

RF EMP Protector DC+650–2500 MHz, 50W, N – N CSP-81101

- Protection for 50 Ohm coaxial cables with protected DC-bypass up to max. 15V / 3A**
- For RF-power up to 50 W and DC for antenna powering**
- Low insertion loss operation from 650 to 2500 MHz**
- N-jack (female) for Input and Output**
- Feed-through installation into a wall of Faraday cage or metallic housing**
- Very low residual energy protection against surges of 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. High surge currents on the inner conductor 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-81101 RF EMP surge protector element ensures best protection against transient overvoltages (e.g. NEMP / HEMP, lightning) for a 50 Ohm coaxial line carrying operating frequencies in the range of 650 to 2500 MHz with max. RF-power up to 50W and an additional DC-bypass.

CSP-81101 is best suited for lines using N connectors, a typical application example is an active GPS-antenna working with an amplifier DC-power supply up to max. 15V / 3A

CSP-81101 has been successfully used in many projects, where HEMP-testing according to RS-105 on threat-level has been conducted

Technical Data CSP-81101

Application	50 Ohm coaxial line	For DC + RF applications 650 – 2500 MHz, max. 50 W, 15V DC / 3A
Max. operating power	50 W	Matched load
Max. surge current I_{Max}	30 kA	Inner conductor → ground, shape 8/20 μ s, single pulse
Nominal surge current I_N	15 kA	Inner conductor → ground, shape 8/20 μ s, 10 pulses at 30s intervals
Residual energy	6 μ J typically	4 kV / 2 kA test pulse, current shape 8/20 μ s, 50 Ohms load
Residual voltage	< \pm 25 V	4 kV / 2 kA test pulse, current shape 8/20 μ s, 50 Ohms load
Residual energy	5 μ J typically	Fast rising 4 kV, 5/50ns test pulse, 50 Ohms load
Residual voltage	< \pm 30 V	Fast rising 4 kV, 5/50ns test pulse, 50 Ohms load
Frequency range	650 to 2500 MHz	Insertion loss \leq 0.5 dB
Return loss	\geq 20 dB	650 to 2500 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	Aluminium	Housing: chromated, center contacts: gold plating
Installation torque	Max. 25 Nm	Min. 20 Nm for good grounding contact
Dimensions	106 x 58 x 39 mm	Major dimensions, details see drawing
Weight	approx. 335 g	

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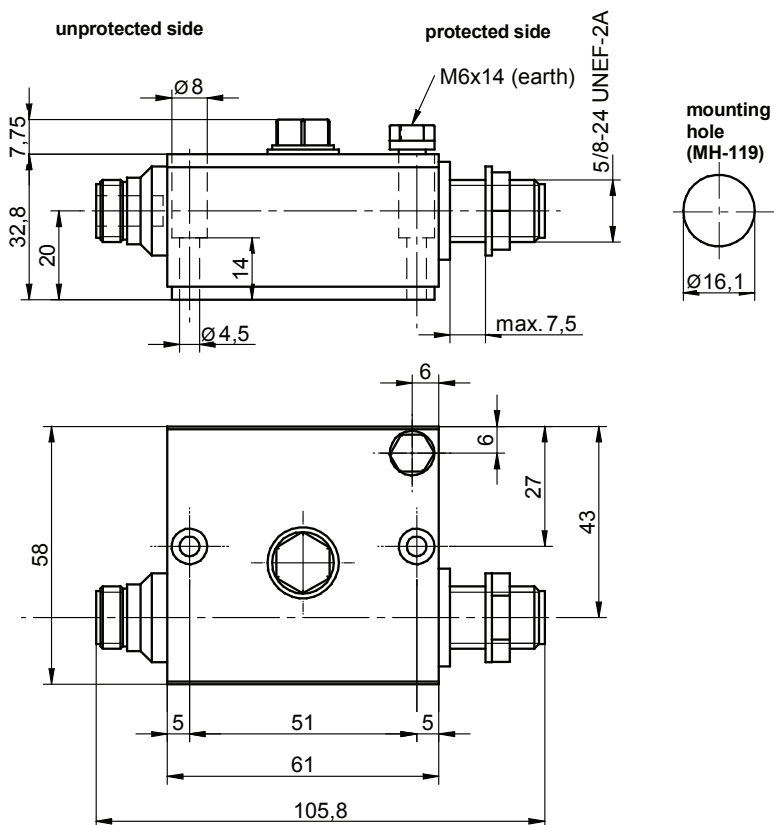
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Dimensions [mm]



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.
- 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 a good and very short grounding (min. 16mm²) is necessary to carry lightning currents of the outer conductor of the coaxial cable.
- CSP-81101 is electrically not symmetric, unprotected and protected side must be respected.

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-81101 RF EMP surge protector N(f)



Caution

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

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