

RF EMP Protector N – N, 10dBm DC+1Mbit/s+420MHz+1080MHz CSP-21101

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

**Transmits DC 48V/2A, 1Mbit/s control signal,
420MHz and 1080MHz RF-signals with total RF-
power up to 10dBm**

N-jack (female) for Input and Output

**Low residual energy protection against
overvoltages produced by NEMP / HEMP, lightning
or other transients up to 10kA surge current.**

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



The Meteolabor® CSP series RF EMP protectors are specially designed for the protection of coaxial lines. CSP-21101 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

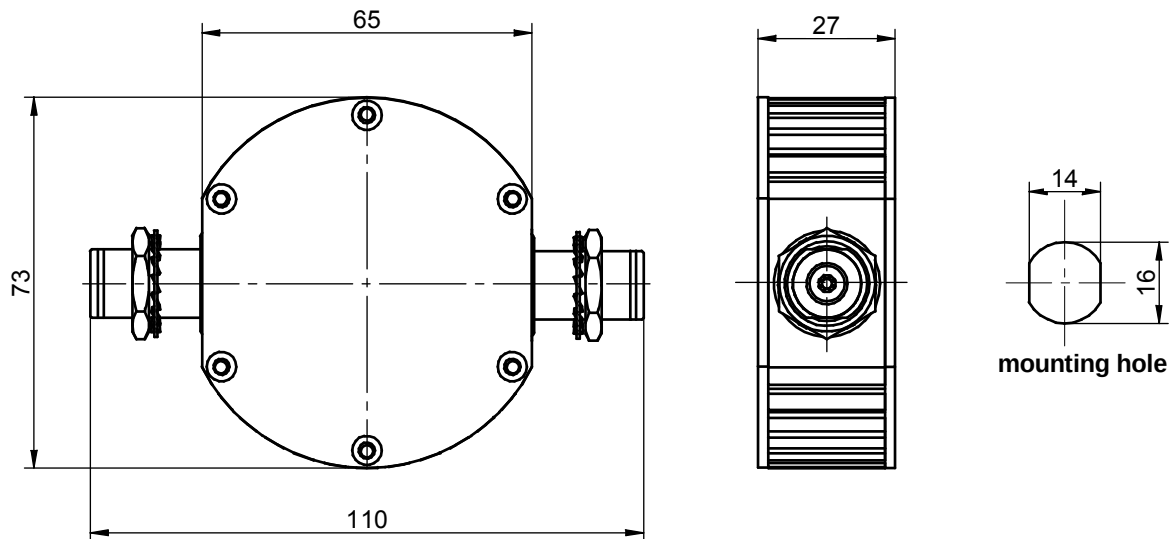
The Meteolabor® CSP-21101 RF EMP surge protector element ensures best protection against transient overvoltages (e.g. NEMP / HEMP, lightning) for a 50 Ohm coaxial RF-line carrying 48V DC, 1Mbit/s signal, 420 MHz RF-signal and 1080 MHz RF-signal. Typically it will be installed to protect both indoor unit and outdoor unit. CSP-21101 is fitted with N-Jacks and transmits DC remote power up to $\pm 48V/2A$ (inner conductor to shield) and the specified signals with a total power up to 10dBm.

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-21101

Application	50 Ohm coaxial line	$\pm 48V/2A$ DC, 1Mbit/s, 420 MHz, 1080 MHz, RF power max. 10dBm
Max. operating parameters	Matched load	$\pm 55V/2A$ DC power / 10 dBm RF-power / 1Mbit/s amplitude max. $\pm 5V$
DC resistance	< 0.8 Ohm	Between unprotected and protected side
Max. / Nominal surge current I_{Max} / I_N	10 kA / 7.5 kA	Inner conductor $\rightarrow$ ground, shape 8/20 μs
Residual voltage	$< \pm 120$ V	4 kV / 2 kA test pulse, current shape 8/20 μs , 50 Ohms load
Residual energy	250 μJ typically	4 kV / 2 kA test pulse, current shape 8/20 μs , 50 Ohms load
Residual voltage	$< \pm 330$ V	Fast rising 4 kV, 5/50 ns test pulse, 50 Ohms load
Residual energy	30 μJ typically	Fast rising 4 kV, 5/50ns test pulse, 50 Ohms load
Insertion loss DC to 20 MHz	≤ 1 dB	50 Ohm system
Insertion loss @420 MHz	≤ 1 dB	50 Ohm system
Insertion loss @1080 MHz	≤ 1 dB	50 Ohm system
Connectors	N jack (female)	Unprotected and protected side
Operating temperature	$-40^{\circ}C$ to $+85^{\circ}C$	
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. 240 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-21101 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-21101 RF EMP surge protector N(f)



Caution

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

Contact

Meteolabor AG
Hofstrasse 92
CH-8620 Wetzikon
Switzerland

Telephone: +41 44 934 40 40
Fax: +41 44 934 40 99
E-Mail: info@meteolabor.ch
www.meteolabor.com

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