

## BRUMIL 28X – EMP-Protector for Coaxial Line / for RF application

The efficient devices to protect equipment against the effects of EMP (Electromagnetic Pulses) for RF applications.

### Applications:

- The BRUMIL 28X surge protector family ensures best protection of a RF or DC & RF with the BRUMIL 286 for 50 Ohm coaxial cables, based on High Pass Filter Technology against transient over-voltages (e.g. NEMP / HEMP, lightning)
- These products effectively protect the inputs of radio frequency devices against damages caused by surge effects
- Used in:
  - Range from mission critical equipment, such as fixed or mobile military installations (e.g. C4I facilities)
  - Harsh environment, outdoors
  - Civilian or industrial projects, requiring high reliability and state-of-the-art protection

### Description:

- 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 realized. This allows clear separation of unprotected and protected side
- Powerful elements with matched load
- BRUMIL 28x protectors have been successfully used in many projects where HEMP-testing (also called NEMP) according MIL-STD-461E RS105 on threat-level has been conducted





### Material:

#### BRUMIL 282 / 283

Brass  
Housing: nickel-free plating  
Contacts: gold plating

#### BRUMIL 285 / 286

Aluminium  
nickel-plated / chromated  
gold plating

Type	BRUMIL 282	BRUMIL 283	BRUMIL 285 (for VHF / UHF applications)	BRUMIL 286 (typical appl. for active GPS antenna)
				
Radio Frequency application for:	RF-806 - 2500 MHz	RF-2 - 6 GHz	VHF/UHF 110 – 500 MHz	DC & 650 - 2500 MHz
Characteristic impedance	50 Ohm	50 Ohm	50 Ohm	50 Ohm
Connectors, both sides	N Jack (female)	N Jack (female)	N Jack (female)	N Jack (female)
Max. operating power	500 W	300 W	100 W	50 W
Max. surge current $I_{max}$ Inner conductor → ground, shape 8/20µs, single pulse	25 kA	50 kA	10 kA	30 kA
Nominal surge current $I_N$ Inner conductor → ground, shape 8/20µs, 10 pulses at 30s interval	20 kA	25 kA	7.5 kA	15 kA
Residual energy at 4 kV / 2 kA test pulse, Current shape 8/20µs, 50 Ohms load	0.03 µJ typically	0.4 µJ typically	2 mJ typically	6 µJ typically
Residual Voltage at 4 kV / 2 kA test pulse, Current shape 8/20µs, 50 Ohms load	-	-	< ±65V	< ±25V
Residual energy at fast rising 4 kV, 5/50ns test pulse, 50 Ohms load	-	-	400 µJ typically	5 µJ typically
Residual Voltage at fast rising 4 kV, 5/50ns test pulse, 50 Ohms load	-	-	< ±750V	< ±30V
Frequency range	0.806 - 2.5 GHz	2 - 6 GHz	110 – 500 MHz	650 - 2500 MHz
Insertion loss	≤ 0.1 dB	≤ 0.2 dB	≤ 0.2 dB	≤ 0.5 dB
Return loss	≥ 26 dB 806 to 2500 MHz	≥ 20 dB from 2 to 6 GHz	≥ 20 dB from 110 to 500 MHz	≥ 20 dB from 650 to 2500 MHz
Operating temperature	-40°C to +85°C			
Installation torque	Max. 25 Nm / Min. 20 Nm for good grounding contact			
Ingress protection, when coupled with conform mating connectors	IP65			
Dimensions	97.2xØ39.6mm	126x55xØ24mm	110 x 27 x 73 mm	106 x 58 x 39 mm
Weight	450 g	350 g	230 g	335 g