

RF EMP Protector DC –230 MHz, 10dBm, N – N Jack CSP-21102

**Protection for 50 Ohm coaxial cables, based on
GDT / Low Pass Filter Technology**

Transmits RF-signal, 1Mbit/s signal and DC-power

Low insertion loss operation from DC to 230 MHz

N-jack (female) for Input and Output

**Feed-through installation inside or outside of wall
of Faraday cage or metallic housing**

**Low residual energy protection against
overvoltages produced by NEMP / HEMP, lightning
or other transients**

10 kA surge current capability on inner conductor



The Meteolabor® CSP series RF EMP protectors are specially designed for the protection of coaxial lines. CSP-21102 handles surge currents up to 10 kA on the inner conductor without degradation of performance. 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.

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-21102 RF EMP surge protector element ensures best protection against transient overvoltages (e.g. NEMP / HEMP, lightning) for a 50 Ohm coaxial RF-line carrying signals from DC to 230 MHz.

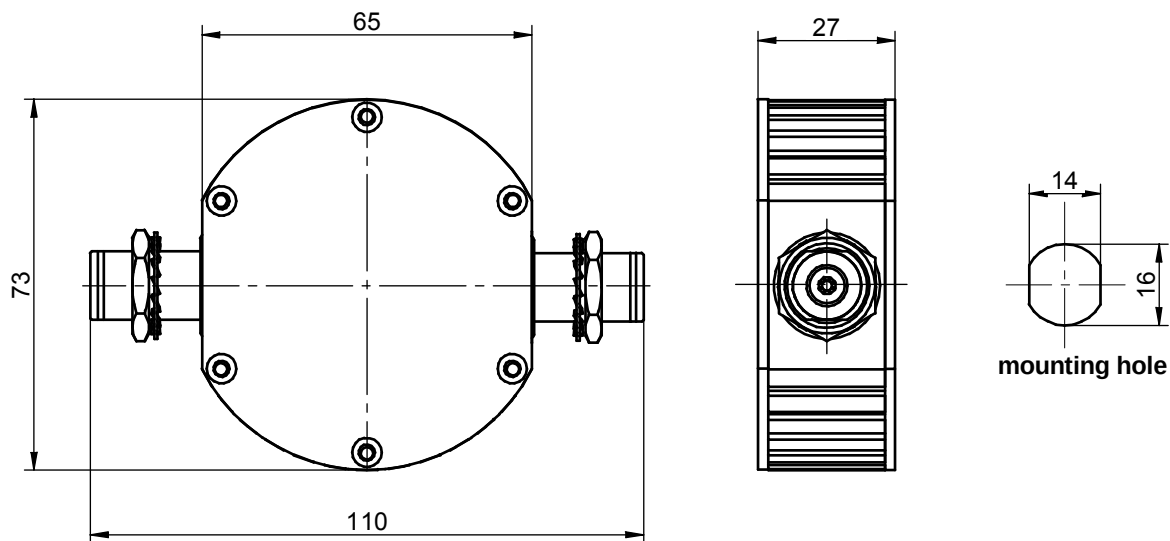
CSP-21102 is fitted with N-Jacks and is best suited for lines using N connectors, working with RF-power up to 10dBm in the frequency range from DC to 230 MHz. CSP-21102 has very low losses in the passband and also transmits DC up to $\pm 48V/2 A$ (inner conductor to shield) for remote power supply.

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.

Technical Data CSP-21102

Application	50 Ohm coaxial line	DC (48V /2A) – 230 MHz, max. 10dBm RF-power; 1Mbit/s signal
Max. operating parameters	Matched load	$\pm 55V/2A$ DC power / 10 dBm RF-power / 1Mbit/s amplitude max. $\pm 5V$
Max. surge current I_{Max}	10 kA	Inner conductor → ground, shape 8/20 μs
Nominal surge current I_N	7.5 kA	Inner conductor → ground, shape 8/20 μs , 10 pulses at 30s intervals
Residual energy	8 mJ typically	4 kV / 2 kA test pulse, current shape 8/20 μs , 50 Ohm load
Residual voltage	$< \pm 420 V$	4 kV / 2 kA test pulse, current shape 8/20 μs , 50 Ohm load
Residual energy	450 μJ typically	Fast rising 4 kV, 5/50 ns test pulse, 50 Ohm load
Residual voltage	$< \pm 600 V$	Fast rising 4 kV, 5/50 ns test pulse, 50 Ohm load
Frequency range	DC to 230 MHz	Insertion loss $\leq 0.2 dB$
Return loss	$\geq 20 dB$	DC to 230 MHz
Connectors	N jack (female)	Unprotected and protected side
Operating temperature	-40°C to +85°C	
Ingress protection	IP 65	when coupled with conform mating connectors
Case material	Alu, nickel-plated	center contacts: gold plating
Installation torque	Max. 25 Nm	Min. 20 Nm for good grounding contact
Dimensions	110 x 27 x $\varnothing$ 73 mm	Major dimensions, details see drawing
Weight	approx. 230 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.
- CSP-21102 may be installed in front or rear of the bulkhead, however, note that unprotected / protected side must be installed correct, i.e. the protected side must face the protected side of the 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-21102 RF EMP surge protector N(f)



Caution

For proper function unprotected / protected side must be installed correctly.

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