

RF EMP Protector DC – 1GHz, 150W, BNC – BNC jack CSP-40102

Protection for 50 Ohm coaxial cables based on Gas Discharge Tube (GDT) technology

Equipped with GDT for RF-power up to 150 W

Broad band, low loss operation from DC to 1 GHz

BNC jack (female) for Input and Output

Feed-through installation into wall of Faraday cage or metallic housing

Protects against overvoltages produced by NEMP / HEMP, lightning or other transients

High surge current capability



The Meteolabor® CSP series RF EMP protectors are specially designed for the protection of coaxial lines. Surge currents up to 20 kA or single strikes up to 30 kA can be handled.

A unique mechanical bulkhead design offers easy feed-through installation and compact fitting into Faraday cages, shielded rooms and mechanical enclosures. Single point of entry concepts can be simply realised. This allows clear separation of unprotected and protected side.

Various transient protection designs for broadband or limited frequency band operation are available. Generally limited frequency band elements provide lower residual energy in the case of transient overvoltages such as produced by atmospheric discharges (lightning, electrostatic discharge) or a High Altitude Electro-Magnetic Pulse (HEMP), sometimes also referred to as Nuclear Electro-Magnetic Pulse (NEMP) or simply EMP.

Applications

The Meteolabor® CSP-40102 RF EMP surge protector element ensures best protection of a broadband 50 Ohm coaxial line of telecommunication equipment etc. against transient overvoltages (e.g. NEMP / HEMP, lightning).

CSP-40102 is best suited for lines using BNC connectors and working with continuous power up to 150 W and various frequencies from 0 to 1 GHz.

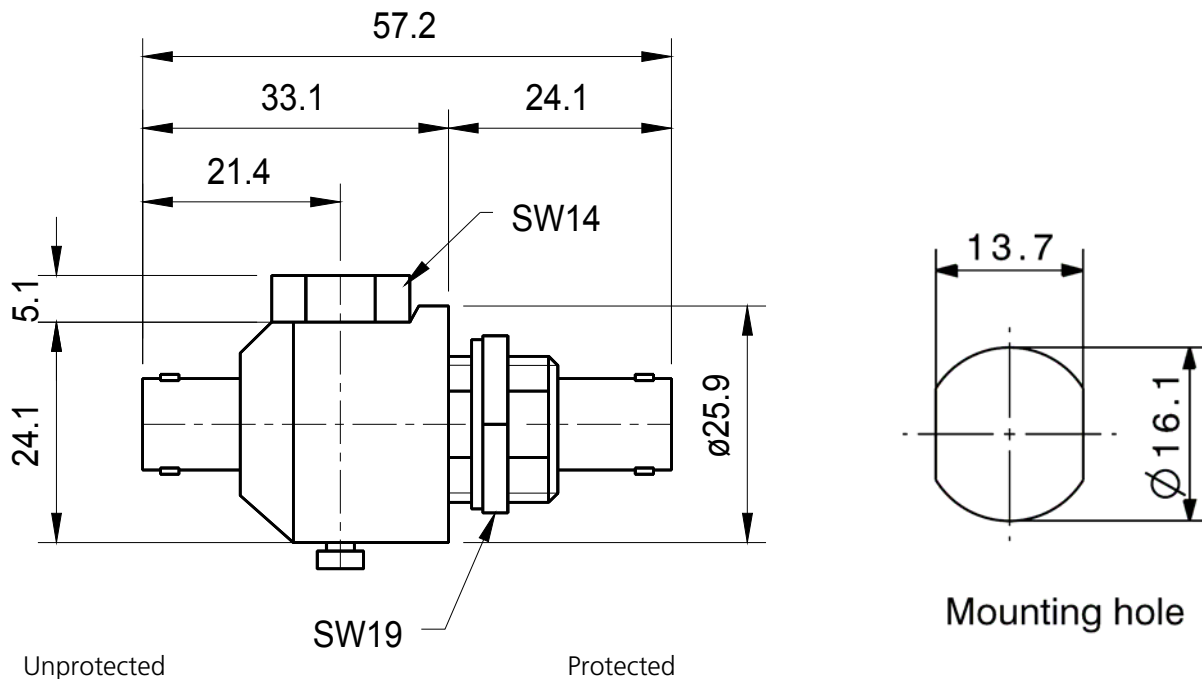
Applications range from mission critical equipment, such as fixed or mobile military installations (e.g. C⁴I facilities) to civilian or industrial projects, requiring high reliability and state-of-the-art protection.

CSP-40102 has been successfully used in many projects, where HEMP-testing according to RS-105 on threat-level has been conducted

Technical Data CSP-40102

Application	50 Ohm coaxial line	For broadband applications DC – 1 GHz, max. 150 W
Nominal operating power	150 W	With matched load, mismatch or higher power may trigger GDT
Max. surge current I_{Max}	30 kA	Inner conductor → ground, shape 8/20 μ s, single pulse
Nominal surge current I_N	20 kA	Inner conductor → ground, shape 8/20 μ s, 10 pulses at 30s intervals
Residual energy	350 μ J typically	4 kV / 2 kA test pulse, current shape 8/20 μ s, 50 Ohm load
Frequency range	0 to 1000 MHz	Insertion loss \leq 0.1 dB
Return loss	\geq 19 dB	0 to 1000 MHz; \geq 26 dB 0 to 300 MHz
DC-spark-over voltage U_{Zstat}	230 V \pm 20%	Dynamic spark-over voltage U_{Zdyn} = 675V at 1kV/ μ s typically
Connectors	BNC (female)	Unprotected and protected side
Operating temperature	-40°C to +85°C	
Ingress protection	IP 20	when coupled with conform mating connectors
Case material	Brass	Housing: nickel-free plating, center contacts: gold plating
Installation torque	Max. 25 Nm	Min. 20 Nm for good grounding contact
Dimensions	57.2 x \varnothing 25.9 mm	Major dimensions, details see drawing
Weight	approx. 75 g	

Dimensions [mm]



Installation Notes

- The CSP series EMP protectors shall be installed by electrically skilled personnel.
- The electrical wiring must be done according to local regulations.
- The max. values stated in this datasheet must not be exceeded under any circumstances.
- Do not exceed max. installation torque of 25 Nm as this can result in permanent damage.
- CSP series EMP protectors may be directly installed into the wall of a Faraday cage as feed-through device. If not used in a Faraday cage good and very short grounding (min. 16mm²) is necessary to carry lightning currents of the outer conductor of the coaxial cable.

General Recommendations for Protection Installation

- In order to achieve the full performance of a protection circuit the application of good-practice EMC design techniques is necessary for the whole system to be protected.
- For EMP-protection usually a shield as an electromagnetic barrier to protect a certain volume is necessary. This shield avoids coupling of radiated disturbances inside the protected volume. In addition to shielding all penetrating wires must be protected from conducted transient interferences by an appropriate POE (point of entry) protection.
- Use tested, high quality POE (point of entry) protection elements for all wires entering an electromagnetic shield and install these as feed-through devices, e.g. the Meteolabor® USS-1, USS-2, USP, or PLP series.

Ordering Information / Part Number

CSP-40102 RF EMP surge protector BNC (f)

**Caution**

Always keep Gas Discharge Tube (GDT) inserted.
Removal of GDT will result in loss of protection.