

EMP Surge Protector / Filter for Analog 30 MHz Video Signal USS-2-TV75-BNC

- Excellent lightning and EMP protection for an analog video signal with up to 30 MHz bandwidth**
- Coaxial BNC sockets, isolated from ground / case**
- Protects against overvoltages produced by NEMP / HEMP, lightning or other transients**
- Coordinated multi-stage protection/filter design providing high surge current capability**
- Feed-through type steel body for direct installation to wall of Faraday cage**
- Threat-level tested against HEMP according to MIL-STD-188-125, short and medium**



Product

The Meteolabor® USS-2 series protection circuits against surge and interference voltages are designed as feed-through type mechanical units for the protection of data and control line systems. Depending on the specific application different types are available. The highly effective multi-stage transient protection design combined with filtering components provides excellent protection against the effects of 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. Special features of this series of protection circuits include high surge current capability, compact feed-through design and simple installation directly to Faraday cage. The USS-2-Series is threat-level tested against EMP according to MIL-STD-188-125, short pulse and intermediate pulse.

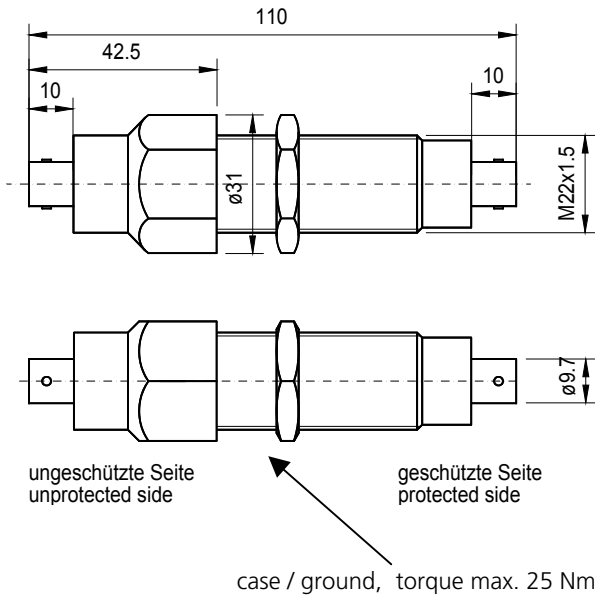
Applications

Meteolabor® USS-2-TV75-BNC provides excellent protection for an analog floating or grounded coaxial cable with professional video signal, having a bandwidth up to 30 MHz. It does not ground the shield to avoid ground loops. It will reliably protect connected electronic equipment such as video equipment, against the effects of lightning and EMP. Best protection and filtering effect is achieved in a feed-through installation from an unprotected volume into a shielded and protected room. This guarantees optimized protection of mission critical equipment against very fast transient overvoltages (e.g. NEMP / HEMP). USS-2-TV75-BNC has been used in many fixed installations (buildings, underground shelters etc.) as well as in portable and mobile systems like containers or shelters and vehicles, which were successfully EMP-tested according to RS105 of MIL-STD-461F.

Technical Data USS-2-TV75-BNC

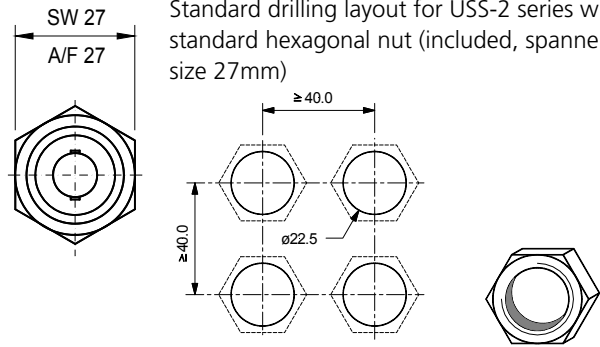
Application	Analog video signal	Up to 30 MHz video bandwidth, shield floating to avoid ground loops
Max. operating voltage	± 2.5 V	Peak voltage between inner and outer connector of coaxial cable
Max. operating current	0.2 A	@ T _{amb} = 45°C
Bandwidth	DC – 30 MHz	-3 dB bandwidth, 75 Ohms
Insertion loss	0.8 dB	Typically DC – 10 MHz
Max. surge current I _{Max}	2x10 kA	Each inner / outer conductor → ground/case, shape 8/20 μs , 1 pulse
Max. lightning impulse current I _{imp}	2x2 kA	Each conductor → ground/case, shape 10/350 μs, at least 1 pulse
DC resistance input - output	2.9 Ω	Totally both inner and outer conductor, typical value
Max. leakage current	< 0.5 μA	Measured @ max. operating voltage
Residual voltage common mode	< 450 V	Outer wire (shield) → ground/case, value depending on pulse shape
Residual voltage differential mode	< 14 V	Inner wire → outer conductor, value depending on pulse shape
Connection terminals	BNC sockets	Unprotected and protected side, shield floating
Case material	Steel	Stainless / nickel-plated
Max. allowed installation torque	25 Nm	Not to be exceeded under all circumstances
Dimensions	27x32x113 mm	Major dimensions, details see drawing
Weight	approx. 180 g	

Dimensions [mm]

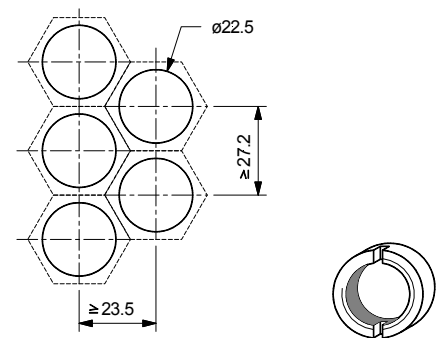


Installation Layouts

Standard drilling layout for USS-2 series with standard hexagonal nut (included, spanner size 27mm)



Space saving "honeycomb" mounting hole layout for USS-2 series (requires optional slotted nut USS-SM2 and USS-SK2 spanner)



Installation Notes

- The USS-2 series EMP protector/filters 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 destroy the device.
- USS-2 series EMP protector/filters may be directly installed into the wall of a Faraday cage as feed-through device. Otherwise the cabling on the protected side must be shielded for best performance.
- For space-saving installation of multiple protectors a "honeycomb" layout is recommended (see drawings).

Ordering Information / Part Number

USS-2-TV75-BNC

Surge Protector/Filter EMP USS2-TV75-BNC

USS-SM2 optional slotted nut

USS-SK2 optional special socket spanner for slotted nut

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, CSP or PLP series.



Caution

Maximum torque for installation screw shall not exceed 25 Nm