested uses

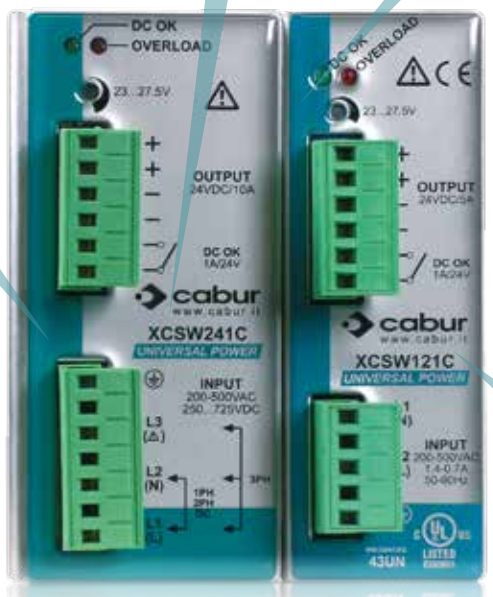
- Wherever maximum flexibility of use is required in single- or 3-phase networks
- Applications in industrial automation and process control
- Uses with heavy loads
- Civil automation applications

Main features

- The 185…550 Vac extended range input is compatible with 230…240 Vac single-phase power, 208 Vac 2-phase and 400…500 Vac 2-phase and 3-phase for maximum adaptability to AC networks, eliminating the need for an isolation transformer.
- The 2-phase input offers reduced bulk, wiring, installation costs and panel space.
- Eliminates the need for a network voltage adaptation transformer.
- Versions with DC OK failure contact
- High efficiency reduces energy consumption and the operating temperature of components and allows use in small panels and severe environmental conditions.
- Large power reserve allows 5 seconds of current to be supplied at least +50% higher than the rated value, ensuring safety and reliability.
- The output is adjustable and protected against incoming surge from the DC line, and is equipped with electronic protection that turns off the output in case of an internal malfunction.
- Short-circuit and overload protection designed to supply peak currents of more than 150% of the rated value required by heavy loads, while the thermal protection prevents faults in case of prolonged overload with high ambient temperatures.
- Construction ensures excellent ventilation capacity of internal components, with reduced sizes and a degree of protection from accidental contacts of IP20 per IEC529.
- Thanks to their high performance and excellent ventilation, they are among the smallest on the market.

185…550 Vac wide range input
Compatible with 230…240 Vac single-phase power, 208 Vac 2-phase and 400…500 Vac 2-phase and 3-phase for maximum adaptability to AC networks, eliminating the need for an isolation transformer.

Power boost
The output power reaches 120% of the nominal value for several minutes, up to 150% in the event of overload, and up to 250% during a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional modules.



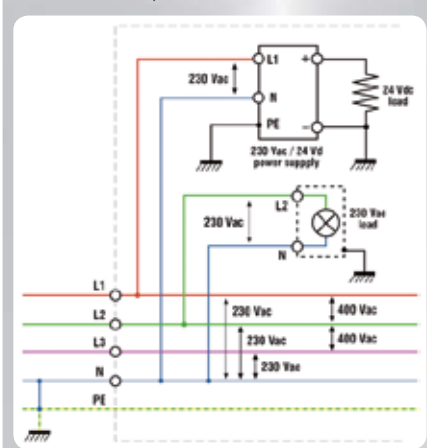
2-phase input
Reduces clutter, wiring, installation costs

High performance
Reduces the energy consumption and operating temperature of components and allows for use in small panels

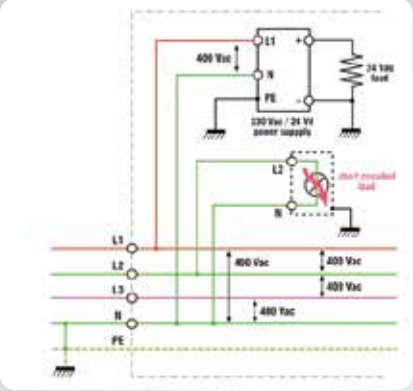
Increased reliability in industrial environments
The input stage uses components with an operating voltage of 900 V, more resistant to the voltage peaks found in industrial networks

Greater reliability

This series offers greater reliability in industrial environments compared to single-phase power supplies.
The input stage uses components with an operating voltage of 900 V, offering greater resistance to the voltage peaks present in industrial networks than single-phase components.
The ability to operate from 185 to 550 Vac makes these power supplies immune to network faults:
With the output powered at 230 Vac (1L-N), in case of a short in another device connected to L2-N, the neutral is increased to around 400 Vac and the input is powered phase-phase until the protection is opened, which in most cases occurs within 300 ms; this is one of the most frequent causes of malfunction in 230 Vac single-phase power supplies in industrial environments (figures 1 and 2)
Another type of fault in 230 Vac single-phase devices with phase-neutral power is due to the accidental disconnection or interruption of the panel neutral by the plant neutral: with no return to the star point, the neutral increases to phase voltage and applies to single-phase loads of around 400 Vac, and malfunction is inevitable.



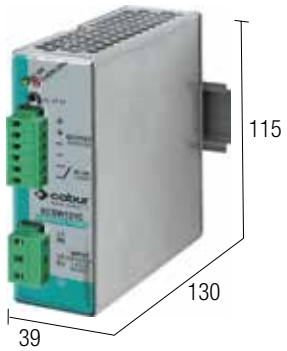
Typical application with 3-phase network with neutral. This is used to obtain a voltage of 230 Vac to power loads (a single lamp in the example) and power supplies.



A single short-circuit on the load will raise the neutral potential and all devices connected to it will be powered between two phases, i.e. at around 340...400 Vac rather than 230 Vac.

1 or 2-phase switching power supply 230-400-500 Vac - output power 120 W

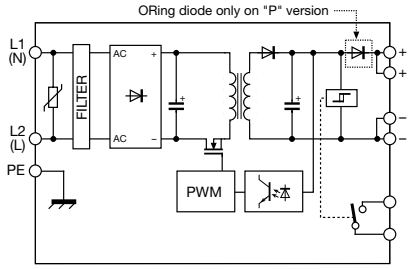
- Single-phase and 2-phase input 185...550 Vac
- High reliability and surge immunity for network failures
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes terminal block and rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) 550 Vdc max for UL508
(3) Over 45°C apply a derating equal to approximately 3 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

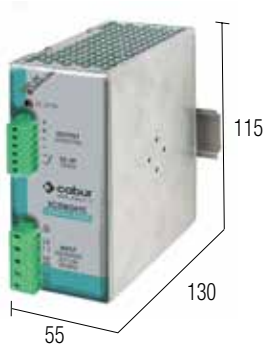
BLOCK DIAGRAM



VERSIONS	Code XCSW121C	Code XCSW121B		
Output 24 Vdc 5 A	**CSW121C**			
Output 12…15 Vdc 7 A		**CSW121B**		
Output 48 Vdc 2.5 A redundant version			-	
Output 72 Vdc 1.5 A redundant version				
INPUT TECHNICAL DATA				
Input rated voltage	1-2x **230-400-500 Vac** (range 187…550 Vac / 270…725 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 230 / 400 Vac)	1.1 A / 0.55 A			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	–			
External protection on AC line	circuit breaker 2x 6 A characteristic C - fuse: 2x T 4 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**	**12…15 Vdc**		
Output adjustable range	24...27.5 Vdc	12…15 Vdc		
Continuous current	**5 A** (3)	**8 A** at 12 Vdc / **7 A** at 15 Vdc		
Overload limiting current	7.5 A for >30 s with Uout >90% Un	10 A for >30 s with Uout >90% Un		
Short circuit peak current	14 A for 0.4 s (4)	20 A for 0.4 s (4)		
Load regulation	< 1%	< 1%		
Ripple at nominal ratings	≤ 100 mVpp	≤ 100 mVpp		
Hold up time (Uin 230 / 400 Vac)	>20 ms / >80 ms	>20 ms / >80 ms		
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	21.6 Vdc	10.8 Vdc		
Parallel connection	possible	possible		
Redundant parallel connection	possible with external ORing diode	possible with external ORing diode		
GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>87% / >87%	>84% / >86%		
Dissipated power (Uin 230 / 400 Vac)	18 W / 18 W	20 W / 17 W		
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	2 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² removable screw terminal blocks			
Housing material	aluminium and stainless steel			
Approximate weight	600 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

1, 2 or 3-phase switching power supply 230-400-500 Vac - output power 240 W

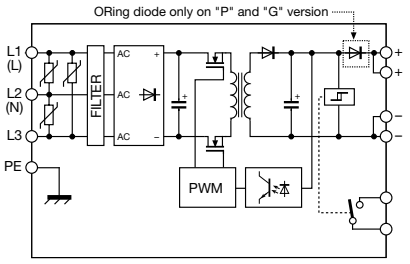
- Single-phase, 2-phase and 3-phase input 185…550 Vac
- High reliability and surge immunity for network failures
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes terminal block and rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) 550 Vdc max for UL508
(3) Over 50°C apply a derating equal to approximately 3 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.
(5) Version CSW241G not suitable for SELV applications.

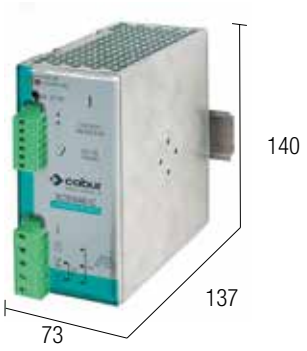
BLOCK DIAGRAM



VERSIONS	Code XCSW241C	Code XCSW241B	Code XCSW241DP	Code XCSW241G
Output 24 Vdc 10 A	**CSW241C**			
Output 12…15 Vdc 16...15 A		**CSW241B**		
Output 48 Vdc 5 A redundant version			**CSW241DP** (1)	
Output 72 Vdc 3.3 A redundant version				**CSW241G** (1) (5)
INPUT TECHNICAL DATA				
Input rated voltage	1-2-3x **230-400-500 Vac** (range 185…550 Vac / 270…770 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 230 / 400 Vac)	2 A / 1 A			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	–			
External protection on AC line	circuit breaker 2-3x 6 A characteristic C - fuse: 2-3x T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**	**12…15 Vdc**	**48 Vdc**	**72 Vdc**
Output adjustable range	24...27.5 Vdc	12…15 Vdc	45…55 Vdc	72…85 Vdc
Continuous current	**10 A** at 50°C (3)	**16 A** at 12 Vdc / **15 A** at 15 Vdc	**5 A** at 50°C (3)	**3.5 A** (3)
Overload limiting current	15 A for >6 s with Uout >90% Un (4)	20…18 A for >6 s with Uout >90% Un (4)	6 A for >6 s with Uout >90% Un (4)	5 A for >6 s with Uout >90% Un (4)
Short circuit peak current	38 A for 0.5 s (4)	34 A A for 0.5 s (4)	18 A for 0.5 s (4)	13 A for 0.5 s (4)
Load regulation	< 1%	< 1%	< 1%	< 1%
Ripple at nominal ratings	≤ 100 mVpp	≤ 100 mVpp	100 mVpp	≤ 100 mVpp
Hold up time (Uin 230 / 400 Vac)	>15 ms / >100 ms	>15 ms / >100 ms	>15 ms / >100 ms	>15 ms / >100 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	21.6 Vdc	10.8 Vdc	43.2 Vdc	64.8 Vdc
Parallel connection	possible	possible	possible	possible
Redundant parallel connection	possible with external ORing diode	possible with external ORing diode	already fitted with internal ORing diode	already fitted with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>91% / >92%	>89% / >90%	>91% / >92%	>92% / >93%
Dissipated power (Uin 230 / 400 Vac)	24 W / 21 W	22 W / 20 W	24 W / 21 W	22 W / 19 W
Operating temperature range	–20...+60°C, with derating over 50°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output (5)			
Input/PE isolation	2 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² removable screw terminal blocks			
Housing material	aluminium and stainless steel			
Approximate weight	1 kg			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

1, 2 or 3-phase switching power supply 230-400-500 Vac - output power 480 W

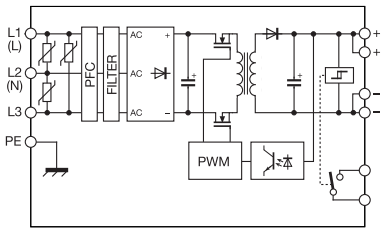
- Single-phase, 2-phase and 3-phase input 185…550 Vac
- High reliability and surge immunity for network failures
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes terminal block and rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) 550 Vdc max for UL508
(3) Over 45°C apply a derating equal to approximately 16 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.
(5) Version with 72 V output not suitable for SELV applications

BLOCK DIAGRAM



VERSIONS	Code XCSW481C		Code XCSW481D	XCSW481G
Output 24 Vdc 20 A	**CSW481C**			
Output 12…15 Vdc 40 A		-		
Output 48 Vdc 10 A			**CSW481D**	
Output 72 Vdc 6 A				**CSW481G** (1) (5)
INPUT TECHNICAL DATA				
Input rated voltage	1-2-3x **230-400-500 Vac** (range 187…550 Vac / 250…725 Vdc) (2)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 230 / 400 Vac)	2.2 A / 1 A			
Inrush peak current	<20 A / <40 A			
Power factor	> 0.95			
Internal protection fuse	–			
External protection on AC line	circuit breaker 1-2-3x 6 A characteristic C - fuse: 1-2-3x T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**48 Vdc**	**72 Vdc**
Output adjustable range	23.3...27.5 Vdc		45…55 Vdc	72…85 Vdc
Continuous current	**20 A** at 45°C (3)		**10 A** at 45°C (3)	**6 A** at 45°C (3)
Overload limiting current	28 A for >5 s with Uout >90% Un (4)		14 A for >5 s with Uout >90%Un (4)	9 A for >5 s with Uout >90% Un (4)
Short circuit peak current	50 A for 0.3 s (4)		25 A for 0.3 s (4)	12 A for 0.3 s (4)
Load regulation	< 1%		< 1%	< 1%
Ripple at nominal ratings	≤ 100 mVpp		≤ 100 mVpp	≤ 100 mVpp
Hold up time (Uin 230 / 400 Vac)	>20 ms / >20 ms		>20 ms / >20 ms	>20 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	21.6 Vdc		43.2 Vdc	64.8 Vdc
Parallel connection	possible		possible	possible
Redundant parallel connection	possible with external ORing diode		possible with external ORing diode	possible with external ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>92% / >92%		>92% / >92%	>91% / >91%
Dissipated power (Uin 230 / 400 Vac)	42 W / 42 W		42 W / 42 W	42 W / 42 W
Operating temperature range	–20...+60°C, with derating over 50°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output (5)			
Input/PE isolation	2 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A11, UL 508			
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² removable screw terminal blocks			
Housing material	aluminium and stainless steel			
Approximate weight	1 kg			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

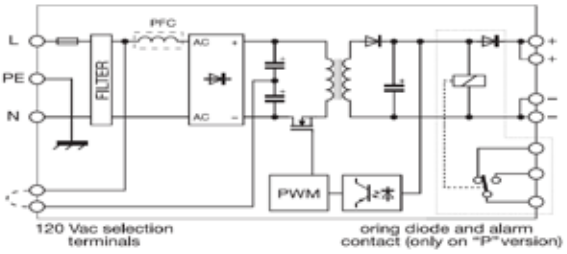
Single-/two-phase switching power supplies 230-400-500 Vac - output power 960 W

- Single-phase, two-phase and three-phase input 185…480 Vac
- High reliability and surge immunity for network failures
- Short circuit, overload, overtemperature and surge input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits

NOTES

The depth measurement includes terminal block and rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) Over 45°C apply a derating equal to approximately 32 W/°C
(3) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.
(4) Available with bridge

BLOCK DIAGRAM



VERSIONS	Code XCSW960CP			
Output 24 Vdc 40 A redundant version	**CSW960CP**			
		-		

TECHNICAL DATA INPUT	
Nominal input voltage	1x **230 Vac** (range 180…264 Vac / 250…370 Vdc) 2x 400-500 Vac (range 360…550 Vac / 550…775 Vdc) (4)
Frequency	47...63 Hz
Current with nominal Iout (Uin 230 / 400 Vac)	4.7A at 230 Vac / 4A at 400 Vac
Inrush peak current	<16 A
Power factor (at 230 Vac)	> 0.6
Internal protection fuse	–
External protection on the AC line	circuit breaker 1-2x 10 A characteristic C - fuse: 1-2x T 10 A

TECHNICAL DATA OUTPUT				
Nominal output voltage	**24 Vdc**			
Output adjustable range	23...27.5 Vdc			
Continuous current	**40 A** at 45°C (2)			
Overload limiting current	50 A for >5 s with Uout >90% Un (4)			
Short circuit peak current	65 A for 5 s (3)			
Load adjustment	< 4%			
Ripple at nominal ratings	≤ 200 mVpp			
Hold up time (Uin 230 / 400 Vac)	>20 ms			
Protection against short circuits and overload	hiccup at the overload limit with auto reset / thermal protection			
Status signals	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Activation threshold of the failure contact	21.6 Vdc			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			

GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>90% at 230 Vac			
Dissipated power (Uin 230 / 400 Vac)	<100 W at 230 Vac			
Operating temperature range	–20...+60°C, with derating above 45°C/thermal protection (2)			
Input/Output insulation	3 kVac / 60 s SELV output			
Input/PE insulation	2 kVac / 60 s			
Output/PE insulation	1 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Surge category / degree of pollution	II / 2			
Degree of protection	IP 20 IEC 529, EN60529			
Connection type	Input: 4 mm² screw terminal blocks / Output: 10 mm² screw terminal blocks			
Container material	Aluminium			
Approximate weight	1.2 Kg			
Assembly	vertical on rail, space 10 mm from adjacent components			

ACCESSORIES FOR ASSEMBLY	
Mounting rail compliant with IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail compliant with IEC60715/G32	—

Switching power supply - CSG Series

TRIPLE POWER

400…500 Vac 3-phase switching power supply for industrial automation applications. They can deliver over +50% of nominal current for a sustained period, keeping the output voltage stable and ensuring continuity of supply to the system. Equipped with voltage threshold controlled failure contact which is triggered when the voltage falls below 90% of the rated value.
With these features and numerous international certifications, this range of power supplies enables designers to meet the requirements of the Machinery Directive EN 60204-1, allowing the protection devices connected to the output to trigger quickly, safely and selectively, thus ensuring continuity of service to the other parts of the system.

Suggested uses

- Applications in machine automation with high command and control voltage reliability and safety requirements
- In applications which require selectable overcurrent protections on DC lines
- Industrial automation applications
- Uses with heavy loads

Main features

- With 340…550 Vac/507…770 Vdc input, making them suitable for use on all power supply networks.
- High efficiency reduces energy consumption and the operating temperature of components and allows use in small panels and severe environmental conditions.
- Large power reserve allows for delivery of at least +50% of nominal current for 5 seconds maintaining the output voltage stable, ensuring safety and reliability.
- Output voltage is adjustable and protected against incoming surge from the DC line, and is equipped with a double electronic protection that prevents damage to the powered device in case of an internal malfunction.
- Short-circuit and overload protection designed to deliver peak currents more than 150% higher than the rated value required by heavy loads.
- Thermal protection prevents faults in case of prolonged overload with high ambient temperatures.
- Construction ensures optimal capacity of ventilation of internal components, extremely reduced overall dimensions and degree of protection IP20 by accidental contact according to IEC529.

Integrated smart alarm contact
Notifies when the output voltage falls below 90% of the rated value once a threshold is surpassed

Super compact size
Among the smallest on the market, optimising the use of space in the panel without compromising performance

Power boost
The output power reaches 120% of the nominal value for several minutes, up to 150% in the event of overload, and up to 250% during a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional modules.

Very high efficiency
Designed to save energy and reduce operating temperature

Wide range
The widest range on the market, with power ratings from 120 to 2400W and output voltages of 24, 48 and 72 V, for uses including powering special motors

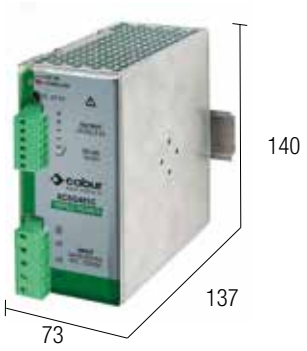
Special power supplies for engines DC, Brushless, and relative drives

New 48Vdc, 72-85Vdc, and 110-180Vdc models have been introduced, designed to reliably power engines in DC. They:

- supply peak power equal to even 4-5 times the nominal current, which is required by the engine during the peak phase
- have an output stage protected from overvoltage generated by the engines and drives during braking, which could otherwise cause malfunctions or cause the power supply to lose control over output voltage stability
- Provide output voltage at 48Vdc, and 72…85Vdc. By increasing the voltage of the engine power supply, the same power can be obtained at lower current, with notable advantages for performance, engine construction, connection wires, and drives.

3-phase switching power supply 400-500 Vac - output power 480 W

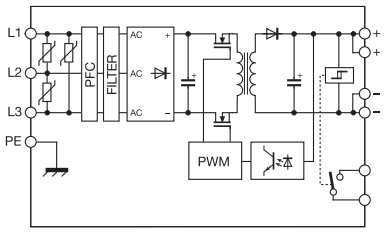
- 3-phase 340...550 Vac or 2-phase with derating
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits



NOTES

The depth measurement includes rail clamp clearance.
(3) Over 45°C apply a derating equal to approximately 16 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSG481C			
Output 24 Vdc 20 A	**CSG481C**			
Output 12…15 Vdc 40 A		—		
Output 48 Vdc 10 A			—	
Output 72 Vdc 6 A				—
INPUT TECHNICAL DATA				
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 400 / 500 Vac)	1.2 A / 0.8 A			
Inrush peak current	<40 A			
Power factor	> 0.95			
Internal protection fuse	—			
External protection on AC line	circuit breaker 3x 6 A characteristic C - fuse: 3x T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	23.3...27.5 Vdc			
Continuous current	**20 A** at 45°C (3)			
Overload limiting current	28 A for >5 s with Uout >90%Un (4)			
Short circuit peak current	50 A for 0.3 s (4)			
Load regulation	< 1%			
Ripple at nominal ratings	≤ 100 mVpp			
Hold up time (Uin 400 / 500 Vac)	>50 ms / >50 ms			
Overload / short circuit protections	hiccup at limit current with auto reset/thermal protection (3)			
Status display	Green LED "DC OK" / failure contact "DC OK"			
Alarm contact threshold	21.6 Vdc			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>93% / >92%			
Dissipated power (Uin 400 / 500 Vac)	36 W / 42 W			
Operating temperature range	–20...+60°C, with derating over 50°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	2 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A11, UL 508			
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² fixed screw terminal blocks			
Housing material	aluminium			
Approximate weight	1 kg			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

3-phase switching power supply 400-500 Vac - output power 500 W

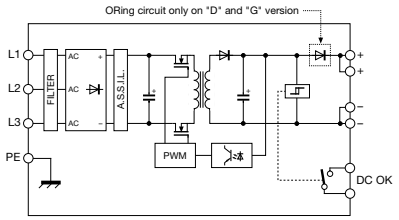
- 3-phase 340...550 Vac or 2-phase with derating
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits

c UL us LISTED E203601

NOTES

The depth measurement includes rail clamp clearance.
(3) Over 50°C apply a derating equal to approximately 6 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSG500C			
Output 24 Vdc 20 A	**CSG500C**			
Output 12...15 Vdc 40 A		-		
Output 48 Vdc 10 A redundant version			-	
Output 72 Vdc 6.7 A redundant version				
INPUT TECHNICAL DATA				
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 400 / 500 Vac)	1 A / 0.6 A			
Inrush peak current	< 35 A			
Power factor	> 0.75 with PFC			
Internal protection fuse	—			
External protection on AC line	circuit breaker 10 A characteristic C - fuses: 3x T 10 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	24...28 Vdc			
Continuous current	**20 A** at 50°C (3)			
Overload limiting current	>30 A for >5 s with Uout >90% Un (4)			
Short circuit peak current	>60 A for 5 s (4)			
Load regulation	< 0.5%			
Ripple at nominal ratings	≤ 100 mVpp			
Hold up time (Uin 400 / 500 Vac)	>15 ms / >30 ms			
Overload / short circuit protections	limit current hiccup with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	<21.6 Vdc			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>93% / >93%			
Dissipated power (Uin 400 / 500 Vac)	36 W / 36 W			
Operating temperature range	–20...+60°C, with derating over 50°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output (5)			
Input/PE isolation	2 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	6 mm² fixed screw terminal blocks			
Housing material	aluminium			
Approximate weight	1.3 Kg			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

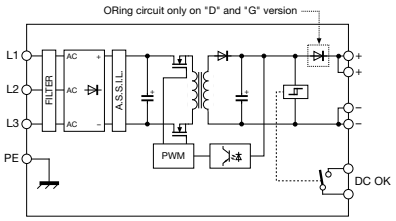
3-phase switching power supply 400-500 Vac - output power 720 W

- 3-phase 340...550 Vac or 2-phase with derating
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits

NOTES

The depth measurement includes rail clamp clearance.
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSG720C			
Output 24 Vdc 30 A	**CSG720C**			
Output 12...15 Vdc 60 A				
Output 48 Vdc 15 A redundant version				
Output 72 Vdc 10 A redundant version				
INPUT TECHNICAL DATA				
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 400 / 500 Vac)	1.4 A / 1.1 A			
Inrush peak current	< 30 A			
Power factor	> 0.75			
Internal protection fuse	—			
External protection on AC line	magneto-thermal 3x 10 A curve C - fuses: 3x T 10 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	24…28 Vdc			
Continuous current	**30 A** at 50°C (3)			
Overload limiting current	45 A for >5 s with Uout >90% Un (4)			
Short circuit peak current	>80 A for 1.5 s (4)			
Load regulation	< 1%			
Ripple at nominal ratings	100 mVpp			
Hold up time (Uin 400 / 500 Vac)	>10 ms / >15 ms			
Overload / short circuit protections	limit current hiccup with auto reset/thermal protection/ASSIL protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	<21.6 Vdc			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>92% / >92%			
Dissipated power (Uin 400 / 500 Vac)	60 W / 60 W			
Operating temperature range	–20...+60°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output			
Input/PE isolation	2 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	6 mm² fixed screw terminal blocks			
Housing material	aluminium			
Approximate weight	1.3 Kg			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

3-phase switching power supply 400-500 Vac - output power 960 W

- 3-phase 340...550 Vac or 2-phase with derating
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits

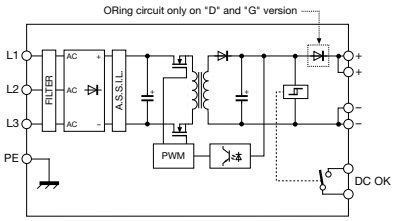
c UL us LISTED E203601

CE

NOTES

The depth measurement includes rail clamp clearance.
(3) Over 45°C apply a derating equal to approximately 18 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.
(5) CSG960G version not suitable for SELV applications

BLOCK DIAGRAM



VERSIONS	Code XCSG960C		Code XCSG960D	Code XCSG960G
Output 24 Vdc 40 A	**CSG960C**			
Output 12...15 Vdc 80 A		—		
Output 48 Vdc 20 A redundant version			**CSG960D**	
Output 72 Vdc 13.3 A redundant version (5)				**CSG960G** (5)
INPUT TECHNICAL DATA				
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current with nominal Iout (Uin 400 / 500 Vac)	2.2 A / 1.1 A			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	—			
External protection on AC line	circuit breaker 3x 10 A characteristic C - fuses: 3x T 10 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**48 Vdc**	**72 Vdc**
Output adjustable range	24…28 Vdc		45…55 Vdc	72…85 Vdc
Continuous current	**40 A** at 50°C (3)		**20 A** at 50°C (3)	**13.3 A** at 50°C (3)
Overload limiting current	56 A for >5 s with Uout >90% Un (4)		28 A for >5 s with Uout >90% Un (4)	18.6 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>90 A for 5 s (4)		>70 A for 5 s (4)	>30 A for 5 s (4)
Load regulation	< 1%		< 1%	< 1%
Ripple at nominal ratings	100 mVpp		100 mVpp	≤ 100 mVpp
Hold up time (Uin 400 / 500 Vac)	>10 ms / >15 ms		>10 ms / >15 ms	>15 ms / >18 ms
Overload / short circuit protections	limit current hiccup with auto reset/thermal protection			
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"			
Alarm contact threshold	<21.6 Vdc		<43.2 Vdc	<64.8 Vdc
Parallel connection	possible		possible	possible
Redundant parallel connection	possible with external ORing diode		already fitted with internal ORing diode	already fitted with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>92% / >92%		>92% / >92%	>94% / >94%
Dissipated power (Uin 400 / 500 Vac)	80 W / 80 W		80 W / 80 W	60 W / 60 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)			
Input/output isolation	3 kVac / 60 s SELV output (5)			
Input/PE isolation	2 kVac / 60 s			
Output/PE isolation	0.5 kVac / 60 s			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	6 mm² fixed screw terminal blocks			
Housing material	aluminium			
Approximate weight	1.2 kg			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

3-phase switching power supply 400-500 Vac - output power 2400 W

- 3-phase input 340…550 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for SELV and PELV circuits

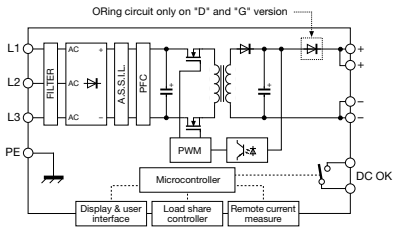
c UL us LISTED E203601

CE

NOTES

The depth measurement includes rail clamp clearance.
(2) Version made to order (not kept in stock); contact our sales office for availability.
(3) Over 45°C apply a derating equal to approximately 40 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.

BLOCK DIAGRAM



VERSIONS	Code XCSG2401C	Code XCSG2401D
Output 12-15-24 Vdc 100 A redundant version	**CSG2401C (2)**	
Output 24-48 Vdc 50 A redundant version		**CSG2401D (2)**
INPUT TECHNICAL DATA		
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)	
Frequency	47...63 Hz	
Current with nominal Iout (Uin 400 / 500 Vac)	4.2 A / 3.5 A	
Inrush peak current	< 2 A (with active limitation circuit)	
Power factor	> 0.92	
Internal protection fuse	—	
External protection on AC line	circuit breaker 3x 10 A characteristic C - fuses: 3x T 10 A	
OUTPUT TECHNICAL DATA		
Output rated voltage	**12-15-24 Vdc**	**24-48 Vdc**
Output adjustable range	11.5…29 Vdc	23...56 Vdc
Continuous current	**100 A** at 45°C (3)	**50 A** at 45°C (3)
Overload limiting current	150 A for >5 s with Uout >90% Un (4)	75 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>150 A for 5 s (4)	>75 A for 5 s (4)
Load regulation	< 1%	< 1%
Ripple at nominal ratings	≤ 200 mVpp	≤ 200 mVpp
Hold up time (Uin 400 / 500 Vac)	>10 ms / >10 ms	>10 ms / >10 ms
Overload / short circuit protections	programmable (see side)	
Status display	Green "DC OK" LED / "DC OK" failure contact / Red "Overload" LED / LCD display (see side)	
Alarm contact threshold	programmable	
Parallel connection	possible	
Redundant parallel connection	possible	
GENERAL TECHNICAL DATA		
Efficiency (Uin 400 / 500 Vac)	>92% / >92%	>93% / >93%
Dissipated power (Uin 400 / 500 Vac)	200 W / 200 W	180 W / 180 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)	
Input/output isolation	3 kVac / 60 s SELV output (5)	
Input/PE isolation	1.5 kVac / 60 s	
Output/PE isolation	0.5 kVac / 60 s	
Safety standards	EN 60950-1+A11, UL 508	
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4	
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F	
Overvoltage category / Pollution degree	II / 2	
Protection degree	IP 20 IEC529, EN60529	
Connection type	screw-clamp terminal blocks 4 and 6 mm²	
Housing material	aluminium	
Approximate weight	2.8 Kg	
Mounting information	vertical on rail, allow 60 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	

APPLICATIONS

Series CSG2401 has an internal microprocessor that controls the many functions of the power supply, which can be programmed thanks to a user-friendly menu activated by 4 buttons on the front and shown on the front display.
Front display: during normal operation, this shows the output voltage value and current used by the load; during programming, it allows for the choice of the various functions available.
Input protection: the input circuit has been designed to avoid the most common problems seen in 3-phase networks. It therefore has:
1) a PFC circuit failure (latched shutdown) circuit
2) a system for controlling lack of phase that automatically reduces output power
3) an auto-restart switch-off system in the event of overvoltage and undervoltage

Output protection: limit current can be selected as between 10% and 100% of rated current; protection type against overload and short circuit can be chosen from:
1) Hiccup auto reset with limit current, equal to 150% of rated current and ON/OFF time can be altered;
2) constant power

Output signals: in addition to the "DC OK" and "FAULT" LEDs, the device also has:
1) an analogue signal 0...10V or 4...20mA that provides an indication of current used by the load
2) a programmable alarm contact able to signal and record the exceeding of the various limits to a memory: output voltage, input current, output overload, over temperature and other parameters that can be defined by programming.

Additional functions:
1) Battery charger: the acid lead battery charging function can be selected;
2) Remote sensing (sense): this allows for the monitoring and compensation of voltage drops on long power supply lines
3) The power supply can be switched off and disabled from a remote position
4) Auxiliary voltage: auxiliary 12 Vdc is also available, regardless of the main output voltage status
5) Temperature control: by connecting an external sensor (NTC), the battery charge temperature can be controlled.
6) Communication port: by means of an RS232 communication device the power supply can be piloted and monitored from a remote position.

3-phase switching power supply 400-500 Vac - output power 2400 W

- 3-phase input 340…550 Vac
- Short circuit, overload, over temperature and overvoltage input and output protection
- Elevated outrush current to ensure the selectivity of protections and start-up of heavy loads
- High efficiency and low consumption
- Suitable for PELV circuits

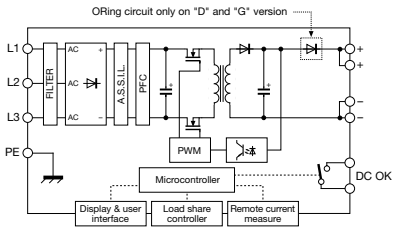
c UL us LISTED E203601

CE

NOTES

The depth measurement includes rail clamp clearance.
With DC input, outrush current is reduced by 30%
(2) Version made to order (not kept in stock); contact our sales office for availability.
(3) Over 45°C apply a derating equal to approximately 40 W/°C
(4) For this peak of power, the output voltage does not decrease more than 10% of the rated value, however the value of the current supplied by the power supply also depends on the line resistance.
(5) G and R versions not suitable for SELV applications

BLOCK DIAGRAM



VERSIONS	Code XCSG2401G	Code XCSG2401R
Output 72 Vdc 33 A redundant version (5)	**CSG2401G (5) (2)**	
Output 100-110-170 Vdc 14 A redundant version (5)		**CSG2401R (5) (2)**

INPUT TECHNICAL DATA	
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)
Frequency	47...63 Hz
Current with nominal Iout (Uin 400 / 500 Vac)	4.2 A / 3.5 A
Inrush peak current	< 2 A (with active limitation circuit)
Power factor	> 0.92
Internal protection fuse	—
External protection on AC line	circuit breaker 3x 10 A characteristic C - fuses: 3x T 10 A

OUTPUT TECHNICAL DATA		
Output rated voltage	**72 Vdc**	**100-110-170 Vdc**
Output adjustable range	50...87 Vdc	88...175 Vdc
Continuous current	**33 A** at 45°C (3)	**14 A** at 45°C (3)
Overload limiting current	50 A for >5 s with Uout >90% Un (4)	21 A for >5 s with Uout>90% Un (4)
Short circuit peak current	>50 A for 5 s (4)	>21 A for 5 s (4)
Load regulation	< 1%	< 1%
Ripple at nominal ratings	≤ 200 mVpp	≤ 200 mVpp
Hold up time (Uin 400 / 500 Vac)	>10 ms / >10 ms	>10 ms / >10 ms
Overload / short circuit protections	programmable (see side)	
Status display	Green "DC OK" LED / "DC OK" failure contact / Red "Overload" LED / LCD display (see side)	
Alarm contact threshold	programmable	
Parallel connection	possible	
Redundant parallel connection	possible	

GENERAL TECHNICAL DATA		
Efficiency (Uin 400 / 500 Vac)	>92% / >92%	>92% / >92%
Dissipated power (Uin 400 / 500 Vac)	200 W / 200 W	200 W / 200 W
Operating temperature range	–20...+60°C, with derating over 45°C / thermal protection (3)	
Input/output isolation	3 kVac / 60 s SELV output (5)	
Input/PE isolation	1.5 kVac / 60 s	
Output/PE isolation	0.5 kVac / 60 s	
Safety standards	EN 60950-1+A11, UL 508	
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4	
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F	
Overvoltage category / Pollution degree	II / 2	
Protection degree	IP 20 IEC529, EN60529	
Connection type	screw-clamp terminal blocks 4 and 6 mm²	
Housing material	aluminium	
Approximate weight	2.8 Kg	
Mounting information	vertical on rail, allow 60 mm spacing between adjacent components	

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

APPLICATIONS

Series CSG2401 has an internal microprocessor that controls the many functions of the power supply, which can be programmed thanks to a user-friendly menu activated by 4 buttons on the front and shown on the front display.
Front display: during normal operation, this shows the output voltage value and current used by the load; during programming, it allows for the choice of the various functions available.
Input protection: the input circuit has been designed to avoid the most common problems seen in 3-phase networks. It therefore has:
1) a PFC circuit failure (latched shutdown) circuit
2) a system for controlling lack of phase that automatically reduces output power
3) an auto-restart switch-off system in the event of overvoltage and undervoltage

Output protection: limit current can be selected as between 10% and 100% of rated current; protection type against overload and short circuit can be chosen from:
1) hiccup auto reset with limit current, equal to 150% of rated current and ON/OFF time can be altered;
2) Constant power

Output signals: in addition to the "DC OK" and "FAULT" LEDs, the device also has:
1) an analogue signal 0...10V or 4...20mA that provides an indication of current used by the load
2) a programmable alarm contact able to signal and record the exceeding of the various limits to a memory: output voltage, input current, output overload, over temperature and other parameters that can be defined by programming.

Additional functions:
1) Battery charger: the acid lead battery charging function can be selected;
2) Remote sensing (sense): this allows for the monitoring and compensation of voltage drops on long power supply lines
3) The power supply can be switched off and disabled from a remote position
4) Auxiliary voltage: auxiliary 12 Vdc is also available, regardless of the main output voltage status
5) Temperature control: by connecting an external sensor (NTC), the battery charge temperature can be controlled.
6) Communication port: by means of an RS232 communication device the power supply can be piloted and monitored from a remote position.

DC/DC Insulated converters output power 120 W

- DC wide range input
- Short-circuit, overload, overtemperature protection
- Extremely small size

CE

NOTES

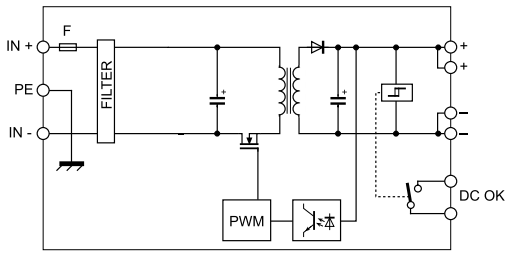
The depth measurement includes terminal block and rail clamp clearance.

(1) Inrush current measured at Un with battery power supply; peak current varies according to the internal impedance of the current source and the resistance of the connections.

(2) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

(3) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM

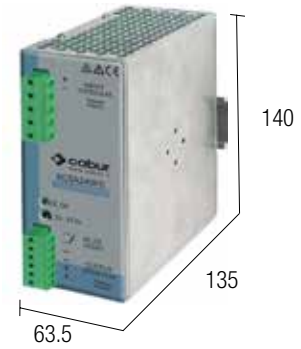


VERSIONS	Code XCSA120BC	Code XCSA120CB	Code XCSA120CC	Code XCSA120DC
12 Vdc / 24 Vdc 5 A	**CSA120BC (3)**			
24 Vdc / 12 Vdc 7 A		**CSA120CB**		
24 Vdc / 24 Vdc 5 A			**CSA120CC**	
48 Vdc / 24 Vdc 5 A				**CSA120DC**
INPUT TECHNICAL DATA				
Input rated voltage	**12 Vdc** (range 10.5…18 Vdc)	**24 Vdc** (range 18…36 Vdc)	**24 Vdc** (range 18…36 Vdc)	**48 Vdc** (range 36…72 Vdc)
Current with nominal Iout	10 A ± 10%	5.1 A ±10%	5.8 A ±10%	2.8 A ±10%
Inrush peak current	< 60A / < 2ms (1)	< 110A / < 2ms (1)	< 90A /< 2ms (1)	< 120A / < 2ms (1)
Power in standby	<1.5 W at 12 Vdc	<1 W at 24 Vdc	<1.5 W at 24 Vdc	<2 W at 48 Vdc
Internal protection fuse	Replaceable T 20 A	Replaceable T 10 A		Replaceable T 5 A
External protection on AC line	≥25 A characteristic C	≥13 A characteristic C		≥6 A characteristic C
Surge protection circuit	varistor and automatic power off at 19 Vdc	varistor and automatic switch-off at 38 Vdc		varistor and automatic switch-off at 76 Vdc
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**	**12...15 Vdc**	**24 Vdc**	**24 Vdc**
Output adjustable range	22.5...27.5 Vdc	12...15 Vdc	22.5...27.5 Vdc	22.5...27.5 Vdc
Continuous current	**5 A** at 24 Vdc	**7 A** at 12 Vdc	**5 A** at 24 Vdc	5A at 24 Vdc
Overload limiting current	6.5 A	9.1 A	6.5 A	6.5 A
Short circuit peak current	12 A for 300 ms	15 A for 300 ms	12 A for 300 ms	13 A for 300 ms
Load regulation	<0.5%	<0.5%	<0.5%	<0.5%
Ripple at nominal ratings	≤ 100 mVpp	≤ 100 mVpp	≤ 150 mVpp	≤ 200 mVpp
Hold Up time at In	>1 ms	>2 ms		4.5 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection			
Status display	Green LED "DC OK"			
Alarm contact threshold	—			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 110 Vdc)	> 83%	>85%	>87%	>90%
Dissipated power (Uin 110 Vdc)	<25 W	<17 W	<18 W	<13 W
Operating temperature range	-20...+50°C			
Input/output isolation	2.1 kVdc / 60s (2)			
Input/PE isolation	1.41 kVdc / 60s (2)			
Output/PE isolation	0.75 kVdc / 60s (2)			
Safety standards	EN 60950-1+A1+A2+A12, UL 508			
Electromagnetic compatibility	EN61000-6-1, EN61000-6-2, EN61000-6-3, EN61000-6-4			
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F			
Overvoltage category / Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection type	2.5 mm² removable screw terminal blocks			
Housing material	aluminium			
Approximate weight	550 g			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

DC/DC Insulated converters output power 240 W

- DC wide range input
- Short-circuit, overload, overtemperature protection
- Internal diode for the redundant parallel connection
- Extremely small size

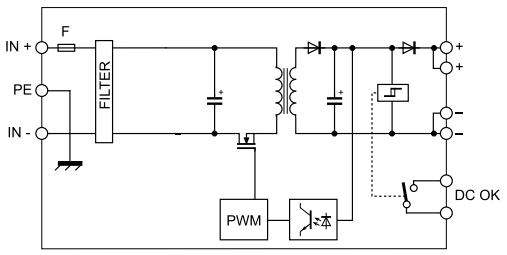
NOTE:
CSD, CSF30, CSF85 and CSF120 series power supplies can also be powered at 110 Vdc.



NOTES

The depth measurement includes terminal block and rail clamp clearance.
(1) Inrush current measured at Un with battery power supply; peak current varies according to the internal impedance of the current source and the resistance of the connections.
(2) Over 50°C apply a derating -6 W/°C, max 60°C
(3)The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

BLOCK DIAGRAM



VERSIONS	Code XCSA240FC
110 Vdc / 24 Vdc 10 A	—
110 Vdc / 24 Vdc 10 A redundant	**CSA240FC**

INPUT TECHNICAL DATA	
Input rated voltage	**110 Vdc** (range 100...130 Vdc)
Current with nominal Iout	2.4 A ±10%
Inrush peak current	< 150A / < 2ms (1)
Power in standby	<3.4 W at 110 Vdc
Internal protection fuse	Replaceable T 5 A
External protection on AC line	≥6 A characteristic C
Surge protection circuit	varistor and automatic switch-off at 136 Vdc

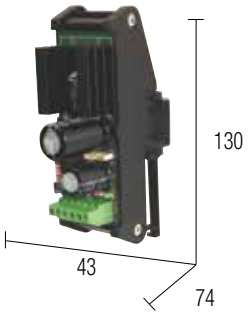
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	22.7…27 Vdc
Continuous current	**10 A at 50°C (2)**
Overload limiting current	15 A
Short circuit peak current	21 A for 300 ms
Load regulation	<1.5%
Ripple at nominal ratings	≤ 100 mVpp
Hold up time at In (Uin 110 Vdc)	>4 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset/thermal protection
Status display	Green LED "DC OK" / failure contact "DC OK" / Red LED "Overload"
Alarm contact threshold	—
Parallel connection	possible
Redundant parallel connection	already fitted with internal ORing diode

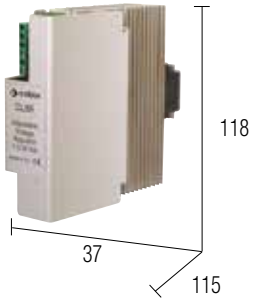
GENERAL TECHNICAL DATA	
Efficiency (Uin 110 Vdc)	>89%
Dissipated power (Uin 110 Vdc)	<28 W
Operating temperature range	–20...+60°C, with derating over 50°C (2)
Input/output isolation	2.1 kVdc / 60s (3)
Input/PE isolation	1.41 kVdc / 60s (3)
Output/PE isolation	0.75 kVdc / 60s (3)
Safety standards	EN 60950-1+A1+A2+A12
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² removable screw terminal blocks
Housing material	aluminium
Approximate weight	800 g
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Adjustable stabilised linear power supply 24 Vac

- 1.2...24 Vdc adjustable output voltage
- 1.5 and 5 A output current
- Short-circuit, overload, overtemperature protection

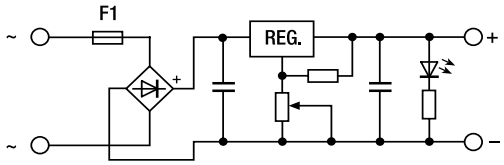




NOTES

The depth measurement includes terminal block and rail clamp clearance.
(1) See applications.

BLOCK DIAGRAM



VERSIONS	Code XCL1R	Code XCL5R
Output 1.2 A	**CL1R**	
Output 5 A		**CL5R**
INPUT TECHNICAL DATA		
Input rated voltage	**9…26 Vac** (see Table 1)	
Frequency	50...60 Hz	
Current with nominal Iout	2.5 A	6 A
Internal protection fuse	Replaceable T 3 A	Replaceable T 10 A
External protection on AC line	MCB: 4 A characteristic C - fuse T 4 A	MCB: 10 A characteristic C - T 10 A fuse
OUTPUT TECHNICAL DATA		
Output rated voltage	**1.2...24 Vdc**	**1.2...24 Vdc**
Output adjustable range	(see Table 1 and Table 2)	(see Table 1 and Table 2)
Continuous current	**0.3...1.5 A** (see Table 2)	**0.8...5 A** (see Table 2)
Overload limiting current	—	—
Load regulation	< 1%	
Ripple at nominal ratings	< 50 mVpp at 24 Vac	
Hold Up time at In	>20 ms	
Overload / short circuit protections	at constant current, limit current, with automatic recovery/thermal protection	
Status display	Green LED "DC OK"	
GENERAL TECHNICAL DATA		
Operating temperature range	–20...+45°C / thermal protection (1)	
Input/output isolation	not insulated	
Input/PE isolation	0.5 kVac / 60 s	
Output/PE isolation	0.5 kVac / 60 s	
Reference Standards	IEC 664-1, DIN VDE	
Electromagnetic compatibility	EN50081-1, EN61000-6-4	
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F	
Overvoltage category / Pollution degree	II / 2	
Protection degree	IP 00 IEC 529, EN60529	
Connection type	2.5 mm² fixed screw terminal blocks	
Housing material	UL94V-0 plastic	aluminium
Approximate weight	120 g	350 g
Mounting information	vertical on rail, allow 20 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**	—

APPLICATIONS

Cabur CL-R series power supplies are linear stabilised with adjustable output, capable of satisfying all small load power needs with non-standard voltages at an extremely affordable cost.
They can be rail mounted in any position as long as sufficient space is left for the free circulation of air for cooling, while model CL1R has a degree of protection IP00, meaning it is to be used inside a protected container.
Even where the power supply is protected against overcurrents, it is advised to follow the nominal data indicated in the tables below.

(1) **CL1R** and **CL5R** provide the nominal performances if combined with the secondary voltages indicated in **Tab. 1**; with a secondary voltage of 24...27 Vac, the maximum obtainable current at output voltages adjusted to values below 24 Vdc is indicated in **Tab. 2**; to stabilise the output voltage and reduce ripple at full load, linear power supplies must be powered with an input voltage that exceeds the output voltage, whereas if they are powered at 24 Vac, with an output adjusted to 24 Vdc and maximum current absorption, the ripple increases and the stability of the output voltage to load variations and ±10% network variations drops; voltages above 27 Vac cause significant heating, triggering the thermal protection and reducing the current supplied.
Products are supplied with a default voltage of 24 Vdc at the output and 26 Vac at the input.

INPUT (Vac)	Uout max (Vdc)	Iout max (A) XCL1R	Iout max (A) XCL5R
24...27	24	1.5	5
16...18	15	1.5	5
14...16	12	1.5	5
12...14	10	1.5	5
12	9	1.5	5
9	5	1.5	5

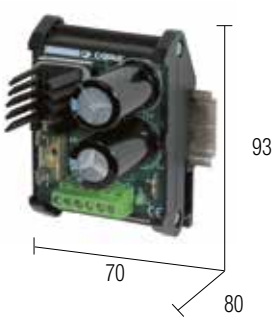
Table 1 (see explanation to the side)

INPUT (Vac)	Uout max (Vdc)	Iout max (A) XCL1R	Iout max (A) XCL5R
24	24	1.5	5
24	15	0.8	2.5
24	12	0.7	2
24	10	0.5	1.5
24	9	0.45	1.3
24	5	0.3	0.8

Table 2 (see side explanation)

Filtered power supply without transformer and with non-stabilised output

- Rail mounting
- For correcting voltages from 6 Vac to 20 Vac
- Output 1.41 times the input voltage

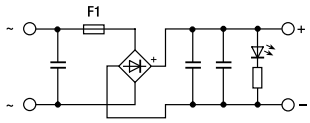


CE

NOTES

(2) Version made to order (not kept in stock); for information contact our sales office.
(3) Capable of operating with an input voltage of 6 Vac min. to 30 Vac max.; output voltage is not stabilised and varies depending on the load and on variations in the input voltage supplied by the transformer.
(4) Protected from overcurrent with integrated input fuse (except AR1); it is advisable to protect the output line wires with fuses sized according to the load and wire currents.

BLOCK DIAGRAM



VERSIONS	Code XAR6
Output 6 A	**AR6**
INPUT TECHNICAL DATA	
Input rated voltage	**6…20 Vac**
Frequency	50...60 Hz
Current with nominal Iout	7.2 A at 20 Vac
Internal protection fuse	Replaceable T 8 A
External protection on AC line	MCB: 10 A characteristic C - T 10 A fuse
OUTPUT TECHNICAL DATA	
Output voltage (without load)	Uout = (Uin x 1.41) (3)
Output voltage (at full load)	Uout = (Uin x 1.41) -2 (3)
Continuous current	**6 A** at 20°C
Overload limiting current	9 A
Load regulation	—
Ripple at nominal ratings	≤ 10%
Hold Up time at In	>20 ms
Overload / short circuit protections	not supplied, insert external fuse (4)
Status display	Green LED "DC OK"
Parallel connection	—
Redundant parallel connection	—
GENERAL TECHNICAL DATA	
Operating temperature range	–20...+45°C / max 60°C
Input/output isolation	not insulated
Input/PE isolation	0.5 kVac / 60 s
Output/PE isolation	0.5 kVac / 60 s
Reference Standards	IEC 664-1, DIN VDE
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 00 IEC 529, EN60529
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	140 g
Mounting information	vertical on rail, allow 50 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**

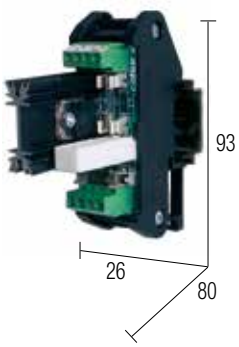
APPLICATIONS

The rectified and filtered power supply comprises a transformer which isolates and reduces the secondary voltage from the network voltage (not supplied), a bridge rectifier and a filter capacity that convert alternating voltage into direct voltage at an SELV value of less than 60 Vdc.
The power supply is not stabilised, therefore the output voltage varies according to the power consumed by the load and to network voltage fluctuations of ±10%. The formulae described in the output technical data are used to calculate voltage at no load, 50% load and full load and to select the transformer best suited to your needs. **These power supplies are a reliable and affordable source for powering relays, contactors, solenoid valves** and loads capable of operating smoothly with a relatively high (5%) alternating waste on 24 Vdc (ripple) and strong changes in output voltage, whereas in applications in which the network is highly unstable and prone to voltage dips, **they may not be suitable for powering devices with microprocessors and memories, analogue converters or devices that require a highly stable power supply voltage.**

INPUT (Vac)	OUTPUT without load (Vdc)	OUTPUT full load (Vdc)
20	28.7	24.2
18	25.4	21.4
15	21.2	17.2
12	17	15
9	12.7	8.7
6	8.5	4.5

Accessory for charging buffer batteries

- Battery charging
- Parallel connection of power supplies
- Suitable for power supplies up to 10 A
- Line and battery safety fuses
- Flyback diode
- Load current limiting resistor

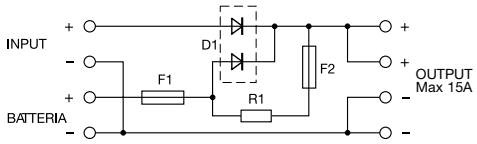


NOTES

The depth measurement includes rail clamp clearance.
(1) The load current may vary depending on the battery type and its charge status:
- approx. 0.5A max at 12Vdc
- approx. 1A max at 24Vdc

(2) The device does not prevent deep discharge of the battery, which occurs when a voltage of 0 to 60% of the nominal voltage is read at its terminals; deep discharge drastically reduces the life of the battery.

BLOCK DIAGRAM



VERSIONS

	Code XCSBC
	CSBC

GENERAL TECHNICAL DATA

Power supply input voltage	6...30 Vdc
Power supply nominal current	> 3 A
Nominal load voltage	6...29.5 Vdc
Maximum load current	10 A
Charging current	(1)
Battery disconnection voltage	function not present
IN/OUT voltage drop	0.5 V
Battery safety fuse	F1 = T 6.3 A / F2 = T 1 A
Protections	short-circuit / battery overload (2)
Alarm signal	—
Operating temperature range	–10...+50°C
Reference Standards	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	80 g
Mounting information	vertical on rail, side by side

MOUNTING ACCESSORIES

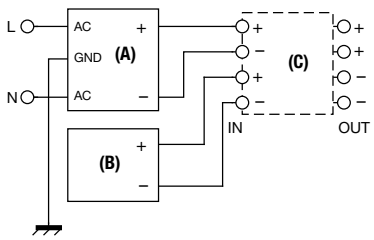
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**

APPLICATIONS

1. Battery charger
This module enables Cabur power supplies to charge a battery while simultaneously powering the load. The diodes effectively block the power supply from the battery, the resistor limits the load current to prevent power supply safety cut-off and prolonging the life of the battery, and fuse F1 protects the battery in the event of a short-circuit on the load.
The connection occurs as shown below.

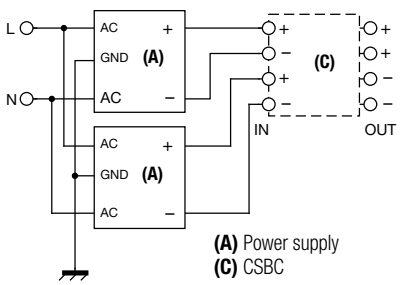
2. Placing power supplies in parallel
This module can be used to put two power supplies without a blocking diode in parallel, eliminating the need for fuse F2 in series with the charging current limiting resistor.
The connection occurs as shown below.

1. Battery charger



(A) Power supply
(B) Battery
(C) CSBC

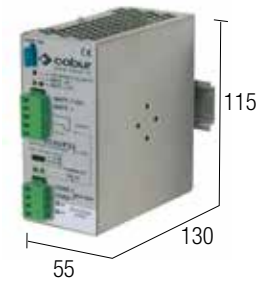
2. Placing power supplies in parallel



(A) Power supply
(C) CSBC

Accessory for charging and checking buffer batteries

- Suitable for power supplies with adjustable output
- Suitable for lead batteries
- Supplies power to load and battery simultaneously
- Battery safety fuse
- Battery full discharge protection
- LED status indicator and alarm relay



Item available until supplies last; will be replaced by XCSU240S

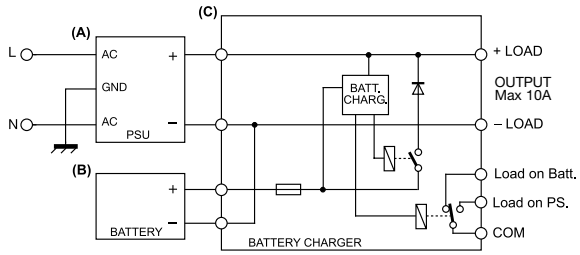
CE

NOTES

The depth measurement includes rail clamp clearance.

BLOCK DIAGRAM

(A) = Power supply
(B) = Battery
(C) = CS-UPS



VERSIONS

	Code XCSUPS1	Code XCSUPS2
Output 24 Vdc	**CS-UPS1**	
Output 12 Vdc		**CS-UPS2**

GENERAL TECHNICAL DATA

Power supply input voltage		26...28.5 Vdc	12...15 Vdc
Power supply nominal current		≥ 3 A	≥ 3 A
Nominal load voltage		**26...28 Vdc**	**10...15 Vdc**
Maximum load current		**10 A**	**10 A**
Charging current		Selectable 2 A or 4 A	Selectable 2 A or 4 A
Battery disconnection voltage		≤ 18 Vdc ±0.5V	≤ 9.2 Vdc ±0.5V
IN/OUT voltage drop		0.4 V	
Battery safety fuse		T 15 A 42 V blade type	
Protections		Reverse polarity, short-circuit, battery overload, battery deep discharge	
Alarm signals	Power supply OK:	SPDT 24 V / 1 A	
	Battery OK	Green LED	
	Battery LOW	Red LED	
	Load OK	Yellow LED	
	Green LED	Green LED	
Operating temperature range		–10...+50°C	
Reference Standards		IEC 664-1, DIN VDE	
Overvoltage category / Pollution degree		II / 2	
Protection degree		IP 20 IEC 529, EN60529	
Connection type		2.5 mm² removable screw terminal blocks	
Housing material		aluminium	
Approximate weight		300 g	
Mounting information		vertical on rail, side by side	

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

APPLICATIONS

All power supplies with adjustable output to at least +15% of the nominal voltage can be used for charging lead acid batteries to be used as back-up power, offering regulation and control in the event of a blackout or local network failure. The circuit in the CS-UPS1 module regulates and controls battery charging current and can be set to two maximum charging currents: 2 A or 4 A; it also disconnects the load from the battery if the voltage at full load drops below the limit to prevent deep battery discharge, which occurs when a voltage of 0 to 60% of the nominal voltage is read at its terminals; deep discharge drastically reduces the life of the battery. The module is also equipped with a fuse that protects the battery and connecting wires to the overcurrent module. The following alarm indicators are available:

PS OK: Green LED, indicates that the network power supply is operational and is powering the load, while the battery is kept charged.

LOAD OK: Yellow LED, indicates that the CS-UPS terminal blocks are showing a power that is capable of supplying the load.

BATT. OK: Green LED, with the power supply switched off or disconnected, indicates that the battery is connected and is charging.

BATT. LOW: Red LED, indicates that the battery is discharged.

REVERSE BATTERY: Red LED, indicates that the battery is connected with reversed polarity.

Failure contact: this is a single exchange 1 A / 24 V relay which is triggered when the power to the load switches from the power supply to the battery. The remote warning indicates the system status even when the power supply switches off due to an internal panel malfunction and indicates that the battery was activated due to a local fault not immediately visible to the operator, unlike a general blackout.

Accessory for charging and checking buffer batteries

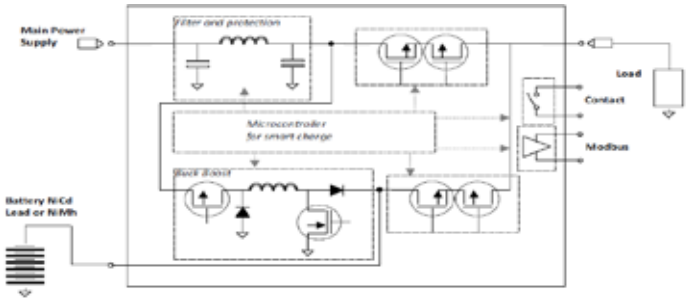
- Power supply connection, supplies energy to the load and maintains the backup battery
- Suitable for Lead-Acid, NiMH and Ni-Cd batteries
- 12 V or 24 V battery voltages with a load current of up to 5 A
- High efficiency and low consumption
- Small size

CE

NOTES

(1) Programmable

BLOCK DIAGRAM



VERSIONS	Code XCSU120S
	CSU120S
INPUT TECHNICAL DATA	
Power supply input voltage	**12-24 Vdc** (range 10…16 Vdc / 20…29 Vdc)
Maximum input current	5 A
OUTPUT TECHNICAL DATA	
Load voltage	**12-24 Vdc (1)**
Load current	5A max. to 20°C / 4A max. to 45°C
Status display	Normal operation failure contact (Ready) Battery operation failure contact (Backup) Green LED "DC OK" Battery charge yellow LED / Battery supplies the charge
Communication	RS485 - ModBus RTU
TECHNICAL DATA BATTERIES	
Battery type	Lead-Acid, NiMH, Ni-Cd
Battery nominal voltage	**12 or 24 Vdc (1)**
Maximum load current	500 mA (1)
Nominal capacity range	1.2 ...10Ah
Backup lag time	n/a
Protections	reverse polarity/overload/deep discharge
GENERAL TECHNICAL DATA	
Efficiency	>90%
Dissipated power	< 2W
Operating temperature range	-20...+60°C
Input/output isolation	-
Input/PE isolation	-
Output/PE isolation	-
Safety standards	EN60950
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² screw-clamp terminal blocks
Housing material	aluminium
Approximate weight	200 g
Mounting information	vertical on rail, allow 5 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

APPLICATIONS

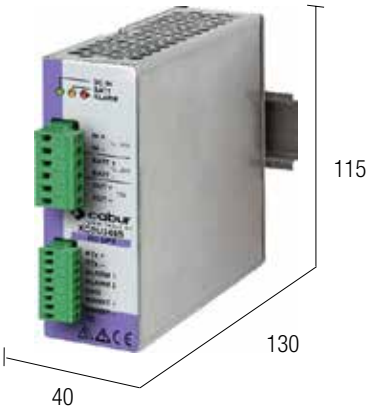
XCSU120S is a smart battery equipped with a microprocessor to determine the most appropriate charging and monitoring algorithm to ensure battery efficiency. Using an external DC power source, XCSU120S is able to charge universal and NiCd, NiMh and lead acid batteries.

PRODUCT FEATURES:

- Independent 12 or 24 V input, output and battery voltages (microprocessor sets the voltage to the required level)
- It is no longer necessary to increase the voltage of the power supply to allow the battery to charge, resulting in an increase of the output voltage
- The device is supplied with a default setting that can be changed with a simple ModBus connection, which can also be used to monitor functions and establish a direct connection to a PLC
- Integrated software allows you to select battery type and capacity, with the microprocessor selecting the most appropriate charging algorithm and monitoring its efficiency
- System monitoring with two available remote alarms that can be set to no network power, battery on, battery efficiency, battery overtemperature, output overload
- Programmable remote control for turning battery charging, output and alarms on/off
- Programmable on/off timer
- DIP-switch programming for most functions

Accessory for charging and checking buffer batteries

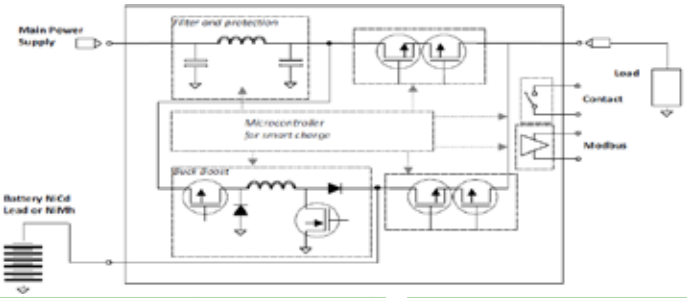
- Power supply connection, supplies energy to the load and maintains the backup battery
- Suitable for Lead-Acid, NiMH and Ni-Cd batteries
- 12 V or 24 V battery voltages with a load current of up to 10 A
- High efficiency and low consumption
- Small size



NOTES

(1) Programmable

BLOCK DIAGRAM



VERSIONS	Code XCSU240S
	CSU240S
INPUT TECHNICAL DATA	
Power supply input voltage	**12-24 Vdc** (range 11... 30 Vdc)
Maximum input current	10 A
OUTPUT TECHNICAL DATA	
Load voltage	**12-24 Vdc (1)**
Load current	10A max at 20°C / 9A max at 45°C
Status display	Normal operation failure contact (Ready) Battery operation failure contact (Backup) Green LED "DC OK" Battery charge yellow LED / Battery supplies the charge
Communication	RS485 - ModBus RTU
TECHNICAL DATA BATTERIES	
Battery type	Lead-Acid, NiMH, Ni-Cd
Battery nominal voltage	**12 or 24 Vdc (1)**
Maximum load current	1 A (1)
Nominal capacity range	1.2… 20Ah
Backup lag time	n/a
Protections	reverse polarity/overload/deep discharge
GENERAL TECHNICAL DATA	
Efficiency	>90%
Dissipated power	< 3W
Operating temperature range	-20... +60°C
Input/output isolation	-
Input/PE isolation	-
Output/PE isolation	-
Safety standards	EN60950
Electromagnetic compatibility	EN61000-6-2, EN61000-6-4
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	2.5 mm² (IN/OUT/BATT) and 0.75 mm² (signal) removable screw terminal blocks
Housing material	aluminium
Approximate weight	300 g
Mounting information	vertical on rail, allow 5 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

APPLICATIONS

XCSU240S is a smart battery equipped with a microprocessor to determine the most appropriate charging and monitoring algorithm to ensure battery efficiency. Using an external DC power source, XCSU240S is able to charge NiCd, NiMh and lead acid batteries.

PRODUCT FEATURES:

- Independent 12 or 24 V input, output and battery voltages (microprocessor sets the voltage to the required level)
- It is no longer necessary to increase the voltage of the power supply to allow the battery to charge, resulting in an increase of the output voltage
- The device is supplied with a default setting that can be changed with a simple ModBus connection, which can also be used to monitor functions and establish a direct connection to a PLC
- Integrated software allows you to select battery type and capacity, with the microprocessor selecting the most appropriate charging algorithm and monitoring its efficiency
- System monitoring with two available remote alarms that can be set to no network power, battery on, battery efficiency, battery overtemperature, output overload
- Programmable remote control for turning battery charging, output and alarms on/off
- Programmable on/off timer

Switching power supply with integrated battery charging

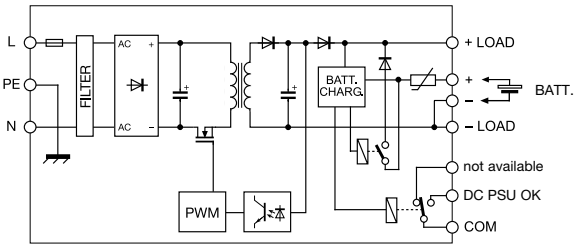
- For powering loads and maintaining battery charge
- Suitable for lead batteries
- Supplies power to load and battery simultaneously
- Battery safety circuit
- Battery full discharge protection
- LED status indicator and alarm relay

CE

NOTES

The depth measurement includes terminal block and rail clamp clearance.
(2) With an input powered at 100...127 Vdc, using constant power and Ta> 45°C, the outrush current is reduced by 25%
(3) In addition to powering the load, the power supply delivers around 0.8 A for charging the battery
(4) Over 50°C apply a derating -0.13 A/°C, max 60°C

BLOCK DIAGRAM



APPLICATIONS

VERSIONS	Code XCSC120B	Code XCSC120C
Output 12 Vdc 5 A	**CSC120B**	
Output 24 Vdc 5 A		**CSC120C**

INPUT TECHNICAL DATA		
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…370 Vdc) (2)	
Frequency	47...63 Hz	
Current with nominal Iout (Uin 120 / 230 Vac)	1.6 / 0.9 A	1.9 /1.1 A
Inrush peak current	< 20 A	
Power factor	> 0.6	
Internal protection fuse	Replaceable T 3.15 A	
External protection on AC line	circuit breaker 4 A characteristic C - fuses: T 3.15 A	

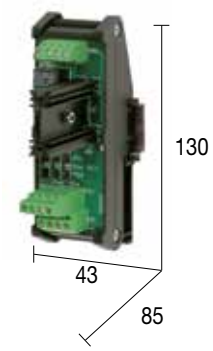
OUTPUT TECHNICAL DATA		
Output voltage with power supply on	**12.5…15.5 Vdc**	**23…27.5 Vdc**
Output voltage with battery operation	12…14.4 Vdc	24…26.2 Vdc
Continuous current	**5 A** at 50°C (3)	**5 A** at 50°C (3)
Overload limiting current	>11 A for >30 s	>8 A for >30 s
Short circuit peak current	>18 A for >50 ms	>12 A for >50 ms
Load regulation	< 1%	< 1%
Ripple at nominal ratings	80 mVpp	80 mVpp
Hold up time at In (Uin 120 / 230 Vac)	>24 ms / >80 ms	>17 ms / >72 ms
Overload / short circuit protections	with power supply on: hiccup at limit current with automatic recovery with power supply off: self-resetting electronic fuse in case of battery short-circuit with power supply off: threshold relay to protect against deep battery discharge	
Alarm signal	Green LED "PSU OK" / failure contact / Red LED "BATTERY"	
Max load current	0.8 A (suitable for sealed lead acid batteries up to 15 Ah)	

GENERAL TECHNICAL DATA		
Efficiency (Uin 120 / 230 Vac)	>81% / >83%	>84% / >86%
Dissipated power (Uin 120 / 230 Vac)	25 W / 22 W	22 W / 19 W
Operating temperature range	–20...+60°C, with derating over 50°C / thermal protection (4)	
Input/output isolation	1.5 kVac / 60 s SELV output	
Input/PE isolation	1.5 kVac / 60 s	
Output/PE isolation	0.5 kVac / 60 s	
Safety standards	IEC950, EN60950	
Electromagnetic compatibility	EN55011, EN61000-6-1	
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F	
Overvoltage category / Pollution degree	II / 2	
Protection degree	IP 20 IEC 529 EN60529	
Connection type	2.5 mm² removable screw terminal blocks	
Housing material	aluminium	
Approximate weight	500 g	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	–

Accessory for redundant power supply connections

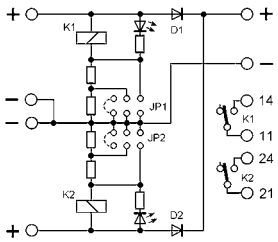
- Suitable for connecting non-supplied power supplies
- Compact dimensions
- 12, 24 and 48 Vdc selectable operating voltages
- 2 alarm relays
- LED power indicator



NOTES

The depth measurement includes rail clamp clearance.

BLOCK DIAGRAM



VERSIONS

	Code XCSBD
	CSBD

GENERAL TECHNICAL DATA

Power supply input voltage	**12–24–48 Vdc** selectable
Power supply nominal current	15 A, max 30 A
Nominal load voltage	**12–24–48 Vdc** selectable
Maximum load current	15 A
IN/OUT voltage drop	0.7 V at 15 A
Protections	—
Alarm signal	2 NA contacts 2A at 230 Vac
Operating temperature range	-20...+50°C
Reference Standards	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 00 IEC 529, EN60529
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	120 g
Mounting information	vertical on rail, side by side

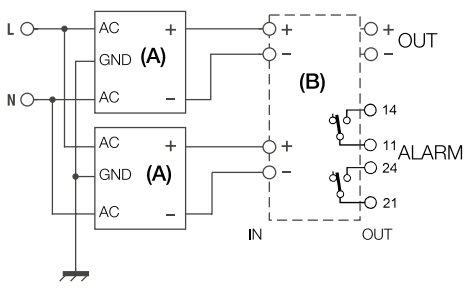
MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**

APPLICATIONS

This module this used for placing two power supplies without blocking diodes in parallel; jumpers can be used to select the desired operating voltage, and each channel has a relay and an LED diode giving you a remote alarm signal in case a power supply switches off.

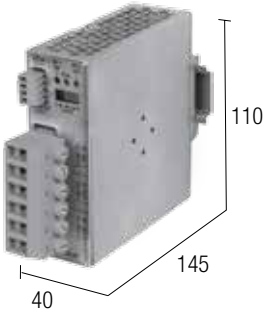
Connection Diagram



(A) Power supply
(B) CSBD

Accessory for redundant power supply connections

- Suitable for connecting power supplies without ORing diodes
- 12 to 85 V load voltages with currents of up to 50 A
- CPU-controlled electronic redundancy
- Current failure and unbalance alarm
- High efficiency and low consumption
- Compact dimensions

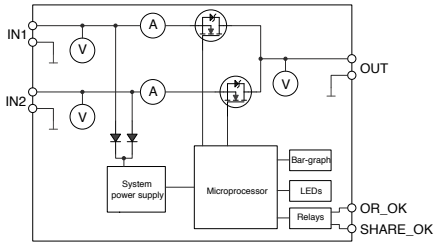


CE

NOTES

The depth measurement includes rail clamp clearance.

BLOCK DIAGRAM



VERSIONS	Code XCSR50U
	CSR50U

GENERAL TECHNICAL DATA	
Power supply input voltage	**12…85 Vdc**
Maximum input current	50 A
Power supply input voltage	**10.8…85 Vdc**
Maximum load current	**50 A** (max. 300 A peak)
IN/OUT voltage drop	0.2 V at 50 A
Protections	reverse polarity/input surge
Status display	Green LED indicating input voltage on Red redundancy alarm LED Redundant failure contact (24V/1A) Current share LED bar (unbalance control) Current share failure contact (unbalance control)
Efficiency	>98% (12 V / 50A)
Dissipated power	10 W
Operating temperature range	-20...+50°C
Input/output isolation	0.5 kVac / 60 s
Input/PE isolation	0.5 kVac / 60 s
Output/PE isolation	0.5 kVac / 60 s
Safety standards	EN 60950
Electromagnetic compatibility	EN 61000-6-2, EN 61000-6-4
MTBF at 25°C and nominal ratings	>500'000 h according to SN 29500 / >150'000 h according to MIL Std. HDBK 217F
Overvoltage category / Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	16 mm² (IN/OUT) and 1.5 mm² (signal) removable screw terminal blocks
Housing material	aluminium
Approximate weight	200 g
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**-**

APPLICATIONS

The CSR50U is an advanced, microprocessor-controlled module used for redundant parallel connections of two DC power supplies in applications needing higher reliability than provided by common passive ORing modules with diodes to isolate the outputs of the two power supplies.
The CSR50U comes with a current measurement sensor on each input to detect the correct supplied by the two power supplies and signal an alarm when the current supplied is unbalanced. An imbalance greater than 60% in the supply current is a certain indicator that one of the power supplies is failing. Detecting this situation and signalling an alarm with an SPST contact allows preventative maintenance to take place and increases the system's reliability.
In redundant systems where an imbalance in the supply is not controlled, it is not possible to monitor the correct supply of current from the two power sources. This setup permits a situation in which the current is supplied by only one power source, which then is forced to work under greater stress. Furthermore, the power source which supplies less current (or no current) may not trigger an alarm in certain conditions.
The CSR50U allows two identical power supplies to be connected for a total current output of 50 A and overall voltage from 12 to 85 Vdc.
Thanks to the ORing and isolation between the two power supplies with the microprocessor-controlled MOSFET, the power dissipated is one tenth of what redundant modules with diodes dissipate.
In addition, CSR50Us can be connected together to obtain redundancy of more than two systems.
The CSR50U provides status displays on:
- a fault or power loss in one of the two power supplies
- unbalanced current supplies greater than 60%

MBC2K
DC bus-powered engine braking device

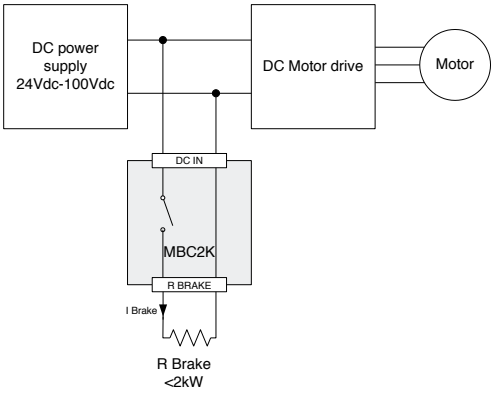
MBC2K is a microprocessor-controlled device designed for braking DC bus-powered engines. It is activated by the surge generated by the engine when its drive requires braking.
When the MBC2K is connected on the DC bus powering the engine drive (see diagram in fig. 1), the device activates automatically when the DC bus voltage exceeds the set threshold and transfers the power generated by the engine to the braking resistor, where it is dissipated. MBC2k is equipped with protection against short circuit, overload and over temperature in order to guarantee reliable operation. MBC2K can be connected to any DC bus power supply with a voltage within 24 and 100 Vdc. The simplified application is illustrated in the block diagram in Figure 1, the front view of the unit with all controls and functions is shown in Figure 2. CONNECT up to 4 units in parallel to increase the peak braking power up to 8 KW. MBC2K also has a 7-segment display and an LED for instantly viewing the DC bus voltage (accuracy +/- 1 V) which helps the user during set-up and in displaying error messages.

MBC2K setup
The MBC2K unit must be set-up prior to operation.
The menu comprises three pages, navigable using the MENU button;
The values shown can be adjusted by pressing the SET/RESET button.
a) brake intervention threshold (VTH)
b) brake intervention threshold hysteresis
c) Master/Slave mode; for selecting single mode (Master mode) or for parallel connection of up to 4 cards (1 Master+3 Slave).

Active protections
The MBC2K integrates active protections to ensure stable and reliable operation under normal use conditions. When it detects a fault, MBC2K turns itself off to prevent an uncontrolled flow of current through the braking resistor.
Fault status is indicated by the alarm LED flashing continuously.
And the integrated alarm relay allows the status of the module to be checked remotely.
To help the user understand which defect has occurred, an error code is shown on the 7-segment display.

Connect up to 4 MBC2K units in parallel
Up to 4 MBC2K units can be connected in parallel to increase peak braking capacity to 8 KW. Each unit is capable of braking 2 KW of peak power, for which each unit requires its own braking resistor. To set up this configuration, MBC2K is equipped with a bus that is used to synchronise the operation of all connected units (up to 4 max.). The principle of operation is based on one MBC2K unit configured as a Master and the other MBC2K units (up to 3) configured as Slaves.
The Master measures the DC bus voltage and decides when to insert the braking resistors into the circuit, sending a command on the synchronisation bus. When the Slave units connected to the synchronisation bus receive the command from the Master unit, they insert their braking resistor into the circuit. When MBC2K is configured in Slave mode, all of its protective circuits remain operational.

Figure 1 application block diagram



1. SET / RESET: Used to reset any errors and to change configurations in set-up mode.
2. MENU: Used to enter set-up mode and to navigate through the menu pages.
3. Synchronisation bus connector: used to connect up to 4 units in parallel.
4. Braking resistor thermostat connector: used to connect a thermostat present on the braking resistor (Klixson normally closed type is recommended; if not used, short-circuit the 2 terminals).
5. Remote alarm connector: an SPDT contact triggers the fault/malfunction signal.
6. Braking resistor connector: used to connect the external braking resistor.
7. DC bus connector: used to connect MBC2K to the 24 …100Vdc DC bus power supply.
8. Protective earth (PE) connector: used to connect the device to the ground protection.
9. 100s display: used to view numbers >99; e.g. if the indicator is on and the display reads “03”, the measurement is 103V.
10. Braking indicator: indicates that the unit is braking the engine and supplying current to the braking R.
11. 7-segment display: when the unit is in operation, this shows the DC bus voltage (accuracy +/-1V); it is also used to display menu items and error codes.
12. Alarm LED: indicates a fault or error status.

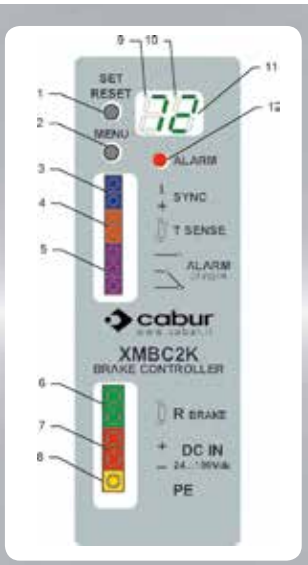
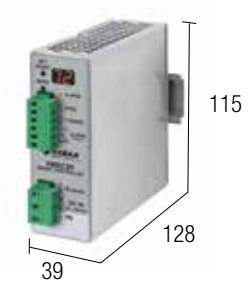


Figure 2 MBC2K - Front view

Motor brake controller

- 20 automatically activated threshold levels
- Each module can handle a braking power of 2 kW
- Connect up to 4 cards in parallel to run a braking power of 8 kW
- Simple function programming
- Braking resistor temperature control

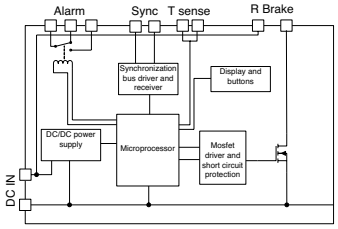


Item available until supplies last

NOTES

The depth measurement includes terminal block and rail clamp clearance.

BLOCK DIAGRAM



VERSIONS	Code XMBC2K
	MBC2K

INPUT TECHNICAL DATA	
DC bus range	**24…100 Vdc**
Maximum braking current	50 A for 1 s
Operating voltage when braking	**27…106 V**, threshold adjustable in 20 steps
Threshold hysteresis	3 V or 6 V switchable
User interface	2 setup buttons (SET/RESET and MENU) Two 7-segment displays 1 LED alarm status indicator (general) 1 SPDT remote failure contact (general)
Protections	Under DC bus voltage (< 22 Vdc) Over DC bus voltage (> 110 Vdc) Braking resistor overtemperature (only where a thermostat is connected to the resistor) Module internal over temperature (temp. > 90°C) Braking resistor interrupted or not connected Short-circuit (or braking current > 80A) Overload (or braking time > 1 s)
Parallel connection	Up to 4 MBC2Ks can be connected in parallel and synchronised through the bus to obtain a total peak braking power of 8 kW (with four 2 kW braking resistors).

GENERAL TECHNICAL DATA	
Dissipated power	**20 W**
Operating temperature range	0...+70°C
Input/output isolation	**—**
Input/PE isolation	500 Vac / 60s
Output/PE isolation	—
Safety standards	IEC950, EN60950 for SELV use up to 60 Vdc; use at higher voltages is not SELV classifiable
Electromagnetic compatibility	EN55011 Class B
Overvoltage category / Pollution degree	I / 2
Protection degree	IP 20 IEC 529, EN60529
Connection type	1.5 and 2.5 mm² removable screw terminal blocks
Housing material	aluminium
Approximate weight	200 g
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components
Approximate weight	120 g
Mounting information	vertical on rail, side by side

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**—**

APPLICATIONS

MBC2K is a microprocessor-controlled device designed for braking DC bus-powered engines. It is activated by the surge generated by the engine when its drive requires braking.
When the MBC2K is connected on the DC bus powering the engine drive (see diagram in fig. 1), the device activates automatically when the DC bus voltage exceeds the set threshold and transfers the power generated by the engine to the braking resistor, where it is dissipated. MBC2k is equipped with protection against short circuit, overload and over temperature in order to guarantee reliable operation. MBC2K can be connected to any DC bus power supply with a voltage within 24 and 100 Vdc. The simplified application is illustrated in the block diagram in Figure 1, the front view of the unit with all controls and functions is shown in Figure 2. Connect up to 4 units in parallel to increase the peak braking power up to 8 KW. MBC2K also has a 7-segment display and an LED for instantly viewing the DC bus voltage (accuracy +/- 1 V) which helps the user during set-up and in displaying error messages.

Adjustable electronic overcurrent protection from 1...10 A / 24 Vdc

Figure 1

According to the new EN60204-1, it is **compulsory** to protect wires on SELV-PELV lines from overcurrent. The standard requires that 24 Vdc overcurrent protections intervene by cutting out the failure before the control and command 24 Vdc falls below 21.6V, cutting off power to the controls and preventing the emergency and safety features from activating.
Under EN 60204-1 and EN 61131-1 and -2, overcurrent protection on SELV/PELV lines must be capable of isolating shorts within 10 ms and hazardous overcurrents within 5 s. The use of power supplies with a high output overcurrent capacity and fast, accurate protections facilitates fault isolation before the 24 V falls below 21.6 V, leaving the controls without power.

Fuses and magneto-thermal switches inserted on 24 Vdc lines have characteristic intervention I/ts that are not suitable for isolating faults with the required speed and accuracy, while the fuses may be replaced with different types, affecting the behaviour of the protection and the safety of the system.

The proper coordination of the circuit in which the overcurrent protection is inserted must consider the total R of the line as: R connections + R wires + R protection + R residual malfunctioning load. The total R must always allow a safe current to circulate in the circuit once the protection is triggered and the protection should neither be undersized, to prevent undesirable bursts at peak load, nor oversized, to prolong its intervention t.

The entire circuit, including power supply, protection, wiring and connections, must be designed such that all overcurrents can be cut-off within 5 s before the 24 Vdc falls below 21.6 Vdc. This requirement can be met with Cabur's CSF and CSG series power supplies, designed to provide a high output overcurrent (nom. I >+50% for > 5s) and CEP System electronic overcurrent protections with an accuracy and speed far superior to magneto-thermal switches and fuses, whose trigger t is independent of ambient T and can be reset locally or remotely.

Figure 3

Protection features
MGTs have two different intervention curves: Thermal and magnetic. The magnetic relay only triggers in the event of a short with different I/t curves; thermal relays all have the same intervention curve regardless of the MGT curve and in the event of an overload they behave as shown in figure 2: overload currents of 1.13 x In are cut in >1h, and at overcurrent > 1.45 x In, the trigger occurs in several minutes. The disconnection of short-circuit currents is activated by the magnetic relay whose trigger t ranges from 0.01 to 0.1 s, and it occurs at very high currents which the power supply used may not be able to deliver: a C5 MGT used in DC has a safe trigger of > 70 A, a current which only (but not all) power supplies with a far higher nom. I, e.g. 40 A, are capable of providing, but which is not deliverable by 10 A power supplies. Using MGT as an overcurrent protection, if the power supply used has an overload I 1.2 times greater than its nominal I, disconnection will occur after 20…60 minutes, while with a current 2.5 times higher than the nominal I it will trigger after 25 s to 2 min., depending on the Tamb, times which are too long to guarantee stability at 24V to protect wiring and protection selectivity. In case of malfunction, until the protection triggers, the power supply remains in overload in excess of x 1.5 x 5 s and the 24 V falls below 21.6 V, leaving normal functions and particularly the safety functions without power.

Figure 4

Protection selectivity
In case of an overload or short, only the malfunctioning circuit is isolated from its protection without any effects on the power to the other loads. This feature is obtained using power supplies with a high overcurrent capacity and quick and precise protections.

CEP system – the smart current control system
CEP "recognises" overcurrent at the lowest and most precise threshold and isolates the malfunctioning circuit in the fastest possible time. For maximum flexibility of use, the CEP system allows you to set 10 trigger currents from 1 A to 10 A in 1 A increments, and has 3 intervention curves: "Rapid – Normal – Delayed" (see fig. 3).
The protection status is indicated by two LEDs and a remote alarm transistor output, while the load can be activated/deactivated using the button on the front (fig. 5) or controlled remotely by PLC. The ability to control individual channels separately is useful during installation since various components can be activated and tested individually, while in large plants, the remote control feature can be used to gradually activate the various loads, preventing multiple simultaneous overloads at system start-up. An additional safety feature is manual disconnection, with which even when reactivating the protections remotely the load will remain inactive, preventing hazardous operating conditions.

Figure 5

Adjustable electronic overcurrent protection from 1...10 A / 24 Vdc

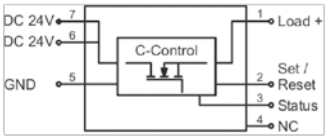
- Programmable from 1 A to 10 A in 1 A increments
- 3 programmable characteristic curves
- Remote or local ON/OFF control
- Green ON/red OFF status LED and remote signalling
- Slide contact for manual disconnection
- Sealable front cover for programming protection

1) sealable cover
2) programming current
3) identification tag
4) programming intervention curve
5) replacing the fuse

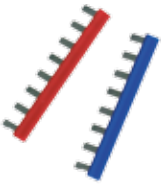
NOTES

(2) Remote control is through 24 Vdc pulses. Such pulse durations should be: = impulse > 1 s / OFF = impulse > 100 ms and < 800 ms
(3) The 3 standard characteristic curves are shown in the diagrams; the CEP-D3 version also has a software-programmable curve.

BLOCK DIAGRAM



VERSIONS	Code XCEPD1	Code XCEPD2	Code XCEPD3
With overload indication		**CEP-D1**	
INPUT TECHNICAL DATA			
Nominal voltage		**24 Vdc** (range 18…32 Vdc)	
Nominal current		10 A DC max	
Max. system current		40 A DC with CEP-RCC distribution bar	
Protection		internal electronic reverse polarity	
Remote ON/OFF control		external 24 Vdc pulse	
OUTPUT TECHNICAL DATA			
Nominal voltage		**24 Vdc** (voltage drop <170 mV at Un / In)	
Min./max. current		1...10 A DC programmable in 1 A increments	
Default trip curves		slow, medium and fast	
Max. connectable output capacity		10,000 µF	
Status indicator		Green LED: constant = OK, flashing = Iout at 90% of nominal, red LED: constant = output manually switched off, flashing slowly = overcurrent, flashing quickly = error	
Status display		transistor for overload detection	
GENERAL TECHNICAL DATA			
Operating temperature range		–25...+60°C, derating Imax. 8 A over 40°C	
Input/output isolation		3 kVac / 60 s SELV output	
Protection degree		IP 20 IEC 529, EN60529	
Reference Standards		EN60950-1, EN61131-1, EN61131-2, EN60898, EN60947-4-1, EN50081	
Connection type		0.25...2.5 mm² fixed-clamp spring terminal blocks	
Housing material		PA 6.6 (UL94V-0, NFF I2, F2)	
Approximate weight		120 g	
Mounting information		vertical or horizontal on rail, side-by-side, use of end brackets advised	
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32		—	
Power supply kit (terminal block + closure)	CEP-SS	(code XCEPSS)	
Distribution bar	CEP-RCC	(code XCEPRCC)	
Isolating distribution bar cover	CEP-RCP	(code XCEPRCP)	
Cross connection bridge red	CEP-BCR	(code XCEPBCR)	(8 poles)
Cross connection bridge blue	CEP-BCB	(code XCEPBCB)	(8 poles)
Identification tag	CEP-MTW	(code XCEPMTW)	(table with 50 tags)

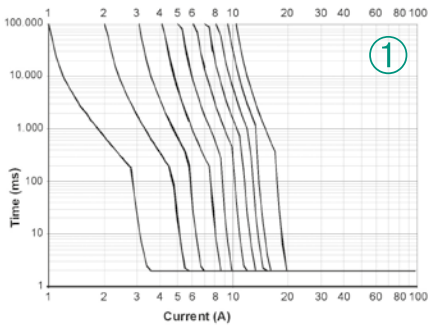


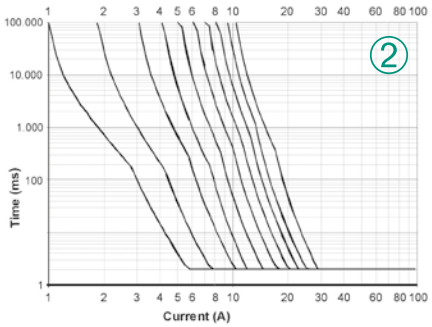
CEP-BCR and CEP-BCB

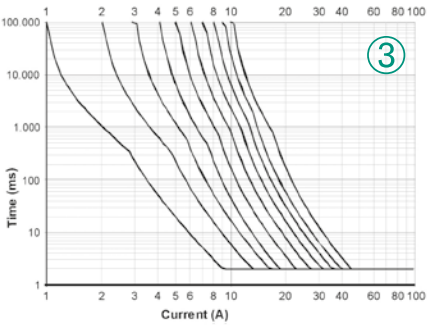
CEP-MTW

CEP-SS

Characteristic curve:
1) fast
2) medium
3) slow







EMI filter quick selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

3-phase filter without neutral 400-480 Vac

Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
7 A	20	60	60	60	50	35	25	60	65	60	55	40	XF07TDVST2	55
16 A	15	50	55	60	50	35	25	55	60	60	55	40	XF16TDVST2	55
30 A	15	50	55	60	50	35	25	55	60	60	55	40	XF30TDVST2	55
42 A	55	70	70	45	35	20	45	45	45	45	45	30	XF42TDVST2	55
55 A	15	55	55	55	50	35	25	55	60	60	50	40	XF55TDVST2	55
75 A	15	55	55	55	50	30	20	50	50	50	55	40	XF75TDVST2	55
100 A	35	50	45	25	15	7	30	35	35	35	30	7	XF100TDVST2	55
150 A	20	30	40	45	40	30	30	40	40	45	40	25	XF150TDS84C	56
180 A	20	30	40	45	40	30	30	40	40	45	40	25	XF180TDS84C	56
200 A	55	60	55	30	20	–	45	30	25	10	10	5	XF200TDDS84C	57
300 A	30	30	23	10	8	5	35	30	25	14	10	5	XF300TDSS84C	58
400 A	30	30	20	10	5	2	30	30	20	10	8	2	XF400TDSS84C	58

3-phase filter with neutral 400-480 Vac

Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
10 A	10	20	20	20	30	25	10	20	25	25	30	30	XF10TYG9	60
16 A	25	50	50	50	45	30	35	55	60	60	40	30	XF16TYT8	59
20 A	10	15	20	35	40	25	10	15	20	20	25	20	XF20TYS9	60
25 A	25	50	50	50	45	30	35	55	60	60	40	30	XF25TYT8	59
36 A	25	50	50	50	40	25	30	50	55	50	40	30	XF36TYT8	59
50 A	25	45	45	40	40	25	30	50	50	40	40	30	XF50TYT8	59
100 A	10	20	25	30	30	20	30	40	40	35	35	25	XF100TYT8	59

Single-cell single-phase filter 120-250 Vac

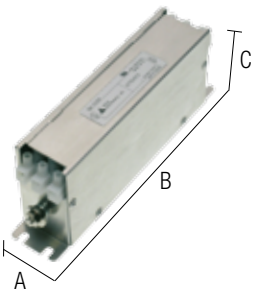
Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
3 A	20	30	35	45	50	45	7	35	50	45	45	45	XF03DKBG5B	61
6 A	15	20	25	40	45	45	10	20	45	45	50	45	XF06DKBG5B	61
12 A	10	20	22	35	45	40	10	20	40	45	45	45	XF12DKBG5B	61
16 A	10	18	20	35	45	30	10	18	40	40	40	35	XF16DKCG5B	61
20 A	10	18	20	30	35	35	10	12	35	35	40	40	XF20DKCG5B	61
30 A	10	25	30	45	50	35	12	40	50	50	50	45	XF30DKCS5B	61

Double-cell single-phase filter 120-250 Vac

Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
3 A	45	60	60	55	45	45	12	45	45	45	45	45	XF03DPCG5C	62
6 A	30	50	60	55	50	35	8	45	45	45	45	45	XF06DPCG5C	62
12 A	15	25	35	55	55	35	12	40	40	35	35	40	XF12DPCG5C	62
16 A	20	35	45	60	50	35	12	40	40	45	45	50	XF16DPCG5C	62
20 A	15	40	45	50	50	40	12	45	45	45	35	50	XF20DPCG5C	62
30 A	10	30	35	55	45	30	18	45	50	40	40	40	XF30DPGS5C	62

3-phase filter without neutral TDV series

- Models from 7 to 130 A
- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables
- Minimum surface occupied on the panel



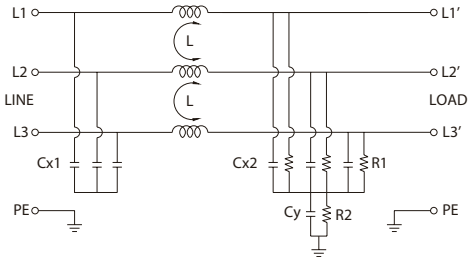
NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.

(1) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950

(2) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



VERSIONS

Nominal current	Type	Cat. No.	Dimensions A	B	C	Weight (kg)
7 A	**F 07 TDV ST2**	XF07TDVST2 (2)	42	192	72	
16 A	**F 16 TDV ST2**	XF16TDVST2 (2)	47	252	72	
30 A	**F 30 TDV ST2**	XF30TDVST2 (2)	52	272	87	
42 A	**F 42 TDV ST2**	XF42TDVST2 (2)	52	312	87	
55 A	**F 55 TDV ST2**	XF55TDVST2 (2)	87	252	92	
75 A	**F 75 TDV ST2**	XF75TDVST2 (2)	92	272	137	
100 A	**F 100 TDV ST2**	XF100TDVST2 (2)	90	270	150	

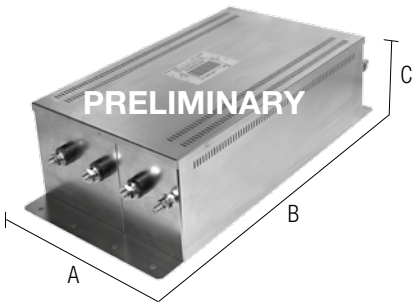
GENERAL TECHNICAL DATA

Nominal voltage	480 Vac ± 10%
Nominal current	See table for versions
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	30 mA
Operating temperature range	-25...+85°C
Isolation L/L	1.45 KVdc / 60 s (1)
Isolation L/PE	2.25 KVdc / 60 s (1)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	fixed screw terminal blocks
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

Type	Common mode (L / PE) attenuation (dB) 0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	Differential mode (L / L) attenuation (dB) 0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 07 TDV ST2	20	60	60	60	50	35	25	60	65	60	55	40
F 16 TDV ST2	15	50	55	60	50	35	25	55	60	60	55	40
F 30 TDV ST2	15	50	55	60	50	35	25	55	60	60	55	40
F 42 TDV ST2	55	70	70	45	35	20	45	45	45	45	45	30
F 55 TDV ST2	15	55	55	55	50	35	25	55	60	60	50	40
F 75 TDV ST2	15	55	55	55	50	30	20	50	50	50	55	40
F 100 TDV ST2	35	50	45	25	15	7	30	35	35	35	30	7

3-phase filter without neutral TDS series

- Models from 150 to 180 A
- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables



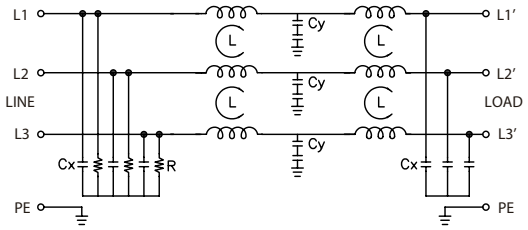
NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.

(1) Version made to order (not kept in stock); contact our sales office for availability.

(2) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

BLOCK DIAGRAM

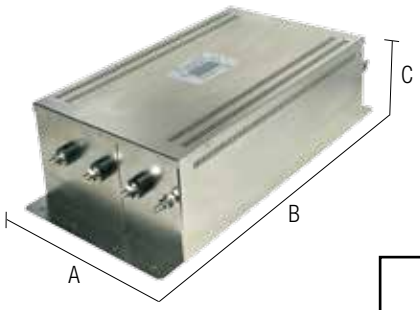


VERSIONS			Dimensions			Weight
Nominal current	Type	Cat. No.	A	B	C	(kg)
150 A	**F 150 TDS 84C**	XF150TDS84C (1)	202	390	122	
180 A	**F 180 TDS 84C**	XF180TDS84C (1)	202	390	122	

GENERAL TECHNICAL DATA	
Nominal voltage	480 Vac ± 10%
Nominal current	See table for versions
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	500 mA
Operating temperature range	-25...+85°C
Line/line isolation	1 KVdc / 60 s (2)
Line/PE isolation	1 KVdc / 60 s (150A) – 2.25 KVdc / 60 s (180A) (2)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	self-blocking nut
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

3-phase filter without neutral TDDS series

- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables

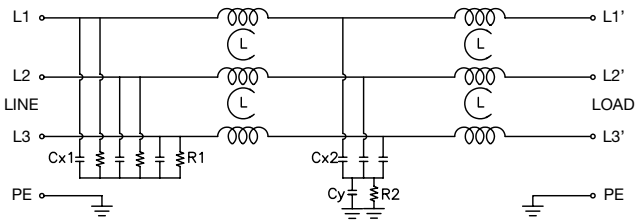


Item available until supplies last

NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.
(1) Item available until supplies last.
(2) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

BLOCK DIAGRAM



VERSIONS

Nominal current	Type	Cat. No.	Dimensions A	Dimensions B	Dimensions C	Weight (kg)
200 A	**F 200 TDDS 84C**	XF200TDDS84C (1)	240	477	140	

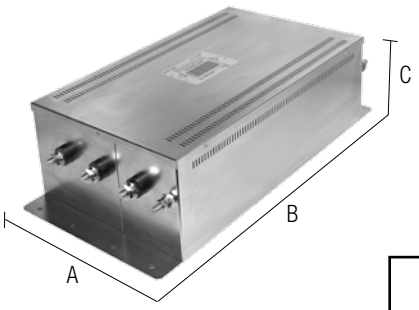
GENERAL TECHNICAL DATA

Nominal voltage	480 Vac ± 10%
Nominal current	200 A
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	500 mA
Operating temperature range	-25...+85°C
Line/line isolation	1 KVdc / 60 s (2)
Line/PE isolation	1.8 KVdc / 60 s (2)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	self-blocking nut
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 200 TDDS 84C	55	60	55	30	20	/	45	30	25	10	10	5

3-phase filter without neutral TDSS series

- Models from 300 to 600 A
- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables

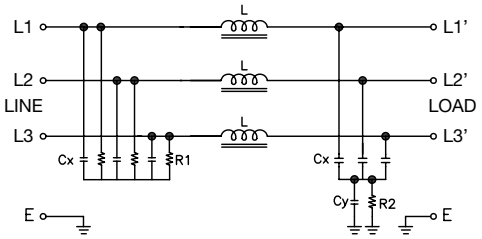


Item available until supplies last

NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.
(1) Item available until supplies last.
(2) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

BLOCK DIAGRAM

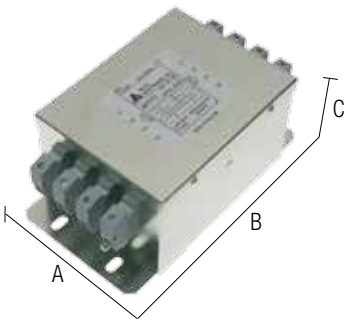


VERSIONS			Dimensions			Weight
Nominal current	Type	Cat. No.	A	B	C	(kg)
300 A	**F 300 TDSS 84C**	XF300TDSS84C (1)	242	525	142	
400 A	**F 400 TDSS 84C**	XF400TDSS84C (1)	242	525	142	

GENERAL TECHNICAL DATA	
Nominal voltage	480 Vac ± 10%
Nominal current	See table for versions
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	1000 mA
Operating temperature range	-25...+85°C
Line/line isolation	0.6 KVdc / 60 s (2)
Line/PE isolation	1 KVdc / 60 s (2)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	flat plug
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

3-phase filter with neutral TYT series

- Models from 16 to 100 A
- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables



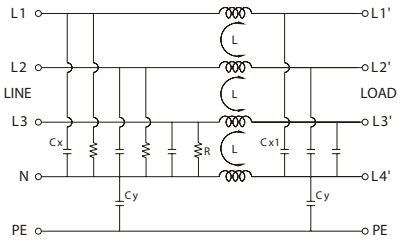
NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.

(1) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

(2) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



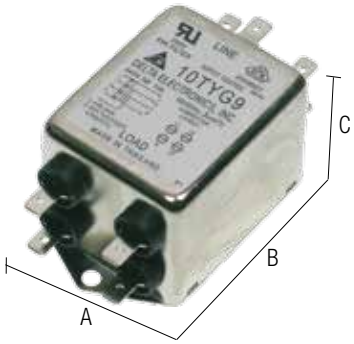
VERSIONS			Dimensions			Weight
Nominal current	Type	Cat. No.	A	B	C	(kg)
36 A	**F 36 TYT8**	XF36TYT8 (2)	107	191.5	82	
50 A	**F 50 TYT8**	XF50TYT8 (2)	124	194	104	
100 A	**F 100 TYT8**	XF100TYT8 (2)	162	252	132	

GENERAL TECHNICAL DATA	
Nominal voltage	440 Vac ± 10%
Nominal current	See table for versions
Frequency	50...60Hz
Leakage current at 480 Vac 60 Hz	3 mA
Operating temperature range	-25...+85°C
Line/line isolation	1.45 KVdc / 60 s (1)
Line/PE isolation	2.25 KVdc / 60 s (1)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	fixed screw terminal blocks
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 36 TYT8	25	50	50	50	40	25	30	50	55	50	40	30
F 50 TYT8	25	45	45	40	40	25	30	50	50	40	40	30
F 100 TYT8	10	20	25	30	30	20	30	40	40	35	35	25

Compact 3-phase filter with neutral TY series

- Models from 10 to 20 A
- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables
- Excellent quality/price/performance ratio



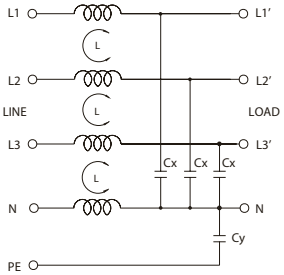
NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.

(1) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

(2) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



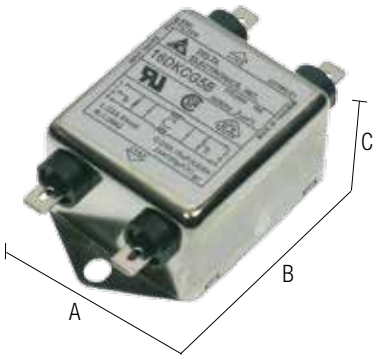
VERSIONS			Dimensions			Weight
Nominal current	Type	Cat. No.	A	B	C	(kg)
10 A	**F 10 TYG9**	XF10TYG9 (2)	50	85	44	
20 A	**F 20 TYS9**	XF20TYS9 (2)	50	97	44	

GENERAL TECHNICAL DATA	
Nominal voltage	440 Vac ± 10%
Nominal current	See table for versions
Frequency	50...60Hz
Leakage current at 480 Vac 60 Hz	0.5 mA
Operating temperature range	-25...+85°C
Line/line isolation	1.45 KVdc / 60 s (1)
Line/PE isolation	2.25 KVdc / 60 s (1)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	flat plug (10 A) and screw (20 A)
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 10T YG9	10	20	20	20	30	25	10	20	25	25	30	30
F 20 TYS9	10	15	20	20	25	20	10	15	20	20	25	20

Single-cell single-phase filter DK series

- Models from 3 to 30 A
- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables
- Minimum surface occupied on the panel



NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.

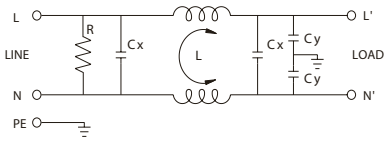
(1) 0.25 mA at 115 Vac and 0.45 mA at 250 Vac for 3…20 A - 1 mA at 115 Vac models and 2 mA at 250 Vac for 30 A models.

(2) Version made to order (not kept in stock); contact our sales office for availability.

(3) Flat plug for 3…20 A models; self-blocking nut for 30 A model.

(4) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

BLOCK DIAGRAM



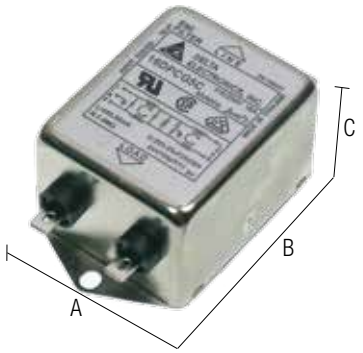
VERSIONS			Dimensions			Weight
Nominal current	Type	Cat. No.	A	B	C	(kg)
3 A	**F 03 DK BG5B**	XF03DKBG5B (2)	64.5	34	30	
6 A	**F 06 DK BG5B**	XF06DKBG5B (2)	64.5	34	30	
12 A	**F 12 DK BG5B**	XF12DKBG5B (2)	64.5	34	30	
16 A	**F 16 DK CG5B**	XF16DKCG5B (2)	45.5	71.5	30	
20 A	**F 20 DK CG5B**	XF20DKCG5B (2)	51.8	84.8	30	
30 A	**F 30 DK CS5B**	XF30DKCS5B (2)	56.5	114	46.4	

GENERAL TECHNICAL DATA	
Nominal voltage	115–250 Vac ± 10%
Nominal current	See table for versions
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	0.25…1 mA / 0.45…2 mA (1)
Operating temperature range	-25...+85°C
Line/line isolation	1.45 KVdc / 60 s (4)
Line/PE isolation	2.25 KVdc / 60 s (4)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	flat plug (from 3 to 20 A) / self-blocking nut (30 A) (3)
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 03 DK BG5B	20	30	35	45	50	45	7	35	50	45	45	45
F 06 DK BG5B	15	20	25	40	45	45	10	20	45	45	50	45
F 12 DK BG5B	10	20	22	35	45	40	10	20	40	45	45	45
F 16 DK CG5B	10	18	20	35	45	30	10	18	40	40	40	35
F 20 DK CG5B	10	18	20	30	35	35	10	12	35	35	40	40
F 30 DK CS5B	10	25	30	45	50	35	12	40	50	50	50	45

Double-cell single-phase filter DP series

- Models from 3 to 30 A
- Elevated attenuation from 150 kHz to 30 MHz
- Elevated attenuation even on long cables
- Minimum surface occupied on the panel



NOTES

The dimensions and diagrams are purely indicative, for more detailed information see the product's technical data.

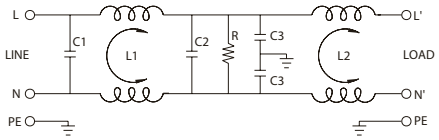
(1) 0.25 mA at 115 Vac and 0.45 mA at 250 Vac for 3…20 A - 1 mA at 115 Vac models and 2 mA at 250 Vac for 30 A models.

(2) Version made to order (not kept in stock); contact our sales office for availability.

(3) Flat plug for 3…20 A models; self-blocking nut for 30 A model.

(4) The capacitors between phase and neutral, requires that the isolation tests are carried out in DC in accordance with EN60950.

BLOCK DIAGRAM



VERSIONS

Nominal current	Type	Cat. No.	Dimensions A	B	C	Weight (kg)
3 A	**F 03 DP CG5C**	XF03DPCG5C (2)	84.8	75	52	
6 A	**F 06 DP CG5C**	XF06DPCG5C (2)	152.9	143	51.3	
12 A	**F 12 DP CG5C**	XF12DPCG5C (2)	84.8	75	52	
16 A	**F 16 DP CG5C**	XF16DPCG5C (2)				
20 A	**F 20 DP CG5C**	XF20DPCG5C (2)	56.5		46.4	
30 A	**F 30 DP GS5C**	XF30DPGS5C (2)				

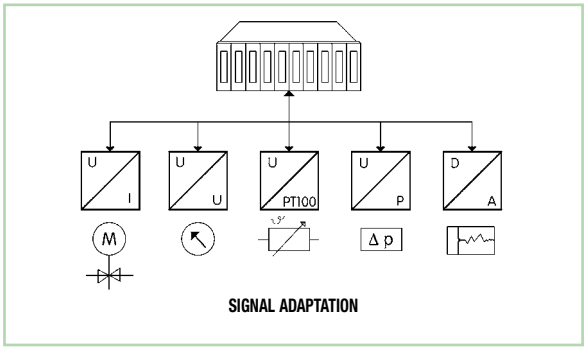
GENERAL TECHNICAL DATA

Nominal voltage	115–250 Vac ± 10%
Nominal current	See table for versions
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	0.25…1 mA / 0.45…2 mA (1)
Operating temperature range	-25...+85°C
Line/line isolation	1.45 KVdc / 60 s (4)
Line/PE isolation	2.25 KVdc / 60 s (4)
Overvoltage category / Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection type	flat plug (from 3 to 20 A) / self-blocking nut (30 A) (3)
Housing material	metallic
Approximate weight	See table for versions
Mounting information	on panels by means of anchorage screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 03 DP CG5C	45	60	60	55	45	45	12	45	45	45	45	45
F 06 DP CG5C	30	50	60	55	50	35	8	45	45	45	45	45
F 12 DP CG5C	15	25	35	55	55	35	12	40	40	35	35	40
F 16 DP CG5C	20	35	45	60	50	35	12	40	40	45	45	50
F 20 DP CG5C	15	40	45	50	50	40	12	45	45	40	35	50
F 30 DP GS5C	10	30	35	55	45	30	18	45	50	40	40	40

Applications of analogue converters and galvanic separation

They convert electrical signals generated by sensors which take physical measurements such as temperature (thermocouples and PT100 resistance thermometers), frequency (proximity, contacts, photocells), current (TA, Hall sensors), resistance (potentiometers), voltage, pressure, level, etc. into standardised electrical signals, adapting them to PLC, DCS and industrial PC (control) outputs, or they convert a given analogue signal into a different one, adapting it to control inputs/outputs or allowing for long-distance signal transmission without interference by means of galvanic separation (fig. 1).



SIGNAL ADAPTATION

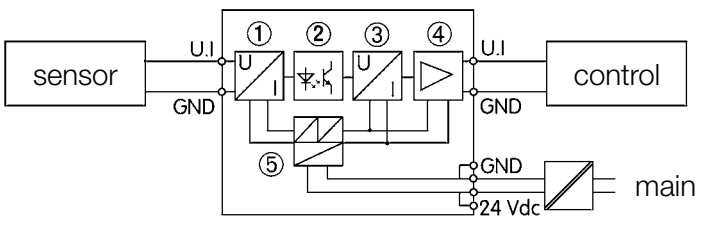
fig. 1

Adaptation between sensor output signal and control input signal

physical measurement taken	sensor output	converter input		converter output	
Temperature	Normally one of the following signals indicated in the next column	0 – 60 mV	±60 mV	0 – 5 V	±5 V
Frequency		0 – 100 mV	±100 mV	0 – 10 V	±10 V
Current		0 – 500 mV	±500 mV	0 – 20 mA	±20 mA
Resistance		0 – 1 V	±1 V	4 – 20 mA	
Voltage		0 – 5 V	±5 V		
Pressure		0 – 10 V	±10 V		
Level measurement		0 – 5 mA	±5 mA		
		0 – 10 mA	±10 mA		
		0 – 20 mA	±20 mA		
		0 – 20 mA			

Long-distance signal transmission

Voltage signals can reach a max. distance of 10-20 m, beyond which they lose reliability and become highly sensitive to induced and ground-derived interference, therefore in order to transmit to distances beyond 20 m a voltage signal must be converted into a current signal and galvanically separated (fig. 2).
Current signals can surpass a transmission distance of 300 m and are less sensitive to induced interference. The long-distance transmission of a current signal requires galvanic separation.



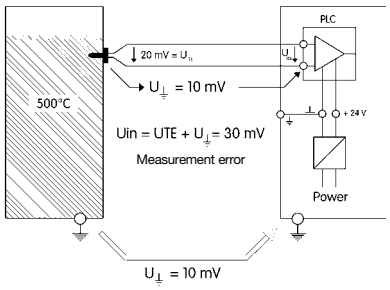
BLOCK DIAGRAM OF AN AMPLIFIER WITH GALVANIC SEPARATION

① Input amplifier
② Opto-isolator
③ Signal adapter
④ Output amplifier
⑤ DC/DC Converter

fig. 2

Galvanic signal separation (signal isolation):

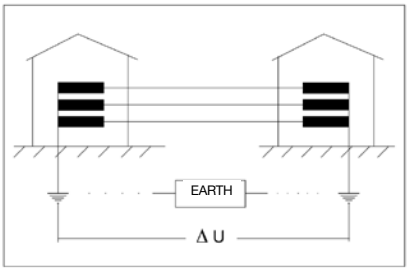
- isolates and electrically separates the sensor circuit from the control circuit and from the power supply circuit; each circuit therefore operates in relation to its own zero potential which, being isolated from other circuits, cannot be altered by ever-present potential differences between different ground references (fig.3)



NON-ISOLATED THERMOCOUPLE AND DIFFERENT GROUND POTENTIALS

fig. 3

- isolates and separates different ground potentials between power supply, control and sensors/actuators
- allows for signal transmission without errors or interference and with greater reliability
- the higher the isolation (in kV), the greater the security of the transmission in the presence of ground potentials, electromagnetic or temporary interference (lightning, discharge, etc.). (fig 4)

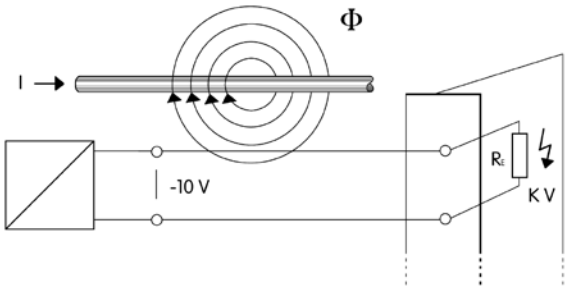


GROUND CIRCUITS AND POTENTIAL DIFFERENCE

fig. 4

Galvanic separation is necessary when:

- the distance between control and sensor/actuator is greater than 20 m
- ground or mass references are different
- ground potentials are high, or may become high in case of discharges or currents leaked to ground
- electromagnetic interference is present
- signal cables are wired in ducts with power cables (fig. 5)

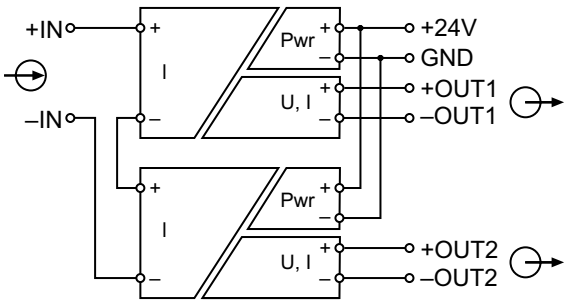


INTERFERENCE

fig. 5

Connection of analogue converters in series and in parallel

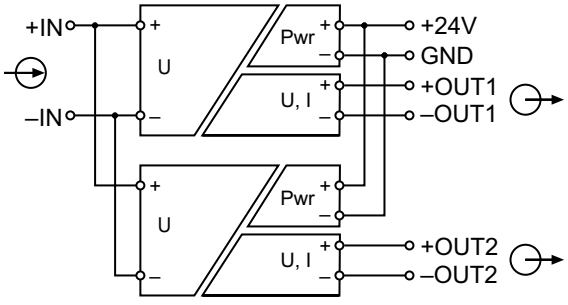
- To obtain signal redundancy or to simply duplicate it, multiple converter inputs can be connected to a single sensor.
- In case of current signals, the converter input will be connected in series (fig. 6)



CONVERTERS IN SERIES

fig. 6

- In case of voltage signals, the converter input will be connected in parallel (fig. 7)



CONVERTERS IN PARALLEL

fig. 7

Analogue quick selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

Analogue signal converter and separators

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0...60 / 0...100 / 0...500 mV ±60 / ±100 / ±500 mV 0...1 / 0...2 / 0...5 / 0...10 V ±1 / ±2 / ±5 / ±10 V 0...5 / 0...10 / 0...20 / 4...20 mA ±5 / ±10 / ±20 mA	0...5 / 0...10 / ±5 / ±10 V 0...20 / 4...20 / ±20 mA	3-way	24 Vdc	(1) (4)	CAPIPO3	XCAPIPO3	67
0...60 / 0...100 / 0...300 / 0...500 mV 0...1 / 0...10 / 0...20 / 2...20 V 0...5 / 0...10 / 0...20 / 4...20 / ±5 / ±20 mA	0...10 V 0...20 / 4...20 mA	3-way	24 Vac/dc	(1) (4)	CWUAA 6-0516	X756516	68
0...10 V 0...20 / 4...20 mA	0...10 V 0...20 / 4...20 mA	3-way	24 Vac/dc	(1) (4)	CWNAA 7-0539	X756539	69
0...10 V	0...10 V	3-way	24 Vac/dc	(2) (4)	CWAA 6-0530	X756530	70
0...10 V	0...20 mA	3-way	24 Vac/dc	(2) (4)	CWAA 6-0531	X756531	70
0...10 V	4...20 mA	3-way	24 Vac/dc	(2) (4)	CWAA 6-0532	X756532	70
0...20 mA	0...10 V	3-way	24 Vac/dc	(2) (4)	CWAA 6-0533	X756533	71
0...20 mA	0...20 mA	3-way	24 Vac/dc	(2) (4)	CWAA 6-0534	X756534	71
0...20 mA	4...20 mA	3-way	24 Vac/dc	(2) (4)	CWAA 6-0535	X756535	71
4...20 mA	0...10 V	3-way	24 Vac/dc	(2) (4)	CWAA 6-0536	X756536	72
4...20 mA	0...20 mA	3-way	24 Vac/dc	(2) (4)	CWAA 6-0537	X756537	72
4...20 mA	4...20 mA	3-way	24 Vac/dc	(2) (4)	CWAA 6-0538	X756538	72
0...20 / 4...20 mA	0...20 / 4...20 mA	2-way	—	(4)	CWPAA 7-0526	X756526	73
0...20 / 4...20 mA	0...20 / 4...20 mA	2-way	—	(3) (4)	CWPAA 7-0527	X756527	73
-30...+30 V / -50...+50 mA / -5...+5 A	2 thresholds (NA contacts)	3-way	24 Vdc	(6) (7)	LCONALSFDT	X756360	74

Notes

(1) DIP-switch programmable input and output signals
(2) fixed (non-calibratable) input and output signals, version made to order (not kept in stock), for information contact our sales office
(3) two-channel version
(4) two-way 1.5 k Vac/60 s (input/output) or three-way 1.5 kVac / 60 s (input/output/power supply) isolation
(5) three-way 4 kVac/60 s (input/output/power supply) isolation
(6) DIP-switch and software programmable input and output signals
(7) three-way 2.5 kVac/60 s (input/output/power supply) isolation

Current converters

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0…50 A ac	adjustable threshold 1…30 A	2-way	24 Vdc	(3) (4)	CCIS-2	XCCIS2	79
0…1 A ac/dc	0...10 V 0...20 / 4...20 mA	3-way	24 Vdc	(2)	WAA 7-0540	X756540	80
0…5 A ac/dc	0...10 V 0...20 / 4...20 mA	3-way	24 Vdc	(2)	WAA 7-0541	X756541	80
0…10 A ac/dc	0...10 V 0...20 / 4...20 mA	3-way	24 Vdc	(2)	WAA 7-0542	X756542	80

Notes

(1) version with single input and output signals
(2) version with three selectable output signals
(3) version with open collector threshold output
(4) version with threshold output with 1 exchange relay

Frequency/analogue programmable converters

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0…28.8 kHz (21 steps)	0...10 V 0...20 / 4...20 mA	2-way	24 Vac/dc	(1)	CWNFA 6-0524	X756524	82

Analogue quick selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

Auxiliary power supply for sensors and potentiometers

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
24 Vdc	10 Vdc	2-way			CWCV 7-6184	X766184	83

NPN and PNP signal inverter

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
NPN (17…30 Vdc)	PNP				CI-NPN/PNP	XNPNPNP	84
PNP (17…30 Vdc)	NPN				CI-NPN/PNP	XNPNPNP	84

Temperature sensor converters

Sensor type	Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
PT100 and PT1000 (2, 3, 4 wires) Thermocouples B, C, E, J, K, N, R, S, T 0-600 kOhm potentiometers	Programmable -200...+2400°C (-328...+4352°F) based on sensor type	0...10 V / -10...+10 V 0...20 mA / 4...+20 mA	3-way	24 Vdc	(1) (2)	LCONTADFDT	X756340	75
PT100 and PT1000 (2, 3, 4 wires) Thermocouples B, C, E, J, K, N, R, S, T 0-600 kOhm potentiometers	Programmable -200...+2400°C (-328...+4352°F) based on sensor type	2 thresholds (NA contacts)	3-way	24 Vdc	(2)	LCONTLSFDT	X756370	76
PT100 3 wires (RTD)	-50…+50°C (-58…+122°F) -50…+100°C (-58…+212°F) -50…+150°C (-58…+302°F) 0…+100°C (+32…+212°F) 0…+150°C (+32…+302°F) 0…+200°C (+32…+392°F) 0…+300°C (+32…+572°F) 0…+400°C (+32…+752°F)	0...10 V 0...20 / 4...20 mA	3-way	24 Vac/dc	(2)	CWPT 6-0816	X756816	77
Thermocouples J (FeCuNi) and K (NiCrNi)	-50…+200°C (-58…+392°F) -50…+350°C (-58 …+662°F) 0…+200°C (+32…+392°F) 0…+400°C (+32…+752°F) 0…+600°C (+32…+1112°F) 0…+800°C (+32…+1472°F) 0…+1000°C (+32…+1832°F) 0…+1200°C (+32…+2192°F)	0...10 V 0...20 / 4...20 mA	3-way	24 Vac/dc	(2)	CWTH 6-0844	X756844	78

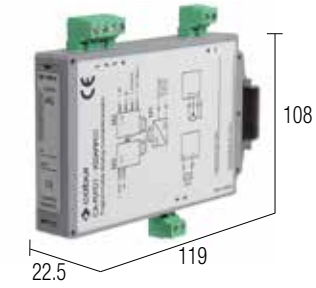
Notes

(1) software programmable input and output signals

(2) DIP-switch programmable input and output signals

Analogue programmable signal converters

- 19 input steps
- 7 output steps
- 1 failure contact
- Input/Output isolation > 3 kVac
- Auxiliary power supply for loop powered sensors
- Potentiometer input



CE

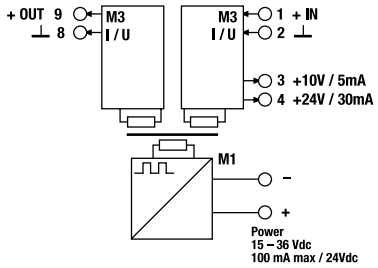
TAB.1 - INPUT SELECTION TABLE

INPUT RANGE		SW1 (INPUT)							
UNIPOLAR	BIPOLAR	1	2	3	4	5	6	7	8
0 – 60 mV	± 60 mV								
0 – 100 mV	± 100 mV		●						
0 – 500 mV	± 500 mV			●					
0 – 1 V	± 1 V				●				
0 – 2 V	± 2 V						●		
0 – 5 V	± 5 V			●	●	●	●		
0 – 10 V	± 10 V							●	
0 – 5 mA	± 5 mA	●		●					
0 – 10 mA	± 10 mA	●			●				
0 – 20 mA	± 20 mA	●					●		
4 – 20 mA	—	●				●			●

NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) Stock cards are programmed and calibrated with input 0…10 V and output 0…10 V. cards programmed and calibrated for all other possible configurations are available upon request.

BLOCK DIAGRAM



TAB.2 - OUTPUT SELECTION TABLE

OUTPUT RANGE	INPUT TYPE	SW2 (OUTPUT)								SW3
		1	2	3	4	5	6	7	8	
0 – 5 V	UNIP.	X		●				●		U
	BIP.	X	●	●				●	●	U
± 5 V	UNIP.	X			●			●		U
	BIP.	X		●				●		U
0 – 10 V	UNIP.	X		●						U
	BIP.	X	●	●					●	U
± 10 V	UNIP.	X			●					U
	BIP.	X		●						U
0 – 20 mA	UNIP.	X		●				X		I
	BIP.	X	●	●				X	●	I
± 20 mA	UNIP.	X			●			X		I
	BIP.	X		●				X		I
4 – 20 mA	UNIP.	X				●	●	X		I
	BIP.	X	●			●	●	X	●	I

● = ON
= OFF
X = ANY

VERSIONS	Cat. No. XCAPIP03
Standard	**CAPIP03**

INPUT TECHNICAL DATA	
Input signal (1)	19 programmable steps (see tab. 1)
Voltage/current impedance	1 MΩ / 50 Ω
Max. input voltage	15 V
Max. input current	30 mA

OUTPUT TECHNICAL DATA	
Output signal (1)	7 programmable steps (see tab. 2)
Voltage/current output load	≥ 10 kΩ / ≤ 500 Ω
Max. output voltage	12 V
Max. outrush current	25 mA

GENERAL TECHNICAL DATA	
Power supply voltage	15...36 Vdc
Power consumption	100 mA max. at 24 Vdc
Max. auxiliary voltage I	10 Vdc 5 mA / 24 Vdc 30 mA
Gain error	< 0.1% FS
Offset error	< 0.05 % FS
Linearity error	< 0.1% FS
Zero adjustment/span adj.	± 10% FS / ± 10% FS
Conversion frequency	400Hz...1kHz depending on full scale
Rise time	150 mV / µs
Bandwidth	1 kHz at -6 dB
Phase delay	< 10 µs
Input/Output/Power supply isolation	> 3 kVac / 60 s
Permanent voltage isolation	800 Vac max.
Reference Standards	IEC 664-1, DIN VDE0110.1
Overvoltage category / Pollution degree	III / 2
Operating temperature range	-10... +65°C
Δ T	5°C
Protection degree	IP 20 IEC 529, EN60529
EMC standards	EN 50081-2, EN 50082-2
Connection type	2.5 mm² removable screw terminal blocks
Housing material	UL94V-0 polyamide
Approximate weight	150 g
Mounting information	vertical on rails, space 5 mm from adjacent components

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Jumper red	—
white	—
blue	—

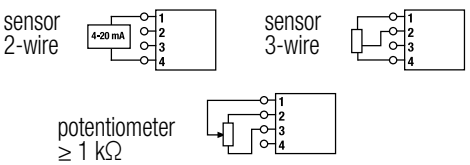
INPUT STAGE

The module can manage single-pole and two-pole inputs selecting between steps (see TAB. 1):

- 0…60 mV ± 60 mV
- 0…100 mV ± 100 mV
- 0…500 mV ± 500 mV
- 0…1 V ± 1 V
- 0…5 V ± 5 V
- 0…10 V ± 10 V
- 0…5 mA ± 5 mA
- 0…10 mA ± 10 mA
- 0…20 mA ± 20 mA
- 4…20 mA

The input stage provides two power supplies (10 V and 24 V) for remote sensors. It is possible to run potentiometers and directly power 4…20 mA two-wire loop sensors.

Connection examples:



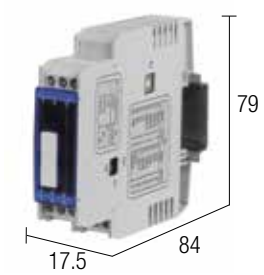
OUTPUT STAGE

The module provides single-pole and two-pole output signals with the following steps (see Tab. 2):

- 0…5 V ± 5 V
- 0…10 V ± 10 V
- 0…20 mA ± 20 mA
- 4…20 mA

Programmable analogue signal converter

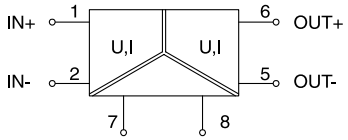
- 3-way galvanic separation
- 14 programmable input ranges
- 3 programmable output ranges
- Simplified programming
- Version available with 24-240 Vac/dc power supply



NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) settable using a rotary switch
(2) settable using a DIP-switch
(3) range 16.8…30 Vdc / 19.2…28.8 Vac
(4) range 16.8…264 Vdc / 19.2…264 Vac
(5) 3-way, IN/OUT/power supply
(6) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



Power supply
24 Vac/dc

VERSIONS

	Cat. No. X756516
	CWUAA 6-0516

INPUT TECHNICAL DATA

Input signal (1)	**0...60 / 0...100 / 0...300 / 0…500 mV** **0…1 / 0…10 / 0…20 / 2…20 V** **0…5 / 0…10 / 0…20 / 4…20 / ±5 / ±20 mA**
Input resistance	330 kΩ with voltage input 100 kΩ with current input

OUTPUT TECHNICAL DATA

Output signal (2)	**0…10 V** **0…20 / 4…20 mA**
Applicable load	>1 kΩ with voltage output <400 Ω with current output

GENERAL TECHNICAL DATA

Power supply voltage	**24 Vac/dc** (3)
Power consumption	≤ 35 mA ± 10% at 24 Vdc
Accuracy	0.1% at 23°C FS
Conversion frequency	< 30 Hz
Temperature coefficient	0.02% / K FS
Isolation	1.5 kVac / 60 s (5)
EMC standards	EN 50081-2, EN 50082-2
Reference Standards	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	*III* / *2*
Protection degree	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 Noryl
Approximate weight	65 g
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES

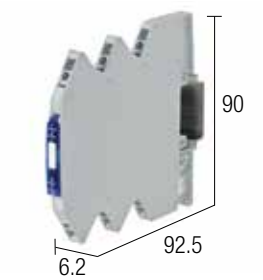
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		—
Jumper	red	—
(16 poles, 16 A)	white	—
	blue	—

APPLICATIONS

Converts and galvanically isolates the main standardised analogue signals; input programmable with 14 signal ranges and output with the three most used standardised signals. Configuration is obtained by setting the DIP-switches on the side.
This module offers multiple in/out signal combinations, allowing for significant savings in terms of costs, time and storage space and in the management of spare parts.
3-way galvanic separation ensures total isolation between input, output and power supply which, together with automatic signal calibration, ensures excellent precision without the need for calibration.
Where multiple output channels are needed for a single signal source, multiple converters may be used connecting the signal inputs in parallel, in the case of voltage signals, or in series, in the case of current signals.

Programmable analogue signal converters

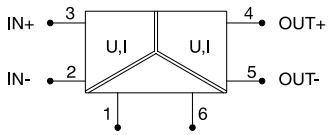
- 1.5 kV 3-way input/output/power supply isolation
- 3 programmable input ranges
- 3 programmable output ranges
- Simplified, self-adjusting programming
- Version available with 24-240 Vac/dc power supply



NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) range 16.8…264 Vdc / 19.2…264 Vac
(3) 3-way, IN/OUT/power supply

BLOCK DIAGRAM



Power supply
24 Vac/dc

APPLICATIONS

Convert and galvanically isolate the main standardised analogue signals; input programmable with 3 signal ranges and output with the 3 most used standard signals. Configuration is obtained by setting the DIP-switches on the side. Programmable in the most used signal combinations, these cards allow for a significant cost saving over the more complex 14 range version. Where multiple output channels are needed for a single signal source, multiple converters may be used connecting the signal inputs in parallel (with voltage signals) or in series (with current signals).

VERSIONS	Cat. No. X756539	
	CWNAA-7-0539	
INPUT TECHNICAL DATA		
Input signal	**0…10 V** **0…20 / 4…20 mA**	
Input resistance	330 kΩ with voltage input 100 Ω with current input	
OUTPUT TECHNICAL DATA		
Output signal	**0…10 V** **0…20 / 4…20 mA**	
Applicable load	>1 kΩ with voltage output <400 Ω with current output	
GENERAL TECHNICAL DATA		
Power supply voltage	**24 Vac/dc** (1)	
Power consumption	≤ 35 mA ± 10% at 24 Vdc	
Accuracy	0.1% at 23°C FS	
Conversion frequency	< 30 Hz	
Temperature coefficient	0.02% / K FS	
Isolation	1.5 kVac / 60 s (3)	
EMC standards	EN 61000-6-2, EN 61000-6-4	
Reference Standards	IEC 664-1, DIN VDE	
Overvoltage category / Pollution degree	III / 2	
Protection degree	IP 20 IEC 529, EN60529	
Operating temperature range	-25…+60°C	
Connection type	2.5 mm² fixed screw terminal blocks	
Housing material	UL94V-0 Noryl	
Approximate weight	40 g	
Mounting information	vertical on rails, side by side	

MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32		—	
Jumper	red	CWBK 7-0802 Cat. No. X766802	—
(16 poles, 16 A)	white	CWBK 7-0803 Cat. No. X766803	—
	blue	CWBK 7-0804 Cat. No. X766804	—

Analogue signal converters

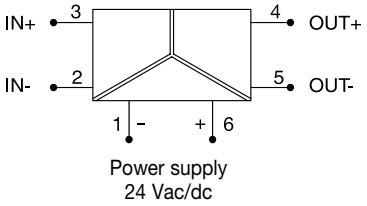
- 1.5 kV 3-way input/output/power supply isolation
- Fixed value
- Compact size, 6.2 mm thick

NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac

(2) 3-way, IN/OUT/power supply

BLOCK DIAGRAM



Power supply
24 Vac/dc

VERSIONS	Cat. No. X756530	Cat. No. X756531	Cat. No. X756532
IN: 0...10 V / OUT: 0...10 V	**CWAA 7-0530**		
IN: 0...10 V / OUT: 0...20 mA		**CWAA 7-0531**	
IN: 0...10 V / OUT: 4...20 mA			**CWAA 7-0532**
INPUT TECHNICAL DATA			
Input signal	**0…10 V**	**0…10 V**	**0…10 V**
Input resistance	330 kΩ	330 kΩ	330 kΩ
OUTPUT TECHNICAL DATA			
Output signal	**0...10 V**	**0...20 mA**	**4...20 mA**
Applicable load	>1 kΩ	<400 Ω	<400 Ω
GENERAL TECHNICAL DATA			
Power supply voltage	24 Vac/dc (1)	24 Vac/dc (1)	24 Vac/dc (1)
Power consumption	≤ 13 mA ± 10%	≤ 13 mA ± 10%	≤ 13 mA ± 10%
Accuracy	0.1% at 23°C FS	0.1% at 23°C FS	0.1% at 23°C FS
Conversion frequency	< 30 Hz	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS	0.02% / K FS
Isolation	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)
EMC standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standards	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	III / 2	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C	-25…+60°C
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
Housing material	PPE	PPE	PPE
Approximate weight	40 g	40 g	40 g
Mounting information	vertical on rails, side by side	vertical on rails, side by side	vertical on rails, side by side

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Jumper red	CWBK 7-0802 Cat. No. X766802
(16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

Convert and galvanically isolate the main analogue signals into a proportional signal; each model is designed to convert a single analogue signal providing a substantial reduction in components and costs, making it the perfect solution for large plants and applications which use multiple signals of the same type, where programmable cards would drive up costs. Equipped with 3-way galvanic separation between input, output and power supply. Where multiple output channels are needed for a single signal source, multiple converters may be used connecting the signal inputs in parallel (with voltage signals) or in series (with current signals).

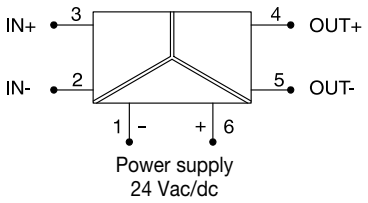
Analogue signal converters

- 1.5 kV 3-way input/output/power supply isolation
- Fixed value
- Compact size, 6.2 mm thick

NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) 3-way, IN/OUT/power supply
(3) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



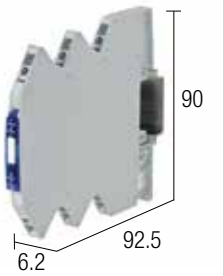
VERSIONS	Cat. No. X756533	Cat. No. X756534	Cat. No. X756535
IN: 0...20 mA / OUT: 0...10 V	**CWAA 7-0533 (3)**		
IN: 0...20 mA / OUT: 0...20 mA		**CWAA 7-0534 (3)**	
IN: 0...20 mA / OUT: 4...20 mA			**CWAA 7-0535 (3)**
INPUT TECHNICAL DATA			
Input signal	**0...20 mA**	**0...20 mA**	**0...20 mA**
Input resistance	100 Ω	100 Ω	100 Ω
OUTPUT TECHNICAL DATA			
Output signal	**0...10 V**	**0...20 mA**	**4...20 mA**
Applicable load	>1 kΩ	<400 Ω	<400 Ω
GENERAL TECHNICAL DATA			
Power supply voltage	**24 Vac/dc** (1)	**24 Vac/dc** (1)	**24 Vac/dc** (1)
Power consumption	≤ 13 mA ± 10%	≤ 13 mA ± 10%	≤ 13 mA ± 10%
Accuracy	0.1% at 23°C FS	0.1% at 23°C FS	0.1% at 23°C FS
Conversion frequency	< 30 Hz	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS	0.02% / K FS
Isolation	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)
EMC standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standards	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	III / 2	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C	-25…+60°C
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
Housing material	PPE	PPE	PPE
Approximate weight	40 g	40 g	40 g
Mounting information	vertical on rails, side by side	vertical on rails, side by side	vertical on rails, side by side
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		
Jumper red	CWBK 7-0802 Cat. No. X766802		
(16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803		
blue	CWBK 7-0804 Cat. No. X766804		

APPLICATIONS

Convert and galvanically isolate the main analogue signals into a proportional signal; each model is designed to convert a single analogue signal providing a substantial reduction in components and costs, making it the perfect solution for large plants and applications which use multiple signals of the same type, where programmable cards would drive up costs. Equipped with 3-way galvanic separation between input, output and power supply. Where multiple output channels are needed for a single signal source, multiple converters may be used connecting the signal inputs in parallel (with voltage signals) or in series (with current signals).

Analogue signal converters

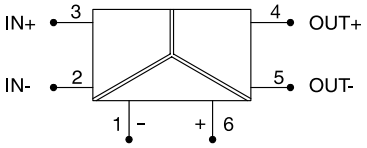
- 1.5 kV 3-way input/output/power supply isolation
- Fixed value
- Compact size, 6.2 mm thick



NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) 3-way, IN/OUT/power supply
(3) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



Power supply
24 Vac/dc

VERSIONS	Cat. No. X756536	Cat. No. X756537	Cat. No. X756538
IN: 4...20 mA / OUT: 0...10 V	**CWAA 7-0536**		
IN: 4...20 mA / OUT: 0...20 mA		**CWAA 7-0537 (3)**	
IN: 4...20 mA / OUT: 4...20 mA			**CWAA 7-0538**
INPUT TECHNICAL DATA			
Input signal	**4...20 mA**	**4...20 mA**	**4...20 mA**
Input resistance	100 Ω	100 Ω	100 Ω
OUTPUT TECHNICAL DATA			
Output signal	**0...10 V**	**0...20 mA**	**4...20 mA**
Applicable load	>1 kΩ	<400 Ω	<400 Ω
GENERAL TECHNICAL DATA			
Power supply voltage	24 Vac/dc (1)	24 Vac/dc (1)	24 Vac/dc (1)
Power consumption	≤ 13 mA ± 10%	≤ 13 mA ± 10%	≤ 13 mA ± 10%
Accuracy	0.1% at 23°C FS	0.1% at 23°C FS	0.1% at 23°C FS
Conversion frequency	< 30 Hz	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS	0.02% / K FS
Isolation	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)
EMC standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standards	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	III / 2	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C	-25…+60°C
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
Housing material	PPE	PPE	PPE
Approximate weight	40 g	40 g	40 g
Mounting information	vertical on rails, side by side	vertical on rails, side by side	vertical on rails, side by side

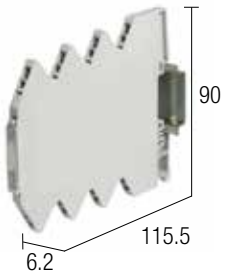
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Jumper red	CWBK 7-0802 Cat. No. X766802
(16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

Convert and galvanically isolate the main analogue signals into a proportional signal; each model is designed to convert a single analogue signal providing a substantial reduction in components and costs, making it the perfect solution for large plants and applications which use multiple signals of the same type, where programmable cards would drive up costs. Equipped with 3-way galvanic separation between input, output and power supply. Where multiple output channels are needed for a single signal source, multiple converters may be used connecting the signal inputs in parallel (with voltage signals) or in series (with current signals).

Passive galvanic isolators

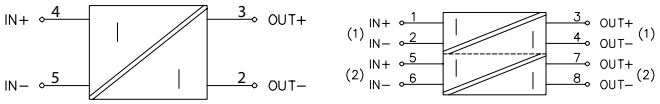
- Do not require power supply
- Adapted to loop powered sensors
- 500 V 2-way input/output isolation
- One- and two-channel versions
- Compact size, 6.2 mm thick



NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) Input voltage must be greater than that taken from the formula, where Rb is the resistance of the applied load (see figure 1); to make things easier we have provided a graph of the minimum input voltage based on the variation in applied output load (see figure 2); only this value is able to ensure the maximum output current of 20 mA
(2) 2-way, IN/OUT
(3) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



VERSIONS	Cat. No. X756526	Cat. No. X756527
Single channel	**CWPAA 7-0526**	
Double channel		**CWPAA 7-0527 (3)**
INPUT TECHNICAL DATA		
Input signal	1 channel 0…20 mA, 4…20 mA	2 channels 0…20 mA, 4…20 mA
Input current	—	—
Input voltage (1)	2.7 + (20 mA x Rb)	2.7 + (20 mA x Rb)
Input resistance	100 Ω	100 Ω
OUTPUT TECHNICAL DATA		
Output signal	1 channel 0…20 / 4…20 mA, (max 21 mA)	2 channels 0…20 / 4…20 mA, (max 21 mA)
Applicable load	<400 Ω with current output	<400 Ω with current output
GENERAL TECHNICAL DATA		
Power supply voltage	—	—
Power consumption	12 mA	12 mA
Accuracy	0.1 FS (23°C)	0.1 FS (23°C)
Rise time (10..90%)	10 ms	10 ms
Conversion frequency	30 Hz at 3 dB	30 Hz at 3 dB
Temperature coefficient	0.02% FS	0.02% FS
Isolation	1.5 kVac / 60 s (2)	1.5 kVac / 60 s (2)
EMC standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standards	IED 664-1, DIN VDE	IED 664-1, DIN VDE
Overvoltage category / Pollution degree	III / 2	III / 2
Protection degree	IP 20 IEC 529 EN60529	IP 20 IEC 529 EN60529
Operating temperature range	-25…+60°C	-25…+60°C
Connection type	1.5 mm² fixed screw terminal blocks	1.5 mm² fixed screw terminal blocks
Housing material	Luranyl	Luranyl
Approximate weight	35 g	35 g
Mounting information	vertical on rails, side by side	vertical on rails, side by side
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Jumper (16 poles, 16 A) red	CWBK 7-0802 Cat. No. X766802	
Jumper (16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803	
Jumper (16 poles, 16 A) blue	CWBK 7-0804 Cat. No. X766804	

APPLICATIONS

Passive galvanic isolators are used to separate signals generated by active (i.e. powered) sensors, and are also referred to as current loop or loop powered. The load applied to them must have a resistance of below 400 Ω at 20 mA, including the resistance of the conductors.
The input voltage delivered must be 2.7 V higher than the output voltage (see note 1).
When these use conditions are met, passive converters are able to reduce wiring costs for power supply cables and prevent the need for external power supplies; they are not suitable for long connection wiring since they can heavily influence the output signal level.

fig. 1

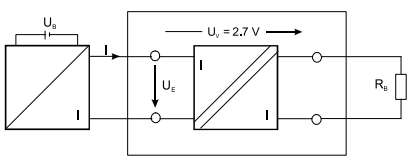
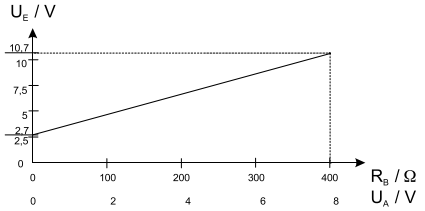
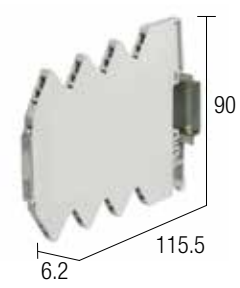


fig. 2



Monitor module for alanogue signal

- 3-way galvanic separation
- Dip-switch and FDT/DTM software programmable input ranges
- FDT/DTM software programmable output thresholds
- Simplified programming



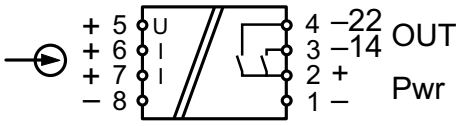
Programming kit X756894

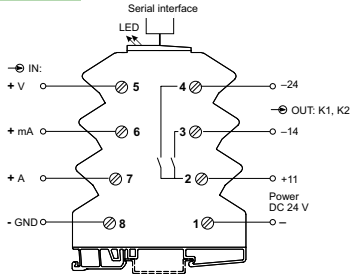
CE

NOTES

The depth measurement includes rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(3) 2-way, IN/OUT

BLOCK DIAGRAM





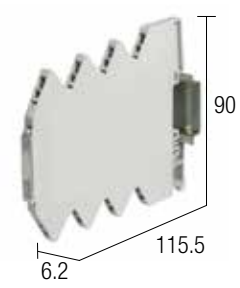
VERSIONS	Cat. No. X756360		Cat. No. X756894
With screw terminal blocks (standard)	**LCONALS (1)**		
With spring terminal blocks		**(1)**	
Programming kit			**LCONZBUSB (1)**
INPUT TECHNICAL DATA			
Input signal (1)	**-30…+30 V**	**-50…+50 mA**	**-5…+5 A**
Input resistance	330 kΩ	30 Ω	10 mΩ
Zero / Spam	adjustable using FDT/DTM software		
OUTPUT TECHNICAL DATA			
Threshold adjustment	programmable using FDT/DTM software		
Contact type	2 NA contacts (solid state relay)		
Max. switchable voltage and current	30 Vdc / 100 mA		
Status display	2 yellow LEDs		
Operating mode	limit value, window, trend, inversion and memory		
GENERAL TECHNICAL DATA			
Power supply voltage	24 Vdc (16.8…30 Vdc)		
Power consumption	18 mA ± 10% at 24 Vdc		
Accuracy	0.1% FS		
Data processing	24 Bit		
Linearity error	< 100 ppm FS		
Temperature coefficient	<100 ppm/°C		
Response time	1...500 ms (adjustable, default 30 ms)		
Isolation	2.5 kVac / 60 s (3)		
EMC standards	EN 50081-2, EN 50082-2		
Reference Standards	IEC 664-1, DIN VDE		
Surge category / Degree of pollution	III / 2		
Protection degree	IP20		
Operating temperature range	-40…+70°C		
Connection type	1.5 mm² fixed screw terminal blocks		
Housing material	UL94V-0 Noryl		
Approximate weight	600 g		
Mounting information	vertical on rails, side by side		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		
Jumper red (16 poles, 16 A) white blue	CWBK 7-0802 cat. no. X766802 CWBK 7-0803 cat. no. X766803 CWBK 7-0804 cat. no. X766804		

APPLICATIONS

CWTPR 7-0360 is a “universal” converter for a wide range of analogue signals that can be used with the most popular models of analogue sensors on the market.
Both input ranges and output thresholds can be changed using FDT/DTM software and a USB interface.
The normally open contacts of the two output thresholds are managed by two solid state relays.

Programmable temperature/analogue converter

- For PT100 and PT1000 sensors, thermocouples, potentiometers
- 2.5 kV 3-way input/output isolation
- 145 DIP-switch selectable input ranges, customisable using FDT/DTM software
- 5 DIP-switch selectable output ranges, customisable using FDT/DTM software
- Compact size, 6.2 mm thick

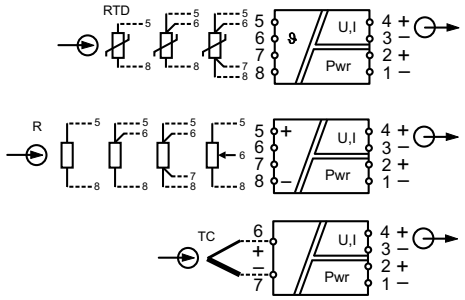


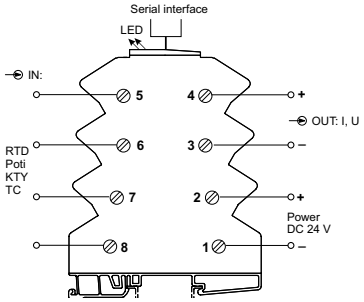
Programming kit X756894

NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) Input temperature range and output signal range can be selected using a DIP-switch or customised using FDT/DTM software.
(3) 3-way, IN/OUT/power supply

BLOCK DIAGRAM





VERSIONS	Cat. No. X756340	Cat. No. X756894
With screw terminal blocks (standard)	**LCONTAD (1)**	
With spring terminal blocks	**(1)**	
Programming kit		**LCONZBUSB (1)**
INPUT TECHNICAL DATA		
Input signal	PT100, PT1000, potentiometer 0…600kΩ Thermocouples types B, C, E, J, K, N, R, S, T	
Temperature range	-200…+2400°C, based on sensor (2)	
OUTPUT TECHNICAL DATA		
Output signal	0…10 / -10…+10 V, (max. 10.25 V) 0…20 / 4…20 mA, (max 21 mA) (2)	
Applicable load	>2 kΩ with voltage output <650 Ω with current output	
Warnings	Green LED = OK, flashing red LED = error	
GENERAL TECHNICAL DATA		
Power supply voltage	24 Vdc (16.8...30 Vdc)	
Power consumption	18 mA max. at 24 Vdc	
Accuracy	10K/span(K) + 0.2% FS (for PT) / 10K/span(K) + 0.4% FS (for TC)	
Data processing	24 bit	
Linearity error	±0.05% FS (for PT and potentiometer) / ±0.1% FS (for TC)	
Temperature coefficient	<100 ppm/°C	
Response time	5...500 ms (adjustable, default 30 ms)	
Isolation	2.5 kVac / 60 s (3)	
EMC standards	EN 61000-6-2, EN 61000-6-4	
Reference Standards	IEC 664-1, DIN VDE	
Surge category / Degree of pollution	III / 2	
Protection degree	IP 20 IEC 529 EN60529	
Operating temperature range	-40…+70°C	
Connection type	1.5 mm² fixed screw terminal block	
Housing material	PA	
Approximate weight	40 g	
Mounting information	vertical on rails, side by side	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Jumper red	CWBK 7-0802 Cat. No. X766802	
Jumper white	CWBK 7-0803 Cat. No. X766803	
Jumper blue	CWBK 7-0804 Cat. No. X766804	

APPLICATIONS

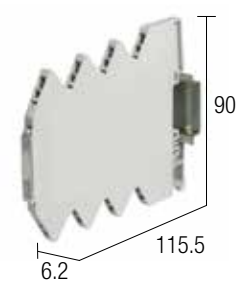
CWTPR 7-0340 is a "universal" transducer for a wide range of temperature sensors that can be used for precise temperature measurement with the most popular models of temperature sensors on the market.
Measurements can be taken in low and high temperature ranges (e.g. in air conditioners) and in process control. The flexibility of the system allows it to be used from -200 to 1400°C. With resistive sensors, the connection method may be based on 2, 3 or 4 wire technologies.
Both input and output ranges can be changed using FDT/DTM software and a USB interface.

Range*	S1					S2						
Start	7	8	1	2		End	3	4	5	6	7	8
-200°C	●					0°C	●					
-150°C	●	●				50°C		●	●			
-100°C	●		●			100°C	●	●		●		
-50°C		●		●		150°C	●		●	●		
0°C	●	●	●	●		200°C	●	●	●	●		
						250°C	●				●	
Sensor*	S1	1	2	3		300°C	●	●			●	
Pt100		●				350°C	●		●		●	
Pt1000			●			400°C	●	●	●		●	
TE J		●	●			450°C	●			●	●	
TE K				●		500°C	●	●		●	●	
R		●	●	●		550°C	●		●	●	●	
						600°C	●	●	●	●	●	
Output*	S1	4	5	6		650°C	●					●
0 – 20mA		●				700°C	●	●				●
4 – 20mA			●			750°C	●		●			●
0 – 10V		●	●			800°C	●	●	●			●
±10V				●		850°C	●			●		●
						900°C	●	●		●		●
						950°C	●		●	●		●
						1000°C	●	●	●	●		●
						1050°C	●				●	●
						1100°C	●	●			●	●
						1150°C	●		●		●	●
						1200°C	●	●	●		●	●
						1250°C	●			●	●	●
						1300°C	●	●		●	●	●
						1350°C	●		●	●	●	●
						1400°C	●	●	●	●	●	●
						● → Switch On						

S1-S2 1-8 off: FDT/DTM

Monitor module for temperature sensor

- For PT100 and PT1000 sensors, thermocouples, potentiometers
- 2.5 kV 3-way input/output isolation
- 145 DIP-switch selectable input ranges, customisable using FDT/DTM software
- Two FDT/DTM software programmable output thresholds
- Compact size, 6.2 mm thick

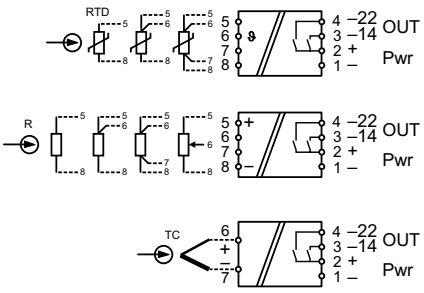


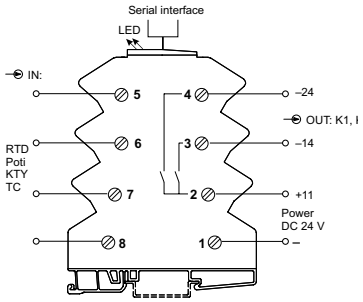
Programming kit X756894

NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) The input temperature range and output thresholds can be selected using a DIP-switch or customised using FDT/DTM software.
(3) 3-way, IN/OUT/power supply

BLOCK DIAGRAM





VERSIONS

	Cat. No. X756370	Cat. No. X756894
With screw terminal blocks (standard)	**LCONTLS (1)**	
With spring terminal blocks	**(1)**	
Programming kit		**LCONZBUSB (1)**

INPUT TECHNICAL DATA

Input signal	PT100, PT1000, potentiometer 0…600kΩ Thermocouples types B, C, E, J, K, N, R, S, T
Temperature range	-200…+2400°C, based on sensor (2)

OUTPUT TECHNICAL DATA

Threshold adjustment	programmable using FDT/DTM software
Contact type	2 NA contacts (solid state relay)
Max. switchable voltage and current	30 Vdc / 100 mA
Status display	2 yellow LEDs
Operating mode	limit value, window, trend, inversion and memory

GENERAL TECHNICAL DATA

Power supply voltage	24 Vdc (16.8...30 Vdc)
Power consumption	18 mA max. at 24 Vdc
Accuracy	10K/span(K) + 0.2% FS (for PT) / 10K/span(K) + 0.4% FS (for TC)
Data processing	24 bit
Linearity error	±0.05% FS (for PT and potentiometer) / ±0.1% FS (for TC)
Temperature coefficient	<100 ppm/°C
Response time	5...500 ms (adjustable, default 30 ms)
Isolation	2.5 kVac / 60 s (3)
EMC standards	EN 61000-6-2, EN 61000-6-4
Reference Standards	IEC 664-1, DIN VDE
Surge category / Degree of pollution	III / 2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	-40…+70°C
Connection type	1.5 mm² fixed screw terminal block
Housing material	PA
Approximate weight	40 g
Mounting information	on rails, side by side

MOUNTING ACCESSORIES

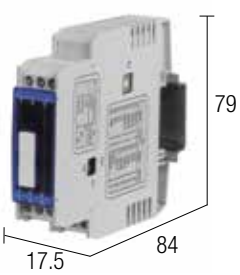
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Jumper red	CWBK 7-0802 Cat. No. X766802
white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

CWTPR 7-0370 is a “universal” transducer for a wide range of temperature sensors that can be used for precise temperature measurement with the most popular models of temperature sensors on the market.
Measurements can be taken in low and high temperature ranges (e.g. in air conditioners) and in process control. The flexibility of the system allows it to be used from -200 to 1400°C. With resistive sensors, the connection method may be based on 2, 3 or 4 wire technologies. Both input ranges and output thresholds can be changed using FDT/DTM software and a USB interface.
The normally open contacts of the two output thresholds are managed by two solid state relays.

Programmable temperature sensor converters

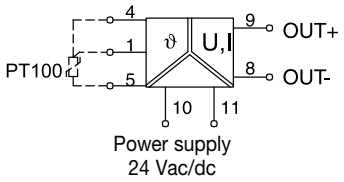
- Converters for PT100 sensors
- 3-way galvanic separation
- 8 programmable input ranges
- 3 programmable output ranges
- Simplified programming
- Version with 24-240 Vac/dc power supply



NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) Settable using a rotary switch
(2) Settable using a DIP-switch
(3) May also be used with the 2-wire PT100, connecting terminal blocks 1 and 4 together
(4) range 16.8…30 Vdc / 19.2…28.8 Vac
(5) 3-way, IN/OUT/power supply

BLOCK DIAGRAM



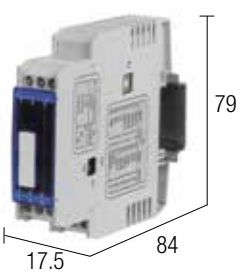
VERSIONS	Cat. No. X756816
	CWPT 6-0816
INPUT TECHNICAL DATA	
Input signal	Three-wire PT100 (3)
Programmable temperatures (1)	-50…+50°C (-58…+122°F) -50…+100°C (-58…+212°F) -50…+150°C (-58…+302°F) 0…+100°C (+32…+212°F) 0…+150°C (+32…+302°F) 0…+200°C (+32…+392°F) 0…+300°C (+32…+572°F) 0…+400°C (+32…+752°F)
Power supply current	0.5 mA
OUTPUT TECHNICAL DATA	
Output signal (2)	0…10 V 0…20 / 4…20 mA
Applicable load	>1 kΩ with voltage output <400 Ω with current output
GENERAL TECHNICAL DATA	
Power supply voltage	24 Vac/dc (4)
Power consumption	≤ 35 mA ± 10% at 24 Vdc
Accuracy	<0.3% FS
Conversion frequency	<30 Hz
Temperature coefficient	0.015% / K FS
Isolation	1.5 kVac / 60 s (5)
EMC standards	EN 50081-2, EN 50082-2
Reference Standards	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	III / 2
Protection degree	IP20
Operating temperature range	-20…+60°C
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 Noryl
Approximate weight	75 g
Mounting information	vertical on rails, side by side
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Jumper red	—
(16 poles, 16 A) white	—
blue	—

APPLICATIONS

The module converts and isolates signals deriving from three-wire PT100 (RTD) sensors into a proportional analogue signal and is programmable in 8 input temperature ranges and into the three main standard output signals. Configuration is obtained by setting the DIP-switches located on the side.
The converters are galvanically isolated, which ensures more precise signal reading, and can be used both with isolated and non-isolated sensors.
Two-wire sensors can be used by connecting terminal blocks 4 and 1 together.

Programmable temperature sensor converters

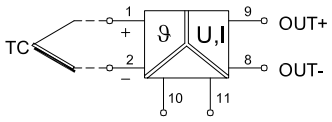
- Converters for type J and K thermocouple sensors
- 3-way galvanic separation
- 8 programmable input ranges
- 3 programmable output ranges
- Simplified programming
- Version with 24-240 Vac/dc power supply



NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) Settable using a rotary switch
(2) Settable using a DIP-switch
(3) range 16.8…30 Vdc / 19.2…28.8 Vac
(4) 3-way, IN/OUT/power supply

BLOCK DIAGRAM



Power supply
24 Vac/dc

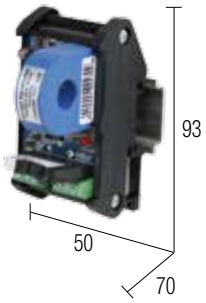
VERSIONS	Cat. No. X756844
	CWTH 6-0844
INPUT TECHNICAL DATA	
Input signal	FeCuNi (type J) and NiCrNi (type K) thermocouple compliant with DIN/IEC584-1
Programmable temperatures (1)	-50…+200°C (-58…+392°F) -50…+350°C (-58 …+662°F) 0…+200°C (+32…+392°F) 0…+400°C (+32…+752°F) 0…+600°C (+32…+1112°F) 0…+800°C (+32…+1472°F) 0…+1000°C (+32…+1832°F) 0…+1200°C (+32…+2192°F)
Power supply current	—
OUTPUT TECHNICAL DATA	
Output signal (2)	0…10 V 0…20 / 4…20 mA
Applicable load	>1 kΩ with voltage output <400 Ω with current output
GENERAL TECHNICAL DATA	
Power supply voltage	24 Vac/dc (3)
Power consumption	≤ 35 mA ± 10% at 24 Vdc
Accuracy	<0.5% FS
Conversion frequency	<30 Hz
Temperature coefficient	0.015% / K FS
Isolation	1.5 kVac / 60 s (4)
EMC standards	EN 50081-2, EN 50082-2
Reference Standards	IEC 664-1, DIN VDE
Overvoltage category / Pollution degree	III / 2
Protection degree	IP20
Operating temperature range	-20…+60°C
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 Noryl
Approximate weight	65 g
Mounting information	vertical on rails, side by side
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Jumper red	—
(16 poles, 16 A) white	—
blue	—

APPLICATIONS

The module converts and isolates signals deriving from type J (FeCuNi) or K (NiCrNi) thermocouples into a proportional analogue signal and is programmable in eight input temperature ranges and into the three main standard output signals. Configuration is obtained by setting the DIP-switches located on the side.
The converters are galvanically isolated, which ensures more precise signal reading, and can be used both with isolated and non-isolated thermocouples.

Monitor module for current signal

- For measuring AC currents
- Adjustable threshold value
- With transistor and relay output
- 3 kV Input/Output isolation

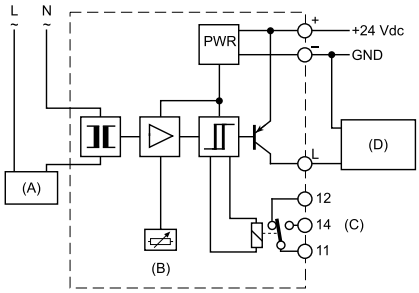


CE

NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) Isolation refers to non-isolated (bare) measurement conductor in contact with the wall of the toroid. Using isolated conductors, the isolation value of the conductor is added to the isolation value of the converter

BLOCK DIAGRAM



(A) AC Load
(B) Control threshold
(C) Exchange output contact
(D) Transistor-controlled digital input
24 Vac/dc power supply

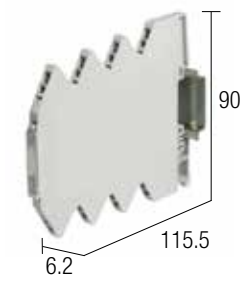
VERSIONS	Cat. No. XCCIS2
	CCIS-2
INPUT TECHNICAL DATA	
Max. measurement current	50 A (AC)
Max. measurement voltage	600 Vac (1)
Frequency	50…60 Hz
Connection of current conductor	with Ø 13 mm through cable
OUTPUT TECHNICAL DATA	
Threshold adjustment	2…40 A
Hysteresis threshold	± 10%
Max. outrush current	100 mA PNP open collector
Output stage	"high" 24 V (transistor) and powered relay with I below the threshold "low" 0 V (transistor) and non-powered relay with I above the threshold
Reaction time	20 ms
GENERAL TECHNICAL DATA	
Power supply voltage	24 Vdc ± 10%
Max. power consumption	100 mA
Operating temperature range	0…60°C
Input/output isolation	> 3 kVac /60 s
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-03 polyamide
Approximate weight	100 g
Mounting information	vertical on rails, side by side
MOUNTING ACCESSORIES	
Mounting rail compliant with IEC60715/TH35	**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**
Jumper red	—
(16 poles, 16 A) white	—
blue	—

APPLICATIONS

Inserted into a current circuit, the card can be used to set (using a precision potentiometer) the desired current value for the relay or transistor switch, obtaining a current threshold above or below which the switch occurs. The cable carrying the current must be passed through the module's toroidal sensor. The relay or the transistor switches when the set current threshold is surpassed.

Current transducer

- For AC and DC current measurements
- Protected from transistors
- LED power supply indicator
- 3 programmable output ranges

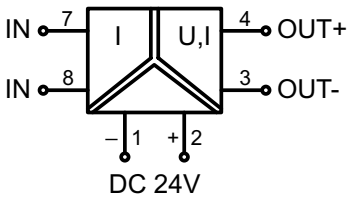


CE

NOTES

Depth measurements include guide rail and front connector clearance, given together with the product, but not indicated in the photo.
(1) Do not connect directly to a 400 V line

BLOCK DIAGRAM



VERSIONS	Cat. No. X756540	Cat. No. X756541	Cat. No. X756542
Input 0…1 A	**WAA 7-0540**		
Input 0…5 A		**WAA 7-0541**	
Input 0…10 A			**WAA 7-0542**
INPUT TECHNICAL DATA			
Input signal	0…1 A AC/DC	0…5 A AC/DC	0…10 A AC/DC
Max. input voltage	400 V (1)	400 V (1)	400 V (1)
Connection of current conductor	1.5 mm² screw-on terminal block	1.5 mm² screw-on terminal block	1.5 mm² screw-on terminal block
OUTPUT TECHNICAL DATA	**VOLTAGE**	**CURRENT**	
Output signal	0…10 V	0…20 mA / 4…20 mA	
Max. output signal	11 V	21 mA	
Applicable load	>1 kΩ	<400 Ω	
GENERAL TECHNICAL DATA			
Power supply voltage	24 Vdc (16.8...30 Vdc)	24 Vdc (16.8...30 Vdc)	24 Vdc (16.8...30 Vdc)
Power consumption	13 mA	13 mA	13 mA
Operating temperature range	-25…+60°C	-25…+60°C	-25…+60°C
Linearity error	< 0.1% FS (23°C)	< 0.1% FS (23°C)	< 0.1% FS (23°C)
Offset error	< 0.5% FS (23°C)	< 0.5% FS (23°C)	< 0.5% FS (23°C)
Temperature coefficient	< 150 ppm / K FS	< 150 ppm / K FS	< 150 ppm / K FS
Response time	150 ms	150 ms	150 ms
Protection degree	IP20	IP20	IP20
Connection type	1.5 mm² screw-on terminal block	1.5 mm² screw-on terminal block	1.5 mm² screw-on terminal block
Approximate weight	55 g	55 g	55 g
Mounting information	on rails, side by side	on rails, side by side	on rails, side by side

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Jumper red	CWBK 7-0802 Cat. No. X766802
(16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

Used for measuring an AC or DC current value by means of a "HALL" sensor. The presence of current in a circuit indicates not only that voltage is present, but that the circuit is closed and the load connected is active, as well as indicating the operating conditions of the control circuit. The module guarantees galvanic separation between the current conductor and the analogue output.

● → Switch On		S1			
Input	Output	1	2	3	4
0-1A	0-10V				
0-1A	0-20mA	●			
0-1A	4-20mA		●		

Range WAA7-0540

● → Switch On		S1			
Input	Output	1	2	3	4
0-5A	0-10V				
0-5A	0-20mA	●			
0-5A	4-20mA		●		

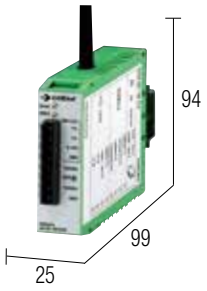
Range WAA7-0541

● → Switch On		S1			
Input	Output	1	2	3	4
0-10A	0-10V				
0-10A	0-20mA	●			
0-10A	4-20mA		●		

Range WAA7-0542

Current / analogue converters

- For AC and DC current measurements
- Protected from transistors
- LED power supply indicator
- Three available output signals

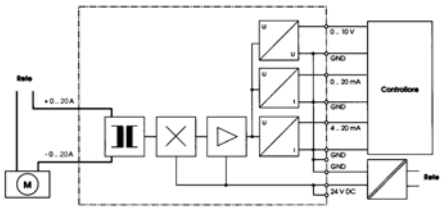


Item available until supplies last

NOTES

Depth measurements include guide rail and front connector clearance, given together with the product, but not indicated in the photo.

BLOCK DIAGRAM



VERSIONS		Cat. No. XW000932
Input 0…20 A	**-**	
Input 0…50 A		**SW50VA**

INPUT TECHNICAL DATA	
Input signal	0…50 A AC/DC
Max. input voltage	380 V
Connection of current conductor	with Ø 8 mm through cable

OUTPUT TECHNICAL DATA	VOLTAGE	CURRENT
Output signal	0…10 V	0…20 mA / 4…20 mA
Max. output signal	11 V	22 mA
Applicable load	>2 kΩ	<500 Ω

GENERAL TECHNICAL DATA	
Power supply voltage	24 Vdc ± 10%
Power consumption	60 mA
Operating temperature range	0…55°C
Linearity error	< 0.5%
Offset error	< 0.5%
Amplification error	< 0.2%
Temperature coefficient	< 0.02%/K
Transistor immunity	200 V
Response time	10 mS
Protection degree	IP20
Connection type	2.5 mm² removable screw terminal blocks
Approximate weight	100 g
Mounting information	vertical on rails, side by side

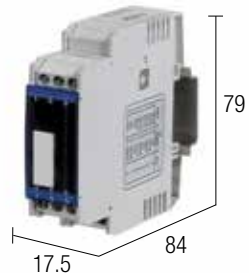
MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**
Jumper	red	—
(16 poles, 16 A)	white	—
	blue	—

APPLICATIONS

Used for measuring an AC or DC current value by means of a "HALL" sensor. The presence of current in a circuit indicates not only that voltage is present, but that the circuit is closed and the load connected is active, as well as indicating the operating conditions of the control circuit. The module guarantees galvanic separation between current conductor and analogue output and, since it is not connected in series to the controlled current, it cannot be damaged by overcurrents or short-circuits.

Frequency / analogue programmable converters

- Programmable frequency range 0...28.8 Khz
- 3 programmable analogue output signal ranges
- 2.5 kV 3-way input/output isolation

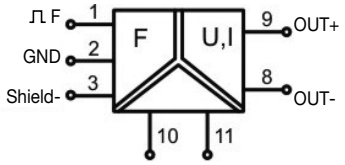


CE

NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) 3 way, IN/OUT/power supply

BLOCK DIAGRAM



AC/DC 24V

VERSIONS	Cat. No. X756524
	CWNFA 6-0524
INPUT TECHNICAL DATA	
Input signal (range)	0…28.8 kHz settable by DIP switch
Signal type	AC/DC 0.6…30 Vpp
Input resistance	50 kΩ
Hysteresis	0.5 Vpp or 5 Vpp settable by DIP switch
OUTPUT TECHNICAL DATA	
Output signal	0…10 V, (max. 10.6 V) 0…20 / 4…20 mA, (max 21 mA)
Applicable load	>1 kΩ with voltage output <400 Ω with current output
Ripple	< 5 mVeff
GENERAL TECHNICAL DATA	
Power supply voltage	24 Vac/dc (1)
Power consumption	20 mA
Accuracy	0.1 FS (23°C)
Linearity error	0.02%
Ripple	0.1%
Setting time (1% precision)	200 ms
Temperature coefficient	70 ppm/K
Isolation	1.5 kVac / 60 s (2)
EMC standards	EN 61000-6-2, EN 61000-6-4
Reference Standards	IED 664-1, DIN VDE
Surge category	III
Degree of pollution	2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	-25…+60°C
Connection type	1.5 mm² fixed screw terminal blocks
Housing material	PPE
Approximate weight	70 g
Mounting information	vertical on rails, side by side
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Jumper red	—
white	—
blue	—

APPLICATIONS

This module is used to convert a sinusoid or rectangular frequency signal into a standard analogue signal (e.g. 0…10 V, 0…20 mA or 4…20 mA). A microprocessor detects the signal and calculates the output value, ensuring extremely high precision and stability. Measurement range is set using a DIP switch: the device offers 64 calibrated ranges from 0…100 Hz to 0…28.8 kHz.

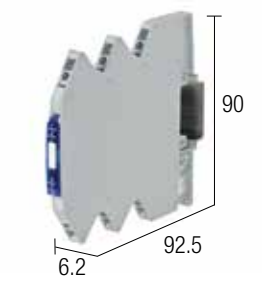
S2 ● → Switch On

Range*	1	2	3	4	5	6	8	Range*	1	2	3	4	5	6
0 – 100Hz	●	●	●	●				0 – 5kHz	●			●	●	
0 – 200Hz	●	●	●		●	●		0 – 6kHz		●		●	●	
0 – 250Hz	●	●			●	●		0 – 8kHz	●	●		●		●
0 – 400Hz	●	●	●		●			0 – 10kHz	●			●		●
0 – 500Hz	●	●			●			0 – 12kHz		●		●		●
0 – 750Hz		●			●			0 – 16kHz	●	●				
0 – 1kHz	●	●				●		0 – 20kHz	●					
0 – 1.5kHz		●				●		0 – 24kHz		●				
0 – 2kHz	●	●		●	●	●		0 – 28.8kHz						
0 – 2.5kHz	●			●	●	●								
0 – 3kHz		●		●	●	●								
0 – 4kHz	●	●		●	●									
Hysteresis	0.5Vpp													
	5Vpp						●							

● → Switch On	S1		
Output	1	2	3
0-10V	●		
0-20mA		●	
4-20mA			●

Auxiliary power supply for sensors and potentiometers

- Stabilised switching converter
- IN 16.8…20 Vdc / 9…11 Vdc 60 mA
- Suitable for powering potentiometers and sensors

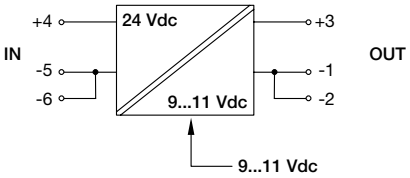


CE

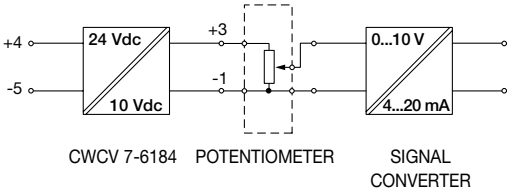
NOTES

Depth measurements include terminal block and rail clamp clearance.
(1) range 16.8…30 Vdc

BLOCK DIAGRAM



APPLICATION EXAMPLES



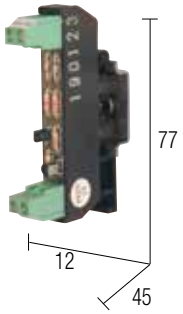
VERSIONS	Cat. No. X766184
With screw connection (standard)	**CWCV 7-6184**
With spring connection	
INPUT TECHNICAL DATA	
Nominal voltage	24 Vdc (1)
Current with max Iout	30 mA at 10 Vdc
Safety fuse	T 1 A (external)
OUTPUT TECHNICAL DATA	
Voltage	10 Vdc (9…11 Vdc adjustable)
Maximum current	60 mA
Permanent current	60 mA
Load regulation	< 1%
Ripple at nominal U-I	≤ 50 mVpp
Protection against short circuit/overload	yes
Output signal	Yellow LED Power OK
Parallel connection	possible with external diode
GENERAL TECHNICAL DATA	
Operating temperature range	-25...+60°C
Input/output isolation	50 Vac / 60 s
Protection degree	IP 20 IEC529, EN60529
Electromagnetic compatibility	EN 50081-1, EN 50082-2, EN 61000-3-2
Transistor immunity	EN61000-4-2, EN61000-4-4
Connection type	1.5 mm² screw/1.5 mm² spring
Housing material	UL94V-0 Noryl
Approximate weight	35 g
Mounting information	vertical on rails, side by side
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Jumper red	CWBK 7-0802 Cat. No. X766802
white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

A constant voltage is often required in process control in order to supply power or reference values. A constant voltage source is very often used in digital technology, especially with analogue position sensors (linear potentiometers). This is due to their extremely economical and effective measurements of absolute position, routes, angles and thicknesses. Moreover, the linear potentiometer requires only one continuous voltage and one analogue control or position indicator input.

Signal inverters NPN and PNP

- Converts NPN sensors to PNP and vice versa
- Reduced overall dimensions

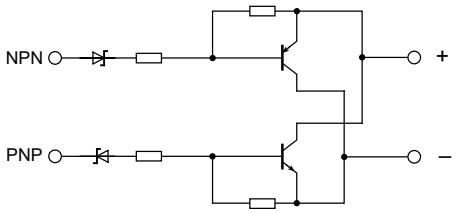


CE

NOTES

(1) range 17…30 Vdc

BLOCK DIAGRAM



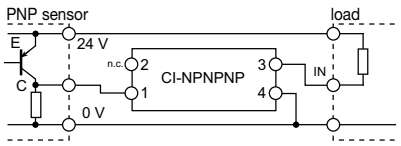
VERSIONS	Cat. No. XNPNPNP
	CI-NPN/PNP
INPUT TECHNICAL DATA	
Input voltage	24 Vdc (1)
Max current	200 mA
Max. frequency	120 kHz
GENERAL TECHNICAL DATA	
Current set to OFF	—
EMC standards	EN 61000-6-2, EN 61000-6-4
Reference Standards	IEC 664-1, DIN VDE
Surge category	II
Degree of pollution	2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	0...55°C
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 polyamide
Approximate weight	20 g
Mounting information	vertical on rails, side by side
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper red	—
white	—
blue	—

APPLICATIONS

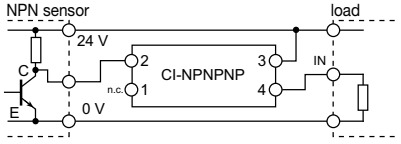
Converts PNP sensor signals to NPN and vice versa.
It is able to adapt all sensors on the market to any PLC input regardless of output polarity, and it is highly useful in maintenance operations where the correct replacement sensor is unavailable.

CONNECTION EXAMPLES

Conversion from PNP to NPN



Conversion from NPN to PNP



Single relay modules quick selection table

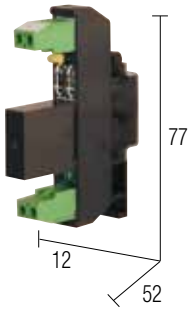
These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

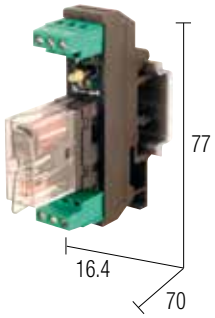
Number of relays	Input rated voltage	Output		Notes	Type	Cat. No.	Page
		type/no. of contacts	contact current				
1	12 Vdc	1 SC	10A	(1)	CM1C012	XCM1C012	88
1	12 Vdc	2 SC	5A	(1)	CM2C012	XCM2C012	89
1	12 Vac	1 SC	10A	(1)	CM1A012	XCM1A012	91
1	12 Vac	2 SC	5A	(1)	CM2A012	XCM2A012	92
1	12 Vac/dc	1 SC	6A	(1)	CWRE7-0848	X766848	95
1	24 Vdc	1 NA	5A	(2)	RFA024D	XRFA024D	86
1	24 Vdc	1 SC	16A	(1)	RE1024D	XRE1024D	86
1	24 Vdc	1 SC	16A	(2)	RF1024D	XRF1024D	86
1	24 Vdc	1 SC	12A	(1)	CM1C024	XCM1C024	88
1	24 Vdc	1 SC	12A	(1)	RE1824D	XRE1824D	86
1	24 Vdc	1 SC	12A	(2)	RF1824D	XRF1824D	86
1	24 Vdc	2 SC	8A	(1)	CM2C024	XCM2C024	89
1	24 Vdc	4 SC	3A	(1)	CM4C024	XCM4C024	90
1	24 Vac/dc	1 SC	6A	(1)	CWRE7-0842	X766842	95
1	24 Vac/dc	1 SC	6A	(2) (3)	CKR16	XCKR16	94
1	24 Vac/dc	2 SC	8A	(1)	RE2024D	XRE2024D	87
2	24 Vac/dc	2 NA	5A	(2)	CKR25	XCKR25	94
1	24 Vac	1 SC	12A	(1)	CM1A024	XCM1A024	91
1	24 Vac	2 SC	8A	(1)	CM2A024	XCM2A024	92
1	48 Vdc	1 SC	10A	(1)	CM1C048	XCM1C048	88
1	48 Vdc	2 SC	5A	(1)	CM2C048	XCM2C048	89
1	48 Vac/dc	1 SC	6A	(1)	CWRE7-0845	X766845	95
1	110 Vdc	1 SC	10A	(1)	CM1C110	XCM1C110	88
1	110 Vdc	2 SC	5A	(1)	CM2C110	XCM2C110	89
1	110...120 Vac/dc	1 SC	6A	(1)	CWRE7-0846	X766846	95
1	120 Vac	1 SC	10A	(1)	CM1A120	XCM1A120	91
1	120 Vac	2 SC	5A	(1)	CM2A120	XCM2A120	92
1	230 Vac	1 SC	6A	(1)	CWRE7-0847	X766847	95
1	230 Vac	1 SC	10A	(1)	CM1A230	XCM1A230	91
1	230 Vac	2 SC	5A	(1)	CM2A230	XCM2A230	92

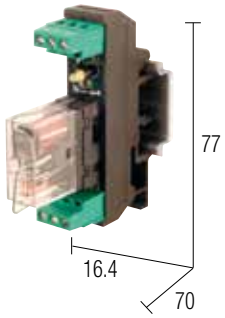
Notes

(1) version with pluggable relay
(2) version with fixed relay
(3) safety fuse on contact
(4) no light alarm and protection diode

Single relay modules
R series



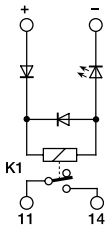


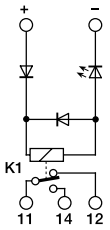


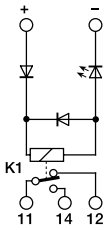
NOTES

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM

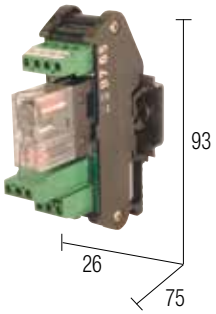






VERSIONS	Cat. No. XRFA024D	Cat. No. XR_1824D	Cat. No. XR_1024D
Pluggable relay	**–**	**RE1824D**	**RE1024D**
Fixed relay	**RFA024D (2)**	**RF1824D**	**RF1024D (2)**
INPUT TECHNICAL DATA			
Nominal voltage	**24 Vdc ± 10%**	**24 Vdc ± 10%**	**24 Vdc ± 10%**
Power consumption (1 channel)	15 mA ± 10%	22 mA ± 10%	27 mA ± 10%
Turn ON time	15 ms	15 ms	15 ms
Turn OFF time	5 ms	5 ms	5 ms
Protection circuit	damping diode	damping diode	damping diode
OUTPUT TECHNICAL DATA			
Contact type	1 NA $AgSnO_2$	1 exchange $AgSnO_2$	1 exchange $AgSnO_2$
Nominal current (resistive load)	5 A / 250 Vac	12 A / 250 Vac	16 A / 250 Vac
Max. cut-off capacity	**5 A**	**12 A**	**16 A**
Max. fuse current	—	—	—
GENERAL TECHNICAL DATA			
Operating temperature range	–10...+50°C	–10...+50°C	–10...+50°C
Coil isolation / contacts	2.5 kVac / 60 s	2.5 kVac / 60 s	2.5 kVac / 60 s
Isolation between output terminal blocks	0.5 kVac / 60 s (between open contact poles)	0.5 kVac / 60 s (between open contact poles)	0.5 kVac / 60 s (between open contact poles)
Protection degree	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529
Overvoltage category / Pollution degree	III / 2	III / 2	III / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED	Green LED	Green LED
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks	AWG26-14 2.5 mm² screw clamp terminal blocks	AWG26-14 2.5 mm² screw clamp terminal blocks
Housing material	UL94V-0 plastic	UL94V-0 plastic	UL94V-0 plastic
Approximate weight	30 g	44 g	44 g
Mounting information	on rails, side by side	on rails, side by side	on rails, side by side
MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**		
Spare part relay (1)	Cat. No. 8904000	Cat. No. 8904001	Cat. No. 8904058
Jumper black	—	—	—

Single relay modules
R series

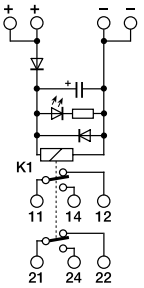


CE

NOTES

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Product made to order (not kept in stock).

BLOCK DIAGRAM



VERSIONS	Cat. No. XRE2024D
Pluggable relay	**RE2024D**
Fixed relay	**–**

INPUT TECHNICAL DATA	
Nominal voltage	**24 Vac / dc ± 10%**
Power consumption (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	damping diode

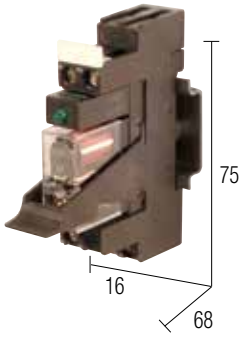
OUTPUT TECHNICAL DATA	
Contact type	2 exchanges $AgSnO_2$
Nominal current (resistive load)	8 A / 250 Vac
Max. cut-off capacity	**8 A**
Max. fuse current	—

GENERAL TECHNICAL DATA	
Operating temperature range	–10...+50°C
Coil isolation / contacts	2.5 kVac / 60 s
Isolation between output terminal blocks	0.5 kVac / 60 s (between open contact poles)
Protection degree	IP 00 IEC529, EN60529
Overvoltage category / Pollution degree	III / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	76 g
Mounting information	on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Spare part relay	(1)	Cat. No. 8904002
Jumper	black	—

Single relay modules
CM series

- Pluggable relay
- Installation on omega rail or panel using centre screw
- Compact dimensions
- Cross and slotted screw
- Available plug-in jumper for potential distribution



Jumper available

NOTES

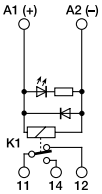
Measurements include rail clamp clearance.

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.

(2) Versions without indicators or safety circuits are available upon request; to order, add the suffix "Z" to the Cat. No. (e.g. XCM1C024Z).

(3) Gold contact versions are available upon request; to order, add the suffix "U" to the Cat. No. (e.g. XCM1C024U).

BLOCK DIAGRAM



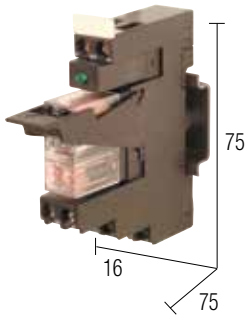
VERSIONS	Cat. No. XCM1C012	Cat. No. XCM1C024	Cat. No. XCM1C048	Cat. No. XCM1C110
12 Vdc	**CM1C012**			
24 Vdc		**CM1C024**		
48 Vdc			**CM1C048**	
110 Vdc				**CM1C0110**
INPUT TECHNICAL DATA				
Nominal voltage	**12 Vdc** ±10%	**24 Vdc** ±10%	**48 Vdc** ±10%	**110 Vdc** ±10%
Power consumption (1 channel)	44 mA ±10%	22 mA ±10%	12 mA ±10%	11 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	5 ms	5 ms	5 ms	20 ms
Protection circuit	damping diode		(2)	
OUTPUT TECHNICAL DATA				
Contact type	1 exchange $AgSnO_2$ (3)			
Nominal current (resistive load)	12 A / 250 Vac			
Max. cut-off capacity	**12 A**			
Max. fuse current	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil isolation / contacts	4 kVac / 60 s			
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category / Pollution degree	III / 2			
Reference Standards	IEC 664-1, DIN VDE 0110.1			
Power/status indicator	Green LED (2)			
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks			
Housing material	UL94V-0 plastic			
Approximate weight	54 g			
Mounting information	rail, side by side or panel using centre screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Spare part relay	(1)	Cat. No. 8904039	Cat. No. 8904001	Cat. No. 8904008	Cat. No. 8904047
Jumper	black	Cat. No. XCMB16B			
	white	—			
	blue	—			

Jumper

Single relay modules
CM series

- Pluggable relay
- Installation on omega rail or panel using centre screw
- Compact dimensions
- Cross and slotted screw
- Available plug-in jumper for potential distribution

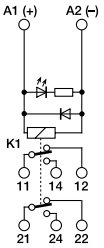


Jumper available

NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.

BLOCK DIAGRAM



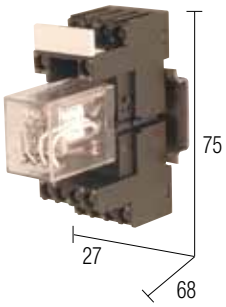
VERSIONS	Cat. No. XCM2C012	Cat. No. XCM2C024	Cat. No. XCM2C048	Cat. No. XCM2C110
12 Vdc	**CM2C012**			
24 Vdc		**CM2C024**		
48 Vdc			**CM2C048**	
110 Vdc				**CM2C0110**
INPUT TECHNICAL DATA				
Nominal voltage	**12 Vdc ±10%**	**24 Vdc ±10%**	**48 Vdc ±10%**	**110 Vdc ±10%**
Power consumption (1 channel)	44 mA ±10%	22 mA ±10%	24 mA ±10%	11 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	5 ms	5 ms	5 ms	20 ms
Protection circuit	damping diode			
OUTPUT TECHNICAL DATA				
Contact type	2 exchanges $AgSnO_2$			
Nominal current (resistive load)	8 A / 250 Vac			
Max. cut-off capacity	**8 A**			
Max. fuse current	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil isolation / contacts	4 kVac / 60 s			
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category / Pollution degree	III / 2			
Reference Standards	IEC 664-1, DIN VDE 0110.1			
Power/status indicator	Green LED			
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks			
Housing material	UL94V-0 plastic			
Approximate weight	67 g			
Mounting information	rail, side by side or panel using centre screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Spare part relay	(1)	Cat. No. 8904040	Cat. No. 8904002	Cat. No. 8904009	Cat. No. 8904054
Jumper	black	Cat. No. XCMB16B			
	white	—			
	blue	—			

Jumper

Single relay modules
CM series

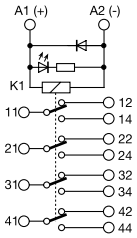
- Pluggable relay
- Installation on omega rail or panel using centre screw
- Compact dimensions
- Cross and slotted screw
- Available plug-in jumper for potential distribution



NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical

BLOCK DIAGRAM



VERSIONS	Cat. No. XCM4C024
12 Vdc	
24 Vdc	**CM4C024**
48 Vdc	
110 Vdc	

INPUT TECHNICAL DATA	
Nominal voltage	**24 Vdc ±10%**
Power consumption (1 channel)	38 mA ±10%
Turn ON time	20 ms
Turn OFF time	20 ms
Protection circuit	damping diode

OUTPUT TECHNICAL DATA	
Contact type	4 exchanges $AgSnO_2$
Nominal current (resistive load)	3 A / 250 Vac
Max. cut-off capacity	**3 A**
Max. fuse current	—

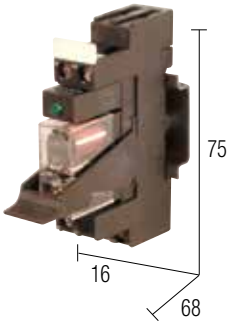
GENERAL TECHNICAL DATA	
Operating temperature range	–10...+50°C
Coil isolation / contacts	4 kVac / 60 s
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)
Protection degree	IP 20 IEC 529, EN60529
Overvoltage category / Pollution degree	III / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	
Mounting information	rail, side by side or panel using centre screw

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		—
Spare part relay	(1)	Cat. No. 8904030
Jumper	black	Cat. No. XCMB27B
	white	—
	blue	—

Jumper

Single relay modules
CM series

- Pluggable relay
- Installation on omega rail or panel using centre screw
- Compact dimensions
- Cross and slotted screw
- Available plug-in jumper for potential distribution

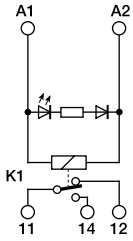


Jumper available

NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical
(2) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



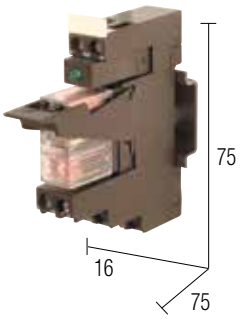
VERSIONS	Cat. No. XCM1A012	Cat. No. XCM1A024	Cat. No. XCM1A120	Cat. No. XCM1A230
12 Vdc	**CM1A012 (2)**			
24 Vdc		**CM1A024**		
120 Vdc			**CM1A120 (2)**	
230 Vdc				**CM1A230**
INPUT TECHNICAL DATA				
Nominal voltage	**12 Vac ±10%**	**24 Vac ±10%**	**120 Vac ±10%**	**230 Vac ±10%**
Power consumption (1 channel)	95 mA ±10%	48 mA ±10%	10.5 mA ±10%	6 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	10 ms	10 ms	10 ms	10 ms
Protection circuit	—			
OUTPUT TECHNICAL DATA				
Contact type	1 exchange $AgSnO_2$			
Nominal current (resistive load)	12 A / 250 Vac			
Max. cut-off capacity	**12 A**			
Max. fuse current	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil isolation / contacts	4 kVac / 60 s			
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category / Pollution degree	III / 2			
Reference Standards	IEC 664-1, DIN VDE 0110.1			
Power/status indicator	Green LED			
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks			
Housing material	UL94V-0 plastic			
Approximate weight	54 g			
Mounting information	rail, side by side or panel using centre screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Spare part relay	(1)	Cat. No. 8904016	Cat. No. 8904048	Cat. No. 8904049	Cat. No. 8904050
Jumper	black	XCMB16B			
	white	—			
	blue	—			

Jumper

Single relay modules
CM series

- Pluggable relay
- Installation on omega rail or panel using centre screw
- Compact dimensions
- Cross and slotted screw
- Available plug-in jumper for potential distribution

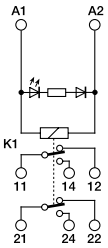


Jumper available

NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM

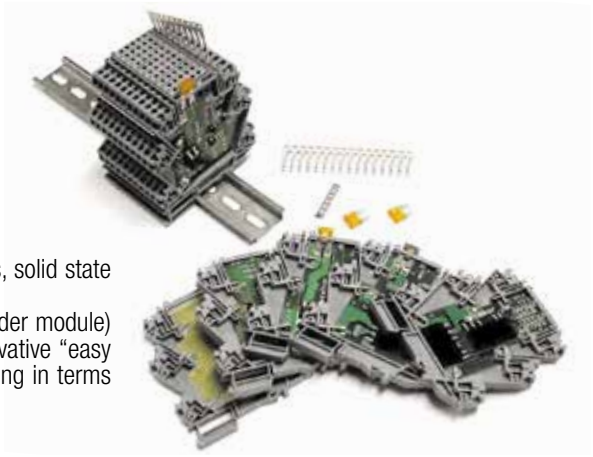


VERSIONS	Cat. No. XCM2A012	Cat. No. XCM2A024	Cat. No. XCM2A120	Cat. No. XCM2A230
12 Vac	**CM2A012 (2)**			
24 Vac		**CM2A024**		
120 Vac			**CM2A120 (2)**	
230 Vac				**CM2A230**
INPUT TECHNICAL DATA				
Nominal voltage	**12 Vac ±10%**	**24 Vac ±10%**	120 Vac ±10%	230 Vac ±10%
Power consumption (1 channel)	95 mA ±10%	48 mA ±10%	10.5 mA ±10%	6 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	10 ms	10 ms	10 ms	10 ms
Protection circuit	—			
OUTPUT TECHNICAL DATA				
Contact type	2 exchanges $AgSnO_2$			
Nominal current (resistive load)	8 A / 250 Vac			
Max. cut-off capacity	**8 A**			
Max. fuse current	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil isolation / contacts	4 kVac / 60 s			
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category / Pollution degree	III / 2			
Reference Standards	IEC 664-1, DIN VDE 0110.1			
Power/status indicator	Green LED			
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks			
Housing material	UL94V-0 plastic			
Approximate weight	67 g			
Mounting information	rail, side by side or panel using centre screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Spare part relay	(1)	Cat. No. 8904017	Cat. No. 8904055	Cat. No. 8904056	Cat. No. 8904057
Jumper	black	Cat. No. XCMB16B			
	white	—			
	blue	—			

Jumper

“CK” series interface system



This series of automation interfaces comprises a range of electromechanical relay modules, solid state relays and passive interfaces in modular cases just 6 mm thick.
All of these products are housed in the new CK module (also available as a component holder module) which, with its 6 2.5 mm² spring terminal blocks and 4 contacts for insertion of the innovative “easy bridge”, makes it possible to create different, effective compositions with a significant saving in terms of space and time.

The range currently comprises a series of products which can all be assembled together:

- Individual electromechanical relays with a single 6 A exchange protected by a replaceable fuse, frontal status LED, AC/DC input and positive or negative coil common.
- Double electromechanical relays with a 5 A NO contact, frontal status LED, AC/DC input and positive or negative coil common.
- Individual solid state relays for 5 A negative common loads protected by a replaceable fuse, frontal status LED and positive or negative input common.
- Double solid state relays for 12-24 Vdc 2.5 A negative common loads with frontal status LED and positive or negative input common.
- Cards with feed-through diode or common anode or cathode.
- Lamp testing modules.
- Distribution modules for common indication and distribution via PTC/CK/42 jumper.

How to create an interface with the CK system:

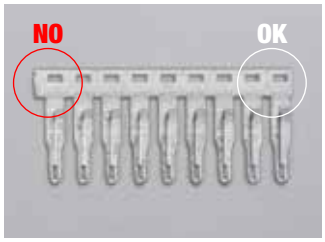
- Mount the selected relay modules onto the rail.
- THE **common input and output power supply potentials can be interconnected using PTC/CK/42 quick connector jumpers**.
- For the power supply to relay module inputs and outputs, it is advised to use the **CKF- -** module which allows for connection using 24 A spring terminal blocks (2.5mm², AWG26-14), distributing the power to the inputs and outputs of the adjacent modules using quick connection jumpers; the CTF- - module may be mounted as the primary module or in a central position in order to divide the current in the jumper into two branches, reducing voltage drops and heating; the CTF- - is available with an LED voltage indicator on the input and output for different voltages.
- THE final module must always be protected with the **CK/PT** terminal wall to ensure protection degree IP20.
- Each relay module comes with technical data sheets and a connection diagram; terminal blocks may be marked with NU0851 series tags, to be applied with a pen, plotter or with the Cabur Jet printer.
- Relay input/output power supply cables can be connected directly to relay terminal blocks, connecting two cables (power supply and load input) with a cross section of less than 2.5mm² into one terminal block, which reduces the applicable current and the number of relay modules that may be powered; this problem is resolved using the supply distribution module as illustrated in point three.

Easy Bridge System

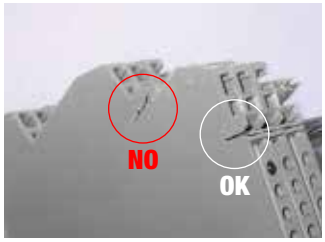
The **PTC/CK/42** quick connector jumper comprises a 42 pole comb with capacity for a maximum current of 32 A, limited to the capacity of the 24 A terminal block, therefore in a plug-in jumper of e.g. 11 poles (1 common and 10 distribution) 2.4 A can be distributed per pole.
The jumper is designed to be extremely simple and economical, with an innovative terminal block that isolates the jumper and a connection system that is not only fast, but requires no specific tools to use.

- the jumper should be divided as required simply using nail clippers, close to the pole to maintain a protection degree IP20 (1 and 2),
- insert the jumper into the relevant terminal block hole (3),
- use a screwdriver to push the jumper in until it locks. The jumper will now be completely isolated (4),
- to remove the jumper simply insert a screwdriver into the jumper slot, lift it and slide it out (5 and 6).

1

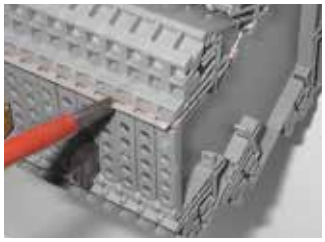


2

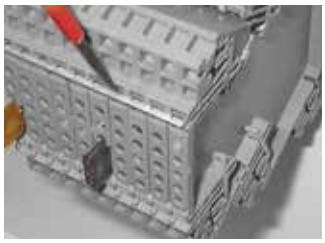


3

4



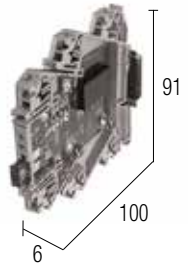
5

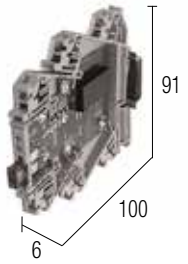


6

Single relay modules
CKR series

- Replaceable contact safety fuse
- Positive or negative common AC/DC input
- Frontal status LED, reverse polarity protection, coil damping diode
- Width 6 mm
- Available plug-in jumper for potential distribution

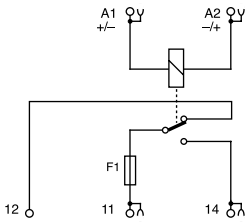


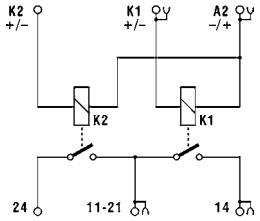


NOTES

(1) The XCKR16 module is equipped with a 7.5 A automobile-type quick replaceable contact safety fuse, connected in series to contact 11 (common pole); this can be replaced with a fuse of a lesser value to provide compatibility with the load and/or wiring current; a fuse greater than 7.5 A does not protect the contact. The fuse used is suitable for SELV ≤ 50 Vac and ≤ 75 Vdc voltages; if used with greater voltages it will not guarantee cut-off capability and safe operation.
(2) Product made to order (not kept in stock).
(3) the final module must always be protected with the CK/PT terminal wall to ensure protection degree IP20.

BLOCK DIAGRAM





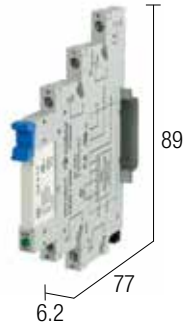
VERSIONS	Cat. No. XCKR16	Cat. No. XCKR25
1 channel	**CKR16**	**—**
2 channels	**—**	**CKR25 (2)**

INPUT TECHNICAL DATA		
Nominal voltage	**24 Vac/dc ± 10%**	**24 Vac/dc ±10%**
Power consumption (1 channel)	≤15 mA ± 10% at 24 Vdc	≤13 mA ±10% at 24 Vdc
Turn ON time	5 ms	5 ms
Turn OFF time	10 ms	10 ms
Protection circuit	damping diode	damping diode
OUTPUT TECHNICAL DATA		
Contact type	1 exchange $AgSnO_2$	2 NA $AgSnO_2$
Nominal current (resistive load)	**6 A / 250 Vac**	**5 A / 250 Vac**
Max. cut-off capacity	30 A	30 A
Max. fuse current	—	—
GENERAL TECHNICAL DATA		
Operating temperature range	-20…+60°C	-20…+60°C
Coil isolation / contacts	3 kVac / 60 s	3 kVac / 60 s
Isolation between output terminal blocks	—	—
Protection degree	IP 20 IEC529, EN60529	IP 00 IEC529, EN60529
Overvoltage category / Pollution degree	II / 2	II / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED	Green LED
Connection type	Fixed AWG26-14 2.5 mm^2 spring terminal blocks	Fixed AWG26-14 2.5 mm^2 spring terminal blocks
Housing material	UL94V-0 polyamide	UL94V-0 polyamide
Approximate weight	40 g	43 g
Mounting information	vertical on rails, side by side	vertical on rails, side by side

MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		—	—
Spare part relay	(1)	—	—
Jumper	—	Cat. No. PTCCK42 (42 poles)	Cat. No. PTCCK42 (42 poles)
Marking tag	neutral	Cat. No. NU0851	Cat. No. NU0851
End section		Cat. No. XCKPT	Cat. No. XCKPT

Single relay modules
CKR series

- Pluggable relay
- Frontal status LED
- Width 6.2 mm
- Available plug-in jumper for potential distribution



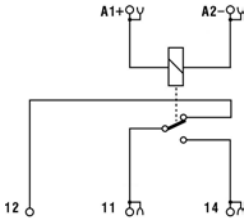
NOTES

Measurements include rail clamp clearance.
(1) Made to order (not kept in stock), for information contact our sales office.
(2) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.

APPLICATIONS

The CWRE series is designed for signal switching and is equipped with a pluggable relay to facilitate maintenance procedures. They can also be used in parallel from both the input and output sides using a specific plug-in jumper.

BLOCK DIAGRAM



VERSIONS	Cat. No. X766848	Cat. No. X766842	Cat. No. X766845	Cat. No. X766846	Cat. No. X766847
12 Vac/dc (1)	**CWRE7-0848 (1)**				
24 Vac/dc		**CWRE7-0842**			
48 Vac/dc (1)			**CWRE7-0845 (1)**		
115 Vac/dc				**CWRE7-0846**	
230 Vac/dc					**CWRE7-0847**
INPUT TECHNICAL DATA					
Nominal voltage	**12 Vac/dc ±10%**	**24 Vac/dc ±10%**	**48 Vac/dc ±10%**	**115 Vac/dc ±10%**	**230 Vac/dc ±10%**
Power consumption (1 channel)	10 mA ±10%	7 mA ±10%	5 mA ±10%	4 mA ±10%	4 mA ±10%
Turn ON time	8 ms	8 ms	7 ms	8 ms	8 ms
Turn OFF time	5 ms	5 ms	7 ms	13 ms	13 ms
Protection circuit	damping diode, reverse polarity protection diode jumper				
OUTPUT TECHNICAL DATA					
Contact type	1 exchange $AgSnO_2$ (3)				
Nominal current (resistive load)	**6 A / 250 Vac ; 6 A / 30 Vdc**				
Max. cut-off capacity	DC 13: 24 V / 1A; 115V / 200 mA; 230 V / 100 mA				
Max. fuse current	—				
GENERAL TECHNICAL DATA					
Operating temperature range	-40...+70°C				
Coil isolation / contacts	4 kVac / 60 s				
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)				
Protection degree	IP 20 IEC 529, EN60529				
Overvoltage category / Pollution degree	III / 2				
Reference Standards	IEC 664.1, DIN VDE 0110.1				
Power/status indicator	Green LED				
Connection type	AWG26-14 2.5 mm² screw clamp terminal blocks				
Housing material	UL94V-0 plastic				
Approximate weight	35 g				
Mounting information	on rails, side by side				
MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**				
Mounting rail type according to IEC60715/G32	—				
Spare part relay (2)		Cat. No. 8904027			
Cross connection bridge black	—				
white	—				
blue	CWBK7-0813 (Cat. No. X766813) (20 poles)				
Marking tag neutral	Cat. No. NUPUTUK50				
End section	—				

Multiple relay quick selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

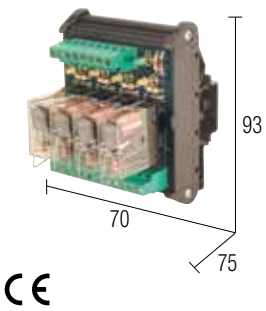
Number of relays	Nominal voltage input	Output type/no. of contacts	nominal current	Notes	Type	Cat. No.	Page
4	24 Vdc	SPDT	12 A	(1) (4)	R41E24	XR041E24	97
8	24 Vdc	SPDT	12 A	(1) (4)	R81E24	XR081E24	97
16	24 Vdc	SPDT	12 A	(1) (4)	R161E24	XR161E24	97
4	24 Vac/dc	SPDT	12 A	(1) (6)	R41EAD	XR041EAD	98
8	24 Vac/dc	SPDT	12 A	(1) (6)	R81EAD	XR081EAD	98
16	24 Vac/dc	SPDT	12 A	(1) (6)	R161EAD	XR161EAD	98
4	24 Vac/dc	SPDT	12 A	(1) (6) (8)	R41U24F	XR041U24F	99
8	24 Vac/dc	SPDT	12 A	(1) (6) (8)	R81U24F	XR081U24F	99
16	24 Vac/dc	SPDT	12 A	(1) (6) (8)	R161U24F	XR161U24F	99
4	24 Vdc	DPDT	8 A	(1) (4)	R42E24	XR042E24	100
8	24 Vdc	DPDT	8 A	(1) (4)	R82E24	XR082E24	100
16	24 Vdc	DPDT	8 A	(1) (4)	R162E24	XR162E24	100
4	24 Vac/dc	DPDT	8 A	(1) (6)	R42EAD	XR042EAD	101
8	24 Vac/dc	DPDT	8 A	(1) (6)	R82EAD	XR082EAD	101
16	24 Vac/dc	DPDT	8 A	(1) (6)	R162EAD	XR162EAD	101
8	24 Vac/dc	SPDT	12 A	(1) (6) (9) (10)	RMP081CM	XRMP081CM	102
4	110 Vdc/120 Vac	SPDT	10 A	(1) (6)	R41E11A	XR041E1A	103
4	24 Vac/dc	SPDT	8 A	(2) (6)	CR4-1	XCR41	103
4	24 Vac/dc	SPDT	8 A	(1) (6)	CRE4-1	XCRE41	103
8	24 Vac/dc	SPST(NO)	8 A	(1) (6)	CRE8-1	XCRE81	103
8	24 Vac/dc	SPST(NO)	8 A	(2) (6)	CR8-1	XCR81	103
4	24 Vac/dc	DPDT	8 A	(2) (6)	CR4-2SC	XCR42SC	104
4	24 Vac/dc	DPDT	8 A	(1) (6)	CRE4-2SC	XCRE42SC	123

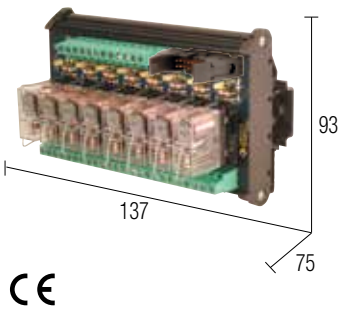
Notes

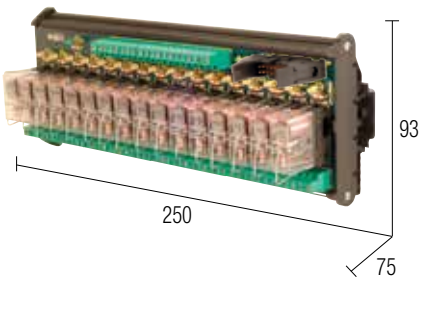
(1) pluggable relay version
(2) fixed relay version
(3) base without relay
(4) negative common, positive control
(5) positive common, negative control
(6) universal common, negative DC control, positive DC, AC
(7) control via connector
(8) safety fuse on contact
(9) with test button
(10) with test switch

Multi-relay modules

- Control with direct current voltages
- Operation with negative common
- LED status indicator
- Pluggable relay



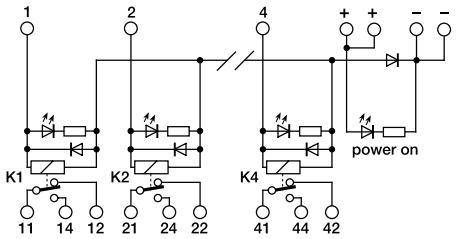




NOTES

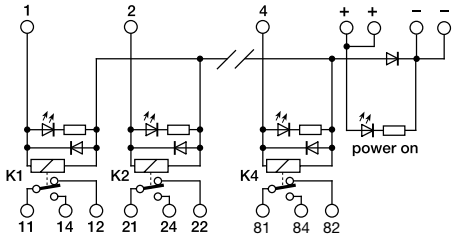
Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical

BLOCK DIAGRAM



4 relay module

VERSIONS	Cat. No. XR041E24	Cat. No. XR081E24	Cat. No. XR161E24
4 relay module	**R41E24**		
8 relay module		**R81E24**	
16 relay module			**R161E24**

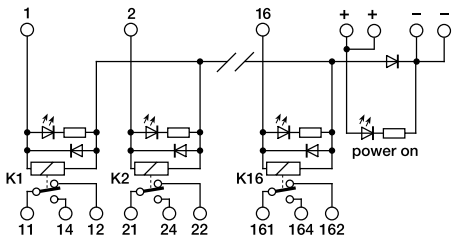


8 relay module

INPUT TECHNICAL DATA	
Nominal voltage	24 Vdc ± 10%
Power consumption (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	damping diode, reverse polarity protection diode

OUTPUT TECHNICAL DATA	
Contact type	1 exchange $AgSnO_2$
Nominal load (resistive)	12 A / 250 Vac
Max. cut-off capacity	12 A
Max. fuse current	—

GENERAL TECHNICAL DATA			
Operating temperature range	–10...+50°C		
Coil isolation / contacts	2.5 kVac / 60 s		
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		
Protection degree	IP 20 IEC 529, EN60529		
Surge category/degree of pollution	III / 2		
Reference Standards	IEC 664-1, DIN VDE 0110.1		
Power/status indicator	Green LED / Yellow LED		
Connection type	2.5 mm^2 fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight	188 g	342 g	657 g
Mounting information	on rails, side by side		

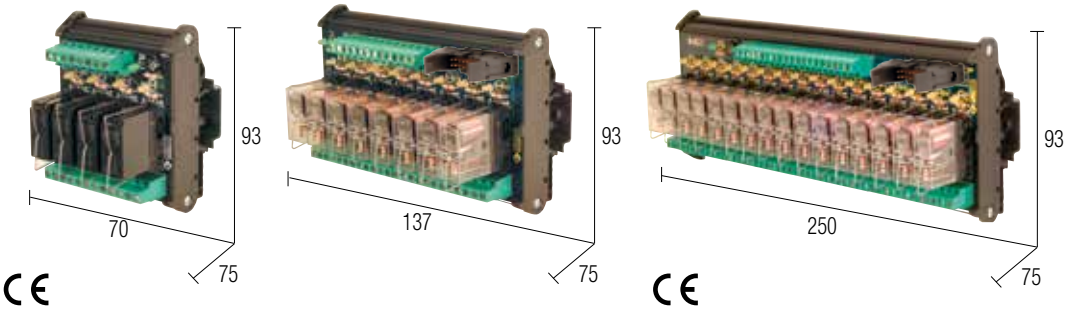


16 relay module

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL	
Spare part relay (1)	Cat. No. 8904001	
Jumper red	—	
white	—	
blue	—	

Multi-relay modules

- Control with both alternating and direct current voltages
- Operation with both positive and negative common
- LED status indicator
- Pluggable relay



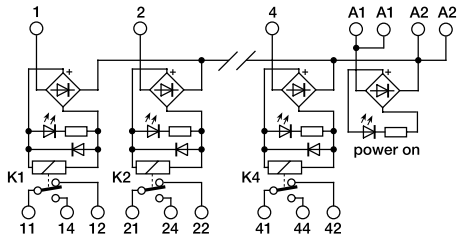
NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical
(2) Product made to order (not kept in stock).

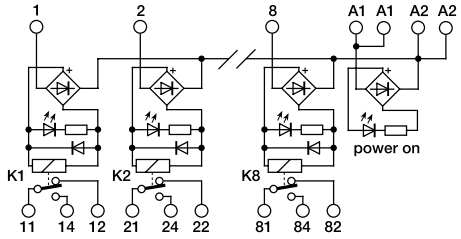
POWER SUPPLY COMPATIBILITY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

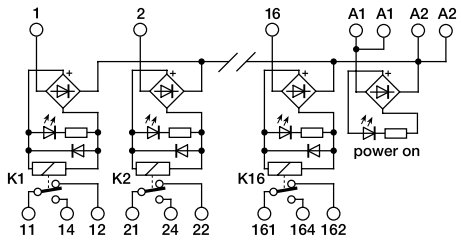
BLOCK DIAGRAM



4 relay module



8 relay module

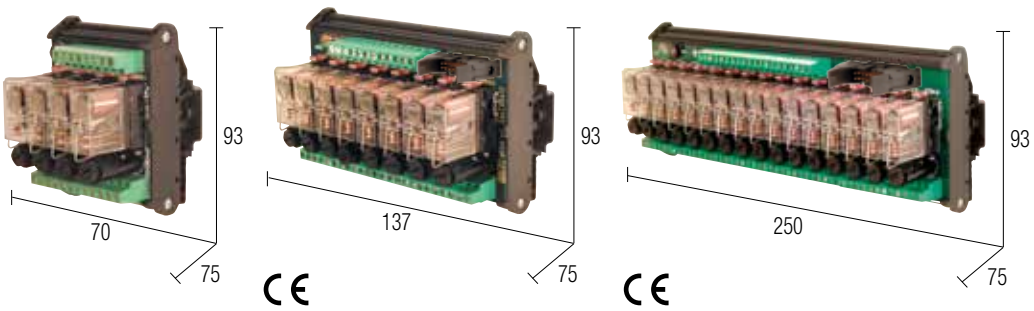


16 relay module

VERSIONS	Cat. No. XR041EAD	Cat. No. XR081EAD	Cat. No. XR161EAD
4 relay module	**R41EAD**		
8 relay module		**R81EAD**	
16 relay module			**R161EAD**
INPUT TECHNICAL DATA			
Nominal voltage	24 Vac/dc ± 10%		
Power consumption (1 channel)	22 mA ± 10%		
Turn ON time	15 ms		
Turn OFF time	5 ms		
Protection circuit	damping diode, reverse polarity protection diode jumper		
OUTPUT TECHNICAL DATA			
Contact type	1 exchange $AgSnO_2$		
Nominal load (resistive)	12 A / 250 Vac		
Max. cut-off capacity	12 A		
Max. fuse current	—		
GENERAL TECHNICAL DATA			
Operating temperature range	–10...+50°C		
Coil isolation / contacts	2.5 kVac / 60 s		
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		
Protection degree	IP 00 IEC 529, EN60529		
Surge category/degree of pollution	III / 2		
Reference Standards	IEC 664-1, DIN VDE 0110.1		
Power/status indicator	Green LED / Yellow LED		
Connection type	2.5 mm^2 fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight	192 g	345 g	688 g
Mounting information	on rails, side by side		
MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Spare part relay (1)	Cat. No. 8904001		
Jumper red	—		
white	—		
blue	—		

Multi-relay modules with fuse

- Control with both alternating and direct current voltages
- Operation with both positive and negative common
- LED status indicator
- Pluggable relay
- Output contact safety fuse



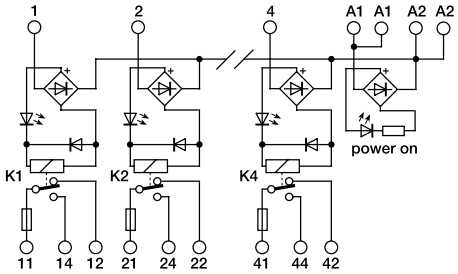
NOTES

Measurements include rail clamp clearance. (1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical. (2) The interface is provided without a fuse and the fuse holder cap is in a bag inside the package. The fuse must be of a suitable size for the load. The max. value of 6.3 A refers to fuses compliant with EN60127 and at the nominal approved current of the fuse holder. Larger fuses can cause damage to the fuse holder and to the module.

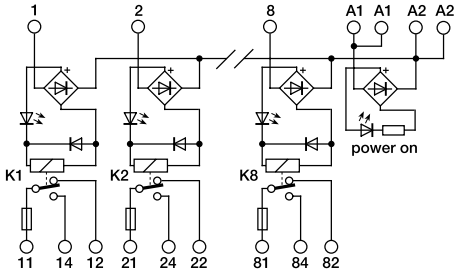
POWER SUPPLY COMPATIBILITY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

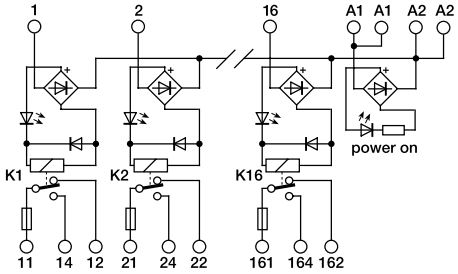
BLOCK DIAGRAM



4 relay module



8 relay module

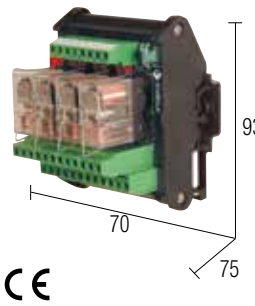


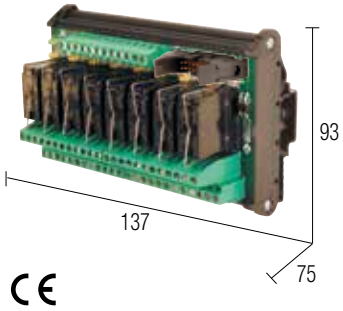
16 relay module

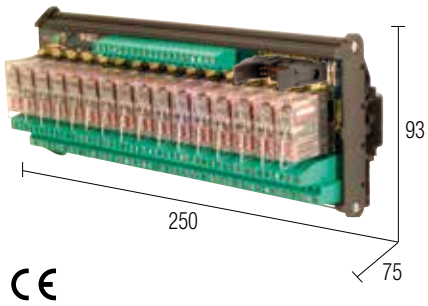
VERSIONS	Cat. No. XR041U24F	Cat. No. XR081U24F	Cat. No. XR161U24F
4 relay module	**R41U24F**		
8 relay module		**R81U24F**	
16 relay module			**R161U24F**
INPUT TECHNICAL DATA			
Nominal voltage	24 Vac/dc ± 10%		
Power consumption (1 channel)	22 mA ± 10%		
Turn ON time	15 ms		
Turn OFF time	10 ms		
Protection circuit	damping diode, reverse polarity protection diode jumper		
OUTPUT TECHNICAL DATA			
Contact type	1 exchange $AgSnO_2$		
Nominal load (resistive)	12 A / 250 Vac		
Max. cut-off capacity	12 A		
Max. fuse current	6.3 A (2)		
GENERAL TECHNICAL DATA			
Operating temperature range	–10...+50°C		
Coil isolation / contacts	2.5 kVac / 60 s		
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		
Protection degree	IP 00 IEC 529, EN60529		
Surge category/degree of pollution	III / 2		
Reference Standards	IEC 664-1, DIN VDE 0110.1		
Power/status indicator	Green LED / Yellow LED		
Connection type	2.5 mm^2 fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight	210 g	326 g	770 g
Mounting information	on rails, side by side		
MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Spare part relay (1)	Cat. No. 8904001		
Jumper red	—		
white	—		
blue	—		

Multi-relay modules

- Control with direct current voltages
- Operation with negative common
- LED status indicator
- Pluggable relay



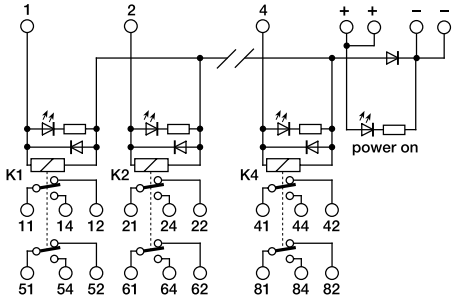




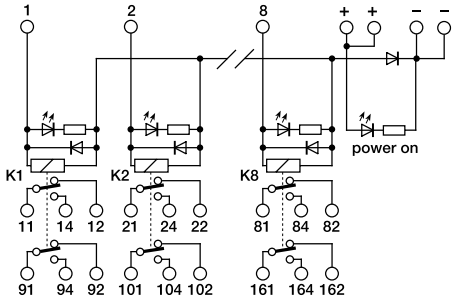
NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.

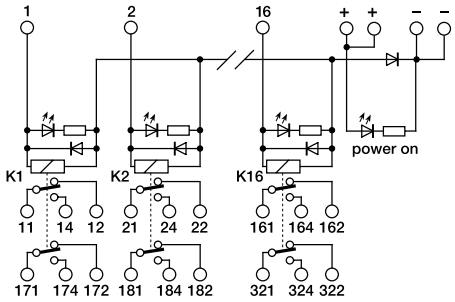
BLOCK DIAGRAM



4 relay module



8 relay module



16 relay module

VERSIONS	Cat. No. XR042E24	Cat. No. XR082E24	Cat. No. XR162E24
4 relay module	**R42E24**		
8 relay module		**R82E24**	
16 relay module			**R162E24**

INPUT TECHNICAL DATA	
Nominal voltage	24 Vdc ± 10%
Power consumption (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	10 ms
Protection circuit	damping diode, reverse polarity protection diode

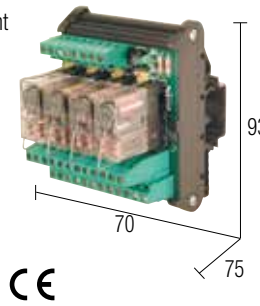
OUTPUT TECHNICAL DATA	
Contact type	2 exchanges AgNi
Nominal load (resistive)	8 A / 250 Vac
Max. cut-off capacity	8 A
Max. fuse current	—

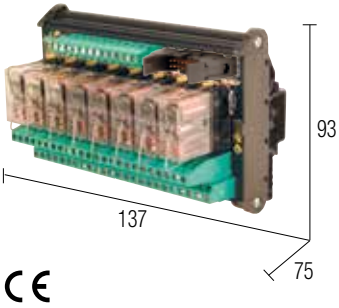
GENERAL TECHNICAL DATA			
Operating temperature range	–10...+50°C		
Coil isolation / contacts	2.5 kVac / 60 s		
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		
Protection degree	IP 00 IEC 529, EN60529		
Surge category/degree of pollution	III / 2		
Reference Standards	IEC 664-1, DIN VDE 0110.1		
Power/status indicator	Green LED / Yellow LED		
Connection type	2.5 mm² fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight	225 g	419 g	811 g
Mounting information	on rails, side by side		

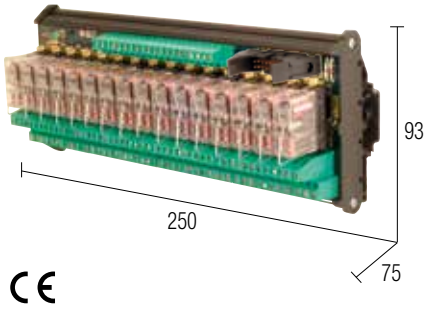
MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL	
Spare part relay (1)	Cat. No. 8904002	
Jumper red	—	
white	—	
blue	—	

Multi-relay modules

- Control with both alternating and direct current voltages
- Operation with both positive and negative common
- LED status indicator
- Pluggable relay







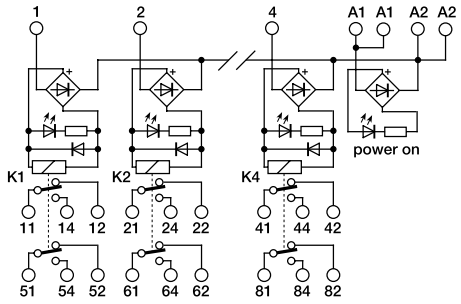
NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Product made to order (not kept in stock).

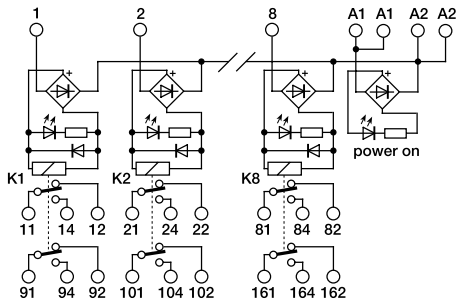
POWER SUPPLY COMPATIBILITY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

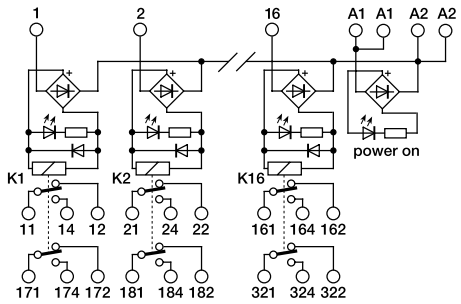
BLOCK DIAGRAM



4 relay module



8 relay module

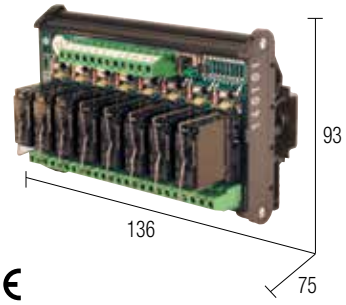


16 relay module

VERSIONS	Cat. No. XR042EAD	Cat. No. XR082EAD	Cat. No. XR162EAD
4 relay module	**R42EAD**		
8 relay module		**R82EAD**	
16 relay module			**R162EAD**
INPUT TECHNICAL DATA			
Nominal voltage	24 Vac/dc ± 10%		
Power consumption (1 channel)	22 mA ± 10%		
Turn ON time	15 ms		
Turn OFF time	5 ms		
Protection circuit	damping diode, reverse polarity protection diode jumper		
OUTPUT TECHNICAL DATA			
Contact type	2 exchanges AgNi		
Nominal load (resistive)	8 A / 250 Vac		
Max. cut-off capacity	8 A		
Max. fuse current	—		
GENERAL TECHNICAL DATA			
Operating temperature range	–10...+50°C		
Coil isolation / contacts	2.5 kVac / 60 s		
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		
Protection degree	IP 00 IEC 529, EN60529		
Surge category/degree of pollution	III / 2		
Reference Standards	IEC 664-1, DIN VDE 0110.1		
Power/status indicator	Green LED / Yellow LED		
Connection type	2.5 mm² fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight	227 g	427 g	835 g
Mounting information	on rails, side by side		
MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Spare part relay (1)	Cat. No. 8904002		
Jumper red	—		
white	—		
blue	—		

Multi-relay modules with test buttom

- Control with both alternating and direct current voltages
- Operation with both positive and negative common
- LED status indicator
- Pluggable relay
- Test with buttons and switches



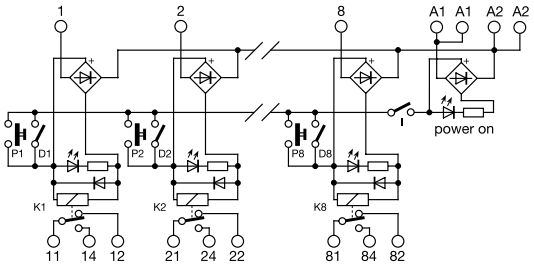
NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Replaces cards XRP08124 and XRD08124.

POWER SUPPLY COMPATIBILITY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

BLOCK DIAGRAM



P = test button
D = DIP-switch
IG = general switch for isolating buttons and the DIP-switch

VERSIONS	Cat. No. XRMP081CM (2)
With push-button and DIP-switch	**RMP081CM**

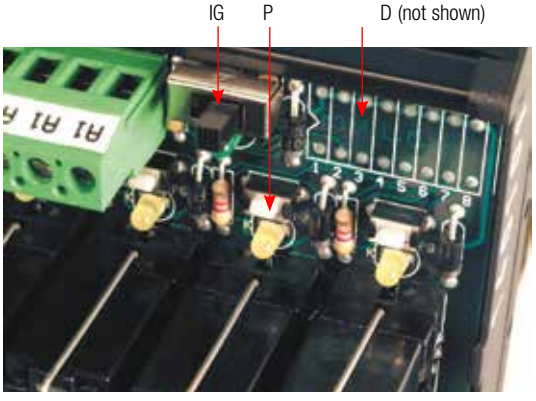
INPUT TECHNICAL DATA	
Nominal voltage	24 Vac/dc ± 10%
Power consumption (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	damping diode, reverse polarity protection diode jumper

OUTPUT TECHNICAL DATA	
Contact type	1 exchange $AgSnO_2$ for 8 relays
Nominal load (resistive)	12 A / 250 Vac
Max. cut-off capacity	12 A
Max. fuse current	—

GENERAL TECHNICAL DATA	
Operating temperature range	–10...+50°C
Coil isolation / contacts	2.5 kVac / 60 s
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)
Protection degree	IP 00 IEC 529, EN60529
Surge category/degree of pollution	III / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED / Yellow LED
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	350 g
Mounting information	on rails, side by side

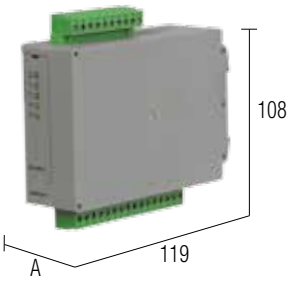
MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Spare part relay (1)		Cat. No. 8904001
Jumper	red	—
	white	—
	blue	—

This product can be operated in either alternating or direct current.
Relay activation can be forced temporarily using the relevant button, or permanently using a DIP-switch.

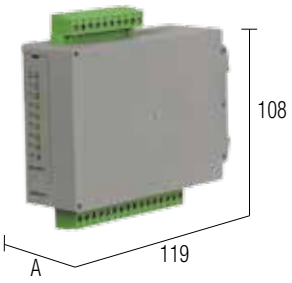


Super compact relay modules CR & CRE series

- 3 kV Input/Output isolation
- 1 kV isolation between output contacts
- Fast cabling extractable terminal blocks
- Control with both alternating and direct current voltages
- Operation with both positive and negative common



A = 22.5 mm CR version, 35 mm CRE version



A = 22.5 mm CR version, 35 mm CRE version

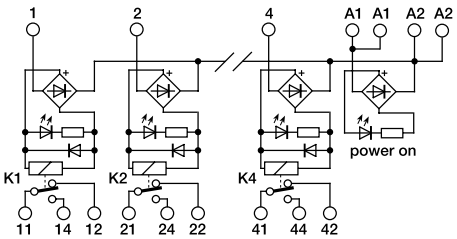
NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.

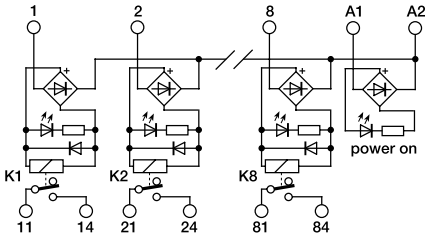
CR4-1 and **CRE4-1**: 4-relay module with exchange contact, inputs and outputs with removable terminal blocks.

CR8-1 and CR8E-1: 8-relay module with NA contact, inputs and outputs with removable terminal blocks.

BLOCK DIAGRAM



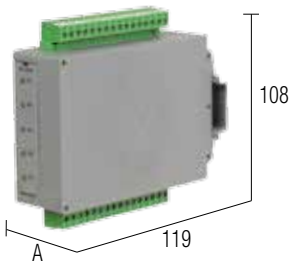
BLOCK DIAGRAM



VERSIONS	Cat. No. XCRE41	Cat. No. XCR4	Cat. No. XCRE81	Cat. No. XCR81
Pluggable relay	**CRE4-1**		**CRE8-1**	
Fixed relay		**CR4-1**		**CR8-1**
INPUT TECHNICAL DATA				
Nominal voltage	24 Vac/dc ± 10%		24 Vac/dc ± 10%	
Power consumption (1 channel)	16 mA ± 10%		16 mA ± 10%	
Turn ON time	7 ms		7 ms	
Turn OFF time	3 ms		3 ms	
Protection circuit	damping diode, reverse polarity protection diode jumper		damping diode, reverse polarity protection diode jumper	
OUTPUT TECHNICAL DATA				
Contact type	1 AgNiO exchange for 4 relays		1 NA contact for 8 relays	
Nominal load (resistive)	8 A / 250 Vac		8 A / 250 Vac	
Max. cut-off capacity	2000 VA		2000 VA	
Max. fuse current	—		—	
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C		–10...+50°C	
Coil isolation / contacts	2.5 kVac / 60 s		3 kVac / 60 s	
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		1 kVac / 60 s (between open contact poles)	
Protection degree	IP 20 IEC 529, EN60529		IP 20 IEC 529, EN60529	
Surge category/degree of pollution	III / 2		III / 2	
Reference Standards	IEC 664-1, DIN VDE 0110.1		IEC 664-1, DIN VDE 0110.1	
Power/status indicator	Green LED / Yellow LED		Green LED / Yellow LED	
Connection type	2.5 mm² fixed screw terminal blocks		2.5 mm² removable screw terminal blocks	
Housing material	UL94V-0 plastic		UL94V-0 plastic	
Approximate weight	143 g (180 g removable version)		199 g (250 g removable version)	
Mounting information	on rails, side by side		on rails, side by side	
MOUNTING ACCESSORIES				
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL	
Spare part relay (1)	Cat. No. 8904042		Cat. No. 8904042	
Jumper red	—		—	
white	—		—	
blue	—		—	

Super compact relay modules CR & CRE series

- 3 kV Input/Output isolation
- 1 kV isolation between output contacts
- Fast cabling extractable terminal blocks
- Control with both alternating and direct current voltages
- Operation with both positive and negative common

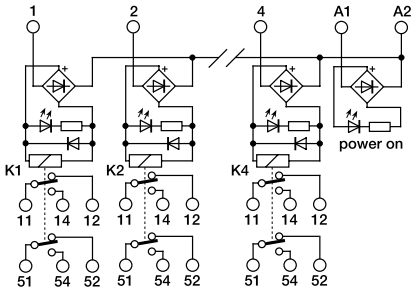


A = 22.5 mm CR version, 35 mm CRE version

NOTES

Measurements include rail clamp clearance.
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



VERSIONS	Cat. No. XCRE42SC	Cat. No. XCR42SC
Pluggable relay	**CRE4-2SC (2)**	
Fixed relay		**CR4-2SC (2)**

INPUT TECHNICAL DATA	
Nominal voltage	24 Vac/dc ± 10%
Power consumption (1 channel)	25 mA ± 10%
Turn ON time	7 ms
Turn OFF time	2 ms
Protection circuit	damping diode, reverse polarity protection diode jumper

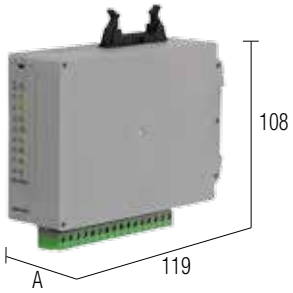
OUTPUT TECHNICAL DATA	
Contact type	2 AgNi exchanges for 4 relays
Nominal load (resistive)	8 A / 250 Vac
Max. cut-off capacity	2000 VA
Max. fuse current	—

GENERAL TECHNICAL DATA	
Operating temperature range	–10...+50°C
Coil isolation / contacts	2.5 kVac / 60 s
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)
Protection degree	IP 20 IEC 529, EN60529
Surge category/degree of pollution	III / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED / Yellow LED
Connection type	2.5 mm² removable screw terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	137 g (180 g removable version)
Mounting information	on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Spare part relay (1)		Cat. No. 8904052
Jumper	red	—
	white	—
	blue	—

Siemens S7 PLC (300 and 400) interface modules

- Super compact size with CR version
- Fast cabling
- Pluggable relay

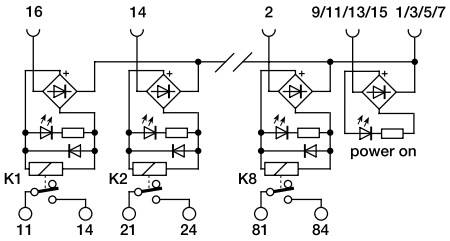


A = 22.5 mm CR version, 35 mm CRE version

NOTES

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Product made to order (not kept in stock).

BLOCK DIAGRAM



VERSIONS	Cat. No. XCRE83	Cat. No. XCR83
Pluggable relay	**CRE8-3**	
Fixed relay		**CR8-3**

INPUT TECHNICAL DATA	
Nominal voltage	24 Vac/dc ± 10%
Power consumption (1 channel)	16 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	damping diode, reverse polarity protection diode jumper

OUTPUT TECHNICAL DATA	
Contact type	1 NA contact for 8 relays
Nominal load (resistive)	10 A / 250 Vac
Max. cut-off capacity	2000 VA
Max. fuse current	—

GENERAL TECHNICAL DATA	
Operating temperature range	–10...+50°C
Coil isolation / contacts	3 kVac / 60 s
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)
Protection degree	IP 20 IEC 529, EN60529
Surge category/degree of pollution	III / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED / Yellow LED
Connection type	male 16 pole flat
Housing material	UL94V-0 plastic
Approximate weight	199 g
Mounting information	on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		—
Spare part relay (1)		Cat. No. 8904042
Jumper	red	—
	white	—
	blue	—

Opto-isolated relay quick selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

Input modules

Number of channels	Input voltage	Applicable load		Notes	Type	Cat. No.	Page
		Voltage	Current				
1	5...24 Vdc	5…48 Vdc	3 A	(2)	O332060	XO332060	107
1	5…24 Vdc	5…48 Vdc	500 mA	(2)	CWOT 6-2082	X766082	113
1	12…24 Vdc	5…48 Vdc	500 mA	(2)	CWOT 6-2083	X766083	112
1	12…24 Vdc	5…48 Vdc	5 A	(1)	CM1S024E	XCM1S024E	108
1	24 Vdc	5…48 Vdc	2 A	(1)	CM1S024	XCM1S024	108
1	5…12 Vdc	5…24 Vdc	5 A	(2) (4)	CKS15NA	XCKS15NA	110
1	5…24 Vdc	5…24 Vdc	30 mA	(2)	CKS1S	XCKS1S	113
1	24 Vdc	5…24 Vdc	5 A	(2) (4)	CKS15NB	XCKS15NB	110
1	5...24 Vdc	5...24 Vdc	5 A	(2) (5)	CKS15E	XCKS15E	111
1	12…24 Vdc	12...240 Vac	3 A	(1)	CM1T024E	XCM1T024E	109
1	5...24 Vdc	24...240 Vac	4 A	(2)	O332240	XO332240	107
1	24 Vdc	48...240 Vac	2 A	(1)	CM1T024	XCM1T024	109
2	12…24 Vdc	12…24 Vdc	2 x 2.5 A	(2)	CKS22	XCKS22	109
4	24 Vdc	5…48 Vdc	2 A	(1) (3) (4)	R41S24F	XR041S24F	116
4	24 Vdc	5…48 Vdc	2 A	(1) (3)	R42S24	XR042S24	114
4	24 Vdc	48...240 Vac	2 A	(1) (3)	R42T24	XR042T24	115
8	24 Vdc	5…48 Vdc	2 A	(1) (3) (4)	R81S24F	XR081S24F	116
8	24 Vdc	5…48 Vdc	2 A	(1) (3)	R82S24	XR082S24	114
8	24 Vdc	48...240 Vac	2 A	(1) (3)	R82T24	XR082T24	115
8	5...24 Vdc	12...24 Vdc	8 x 2.5 A	(2) (5)	COP082	XCOP082	117
16	24 Vdc	5…48 Vdc	2 A	(1) (3) (4)	R161S24F	XR161S24F	116
16	24 Vdc	5…48 Vdc	2 A	(1) (3)	R162S24	XR162S24	114
16	24 Vdc	48...240 Vac	2 A	(1) (3)	R162T24	XR162T24	115

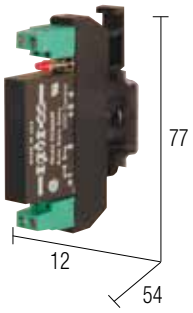
Notes

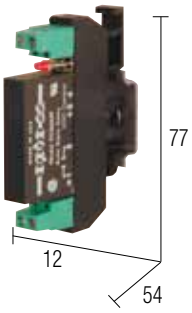
(1) pluggable relay version
(2) fixed relay version
(3) universal common, negative DC control, positive DC
(4) safety fuse on output
(5) electronic protection on output

on rail, space 4 mm from adjacent components

Single solid state relay

- Fixed relay
- Reduced overall dimensions

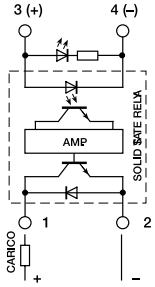




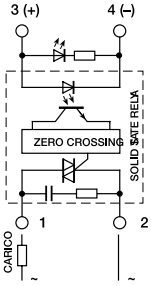
NOTES

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.

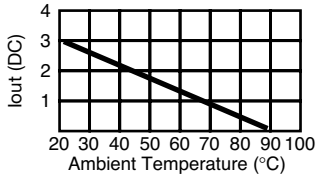
BLOCK DIAGRAM

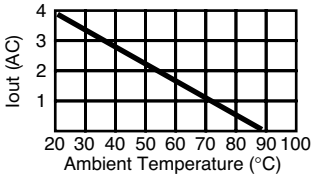


BLOCK DIAGRAM



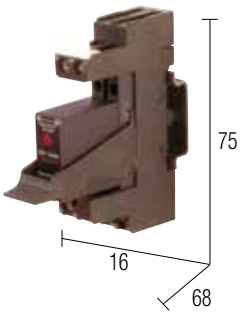
VERSIONS	Cat. No. XO332060	Cat. No. XO332240
Pluggable relay	—	—
Fixed relay	**O332060**	**O332240**
INPUT TECHNICAL DATA		
Input voltage	4…30 Vdc	4…30 Vdc
Signal 1 input level	> 3 Vdc	> 3 Vdc
Signal 0 input level	< 1 Vdc	< 1 Vdc
Power consumption	< 35 mA	< 35 mA
Commutation frequency	100 Hz max	100 Hz max
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
OUTPUT TECHNICAL DATA		
Output voltage	5…60 Vdc	24…240 Vac (zero crossing)
Permanent load current	3 A at 20°C (see graph)	4 A at 20°C (see graph)
Max current	4 A to 20°C (5 A / 5 s - 25 A / 10 ms)	5 A to 20°C (6 A / 5 s - 25 A / 10 ms)
Leakage current with signal 0	1 mA	5 mA
OFF/ON switching time	—	10 ms max
Protection circuit	diode	RC filters
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
GENERAL TECHNICAL DATA		
Operating temperature range	-20…+60°C (see graph)	-20…+60°C (see graph)
Coil isolation/contacts	4 kVac / 60 s	4 kVac / 60 s
Protection degree	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529
Reference Standards	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Degree of pollution	2	2
Surge category	III	III
Power/status indicator	LED	LED
Housing material	UL94V-0 polyamide	UL94V-0 polyamide
Approximate weight	36 g	36 g
Mounting information	on rail, space 4 mm from adjacent components	on rail, space 4 mm from adjacent components
MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35	**PR/3/AC, PR/3/AS**	**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Spare part relay (1)	—	—
Jumper red	—	—
white	—	—
blue	—	—

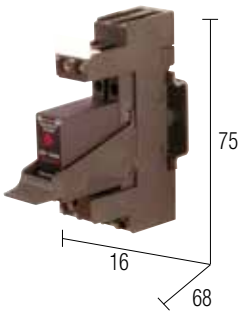




Single solid state relay
CM series

- Low cost
- For switching loads in DC (version S)
- Pluggable relay



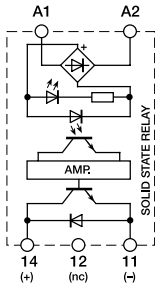


NOTES

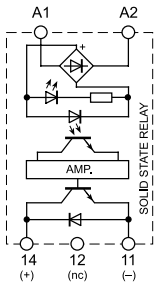
(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical
(2) Version made to order (not kept in stock); contact our sales office for availability.

This series can be mounted side-by-side without the need for spacing to allow the relay to cool.

BLOCK DIAGRAM



BLOCK DIAGRAM



VERSIONS	Cat. No. XCM1S024	Cat. No. XCM1S024E
Pluggable relay	**CM1S024 (2)**	**CM1S024E (2)**
Fixed relay	—	—

INPUT TECHNICAL DATA		
Input voltage	**24 Vdc** (19.2…28.8 Vdc)	**12-24 Vdc** (10…32 Vdc)
Signal 1 input level	> 19.2 Vdc	> 10 Vdc
Signal 0 input level	< 1 Vdc	< 10 Vdc
Power consumption (1 channel)	< 20 mA	< 16 mA
Commutation frequency	100 Hz max	100 Hz max
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks

OUTPUT TECHNICAL DATA		
Output voltage	**3…50 Vdc**	**0…35 Vdc**
Permanent load current	**2 A** to 40°C	**5 A** at 60°C
Max current	8 A /10 ms	120 A (peak)
Leakage current with signal 0	0.1 mA	10 µA
OFF/ON switching time	100 µs / 1 ms	50 µs / 250 µs
Protection circuit	diode	diode
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks

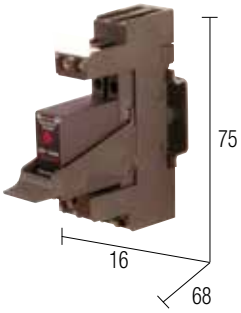
GENERAL TECHNICAL DATA		
Operating temperature range	-20...+80°C over 40°C apply a derating of 0.04A/°C	-20...+80°C over 60°C apply a derating of 0.05A/°C
Coil isolation/contacts	2.5 kVac / 60 s	2.5 kVac / 60 s
Protection degree	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529
Reference Standards	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Degree of pollution	3	3
Surge category	III	III
Power/status indicator	LED	LED
Housing material	UL94V-0 polyamide	UL94V-0 polyamide
Approximate weight	—	—
Mounting information	vertical on rails, side by side	vertical on rails, side by side

MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35		**PR/3/AC, PR/3/AS**	**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32		—	—
Spare part relay (1)		Cat. No. 8904404	Cat. No. 8904402
Jumper	black	Cat. No. XCMB16B	Cat. No. XCMB16B
	white	—	—
	blue	—	—

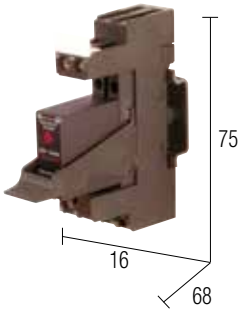
Jumper

Single solid state relay
CM series

- Low cost
- For switching loads in DC (version S)
- Pluggable relay



CE

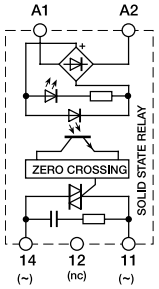


NOTES

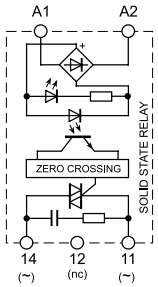
(1)Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical
(2) Version made to order (not kept in stock); contact our sales office for availability.

This series can be mounted side-by-side without the need for spacing to allow the relay to cool.

BLOCK DIAGRAM



BLOCK DIAGRAM

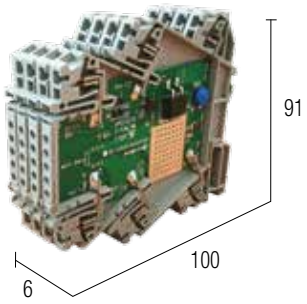


VERSIONS	Cat. No. XCM1T024	Cat. No. XCM1T024E
Pluggable relay	**CM1T024 (2)**	**CM1T024E (2)**
Fixed relay	—	—
INPUT TECHNICAL DATA		
Input voltage	**24 Vdc** (19.2…28.8 Vdc)	**12-24 Vdc** (10…32 Vdc)
Signal 1 input level	> 19.2 Vdc	> 10 Vdc
Signal 0 input level	< 1 Vdc	< 10 Vdc
Power consumption (1 channel)	< 20 mA	< 16 mA
Commutation frequency	100 Hz max	100 Hz max
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
OUTPUT TECHNICAL DATA		
Output voltage	**48…280 Vac** (zero crossing)	**12…275 Vac** (zero crossing)
Permanent load current	**3 A** to 40°C	**3 A** at 60°C
Max current	120 A /10 ms	120 A (peak)
Leakage current with signal 0	5 mA	1 mA
OFF/ON switching time	1/2 cycle + 1 ms	50 µs / 250 µs
Protection circuit	—	—
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
GENERAL TECHNICAL DATA		
Operating temperature range	-20...+80°C over 40°C apply a derating of 0.05A/°C	-20...+80°C over 40°C apply a derating of 0.025A/°C
Coil isolation/contacts	2.5 kVac / 60 s	2.5 kVac / 60 s
Protection degree	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529
Reference Standards	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Degree of pollution	3	3
Surge category	III	III
Power/status indicator	LED	LED
Housing material	UL94V-0 polyamide	UL94V-0 polyamide
Approximate weight	—	—
Mounting information	vertical on rails, side by side	vertical on rails, side by side
MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35	**PR/3/AC, PR/3/AS**	**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32	—	—
Spare part relay (1)	Cat. No. 8904405	Cat. No. 8904403
Jumper black	Cat. No. XCMB16B	Cat. No. XCMB16B
white	—	—
blue	—	—

Jumper

Solid State Relay with output protection

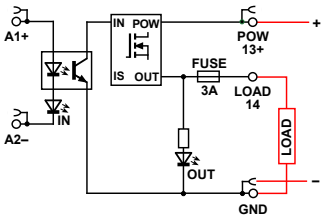
- Protection against short circuit, overload,overtemperature
- Input and output status LED
- Output extravoltage suppressor diode
- Extralow current absorbing
- Compact dimension



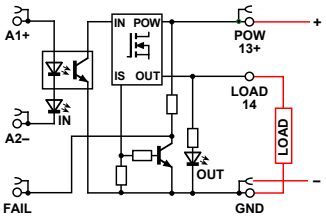
NOTES

(1) La corrente massima dipende dal numero di uscite che sono contemporaneamente attive e dalla temperatura ambiente.
(2) The protection cuts off the output current, the yellow LED turns off or reduces its light, the output turns on automatically when the overload is removed. The current limiting depending also by the operating temperature, for more accuracy or to protect cables with small section or rated current lower than the maximum current, an external fuse must be provided.

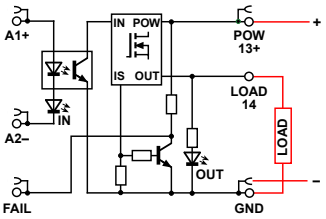
BLOCK DIAGRAM



BLOCK DIAGRAM



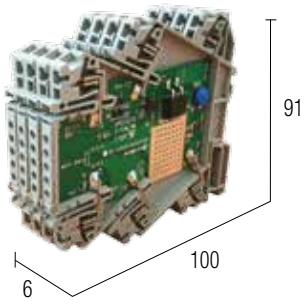
BLOCK DIAGRAM



ORDER CODE		XCKS024DC024DC03	XCKS024DC024DC05	XCKS024DC024DC10
Model		**CKS-024DC/024DC/03**	**CKS-024DC/024DC/05**	**CKS-024DC/024DC/10**
INPUT TECHNICAL DATA				
Input voltage		5...24 Vdc (4.7…32 Vdc)	5...24 Vdc (4.7…32 Vdc)	5...24 Vdc (4.7…32 Vdc)
Level 1 (high) input signal		> 4.5 Vdc	> 4.5 Vdc	> 4.5 Vdc
Level 0 (low) input signal		< 4.2 Vdc	< 4.2 Vdc	< 4.2 Vdc
Rated current		≤ 10 mA at 24 Vdc	≤ 10 mA at 24 Vdc	≤ 10 mA at 24 Vdc
Input channels		1	1	1
OUTPUT TECHNICAL DATA				
Output voltage		5...24 Vdc (5…32 Vdc)	5...24 Vdc (5…32 Vdc)	5...24 Vdc (5…32 Vdc)
Continuous current		3 A / 24 Vdc at 45°C (1) 5 A / 24 Vdc at 20°C (1)	8 A / 24 Vdc at 45°C (1) 5 A / 24 Vdc at 55°C (1)	10 A / 24 Vdc at 45°C (1) 15 A / 24 Vdc at 20°C (1)
Maximun current		5 A / 2 s +/- 10% at 25°C (1)	21 A / 100 ms at 25°C (1)	21 A / 100 ms at 25°C (1)
Min. applicable load		5 V / 10 mA	5 V / 10 mA	5 V / 10 mA
Leakage current 0 signal		< 25 µA at 24 Vdc	< 25 µA at 24 Vdc	< 25 µA at 24 Vdc
Isolation between open contacts		—	—	—
Internal protection		auto resettable fuse / suppressor diode	electronic against short circuit, oveload, overtemperature (2) / suppressor diode	
External protection		fuse 3 A max.	fuse 5 A max.	fuse 10 A max.
GENERAL TECHNICAL DATA				
Operating temperature		-20…+60°C	-20...+60°C with thermal protection (2)	-20...+60°C with thermal protection (2)
I/O isolation		3 kVac / 60 s	3 kVac / 60 s	3 kVac / 60 s
Max. switching frequency		200 Hz max.	200 Hz max.	200 Hz max.
Status display		LED green IN / LED yellow OUT	LED green IN / LED yellow OUT / Fail	LED green IN / LED yellow OUT / Fail
Protection degree		IP20 IEC529 EN60529 (with end plate on the last module)		
Reference Standard		—	—	—
Pollution degree		2	2	2
Overvoltage category		II	II	II
Connection terminals		2.5 mm² (AWG26-14) fixed spring type	2.5 mm² (AWG26-14) fixed spring type	2.5 mm² (AWG26-14) fixed spring type
Housing material		Polyamide UL94V-0	Polyamide UL94V-0	Polyamide UL94V-0
Approx. weight		30 g (1.06 oz)	30 g (1.06 oz)	30 g (1.06 oz)
Mounting information		Vertical on rail adjacent without gap	Vertical on rail adjacent without gap	Vertical on rail adjacent without gap
MOUNTING ACCESSORIES				
Mounting rail type IEC60715/TH35-7,5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type IEC60715/G32		—	—	—
Replacement relay		—	—	—
Plug-in jumper	2 poles	PTC/4/02 Cod. PTC0402	PTC/4/02 Cod. PTC0402	PTC/4/02 Cod. PTC0402
	3 poles	PTC/4/03 Cod. PTC0403	PTC/4/03 Cod. PTC0403	PTC/4/03 Cod. PTC0403
	5 poles	PTC/4/05 Cod. PTC0405	PTC/4/05 Cod. PTC0405	PTC/4/05 Cod. PTC0405
	10 poles	PTC/4/10 Cod. PTC0410	PTC/4/10 Cod. PTC0410	PTC/4/10 Cod. PTC0410
	42 poles	PTC/4/00 Cod.PTC0400	PTC/4/00 Cod.PTC0400	PTC/4/00 Cod.PTC0400
Marking tags		CNU/8/51 Cat. No. NU0851	CNU/8/51 Cat. No. NU0851	CNU/8/51 Cat. No. NU0851
End plate		CK/PT Cat. No. XCKPT	CK/PT Cat. No. XCKPT	CK/PT Cat. No. XCKPT

Solid State Relaya with output for AC loads

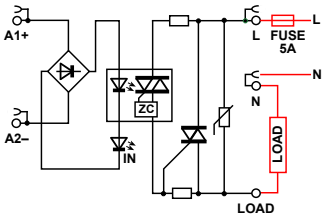
- Output extravoltage varistor
- Extralow current absorbing
- Compact dimension



NOTES

(1) Maximum output current of each channel depends on surrounding air temperature, on the number of output contemporarily active and on the current flowing through them.
(2) An external fuse must be provided to prevent damage to the circuit and to the cables. The non-resettable internal fuse (calibrated track) has the only purpose to avoid damages in the even of failure of the external protection.

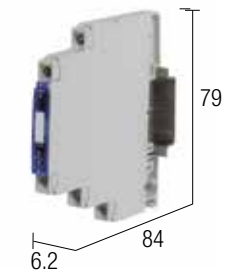
BLOCK DIAGRAM



ORDER CODE		XCKS024DC230AC05
Model		**CKS-024DC/230AC/05**
INPUT TECHNICAL DATA		
Input voltage		12...24 Vdc (9…30 Vdc / 9...30Vac)
Level 1 (high) input signal		> 8.5 Vdc
Level 0 (low) input signal		< 8 Vdc
Rated current		≤ 10 mA at 24 Vdc
Input channels		1
OUTPUT TECHNICAL DATA		
Output voltage		230 Vac (20…265 Vac)
Continuous current		5 A / 230 Vac at 45°C (1)
Maximun current		6 A
Min. applicable load		24 Vac / 10 mA
Leakage current 0 signal		< 25 µA at 24 Vdc
Isolation between open contacts		—
Internal protection		not replaceable fuse 10 A / varistor (2)
External protection		fuse 5 A max.
GENERAL TECHNICAL DATA		
Operating temperature		-20 ... +45°C
I/O isolation		3 kVac / 60 s
Max. switching frequency		—
Status display		LED green IN
Protection degree		IP20 IEC529 EN60529 (with end plate on the last module)
Reference Standard		—
Pollution degree		2
Overvoltage category		II
Connection terminals		2.5 mm² (AWG26-14) fixed spring type
Housing material		Polyamide UL94V-0
Approx. weight		30 g (1.06 oz)
Mounting information		vertical on rail adjacent without gap
MOUNTING ACCESSORIES		
Mounting rail type IEC60715/TH35-7,5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type IEC60715/G32		—
Replacement relay		—
Plug-in jumper	2 poles	PTC/4/02 Cod. PTC0402
	3 poles	PTC/4/03 Cod. PTC0403
	5 poles	PTC/4/00 Cod.PTC0400
	10 poles	PTC/4/10 Cod. PTC0410
	42 poles	PTC/4/00 Cod.PTC0400
Marking tags		CNU/8/51 Cat. No. NU0851
End plate		CK/PT Cat. No. XCKPT

Solid state single relay with SPDT output

- 10…40 Vdc operating voltage
- Output with exchange contact simulation
- 5...48 Vdc 500 mA output voltage
- Commutation frequency up to 1 KHz
- 3.75 kV Input/Output isolation

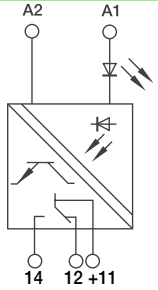


CE

NOTES

Opto-isolators offer many advantages over electromechanical relays, such as increased electrical duration, super-high commutation frequency, insensitivity to vibrations, broad operating range and low power consumption.
Unfortunately, solid state relays are only able to switch a signal by simulating the NA contact of a relay, whereas this product, thanks to its integrated technology, offers all the benefits of solid state relays and eliminates the need for an NC contact.

BLOCK DIAGRAM



VERSIONS	Cat. No. X766083
Pluggable relay	—
Fixed relay	**CWOT 6-2083**

INPUT TECHNICAL DATA	
Input signal	24 Vdc (range 10…40 Vdc)
Signal 1 input level (ON)	>5 Vdc
Signal 0 input level (OFF)	<5 Vdc
Power consumption	6 mA
Protection device	suppression diode

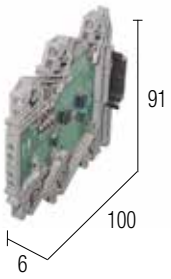
OUTPUT TECHNICAL DATA	
Output signal	5…48 Vdc
Load current	10…500 mA
Switching delay	12 µs ON / 12 µs OFF
Protection device	suppression diode
Output type	NPN/PNP transistor with exchange contact simulation

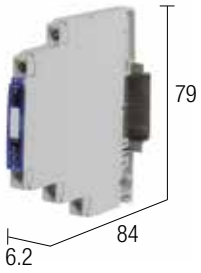
GENERAL TECHNICAL DATA	
Operating temperature range	-25 …+60°C
Input/output isolation	3.75 kVac / 60 s
Max commutation frequency	<1 KHz
Protection degree	IP 20 IEC529 EN60529
Reference Standards	IEC 664-1, DIN VDE
Degree of pollution	2
Surge category	III
Connection type	2.5 mm² fixed screw terminal blocks
Case material	PPE
Approximate weight	29 g
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		—
Spare part relay	(1)	—
Jumper	—	—
Marking tag	neutral	—
	marked	—
	marked	—
End section		—

Signal optoisolators

- Suitable for the isolation and transmission of high-frequency digital signals
- Status LED
- 5, 12 and 24 Vdc operating voltages
- Input/Output isolation

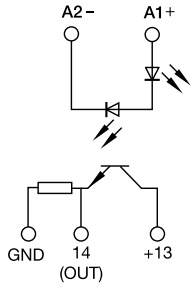




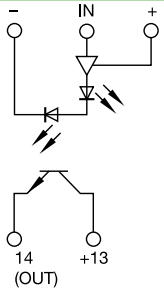
NOTES

(1) Product made to order (not kept in stock).
Used in high-frequency digital signal transmission circuits such as counters, encoders, etc., it eliminates the influence of different reference potentials (mass or ground) on the signal and attenuates the influence of EMI interference, particularly with low-level signals (e.g. 5 Vdc), as well as allowing for secure and clean transmission to greater distances; the use of balanced shielded conductors (two signal conductors plus shield) is however recommended; for frequencies above 25 Hz, the input status LED will be constantly lit, indicating that a transmission is in process.

BLOCK DIAGRAM



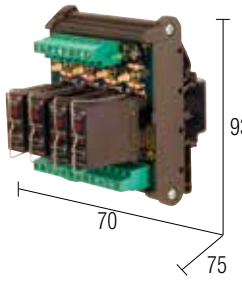
BLOCK DIAGRAM

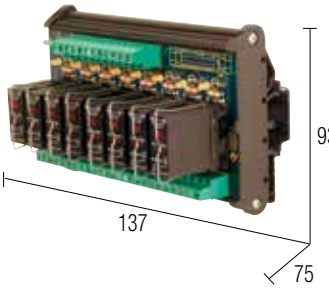


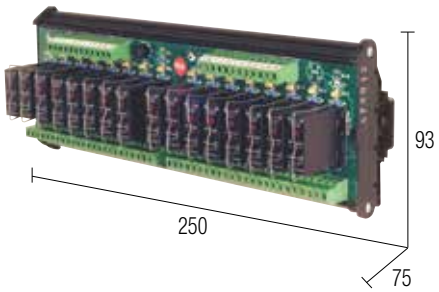
VERSIONS	Cat. No. XCKS1S	Cat. No. X766082
	CKS1S (1)	CWOT 6-6082
INPUT TECHNICAL DATA		
Input signal	3…30 Vdc	4.5…28 Vdc
Signal 1 input level (ON)	≥ 3 Vdc	>4.2 Vdc
Signal 0 input level (OFF)	≤ 3 Vdc	<2.7 Vdc
Power consumption	≤ 10 mA at 24 Vdc	0.1 mA
OUTPUT TECHNICAL DATA		
Output signal	3…30 Vdc	5…48 Vdc
Permanent load current	80 mA / 30 Vdc at 25°C	10…500 mA
Min. applicable load	10 mV / 2 mA	—
Switching delay	—	12 µs ON / 12 µs OFF
GENERAL TECHNICAL DATA		
Operating temperature range	-20…+60°C	-25…+60°C
Input/output isolation	3 kVac / 60 s	3.75 kVac / 60 s
Max commutation frequency	20 kHz max duty cycle 50/50, 70/30 max	<20 KHz
Protection degree	IP 20 IEC529 EN60529	IP 20 IEC529 EN60529
Reference Standards	IEC 664-1, EN50081-1	IEC 664-1, DIN VDE
Degree of pollution	2	2
Surge category	II	III
Connection type	2.5 mm², AWG26-14 spring type	2.5 mm², AWG26-14 screw type
Housing material	UL94V-0 polyamide	PPE
Approximate weight	32 g	29 g
Mounting information	vertical on rails, side by side	vertical on rails, side by side
MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—	—
Spare part relay (1)	—	—
Jumper —	Cat. No. PTCCK42 (42 poles)	—
Marking tag neutral	Cat. No. NU0851	—
marked	—	—
marked	—	—
End section	Cat. No. XCKPT	—

Multi-solid state relay modules

- For switching loads in DC
- Pluggable relay







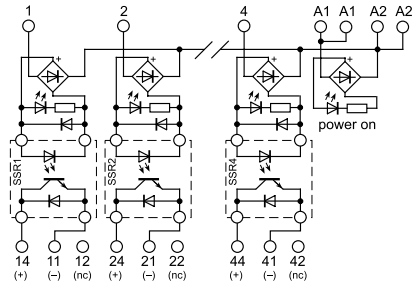
NOTES

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Version made to order (not kept in stock); contact our sales office for availability.

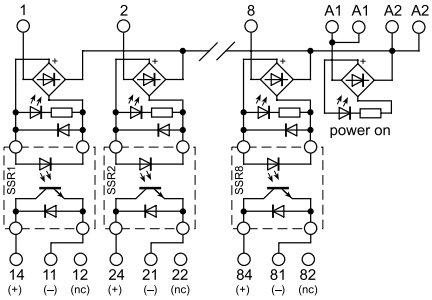
POWER SUPPLY COMPATIBILITY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common

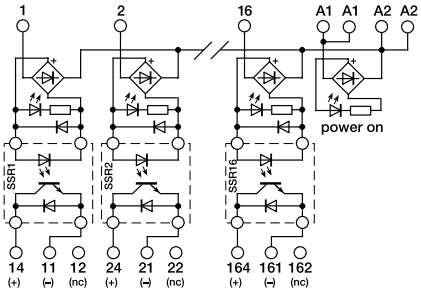
BLOCK DIAGRAM



4 relay module



8 relay module

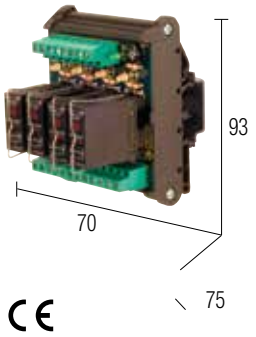


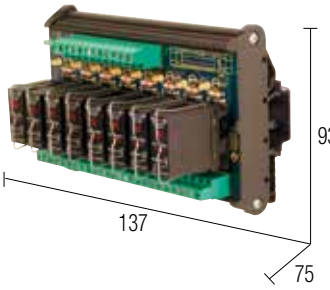
16 relay module

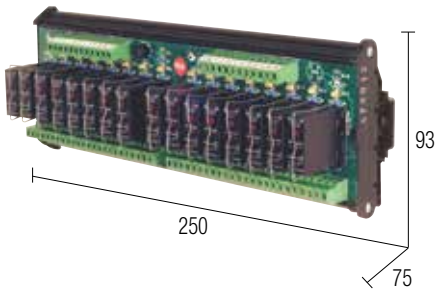
VERSIONS	Cat. No. XR042S24	Cat. No. XR082S24	Cat. No. XR162S24
4 relay module	**R42S24 (2)**		
8 relay module		**R82S24 (2)**	
16 relay module			**R162S24 (2)**
INPUT TECHNICAL DATA			
Input voltage	**24 Vdc** (19.2…28.8 Vdc)		
Signal 1 input level	> 19.2 Vdc		
Signal 0 input level	< 1 Vdc		
Power consumption (1 channel)	< 20 mA		
Commutation frequency	100 Hz max		
OUTPUT TECHNICAL DATA			
Output voltage	**3…50 Vdc**		
Permanent load current	**2 A** to 40°C		
Max current	8 A /10 ms		
Leakage current with signal 0	0.1 mA		
OFF/ON switching time	100 µs / 1 ms		
Protection circuit	diode		
Max. fuse current	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-20...+80°C over 40°C apply a derating of 0.04A/°C		
Input/Output isolation	2.5 kVac / 60 s		
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		
Protection degree	IP 00 IEC 529, EN60529		
Surge category/degree of pollution	III / 2		
Reference Standards	IEC 664-1, DIN VDE 0110.1		
Power/status indicator	Green LED / Yellow LED		
Connection type	2.5 mm² fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight	207 g	379 g	756 g
Mounting information	on rails, side by side		
MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Spare part relay (1)	Cat. No. 8904404		
Jumper	—		

Multi-solid state relay modules

- For switching loads in DC
- Pluggable relay







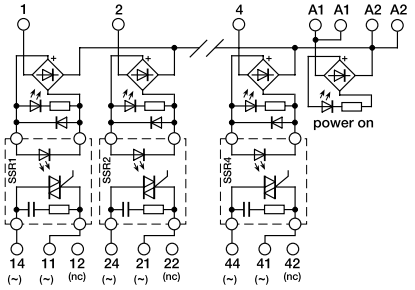
NOTES

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) Version made to order (not kept in stock); contact our sales office for availability.

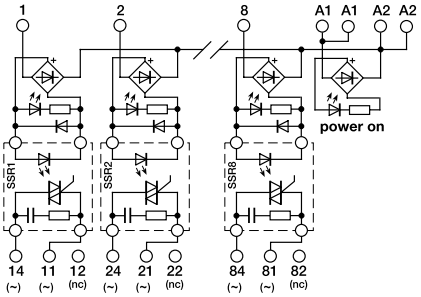
POWER SUPPLY COMPATIBILITY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common

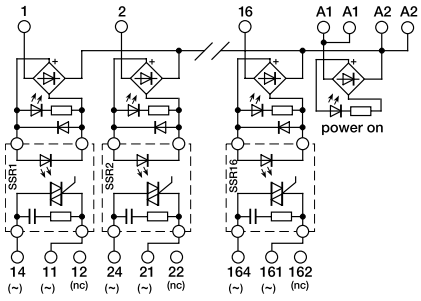
BLOCK DIAGRAM



4 relay module



8 relay module

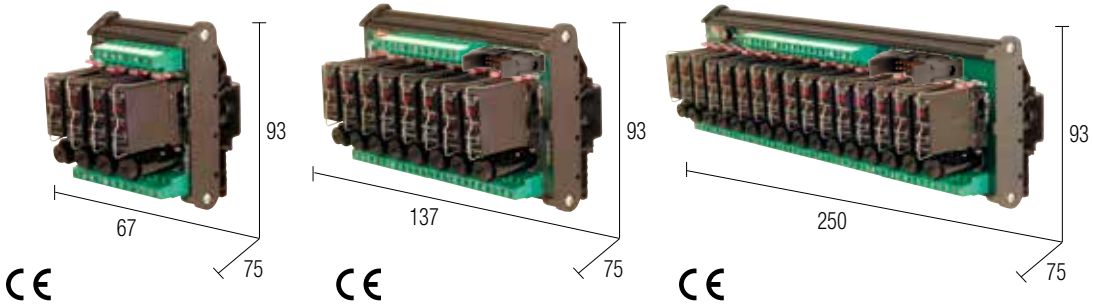


16 relay module

VERSIONS	Cat. No. XR042T24	Cat. No. XR082T24	Cat. No. XR162T24
4 relay module	**R42T24 (2)**		
8 relay module		**R82T24 (2)**	
16 relay module			**R162T24 (2)**
INPUT TECHNICAL DATA			
Input voltage	**24 Vdc** (19.2…28.8 Vdc)		
Signal 1 input level	> 19.2 Vdc		
Signal 0 input level	< 1 Vdc		
Power consumption (1 channel)	< 20 mA		
Commutation frequency	100 Hz max		
OUTPUT TECHNICAL DATA			
Output voltage	**48…240 Vac** (zero crossing)		
Permanent load current	**3** A to 40°C		
Max current	120 A /10 ms		
Leakage current with signal 0	5 mA		
OFF/ON switching time	1/2 cycle + 1 ms		
Protection circuit	—		
Max. fuse current	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-20...+80°C over 40°C apply a derating of 0.05A/°C		
Coil isolation/contacts	2.5 kVac / 60 s		
Protection degree	1 kVac / 60 s (between open contact poles)		
Reference Standards	IP 00 IEC 529, EN60529		
Degree of pollution	III / 2		
Surge category	IEC 664-1, DIN VDE 0110.1		
Relay model (1)	Green LED / Yellow LED		
Power/status indicator	2.5 mm² fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight (4/8/16 relay)	207 g	379 g	756 g
Mounting information	on rails, side by side		
MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Spare part relay (1)	Cat. No. 8904405		
Jumper	—		

Multi-solid state relay modules with fuse

- For switching loads in DC
- Safety fuse on output
- Pluggable relay



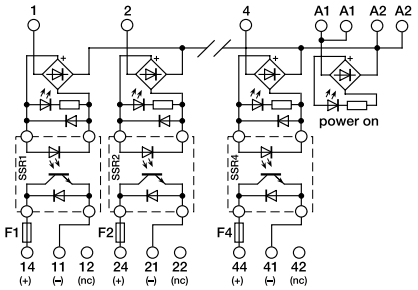
NOTES

(1) Relay make and model are not final and may be replaced without notice. The technical details shown are to be considered typical.
(2) The fuse must be of a suitable size for the load. The max. value of 6.3 A refers to fuses compliant with EN60127 and at the nominal approved current of the fuse holder.
Larger fuses can cause damage to the fuse holder and to the module.
(3) Version made to order (not kept in stock); contact our sales office for availability.

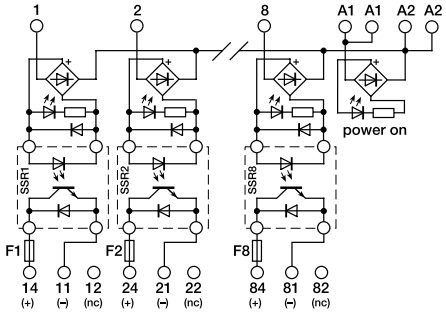
POWER SUPPLY COMPATIBILITY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common

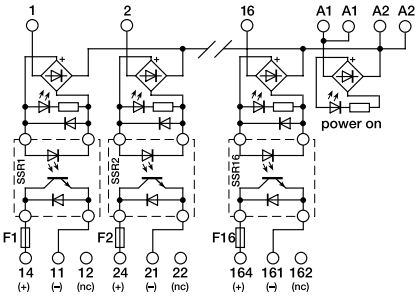
BLOCK DIAGRAM



4 relay module



8 relay module

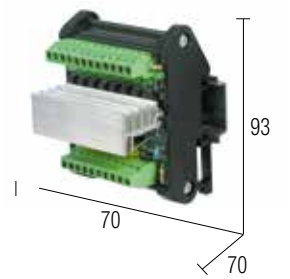


16 relay module

VERSIONS	Cat. No. XR041S24F	Cat. No. XR081S24F	Cat. No. XR161S24F
4 relay module	**R41S24F (3)**		
8 relay module		**R81S24F (3)**	
16 relay module			**R161S24F (3)**
INPUT TECHNICAL DATA			
Input voltage	**24 Vdc** (19.2…28.8 Vdc)		
Signal 1 input level	> 19.2 Vdc		
Signal 0 input level	< 1 Vdc		
Power consumption (1 channel)	< 20 mA		
Commutation frequency	100 Hz max		
OUTPUT TECHNICAL DATA			
Output voltage	**3…50 Vdc**		
Permanent load current	**2 A** to 40°C		
Max current	8 A /10 ms		
Leakage current with signal 0	0.1 mA		
OFF/ON switching time	100 µs / 1 ms		
Protection circuit	diode		
Max. fuse current	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-20...+80°C over 40°C apply a derating of 0.04A/°C		
Input/Output isolation	2.5 kVac / 60 s		
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)		
Protection degree	IP 00 IEC 529, EN60529		
Surge category/degree of pollution	III / 2		
Reference Standards	IEC 664-1, DIN VDE 0110.1		
Power/status indicator	Green LED / Yellow LED		
Connection type	2.5 mm² fixed screw terminal blocks and FLAT connector		
Housing material	UL94V-0 plastic		
Approximate weight	207 g	379 g	756 g
Mounting information	on rails, side by side		
MOUNTING ACCESSORIES			
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Spare part relay (1)	Cat. No. 8904404		
Jumper	—		

Solid state 24 Vdc relay modules with electronic protection

- Nominal output current 8 x 2.5 A / 5 - 33 Vdc
- outputs protected against short-circuit, overload, over temperature and surge;
- Negative common 12-24 Vdc input, 8 status LEDs K1 and K8
- 8 “output OK” LED indicators, reverse polarity protection diode on input and output
- Width 70 mm

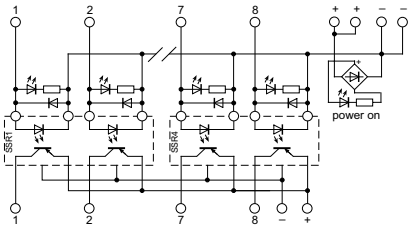


Item available until supplies last

NOTES

(1) Maximum current depends on the number of simultaneously active outputs and the ambient temperature; the value shown was measured with 4 active and 4 non-active outputs.
(2) Outputs are protected against short-circuit/overload and overtemperature; safety activation is indicated by a dimly lit or off output side status LED; once the short-circuit/overload is eliminated, the output is restored automatically.

BLOCK DIAGRAM



VERSIONS	Cat. No. XCOP082
4 relay module	
8 relay module	**COP082**
16 relay module	
INPUT TECHNICAL DATA	
Input voltage	**5-24 Vdc** (range 4.2…32 Vdc) negative common
Signal 1 input level	> 3.5 Vdc
Signal 0 input level	< 3.5 Vdc
Power consumption (1 channel)	5 mA ±10%.
Commutation frequency	500 Hz
OUTPUT TECHNICAL DATA	
Output voltage	12-24 Vdc, (range 5…32 Vdc) negative common
Permanent load current	8 x 2.5 A at 25°C (1)
Max current	4.4 A
Leakage current with signal 0	25 µA max at 24Vdc
OFF/ON switching time	200 Hz (T on < 500 µs / T off < 500 µs)
Protection circuit	electronic short-circuit/overload/thermal (2)
Min. applicable load	5.2 Vdc/ 100 mA
GENERAL TECHNICAL DATA	
Operating temperature range	-20...-60°C (with thermal protection) (2)
Input/Output isolation	2.5 kVac / 60 s
Isolation between output terminal blocks	1 kVac / 60 s (between open contact poles)
Protection degree	IP 00 IEC 529, EN60529
Surge category/degree of pollution	III / 2
Reference Standards	IEC 664-1, DIN VDE 0110.1
Power/status indicator	Green LED (DC OK) / Yellow LED (output OK)
Connection type	2.5 mm² fixed screw terminal blocks
Housing material	UL94V-0 plastic
Approximate weight	
Mounting information	on rails, side by side
MOUNTING ACCESSORIES	
Mounting rail compliant with IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Spare part relay (1)	—
Jumper	—

Quick passive interface selection table

These tables are used for quickly identifying items and verifying whether all of the product's technical details satisfy the set requirements.

D-Sub / Terminal blocks

Versions	Dimensions AxBxC	Type	Type	Cat. No.	Page
9 poles	37x66x93	(6)	ISD09FM	XISD09FM	119
	37x66x93	(5)	ISD09PF	XISD09PF	119
	37x66x93	(8)	ISD09PM	XISD09PM	119
15 poles	47x66x93	(6)	ISD15FM	XISD15FM	119
	47x66x93	(5)	ISD15PF	XISD15PF	119
	47x66x93	(8)	ISD15PM	XISD15PM	119
25 poles	70x66x93	(6)	ISD25FM	XISD25FM	119
	70x66x93	(5)	ISD25PF	XISD25PF	119
	70x66x93	(8)	ISD25PM	XISD25PM	119
	57x80x93	(5) (11)	CPD25F	XCPD25F	119
	57x80x93	(8) (11)	CPD25M	XCPD25M	119
37 poles	107x66x93	(6)	ISD37FM	XISD37FM	119
	107x66x93	(5)	ISD37PF	XISD37PF	119
	107x66x93	(8)	ISD37PM	XISD37PM	119
	77x80x93	(5) (11)	CPD37F	XCPD37F	120
	77x80x93	(8) (11)	CPD37M	XCPD37M	120
50 poles	92x80x93	(5) (11)	CPD50F	XCPD50F	120
	92x80x93	(8) (11)	CPD50M	XCPD50M	120

Diode-holders

Versions	Dimensions AxBxC	Type	Type	Cat. No.	Page
8 diodes	25x60x76	(4)	CDM08CS	XCDM08CS	124
	45x65x93	(1)	CDM08AC	XCDM08AC	125
	45x65x93	(2)	CDM08CC	XCDM08CC	125
16 diodes	50x65x93	(4)	CDM16CS	XCDM16CS	124
	92x65x93	(1)	CDM16AC	XCDM16AC	125
	92x65x93	(2)	CDM16CC	XCDM16CC	125
24 diodes	71x65x93	(4)	CDM24CS	XCDM24CS	124
	137x65x93	(1)	CDM24AC	XCDM24AC	125
	137x65x93	(2)	CDM24CC	XCDM24CC	125
	137x65x93	(2)	CDM24CC	XCDM24CC	125

Lamp tester and LED tester

Versions	Dimensions AxBxC	Type	Type	Cat. No.	Page
8 diodes	45x65x93	(1)	CLT08AC	XCLT08AC	126
	45x65x93	(2)	CLT08CC	XCLT08CC	126
	45x65x93		CLP08CC	XCLP08CC	127
16 diodes	92x65x93	(1)	CLT16AC	XCLT16AC	126
	92x65x93	(2)	CLT16CC	XCLT16CC	126
	92x65x93		CLP16CC	XCLP16CC	127

Flat / Terminal blocks

Versions	Dimensions AxBxC	Type	Type	Cat. No.	Page
10 poles	42x66x93	(8) (7)	IF10PML	XIF10PML	120
14 poles	48x66x93	(8) (7)	IF14PML	XIF14PML	121
16 poles	58x66x93	(8) (7)	IF16PML	XIF16PML	121
20 poles	70x66x93	(8) (7)	IF20PML	XIF20PML	121
	47x80x93	(8) (11)	CPC20M	XCPC20M	122
26 poles	86x66x93	(8) (7)	IF26PML	XIF26PML	121
	57x80x93	(8) (11)	CPC26M	XCPC26M	122
34 poles	107x66x93	(8) (7)	IF34PML	XIF34PML	121
	70x80x93	(8) (11)	CPC34M	XCPC34M	122
40 poles	122x66x93	(8) (7)	IF40PML	XIF40PML	121
	77x80x93	(8) (11)	CPC40M	XCPC40M	122
50 poles	92x80x93	(8) (11)	CPC50M	XCPC50M	122
60 poles	107x80x93	(8) (11)	CPC60M	XCPC60M	122
64 poles	117x80x93	(8) (11)	CPC64M	XCPC64M	122

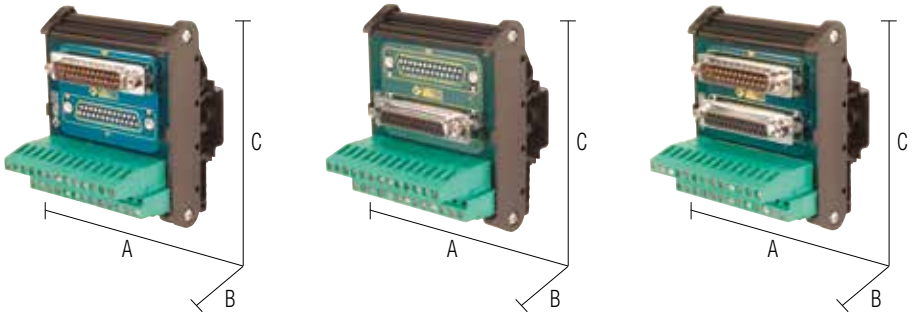
Component holders

Versions	Dimensions AxBxC	Type	Type	Cat. No.	Page
8 components	25x66x93	(10)	CCM08SV	XCCM08SV	123
8 components	25x66x93	(3)	CCM08CV	XCCM08CV	123
16 components	47x66x93	(10)	CCM16SV	XCCM16SV	123
16 components	47x66x93	(3)	CCM16CV	XCCM16CV	123
24 components	70x66x93	(10)	CCM24SV	XCCM24SV	123

Key

(1) common anode
(2) common cathode
(3) with common
(4) feed-through
(5) female connector
(6) female + male connector
(7) with LED
(8) male connector
(9) feed-throughs with Faston
(10) feed-throughs with terminal blocks
(11) small size

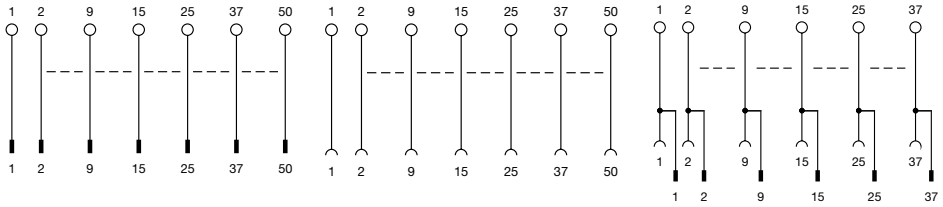
Passive interfaces (D-Sub/terminal blocks) ISD Series



NOTES

The modules allow signals originating on a wire with a d-sub connector to be transferred to terminal blocks.
Numbering is "pin-to-pin".
(1) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



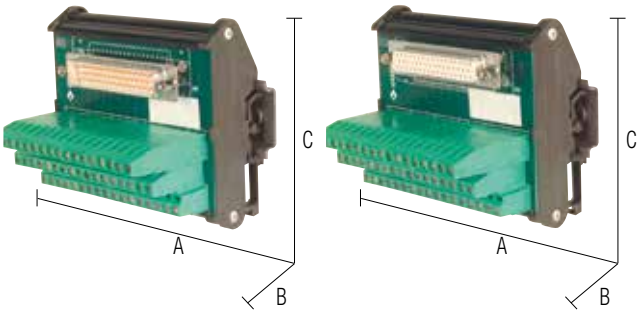
VERSIONS	DIMENSIONS	male		female		male + female	
	(A x B x C)	Type	Cat. No.	Type	Cat. No.	Type	Cat. No.
9 poles	37x66x93	**ISD09PM (1)**	**XISD09PM**	**ISD09PF (1)**	**XISD09PF**	**ISD09FM**	**XISD09FM**
15 poles	47x66x93	**ISD15PM (1)**	**XISD15PM**	**ISD15PF (1)**	**XISD15PF**	**ISD15FM**	**XISD15FM**
25 poles	70x66x93	**ISD25PM (1)**	**XISD25PM**	**ISD25PF (1)**	**XISD25PF**	**ISD25FM**	**XISD25FM**
37 poles	107x66x93	**ISD37PM (1)**	**XISD37PM**	**ISD37PF (1)**	**XISD37PF**	**ISD37FM**	**XISD37FM**

GENERAL TECHNICAL DATA			
Applicable voltage	0...50 Vac / 0...75 Vdc	0...50 Vac / 0...75 Vdc	0...50 Vac / 0...75 Vdc
Applicable current	2 A max	2 A max	2 A max
Operating temperature range	-20…+60°C	-20…+60°C	-20…+60°C
Protection degree	IP00 IEC529; EN60529	IP00 IEC529; EN60529	IP00 IEC529; EN60529
Reference Standards	IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1
Degree of pollution	2	2	2
Surge category	II	II	II
Housing material	UL94V-0 polyamide	UL94V-0 polyamide	UL94V-0 polyamide
Connection type	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
Mounting information	vertical on rails, side by side	vertical on rails, side by side	vertical on rails, side by side

MOUNTING ACCESSORIES	
Mounting rail compliant with IEC60715/TH35	**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper black	—

Passive interfaces (D-Sub/terminal blocks) CPD Series

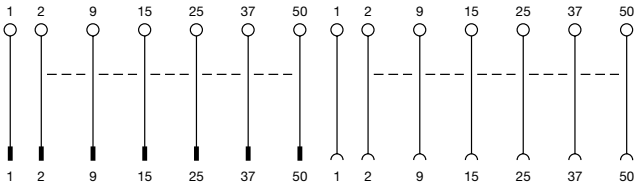
• Small size



NOTES

The modules allow signals originating on a wire with a d-sub connector to be transferred to terminal blocks.
Numbering is "pin-to-pin".
(1) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



VERSIONS	DIMENSIONS
	(A x B x C)
25 poles	57x80x93
37 poles	77x80x93
50 poles	92x80x93

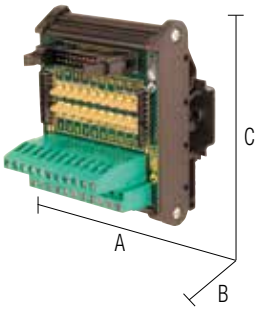
male		female	
Type	**Cat. No.**	**Type**	**Cat. No.**
CPD25M	**XCPD25M**	**CPD25F**	**XCPD25F**
CPD37M	**XCPD37M**	**CPD37F**	**XCPD37F**
CPD50M (1)	**XCPD50M**	**CPD50F (1)**	**XCPD50F**

GENERAL TECHNICAL DATA	
Applicable voltage	0...50 Vac / 0...75 Vdc
Applicable current	2 A max
Operating temperature range	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standards	IEC 664-1; DIN VDE 0110.1
Degree of pollution	2
Surge category	II
Housing material	UL94V-0 polyamide
Connection type	2.5 mm² fixed screw terminal blocks
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

Passive interfaces (Flat-cable/terminal blocks) IF Series

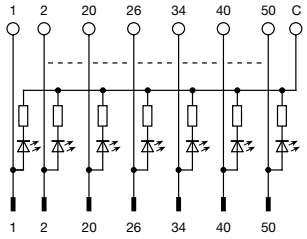
• With warning light



NOTES

The modules allow signals originating on a flat cable to be transferred to terminal blocks using IDC connectors (with isolation perforation).
Numbering is "pin-to-pin".
(1) Version made to order (not kept in stock); contact our sales office for availability.
(2) Warning LEDs are configured for a nominal voltage of 24 Vdc and negative common

BLOCK DIAGRAM



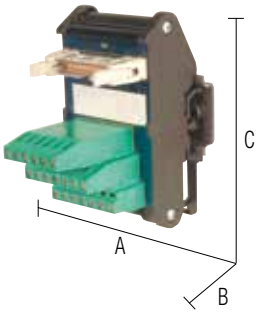
VERSIONS	DIMENSIONS (A x B x C)	with LED Type	with LED Cat. No.
10 poles	42x66x93	**IF10PML (1)**	**XIF10PML**
14 poles	48x66x93	**IF14PML (1)**	**XIF14PML**
16 poles	58x66x93	**IF16PML (1)**	**XIF16PML**
20 poles	70x66x93	**IF20PML (1)**	**XIF20PML**
26 poles	86x66x93	**IF26PML (1)**	**XIF26PML**
34 poles	107x66x93	**IF34PML (1)**	**XIF34PML**
40 poles	122x66x93	**IF40PML (1)**	**XIF40PML**

GENERAL TECHNICAL DATA	
Applicable voltage	12...24 Vdc ±10% (2)
Applicable current	750 mA max
Operating temperature range	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standards	IEC 664-1; DIN VDE 0110.1
Degree of pollution	2
Surge category	II
Housing material	UL94V-0 polyamide
Connection type	2.5 mm² fixed screw terminal blocks
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

Passive interfaces (Flat-cable/terminal blocks) CPC Series

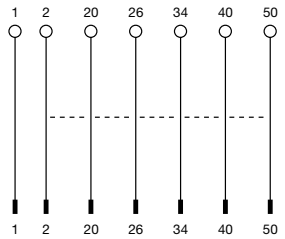
• Small size



NOTES

The modules allow signals originating on a flat cable to be transferred to terminal blocks using IDC connectors (with isolation perforation).
Numbering is "pin-to-pin".
(1) Version made to order (not kept in stock); contact our sales office for availability.

BLOCK DIAGRAM



VERSIONS	DIMENSIONS (A x B x C)
20 poles	47x80x93
26 poles	57x80x93
34 poles	70x80x93
40 poles	77x80x93
50 poles	92x80x93
60 poles	107x80x93
64 poles	117x80x93

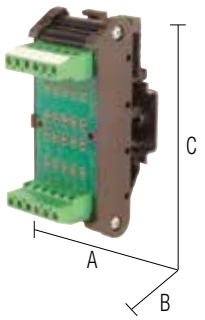
Without LED	
Type	**Cat. No.**
CPC20M	**XCPC20M**
CPC26M	**XCPC26M**
CPC34M (1)	**XCPC34M**
CPC40M	**XCPC40M**
CPC50M (1)	**XCPC50M**
CPC60M (1)	**XCPC60M**
CPC64M (1)	**XCPC64M**

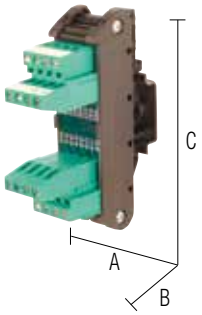
GENERAL TECHNICAL DATA	
Applicable voltage	0...50 Vac / 0...75 Vdc
Applicable current	750 mA max
Operating temperature range	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standards	IEC 664-1; DIN VDE 0110.1
Degree of pollution	2
Surge category	II
Housing material	UL94V-0 polyamide
Connection type	2.5 mm² fixed screw terminal blocks
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

Component-holder modules CCM Series

• Small size

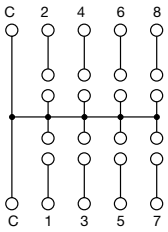


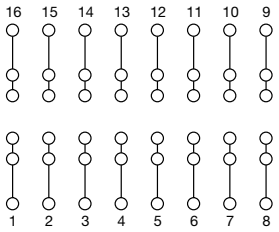


NOTES

Component-holder modules allow for the mounting of electronic components (diodes, resistors, zener, etc.) by the client.
Various configurations are available, with terminal block or flat plug connection and with different sized holes for leading wires of components.
(1) Version made to order (not kept in stock), for information contact our sales office.

BLOCK DIAGRAM



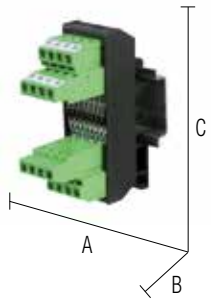


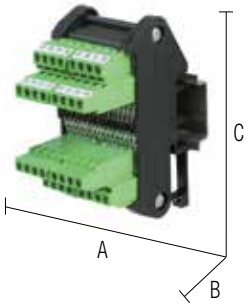
VERSIONS		DIMENSIONS (A x B x C)	with common Type	with common Cat. No.	single feed-through Type	single feed-through Cat. No.
4 components	**(1)**	25x66x93	—		—	
8 components	**(1)**	25x66x93	—		**CCM08SV**	**XCCM08SV**
8 components	**(1)**	47x66x93	—		—	
8 components	**(1)**	25x55x93	**CCM08CV**	**XCCM08CV**	—	
12 components	**(1)**	70x66x93	—		—	
16 components	**(1)**	47x66x93	**CCM16CV**	**XCCM16CV**	**CCM16SV**	**XCCM16SV**
24 components	**(1)**	70x66x93	—		**CCM24SV**	**XCCM24SV**

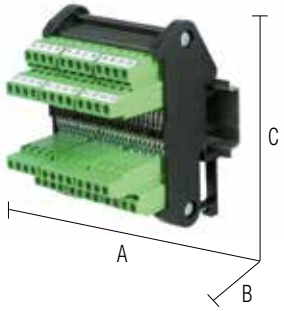
GENERAL TECHNICAL DATA			
Applicable voltage		0...220 V ±10%	0...100 V ±10%
Applicable current		5 A channel / 15 A on common	4 A max. (on common)
Operating temperature range		-20…+60°C	-20…+60°C
Protection degree		IP00 IEC529; EN60529	IP00 IEC529; EN60529
Reference Standards		IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1
Degree of pollution		2	2
Surge category		II	II
Housing material		UL94V-0 polyamide	UL94V-0 polyamide
Connection type		2.5 mm² fixed screw terminal blocks	2.5 mm² fixed screw terminal blocks
Mounting information		vertical on rails, side by side	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

Feed-through diode modules CDM Series

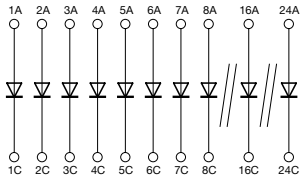






NOTES

BLOCK DIAGRAM



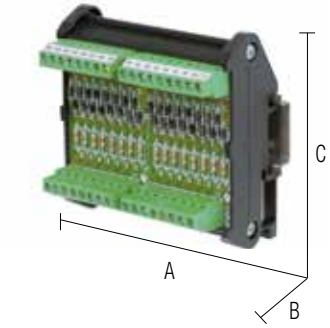
VERSIONS	DIMENSIONS (A x B x C)
8 diodes	25x60x76
16 diodes	50x65x93
24 diodes	71x65x93

feed-through diodes	
Item	**Cat. No.**
CDM08CS	**XCDM08CS**
CDM16CS	**XCDM16CS**
CDM24CS	**XCDM24CS**

GENERAL TECHNICAL DATA	
Applicable voltage	0…100 V ±10%
Applicable current	1 A max
Diodes used	1N4007
Max inverse voltage	1000 V
Operating temperature range	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standards	IEC 664-1; DIN VDE 0110.1
Degree of pollution	2
Surge category	II
Housing material	UL94V-0 polyamide
Connection type	2.5 mm² fixed screw terminal blocks
Mounting information	vertical on rails, side by side

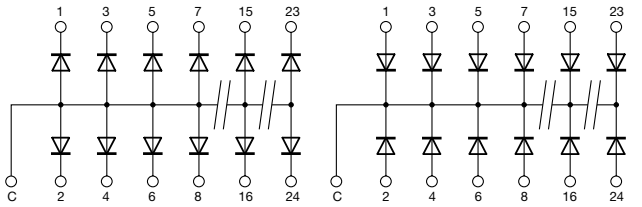
MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

Diode modules with common CDM Series



NOTES

BLOCK DIAGRAM



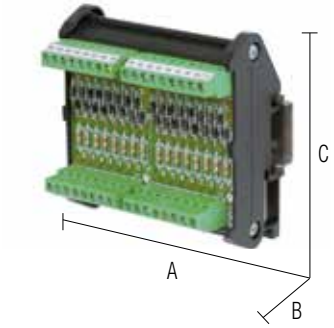
VERSIONS	DIMENSIONS	common anode		common cathode	
	(A x B x C)	Type	Cat. No.	Type	Cat. No.
8 diodes	45x65x93	**CDM08AC**	**XCDM08AC**	**CDM08CC**	**XCDM08CC**
16 diodes	92x65x93	**CDM16AC**	**XCDM16AC**	**CDM16CC**	**XCDM16CC**
24 diodes	137x65x93	**CDM24AC**	**XCDM24AC**	**CDM24CC**	**XCDM24CC**

GENERAL TECHNICAL DATA	
Applicable voltage	0…220 V ±10%
Applicable current	1 A channel / 15 A on common
Operating temperature range	1N4007
Diodes used	1000 V
Max inverse voltage	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standards	IEC 664-1; DIN VDE 0110.1
Degree of pollution	2
Surge category	II
Housing material	UL94V-0 polyamide
Connection type	2.5 mm² fixed screw terminal blocks
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

LED testing modules
CLT Series

- Compact dimensions
- Integrated limitation resistance
- Suitable only for LEDs without limitation resistance
- Not suitable for LED lamps fitted with an integrated limitation circuit

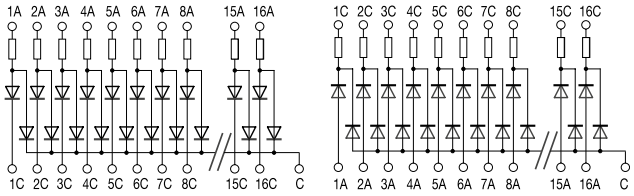


NOTES

(1) LED test is conducted on a negative signal on the common
(2) LED test is conducted on a positive signal on the common
(3) Version made to order (not kept in stock); contact our sales office for availability.

Some LED lamps are equipped with an internal electronic circuit to adjust the rated voltage. In some cases this circuit will not work correctly if connected in series to a diode, therefore these lamps are not suitable for use with LED test modules or LED test.

BLOCK DIAGRAM



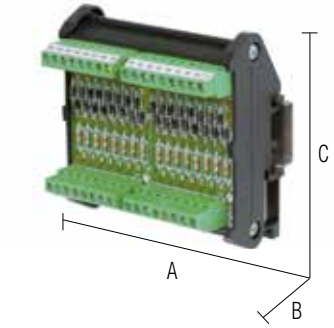
VERSIONS	DIMENSIONS	common negative(1)		common positive(2)	
	(A x B x C)	Type	Cat. No.	Type	Cat. No.
8 channels	45x65x93	**CLT08AC (3)**	**XCLT08AC**	**CLT08CC (3)**	**XCLT08CC**
16 channels	92x65x93	**CLT16AC (3)**	**XCLT16AC**	**CLT16CC (3)**	**XCLT16CC**

GENERAL TECHNICAL DATA	
Applicable voltage	24 Vdc max 30 Vdc
Single channel current	5 mA at 24 Vdc
Diodes used	1N4007
Limitation resistance	4.7 kΩ 1/4 W ±5%
Max inverse voltage	1000 V
Operating temperature range	-20…+45°C
Housing material	UL94V-0 polyamide
Protection degree	IP 00 IEC529, EN60529
Connection type	2.5 mm² fixed screw
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC – PR/3/AC/ZB – PR/3/AS – PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

Lamp testing modules
CLP Series

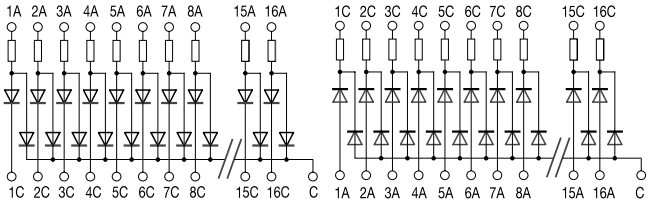
- Compact dimensions
- Suitable for LED lamps with limitation resistance



NOTES

If using modules in alternating current, power is halved due to the presence of rectifier diodes.
(1) Lamp test is conducted on a negative signal on the common
(2) Lamp test is conducted on a positive signal on the common

BLOCK DIAGRAM



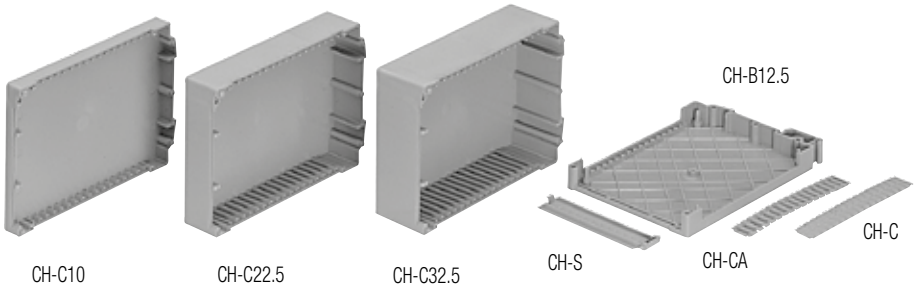
VERSIONS	DIMENSIONS	common negative(1)		common positive(2)	
	(A x B x C)	Type	Cat. No.	Type	Cat. No.
8 channels	45x65x93			**CLP08CC**	**XCLP08CC**
16 channels	92x65x93			**CLP16CC**	**XCLP16CC**

GENERAL TECHNICAL DATA	
Applicable voltage	230 Vac/dc
Single channel current	100 mA at 120 Vac/dc; 50 mA at 230 Vac/dc
Diodes used	1N4007
Limitation resistance	0
Max inverse voltage	1000 V
Operating temperature range	-20…+45°C
Housing material	UL94V-0 polyamide
Protection degree	IP 00 IEC529, EN60529
Connection type	2.5 mm² fixed screw
Mounting information	vertical on rails, side by side

MOUNTING ACCESSORIES		
Mounting rail compliant with IEC60715/TH35		**PR/3/AC – PR/3/AC/ZB – PR/3/AS – PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper	black	—

Electronic circuit housing
CH Series

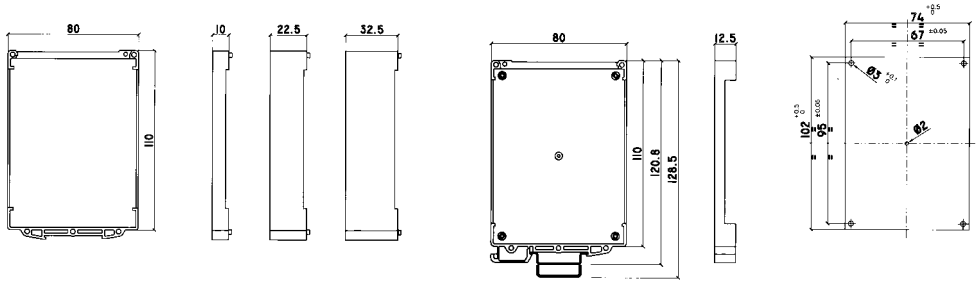
• Modular in 3 sizes



NOTES

(1) Maximum height of components measured between circuit and cover

BLOCK DIAGRAM



VERSIONS

	Type	Cat. No.
12.5 mm DIN-rail mounting base	**CH-B12.5**	**XBB125**
10 mm cover	**CH-C10**	**XBC010**
22.5 mm cover	**CH-C22.5**	**XBC225**
32.5 mm cover	**CH-C32.5**	**XBC325**
openable front closure	**CH-S**	**XBS000**
aerated closure	**CH-CA**	**XBCA00**
non-aerated closure	**CH-C**	**XBC000**

GENERAL TECHNICAL DATA

Material	UL94V-0 polyamide
Colour	RAL 5014
Temperature	max 80 °C
Dissipated power	max 7 W
Protection degree	up to IP30
Number of poles per side	16 +16 (5.08)
Number of front poles	10 (5.08)
Mounting information	

MOUNTING ACCESSORIES

Mounting rail compliant with IEC60715/TH35-7.5		**PR/3/AC, PR/3/AS**
Mounting rail compliant with IEC60715/G32		—
Jumper	red	—
	white	—
	blue	—

APPLICATIONS

Electronic circuit for housing CH Series

With its CH (Cabur Housing) series containers, Cabur offers a modular system for creating three different sized boxes (22.5 mm, 35 mm and 45 mm) made up of eight easily assemble parts.

The circuit can measure up to 102 x 74 mm and can be inserted onto four columns in the base which hold it in place.

The circuit can be additionally secured with a 2.2 x 4.5 mm self-tapping screw, to be screwed into the central column, which also enables the circuit to be smaller in size.

Conductor connections are applied using 2.5 mm removable terminal blocks, which are easily available.

16 connection poles are used, with a clearance of 5.08 mm on each side and 10 mm on the front.

The CH-S front closure has an openable inspection window for access to inside the circuit for procedures on potentiometers, jumpers and microswitches.

The side closures have a number of incisions which enable them to be cut off with scissors, at a clearance of 5.08 mm, avoiding the expensive grinding typical of other models on the market.

Housing requires the following components:

• 1 CH-B12.5 base — width 12.5 mm

• 1 cover (3 available sizes)

CH-C10	width 10 mm
CH-C22.5	width 22.5 mm
CH-C32.5	width 32.5 mm

(the total housing width is obtained by adding the width of the base (12.5 mm) to the width of the cover selected from the 4 available sizes)

• 1 front closure, available in two versions:

CH-S	openable window
CH-CF	fixed

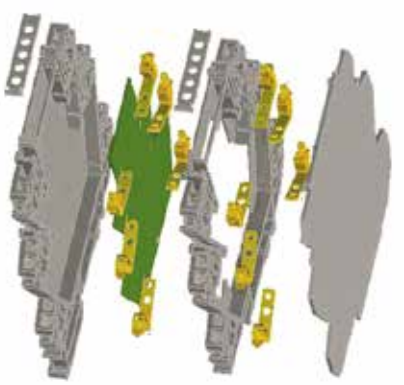
• 2 side closures, available in two versions:

CH-C	without aeration holes
CH-CA	with aeration holes

Max internal height (1)	CH-B12.5	CH-C10	CH-C22.5	CH-C32.5	CH-S	CH-CA CH-C
19.1 mm	1	1			1	2
31.6 mm	1		1		1	2
41.6 mm	1			1	1	2

Electronic circuit housing
CK Series

- Expandable cards with 6 mm clearance
- 6 x 2.5 mm² spring terminal blocks on both the base and the expansions
- Jumper can be connected on all 4 levels
- Openable front inspection window

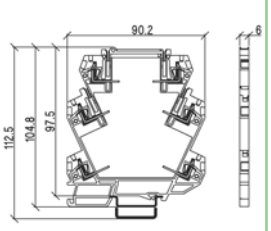


NOTES

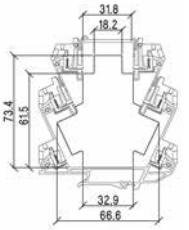
(1) Includes 6 spring terminal blocks with weldable contact
(2) The final module must always be protected with the CK/PT terminal wall to ensure protection degree IP20.

BLOCK DIAGRAM

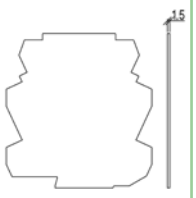
CKB and CKBG



CKBX2

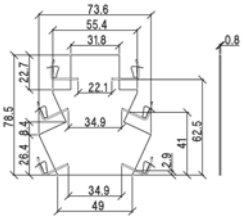


CKPT



CKS

CKPCB



VERSIONS

	Type	Cat. No.
base housing	**CKB (1)**	**XCKB**
base housing with ground contact	**CKBG (1)**	**XCKBG**
expansion module	**CKBX2 (1)**	**XCKX2**
end section	**CK/PT**	**XCKPT**
openable inspection window	**CK/S**	**XCKS**
printed circuit board	**CK/PCB**	**8901028**

GENERAL TECHNICAL DATA

Voltage distributable to the jumper	230 Vac/dc ± 10%
Current distributable to the jumper	≤ 24 A
Operating temperature range	-40...+ 100°C
Protection degree (2)	IP20 IEC529 EN60529
Connection terminal blocks	2.5 mm², AWG26-14 spring
Housing material	UL94V-0 polyamide
Approximate weight	20 g (CKB, CKBG), 15 g (CKX2, CK/PT) 20 g (CK/PT), 1 g (CK/S), 5 g (CK/PCB)
Jumper	**PTC/CK/42** cat. no. PTCCK42 (42 poles)
Marking tag neutral	**CNU/8/030** cat. no. NU0851
Mounting information	on rails

MOUNTING ACCESSORIES

Mounting rail compliant with IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail compliant with IEC60715/G32	—
Jumper red	—
white	—
blue	—

APPLICATIONS

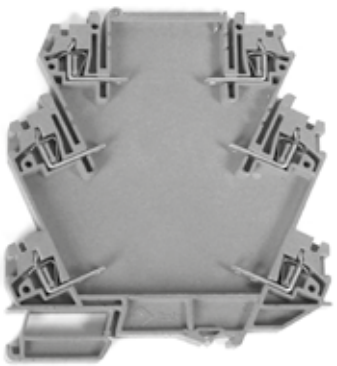
With its CK series housing, Cabur offers a modular system for creating terminal blocks of gradually increasing widths for housing simple components such as diodes and resistors or more complex circuits with or without the support of a printed circuit board.
Housing requires the following components:

- one base housing available in two versions: CKB and CKBG, the latter supplied with an electrical contact to the metal rail for connecting the internal circuit to ground. The rail ground contact can carry an impulse current of 5 KA (impulse 8/20). Both models have an external width of 6 mm and an internal width of 5 mm and have 6 spring connections, 4 of which are connectable to a jumper.
- one or more CKBX2 expansion cards similar to the standard model, i.e. with an external width of 6 mm and a central cavity that allows bulky components to overlap the base outline, can also be supplied with a 6-connection expansion, 4 of which connectable to a jumper;
- available with the CK/S openable inspection window for frontal closure; the opening is in any case sized to ensure protection degree IP20 even without using the inspection window;
- the final module must be provided with the CK/PT end section, which ensures protection degree IP20;
- also available with the CK/PCB printed strip board, useful for custom applications in which low volumes make it infeasible to produce a dedicated printed circuit board or for creating affordable prototypes.

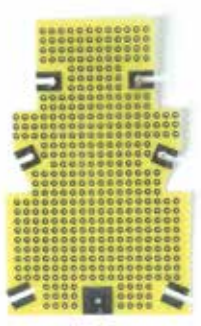
Ground contact on CKBG

CKBX2

CKB



CK/PCB



“CK” Series accessories
PTC/CK/42 jumper

Notes:

(1) Example of a bridge cut into nine poles

(2) Protection degree refers to the bridge installed following the applicable instructions

(3) Capacity allows for a maximum current of 32 A, limited to the capacity of the 24 A terminal block, therefore in a plug-in jumper of e.g. 11 poles (1 common and 10 distribution) 2.4 A can be distributed per pole.

(1)

VERSIONS	Type	Cat. No.
	PTC/CK/42	PTCCK42

GENERAL TECHNICAL DATA		
Protection degree	(2)	IP20 IEC529; EN60529
Number of poles		42
Pitch		6 mm
Bridge current capacity	(3)	32 A
Isolation colour		—
Material		copper-tin alloy
Approximate weight		27 g (42 poles)

“CW..7” Series accessories
CWBK Series jumpers

VERSIONS	Type	Cat. No.	Type	Cat. No.	Type	Cat. No.
	CWBK 7-0802	X766802	CWBK 7-0803	X766803	CWBK 7-0804	X766804

GENERAL TECHNICAL DATA			
Protection degree	IP20 IEC529; EN60529	IP20 IEC529; EN60529	IP20 IEC529; EN60529
Number of poles	16	16	16
Pitch	6.2 mm	6.2 mm	6.2 mm
Jumper current capacity	16 A	16 A	16 A
Isolation colour	red	white	blue
Material	—	—	—
Approximate weight	4 g	4 g	4 g

“CWRE” Series accessories
Jumpers CWBK Series

VERSIONS	Type	Cat. No.
	CWBK 7-0813	X766813

GENERAL TECHNICAL DATA	
Protection degree	IP20 IEC529; EN60529
Number of poles	20
Pitch	6.2 mm
Jumper current capacity	16 A
Isolation colour	blue
Material	—
Approximate weight	6 g

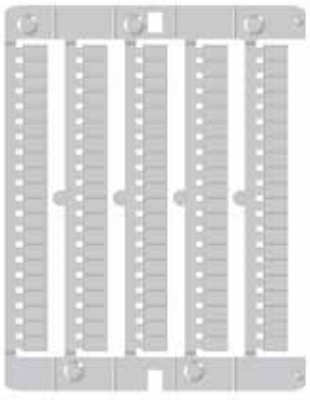
"CM" Series accessories CMB Series jumpers

VERSIONS	Type	Cat. No.	Type	Cat. No.
	CMB16B	XCMB16B	CMB27B	XCMB27B

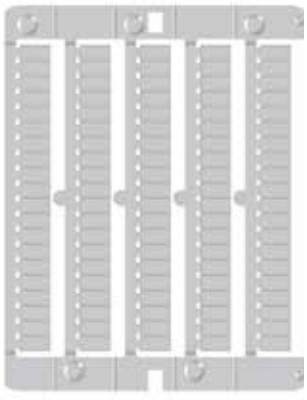
GENERAL TECHNICAL DATA		
Protection degree	IP20 IEC529; EN60529	IP20 IEC529; EN60529
Number of poles	8	8
Pitch	16 mm	27 mm
Jumper current capacity	16 A	16 A
Isolation colour	black	black
Material	—	—
Approximate weight	3 g	3 g

Marking systems

Notes:
White polyamide marking tags to number the terminal blocks of the CK Series cards and CWRE Series converters. To be directly inserted in dedicated holders before or after rail mounting preparation.
They come in packages of 15 cards of 100 marking tags each, for a total of 1,500 marking tags.
The table shows only blank marking tags, available in packages of 1,500 pieces each, which can be written on manually using special pens or printed using an industrial marking system. In particular, the marking tags shown here can be **printed using the innovative CaburJet system and with the CaburPlot plotter**.
In addition to blank marking tags, CNU/8/51 preprinted marking tags are also available with alpha-numeric characters and with the most common electrical symbols.
For more information, please consult the Industrial Marking Systems catalogue.



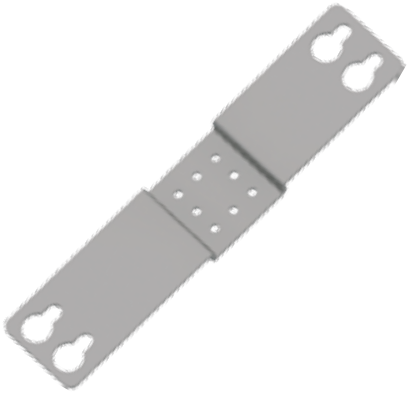
Type **CNU/8/51** Cat. No. NU0851

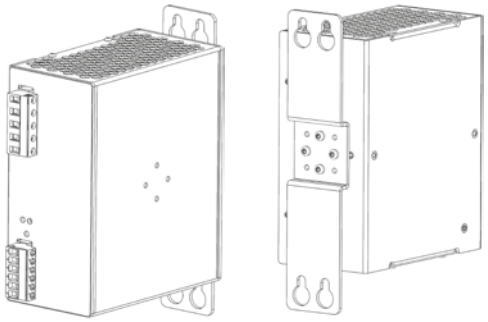


Type **NUPUTUK50** Cat. No. NUPUTUK50

Description	Type	Cat. no.
Marking tags for marking CK Series cards	**CNU/8/51**	NU0851
Marking tags for marking CWRE Series converters	**NUPUTUK50**	NUPUTUK50

Power supply mounting bracket

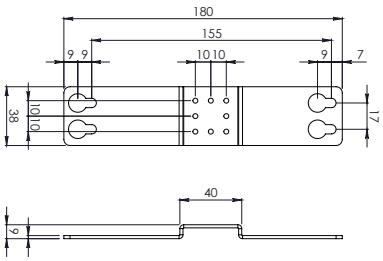




VERSIONS	Type	Cat. No.
	CDIWMP	XCDIWMP

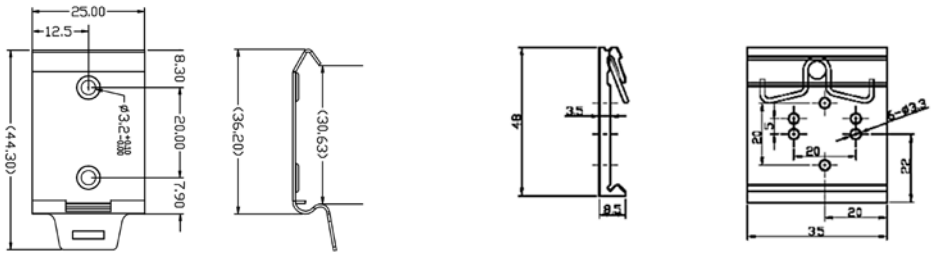
GENERAL TECHNICAL DATA	
Type of material	P13-FE00 aluminium
Treatment	Sendzimir zinc coating
Mounting information	screws or rivets

DIMENSIONS



DIN rail clamp

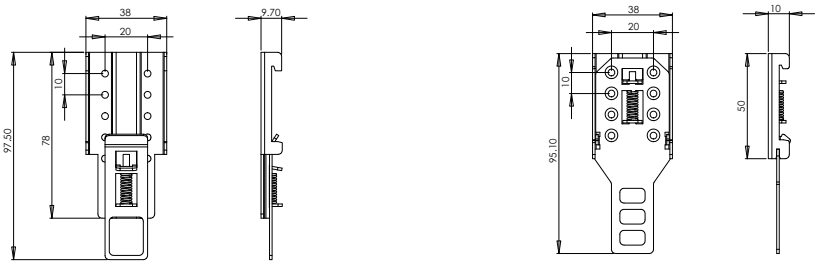
DIMENSIONS



VERSIONS	Type	Cat. No.	Type	Cat. No.
	CDIN-2	XCDIN2	CDIN-4	XCDIN4

GENERAL TECHNICAL DATA		
Type of material	P13-FE00	aluminium
Treatment	black zinc coating	—
Mounting information	screws or rivets	screws or rivets
Mounting rail compliant with IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail compliant with IEC60715/G32	—	—

DIMENSIONS

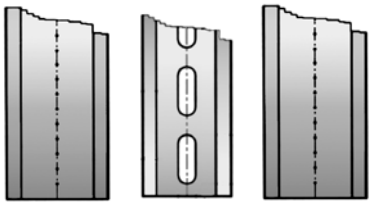
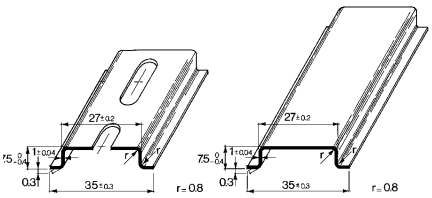
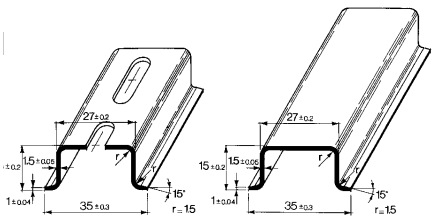
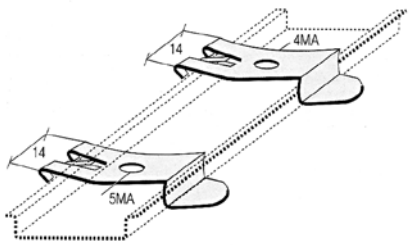


VERSIONS	Type	Cat. No.	Type	Cat. No.
	CDIN-6	XCDIN6	CDINM45	XCDINM45

GENERAL TECHNICAL DATA		
Type of material	P13-FE00	P13-FE00
Treatment	white zinc coating	zinc coating
Mounting information	screws or rivets	screws
Mounting rail compliant with IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail compliant with IEC60715/G32	—	—

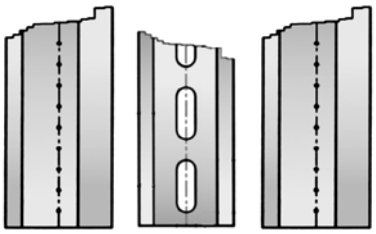
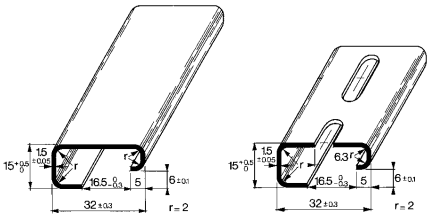
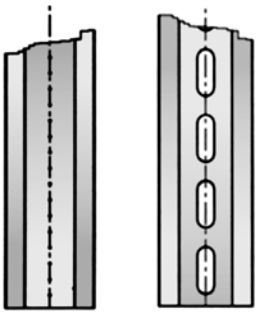
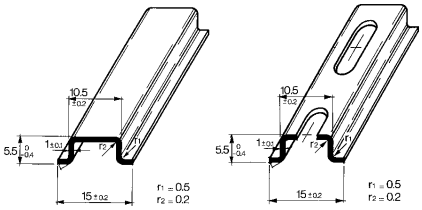
Mounting rails

- conforming to IEC 60715/TH35 - 7.5
- conforming to IEC 60715/TH35 - 15
- **supports for TH/35 rail**

DESCRIPTION	**TYPE**/CAT. NO.	DIAGRAMS
Rail compliant with IEC 60715/TH35 - 7.5 in passivated steel	**PR/3/AC** Cat. No. PR003	
Rail compliant with IEC 60715/TH35 - 7.5 in white zinc-plated steel "SENDZMIR" system	**PR/3/AC/ZB** Cat. No. PR903	
Rail compliant with IEC 60715/TH35 - 7.5 in passivated steel with slots	**PR/3/AS** Cat. No. PR005	
Rail compliant with IEC 60715/TH35 - 7.5 in white zinc-plated steel "SENDZMIR" system with slots	**PR/3/AS/ZB** Cat. No. PR905	
Rail compliant with IEC 60715/TH35 - 15 in passivated steel	**PR/3/PP** Cat. No. PR007	
Rail compliant with IEC 60715/TH35 - 15 in white zinc-plated steel "SENDZMIR" system	**PR/3/PP/ZB** Cat. No. PR907	
Rail compliant with IEC 60715/TH35 - 15 in passivated steel with slots	**PR/3/PA** Cat. No. PR006	
Rail compliant with IEC 60715/TH35 - 15 in white zinc-plated steel "SENDZMIR" system with slots	**PR/3/PA/ZB** Cat. No. PR906	
Support for rails IEC 60715/TH35 in nickel plated steel with rapid mounting system 4 MA	**ACI121017** Cat. No. Z121017	
Support for rails IEC 60715/TH35 in nickel plated steel with rapid mounting system 5 MA	**ACI121019** Cat. No. Z121019	

Mounting rails

- conforming to IEC 60715/TH35 - 7.5 “G32” type
- conforming to IEC 60715/TH15 - 5.5

DESCRIPTION	TYPE/CAT. NO.	DIAGRAMS
Rail compliant with IEC 60715 “G32” type in passivated steel	**PR/DIN/AC** Cat. No. PR001	
Rail compliant with IEC 60715 “G32” type in white zinc-plated steel “SENDZMIR” system	**PR/DIN/AC/ZB** Cat. No. PR901	
Rail compliant with IEC 60715 “G32” type in passivated steel with slots	**PR/DIN/AS** Cat. No. PR004	
Rail compliant with IEC 60715 “G32” type in white zinc-plated steel “SENDZMIR” system with slots	**PR/DIN/AS/ZB** Cat. No. PR904	
Rail compliant with IEC 60715 “G32” type in aluminium	**PR/DIN/AL** Cat. No. PR002	
Rail compliant with IEC 60715/TH15 - 5.5 in passivated steel	**PR/2/AC** Cat. No. PR009	
Rail compliant with IEC 60715/TH15 - 5.5 in white zinc-plated steel “SENDZMIR” system	**PR/2/AC/ZB** Cat. No. PR909	
Rail compliant with IEC 60715/TH15 - 5.5 in passivated steel with slots	**PR/2/AS** Cat. No. PR010	
Rail compliant with IEC 60715/TH15 - 5.5 in white zinc-plated steel “SENDZMIR” system with slots	**PR/2/AS/ZB** Cat. No. PR910	

Type index

Index by Catalogue number

8 017963 163170

ELECTRONIC PRODUCTS
FOR ELECTRICAL PANELS

PRODUCTS AND SYSTEMS
FOR THE CONNECTION
OF ELECTRICAL PANELS

PHOTOVOLTAIC SYSTEMS
CONNECTION AND
PROTECTION

INDUSTRIAL MARKING
SYSTEMS

D021G17A - 0717 - 2017/2018 EDITION

KLINKMANN
www.klinkmann.com

HELSINKI
tel. +358 9 540 4940
info@klinkmann.fi

ST. PETERSBURG
tel. +7 812 327 3752
klinkmann@klinkmann.spb.ru

MOSCOW
tel. +7 495 641 1616
moscow@klinkmann.spb.ru

YEKATERINBURG
tel. +7 343 287 19 19
yekaterinburg@klinkmann.spb.ru

SAMARA
tel. +7 846 273 95 85
samara@klinkmann.spb.ru

UFA
tel. +7 347 293 70 04
klinkmann@klinkmann.ru

KIEV
tel. +38 044 495 33 40
klinkmann@klinkmann.kiev.ua

KAZAKHSTAN
tel. +77779994825
sales@klinkmann.kz

MINSK
tel. +375 17 200 0876
minsk@klinkmann.com

RIGA
tel. +371 6738 1617
klinkmann@klinkmann.lv

VILNIUS
tel. +370 5 215 1646
post@klinkmann.lt

TALLINN
tel. +372 668 4500
klinkmann.est@klinkmann.ee