Pro-face
for the best interface

Operator Interface Plus Control

LT4000M SERIES

November 2013

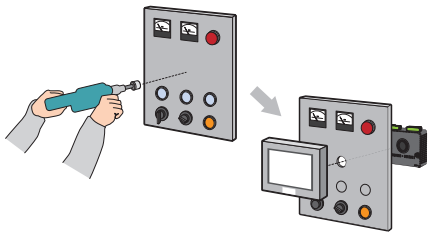
www.proface.com

LT4000M Series

Display + Control Hybrid Model enables more flexible and space saving installations.

All-in-one Unit

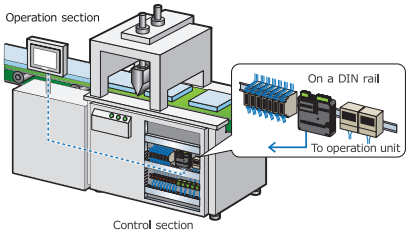
All-in-one design makes it easy to keep equipment compact and allows installation in a φ22 mm hole for easy panel mounting.* Easily troubleshoot equipment by replacing the display unit or the control unit.



* The 22mm hole is the standard size used for buttons or lamps.

Flexible Installation

Use a separation cable* to install the control unit on a DIN rail and the operation unit in a different location. Operation unit is space-saving, and it allows you to install flexibly even where it is difficult to install due to limitations of space.



* 3m and 5m cables are available.

Compact Size

The crisp display let you create easy-to-read yet detailed operation screens. The integrated control functionality provides Digital I/O, Analog I/O, and Analog temperature inputs as well as USB, serial, and Ethernet communication ports.

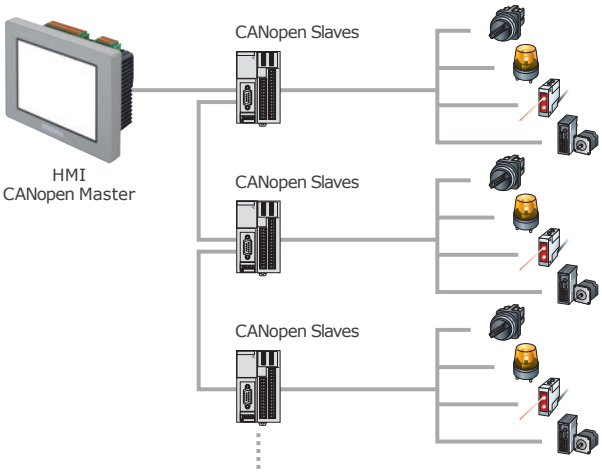
Lineup

LT4000M Series LT3000 Series

		Display				Interface					
Series	Product	Display Size	Resolution	LCD	Color	Ethernet	Serial	CANopen (master)	USB (host)	USB (Device)	
LT4000M Series	LT-4301TM DIO model	5.7″	QVGA 320×240pixels	TFT	65,536	1	1 (RJ45)	1 (D-sub9)	1	1	
	LT-4301TM Analog model										
	LT-4201TM DIO model	3.5″									
	LT-4201TM Analog model										
LT3000 Series	LT-3300T	5.7″	QVGA 320×240pixels	TFT	65,536	1	1 (D-sub9)	–	1	–	
	LT-3300L			Monochrome	16 Shades						
	LT-3301L					–					
	LT-3201A	3.8″		Monochrome (Amber / Red)	8 Shades		–				

CANopen Networking

The LT4000M provides data exchange with various remote devices via CANopen for an economical and user-friendly system design. Choose between standard I/O modules or more sophisticated products such as motion or control for complex applications.



Pro-face Remote HMI

The natural link between the process and your tablet or smartphone. By adding the APP true mobile operation will be possible without loss of operability.
Confirm the cause of an error directly with your mobile device and see if the machine can be put back into operation without going on site.*

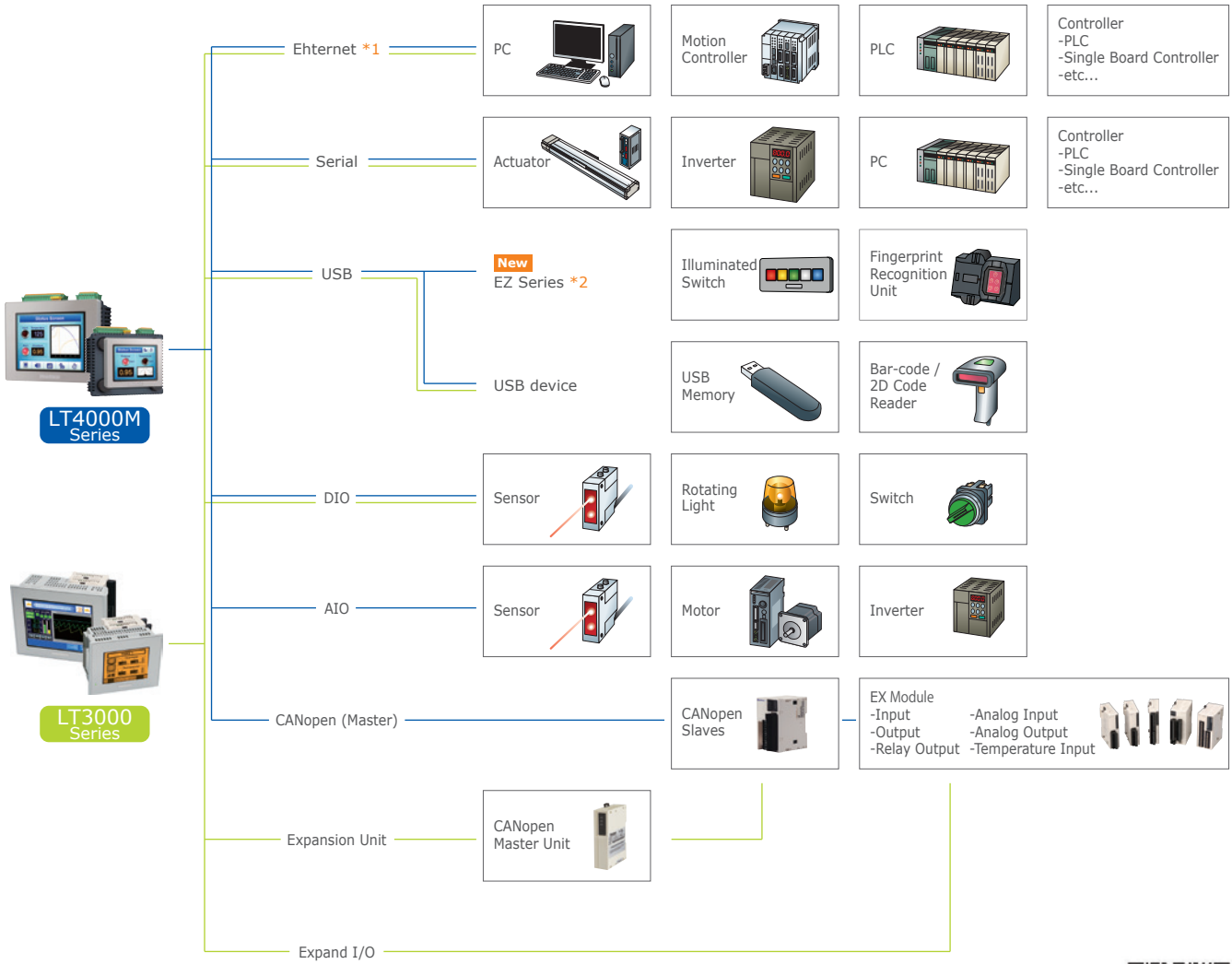
Pro-face Remote HMI
Remote Monitoring Software for mobile

* Supported from beginning of 2014.

Controller								
Built-in DIO		Built-in AIO		Special DIO		Expansion Unit		Controller Memory Size
Input	Output	Input	Output	Shared Use of Built-in DIO	Exclusive Use	EX Module	CANopen	
20	10	–	–	2 High-speed Counter (with Synchronize Output) Pulse Catch Input	2 Pulse Output PWM Output	–	63 Nodes	FLASH EPROM 132KB Equivalent to 15,000 Steps (Up to 60,000 Steps)
12	6	4	2					
20	10	–	–					
12	6	4	2					
16	16	–	–	4 High-speed Counter (with Synchronize Output) Pulse Catch Input Pulse Output PWM Output	–	3 Units Max. Up to 48 IOs	63 Nodes	FLASH EPROM 132KB Equivalent to 15,000 Steps (Up to 60,000 Steps)
12	6					2 Units Max. Up to 32 IOs		

Connect to a wide range of control equipment

Pro-face HMIs support connection with a wide range of industrial controllers including PLCs, motion controllers, robots, and other devices.

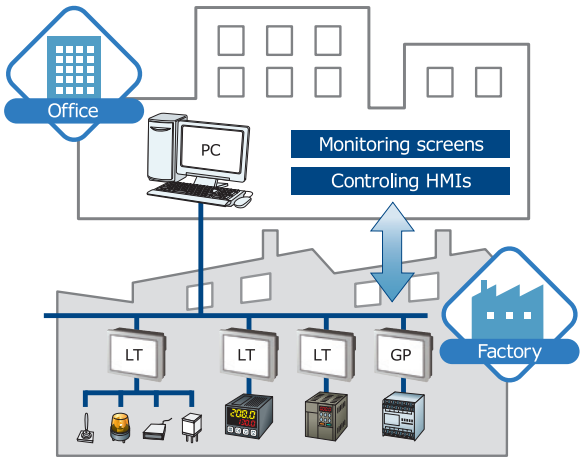


*1 Only for units with Ethernet.
*2 Only for LT4000M Series.

For further information, visit our website.
http://www.pro-face.com/product/soft/gpproex/driver/driver.html

Remote Monitoring

LT4000M Series LT3000 Series



Use remote monitoring software, GP-Viewer* or data management software, Pro-Server EX* to easily monitor and control HMI screens on the production site, or distribute instruction data and collect real-time production data.

* Requires separate license.

GP-Pro EX

Improving development efficiency and maintaining technical know-how.

Screens and logic programs*1 can be edited with the same software*2, and the same addresses or user-defined control symbols can be shared for both screen parts and logic elements with drag-and-drop operation.

Controller addresses can be written directly to help reduce development time. Using the Function Block feature lets you reuse configured logic components and protect technical know-how via password protection.

*1 IEC 61131-3-compliant *2 LT4000M Series requires GP-Pro EX Ver.3.12 or later.

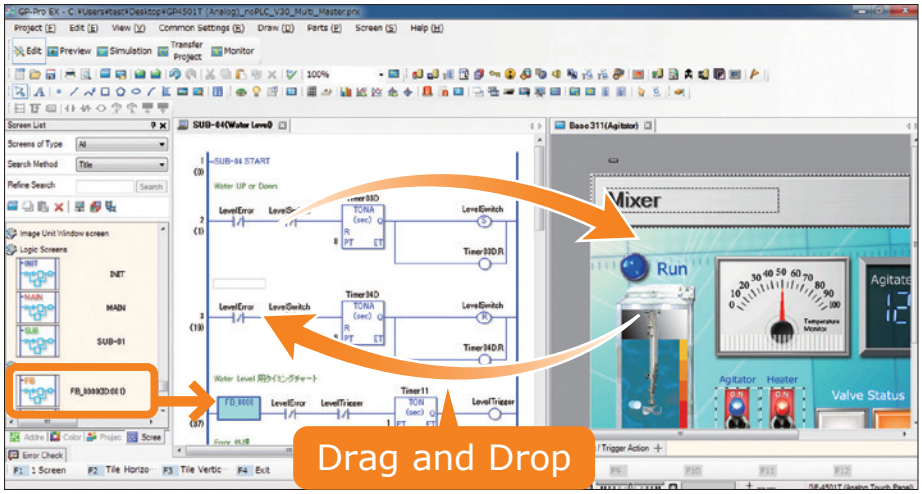
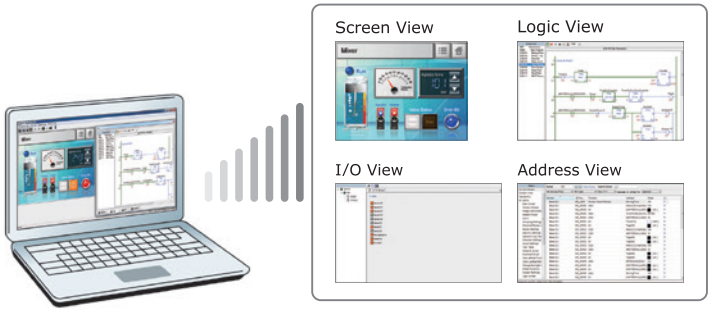


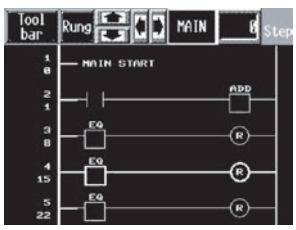
Image of Ladder Logic screen. Instruction List Logic screen also available.

Easily verify and debug projects with GP-Pro EX.

GP-Pro EX Simulation is an off-line simulation function which enables verification of screens, logic programs, and program operation without connecting to an HMI.



Logic Monitor function allows you to perform on-line logic program simulation on the HMI.



● Logic Monitor

Displays the whole ladder program. You can check the operation status and logic program.

● Address Monitor

Displays addresses used in the ladder program. Displays variables and their current values.

For further information, visit our website.
http://www.pro-face.com/product/soft/gpproex.html

Product Specifications Summary

		LT4000M Series		LT3000 Series			
		LT-4301TM	LT-4201TM	LT-3300T	LT-3300L	LT-3301L	LT-3201A
Display Type		TFT			Monochrome		Monochrome Amber/Red
Display Size		5.7"	3.5"	5.7"			3.8"
Resolution		320 x 240 pixels (QVGA)					
Display Colors		65,536 colors			Monochrome (16 Levels)		Monochrome (8 Levels)
Brightness Control		–			8 Levels (Adjusted with the touch panel)		
Touch Panel Type		Resistive Film (analog)					
Application Memory *1		FLASH EPROM 16 MB		FLASH EPROM 6 MB			
Data Backup		nvSRAM 128 KB *2		SRAM 128 KB *2			
Control Memory	Variable Area	nvSRAM 64 KB *2		SRAM 64 KB *2			
	Program Area	FLASH EPROM 132 KB					
	Number of Step *3	Equivalent to 15,000 steps					
Interface	Serial (COM1)	RS-232C/485, Asynchronous Transmission, Data Length: 7 or 8 bit, Parity: none, Even or Odd, Stop Bit: 1 or 2 bit, Data Transmission Speed: 2,400 bps to 115.2 kbps, Connector: RJ45		RS-232C/422/485, Asynchronous Transmission, Data Length: 7 or 8 bit, Parity: none, Even or Odd, Stop Bit: 1 or 2 bit, Data Transmission Speed: 2,400 bps to 115.2 kbps, Connector: D-Sub9 (plug)			–
	CANopen (Master)	CAN-CiA (ISO 11898-2:2002 part2), Connctor: D-sub9 (plug)		–			
	Ethernet (LAN)	IEEE802.3i/IEEE802.3u, 10BASE-T/100BASE-TX, Connector: Modular jack (RJ-45)				–	
	USB (TYPE-A)	Conforms to USB2.0 (TYPE-A) x 1, Power Supply Voltage: DC 5 V ±5 %, Output Current: 500 mA or less, Communication Distance: 5 m (16.4 ft) or less		Conforms to USB1.1 (TYPE-A) x 1, Power Supply Voltage: DC 5 V ±5 %, Output Current: 500 mA or less, Communication Distance: 5 m (16.4 ft) or less			
	USB (mini B)	USB Mini B V2.0		–			
Number of connecting devices		4		1			
Built-in DIO	Input	20 or 12 *4		16			12
	Output	10 or 6 *4		16			6
Special DIO *5 (Shared Use)	Input	100KHz Max. High-speed Counter (with Synchronize Output), Pulse Catch Input					
	Output	–		65kHz Max. Pulse Output, 65kHz Max. PWM Output *9			
Special DIO *6 (Exclusive Use)	Output	50kHz Max. Pulse Output, 65kHz Max. PWM Output		–			
Built-in AIO	Input *7	0 or 2 *4		–			
	Temperature Input *8	0 or 2 *4		–			
	Output *7	0 or 2 *4		–			
EX Module interface *10		–		1 *11			1 *11
AUX / Expansion Unit *10		–		1			
Rated Input Voltage		DC24V					

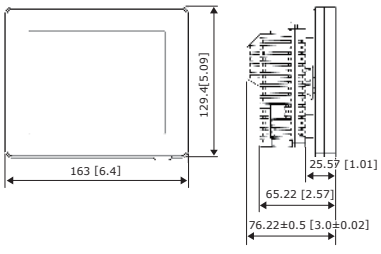
*1 Capacity available for user application. *2 Rechargeable lithium battery for data back up. *3 Up to 60,000 steps can be converted in software. However, this reduces internal memory capacity (for screen data) by 1 MB.
*4 The number of Built-in digital and analog IOs differs between DIO type and Analog type. *5 Uses built-in DIO's points. *6 When using Pulse Output and PWM Output on LT4000M, External I/O and a LT unit must share the same power supply. *7 Various voltage and current input ranges are supported. *8 RTD: PT100, PT1000, NI100 and NI1000. Thermocouple: J, K, R, B, S, T, E and N.
*9 For pulse outputs, when combining the number of CH and high-speed counters used, there is a limit to the maximum output frequency in the LT3000 Series. For details, please refer to GP-Pro EX Reference Manual.
*10 EX Module and Communication Expansion Unit cannot be used at the same time. *11 Up to three (LT-330xx) or two (LT-3201A) EX modules can be connected.

External Dimensions / Panel Cut-Out

LT-4301TM

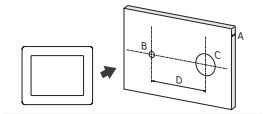
[External Dimensions/Interfaces]

Unit : mm [in.]



[Panel Cut-Out]

Unit : mm [in.]



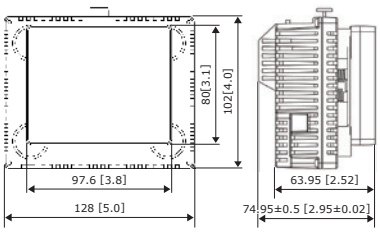
A	B	C	D
1.5 to 6 [0.06to0.23]	4.00 [0.15]	22.50 [0.88]	30.00 [1.18]

*If rotating torque acted on a display module is 2.5 N.m (22.12 in-lb) or more, use an anti-rotation tee which is supplied with a LT unit. The anti-rotation tee supports up to 6 N.m (53.10 in-lb).

LT-4201TM

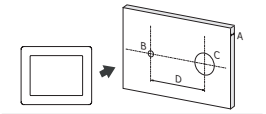
[External Dimensions/Interfaces]

Unit : mm [in.]



[Panel Cut-Out]

Unit : mm [in.]



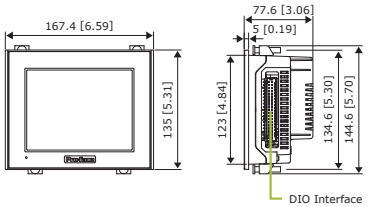
A	B	C	D
1.5 to 6 [0.06to0.23]	4.00 [0.15]	22.50 [0.88]	30.00 [1.18]

*If rotating torque acted on a display module is 2.5 N.m (22.12 in-lb) or more, use an anti-rotation tee which is supplied with a LT unit. The anti-rotation tee supports up to 6 N.m (53.10 in-lb).

LT-3300T/L

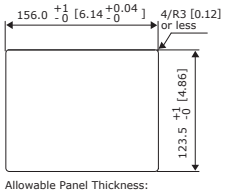
[External Dimensions/Interfaces]

Unit : mm [in.]



[Panel Cut-Out]

Unit : mm [in.]



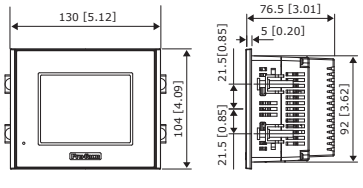
Allowable Panel Thickness:
1.6 [0.06] to 5.0 [0.20]

LT-3301L does not support Ethernet Interface.
The maximum thickness when three EX modules are connected:123.0mm [4.84in.].

LT-3201A

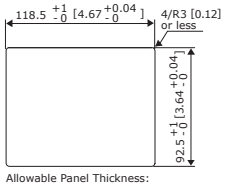
[External Dimensions/Interfaces]

Unit : mm [in.]



[Panel Cut-Out]

Unit : mm [in.]



Allowable Panel Thickness:
1.6 [0.06] to 5.0 [0.20]

The maximum thickness when two EX modules are connected:96.8 mm [3.81 in.]

Options

Software

" ** " is changed with the version of software.

Product Name		Global Code	Description	LT-4301TM	LT-4201TM	LT-330XX	LT-3201A
GP-Pro EX		PFXEXEDV**	HMI screen editor & logic programming software *1	○	○	○	○
GP-Pro EX Group License		PFXEXGRPLS****	GP-Pro EX Editor Group License *1 *2	○	○	○	○
GP-Pro EX Editor License		PFXEXEDLSV**	GP-Pro EX editor license *3 *4	○	○	○	○
GP-Viewer EX	1 licence	PFXEXVW	License allowing a PC to access a LT in remote mode. *4	○	○	○	–
	10 licence	PFXEXVWLS10					
	30 licence	PFXEXVWLS30					
Pro-Server EX Developer		PFXEXSDV**	Software that connects a PC to a LT via Ethernet and collects and transmits data *4 *5	○	○	○	–
Pro-Server EX Developer License		PFXEXSDLS	Pro-Server EX developer license *4 *6	○	○	○	–
Pro-Server EX Runtime License		PFXEXSRLS	Pro-Server EX Runtime license *4 *7	○	○	○	–
MES Action License		PFXEXMSLSV**	License key permitting Pro-Server EX to access a database	○	○	○	–

*1 LT4000M Series requires GP-Pro EX Ver.3.12 or later. *2 Group License consists of one set of Serial No./Key Code for installation. (Should be used in the same office. Only supports GP-Pro EX Ver.3.1 or later.)
*3 Purchase this product when installing GP-Pro EX in a second or subsequent PC. One license is required for each PC. *4 Only for units with Ethernet. *5 Includes the settings editor and Run time.
*6 Purchase this product when installing the settings editor and Run time in subsequent PCs. *7 Purchase this license when installing only Run time in subsequent PCs. One license is required for each PC.

I/O Units (EX Module / CANopen unit)

Product Name		Global Code	Description	LT-4301TM	LT-4201TM	LT-330XX	LT-3201A
EX Module	8-Point Input Module	PFXZLTEUDDI8DT	8-point sink-source shared expansion unit *8	○	○	○	○
	8-Point Relay Output Module	PFXZLTEUDRA8RT	8-point relay output / 2-point common type expansion unit *8	○	○	○	○
	8-Point Sink Output Module	PFXZLTEUDDO8UT	8-point transistor output sink type expansion unit *8	○	○	○	○
	8-Point Source Output Module	PFXZLTEUDDO8TT	8-point transistor output source type expansion unit *8	○	○	○	○
	16-Point Input Module	PFXZLTEUDDI16DT	16-point sink-source shared expansion unit *8	○	○	○	○
	16-Point Relay Output Module	PFXZLTEUDRA16RT	16-point relay output / 2-point common type expansion unit *8	○	○	○	○
	16-Point Sink Output Module	PFXZLTEUDDO16UK	16-point transistor output sink type expansion unit *8	○	○	○	○
	16-Point Source Output Module	PFXZLTEUDDO16TK	16-point transistor output source type expansion unit *8	○	○	○	○
	4-Point Input / 4-Point Relay Output Module	PFXZLTEUDMM8DRT	4-point input sink-source / 4-point relay output / 1 common mixed I/O unit *8	○	○	○	○
	2-ch Analog Input Module	PFXZLTEUAMI2HT	2-ch analog input type expansion unit *8	○	○	○	○
	Thermocouple (Pt100 Input) / 1-ch Analog Output Module	PFXZLTEUALM3LT	2-ch temperature input / 1-ch analog output type expansion unit *8	○	○	○	○
	2-ch Analog Input / 1-ch Analog Output Module	PFXZLTEUAMM3HT	2-ch analog input / 1-ch analog output expansion unit *8	○	○	○	○
	1-ch Analog Output Module	PFXZLTEUAMO1HT	1-ch analog output type expansion unit *8	○	○	○	○
	4-ch Voltage, Current, Pt100 / Pt1000 / Ni100 / Ni1000 Input Module	PFXZLTEUAMI4LT	4-ch Analog Input / Temperature Input Expansion Unit *8	○	○	○	○
	2-ch Analog Output Module	PFXZLTEUAVO2HT	2-ch Analog output Expansion Unit *8	○	○	○	○
	4-ch Analog Input / 2-ch Analog Output Module	PFXZLTEUAMM6HT	4-ch Analog Input / 2-ch Analog Output Expansion Unit *8	○	○	○	○
	8-ch Temperature Pt100 / Pt1000 Input Module	PFXZLTEUARI8LT	8-ch Temperature Input Expansion Unit *8	○	○	○	○
	16-point Input / 8-point Relay Output Module	PFXZLTEUDMM24DRF	16-point Input Sink-Source / 8-Point Relay Output Expansion Unit *8	○	○	○	○
CANopen Master Unit		PFXZC8EUCA1	Master unit to connect to a slave unit supporting CANopen	–	–	○	○
CANopen Slave HTB Unit		PFXHTB1C0DM9LP	Slave unit supporting CANopen with 12 digital inputs, 6 relay outputs and 2 transistor source outputs. Up to 7 units of EX modules can be connected. *8	○	○	○	○

*8 LT4000M Series reguires GP-Pro EX Ver.3.50 or later.

Cable, Adapter, and other options.

Product Name		Global Code	Description	LT-4301TM	LT-4201TM	LT-330XX	LT-3201A
Cable	USB Transfer Cable (2m)	PFXZC3CBUSA1	USB cable for transferring data such as screen data (host to host)	○	○	○	○
	USB Transfer Cable (USB Type A/mini B)(1.8 m)	PFXZC9USCBMB1	Cable for transferring screen data from a PC (USB Type A) to the GP unit (USB mini B).	○	○	–	–
	USB Panel-mount Extension Cable (USB mini B)(1m)	PFXZC9USEXMB1	Extension cable attaching to the USB (mini B) interface on the front side of the operation panel.	○	○	–	–
	USB Cable (5m)	PFXZC0CBUS1	Connects a USB peripheral unit. (host to slave)The cable for extending the LT's USB port	○	○	○	○
	USB Front Cable (1m)	PFXZC5CBUBEX1	The conversion cable for using a LT's USB I/F as the Serial (RS-232C) I/F. Connects a Modem only for the RS-232C communication method.	○	○	○	○
	USB-Serial (RS-232C) Conversion Cable (50cm)	PFXZC6CBCVUSR21	Interface cable for communication between a temperature controller/ various boards and the LT series via RS-232C.	–	–	○	○
	RS-232C Cable (5m)	PFXZC3CBR251	Interface cable for communication between a temperature controller/ various boards and the LT series via RS-232C.	–	–	○	○
	RJ45 RS-232C Cable (5m)	PFXZLMCBRJR21	Cable with loose wires at one end for RS-232C connection between various hosts and the LT.	○	○	–	–
	RJ45 RS-485 Cable (5m)	PFXZLMCBRJR81	Cable with loose wires at one end for RS-485 connection between various hosts and the LT.	○	○	–	–
	RS-422 Cable (5m)	PFXZC3CBR452	Interface cable for communication between a temperature controller/ various boards and the LT series via RS-422.	–	–	○	○
	RS-422 Cable (5m)	PFXZC3CBR451	Interface cable for communication between a temperature controller/ various boards and the LT series via RS-422. <for a unit of terminal resistance 100>	–	–	○	○
	Display module/Rear module separation cable (3m)	PFXZXMADSM31	Cable with hook to install a rear module on a DIN rail while connecting the rear module to a separated display module	○	○	–	–
	Display module/Rear module separation cable (5m)	PFXZXMADSM51					
EZ Series	EZ Illuminated Switch	PFXZCCEUSG1	A unit of 5 illuminated switches with multiple color LED easily connected with HMI via USB	○	○	–	–
	EZ Fingerprint Recognition Unit	PFXZCCEUSS1	Fingerprint recognition unit easily connected with HMI via USB *9	○	○	–	–
Adapter	COM port adapter	PFXZC3ADCM1	Pin assign conversion adapter connects optional RS-422 communication items to LT series unit's COM1 port.	–	–	○	○
	Terminal block conversion adapter	PFXZC3ADR41	Conversion adapter converts a COM port to RS-422 terminal block.	–	–	○	○
	RS-232C Isolation Unit	PFXZC3ADISR21	Unit for providing isolated connection between a temperature controller/ various boards and the LT series. RS-232C and RS-422 are switchable.	–	–	○	○
Screen Protection Sheet		PFXZC3DS61	Disposable, dirt-resistant sheet for the LT unit's screen (5 pcs/set)	–	–	○	–
		PFXZC6DS41		–	○	–	○
		PFXZCBDS61		○	–	–	–
Environmentally-resistant Cover		PFXZC4CNDCM1	Regarding grease and chemical application, do not remove the unit, simply replace the environmental protection cover (5 pcs/set)	–	–	○	–
Panel Cutout Adapter		PFXZC4AT61	Attachment required for installing a 5.7-inch display unit in the mounting hole of LT Series (GLC150).	–	–	○	–

*9 EZ Fingerprint Recognition Unit involves fingerprint technology. In some jurisdictions, this product may be subject to notification to and/or approval by relevant local regulatory authority prior to importing this product into such jurisdictions and/or using this product in such jurisdictions. The jurisdictions which do not require such notification and/or approval as of December 1,2012 ("Non-regulated Jurisdictions") are as follows: Japan, Taiwan, USA, Canada, Mexico, Brazil, Australia and Singapore.

Maintenance Options

For list of the maintenance options, if a product is damaged or lost, please visit our website.

For further information, visit our website.
http://www.pro-face.com/product/hmi/lt4000m/option/option_other.html

Control Instruction List

Basic Instruction

Bit Basic

Normally Open	NO
Normally Closed	NC
Coil (Out)	OUT
Nagative out	OUTN
Set	SET
Reset	RST

Pulse Basic

Positive Transition	PT
Negative Transition	NT

Program Control

Function Block	FB
Jump	JMP <*P>
Jump to Subroutine	JSR <*P>
Return	RET
Repeat Number of Times (FOR)	FOR
Repeat Number of Times (NEXT)	NEXT
Inverse	INV
Exit	EXIT
Power Bar Control	PBC
Power Bar Reset	PBR
Logic Wait Instruction	LWA

Timer Instruction

On Delay Timer	TON
Off Delay Timer	TOF
Pulse Timer	TP
Accumulated On Delay Timer	TONA
Accumulated Off Delay Timer	TOFA

Counter Instruction

Up Counter	CTU <*P>
Down Counter	CTD <*P>
Up/Down Counter	CTUD <*P>

Read / Write Instruction

Time Read/Write

Time Read	JRD <*P>
Time Set	JSET <*P>

Date Read/Write

Date Read	NRD <*P>
Date Set	NSET <*P>

Operation Instruction

Arithmetic Operation

Add	ADD <*P>
Subtract	SUB <*P>
Multiplication	MUL <*P>
Division	DIV <*P>
Modulation	MOD <*P>
Increment	INC <*P>
Decrement	DEC <*P>

Time Operation

Time Addition	JADD <*P>
Time Subtraction	JSUB <*P>

Logical Operation

Logical AND	AND <*P>
Logical OR	OR <*P>
Logical XOR	XOR <*P>
Logical NOT	NOT <*P>

Transfer

Move (Copy)	MOV <*P>
Block Move (Block Copy)	BLMV <*P>
Full Move (Full Copy)	FLMV <*P>
Exchange	XCH <*P>

Operation Instruction

Rotation

Rotate Left	ROL <*P>
Rotate Right	ROR <*P>
Rotate Left with Carry Over	RCL <*P>
Rotate Right with Carry Over	RCR <*P>

Shift

Shift Left	SHL <*P>
Shift Right	SHR <*P>
Arithmetic Shift Left	SAL <*P>
Arithmetic Shift Right	SAR <*P>

Function Instruction

Calculation Function

Sum	SUM <*P>
Average	AVE <*P>
Square Root	SQRT <*P>
Bit Count	BCNT <*P>
PID	PID

Trigonometric Function

Sine	SIN <*P>
Cosine	COS <*P>
Tangent	TAN <*P>
Arc Sine	ASIN <*P>
Arc Cosine	ACOS <*P>
Arc Tangent	ATAN <*P>
Cotangent	COT <*P>

Other Functions

Exponential	EXP <*P>
Logarithm	LN <*P>
Log Base 10	LG10 <*P>

Compare Instruction

Arithmetic Compare

Equal (=)	EQ
Greater Than (>)	GT
Greater Than or Equal To (≧)	GE
Less Than (<)	LT
Less Than or Equal To (≦)	LE
Not Equal (≠)	NE

Time Compare

Time Compare (=)	JEQ
Time Compare (>)	JGT
Time Compare (≧)	JGE
Time Compare (<)	JLT
Time Compare (≦)	JLE
Time Compare (≠)	JNE

Date Compare

Date Compare (=)	NEQ
Date Compare (>)	NGT
Date Compare (≧)	NGE
Date Compare (<)	NLT
Date Compare (≦)	NLE
Date Compare (≠)	NNE

Convert Instruction

Data Convert

BCD Convert	BCD <*P>
BIN Convert	BIN <*P>
Encode	ENCO <*P>
Decode	DECO <*P>
Convert to Radians	RAD <*P>
Convert to Degrees	DEG <*P>
Scale	SCL <*P>

Convert Instruction

Type Convert

Convert Integer to Float	I2F <*P>
Convert Integer to Real	I2R <*P>
Convert Float to Integer	F2I <*P>
Convert Float to Real	F2R <*P>
Convert Real to Integer	R2I <*P>
Convert Real to Float	R2F <*P>
Convert Seconds	H2S <*P>
Convert Seconds to Time	S2H <*P>

Instruction for I/O Driver

STD Driver

Change Pulse Output Parameter	PLSX
Change Acceleration / Deceleration Pulse Output Parameter	PLSY
Read Pulse Output Parameter	PLSG
Start Pulse Output	PLS
Stop Pulse Output	PLSQ
Change PWM Output Parameter	PWMX
Read PWM Output Parameter	PWMG
Start PWM Output	PWM
Stop PWM Output	PWMQ
Change High Speed Counter Parameter	HSCX
Read High Speed Counter Parameter	HSCG
Start High Speed Counter	HSC
Stop High Speed Counter	HSCQ
Confirm Pulse Catch Input	PCH
Clear Pulse Catch Input	PCHQ

Instructions with <*P> correspond to positive transition instructions (differential transition). By adding P to the end of each instruction notation (LMP,etc.), you can use the instruction as a positive transition instruction (e.g., JMPP, JSRP, etc.).

⚠ WARNING

HAZARD OF OPERATOR INJURY, OR UNINTENDED EQUIPMENT DAMAGE

Before operating any of these products, be sure to read all related manuals thoroughly.

Failure to follow these instructions can result in death, serious injury or unintended equipment damage.

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