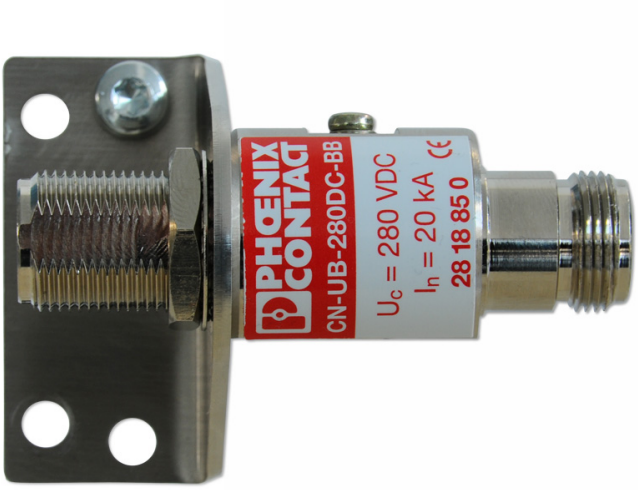

MANUAL

MBG S-PRO

Surge Voltage Protector
(PHOENIX CN-UB-280DC-BB)

26th November 2015

Meinberg Radio Clocks GmbH & Co. KG

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1 Imprint

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2 MBG S-PRO - Technical Specifications

Attachment plug with replaceable gas discharge tube for coaxial signal interfaces. Connection: N connector female/female. The MBG S-PRO set includes a surge voltage protector (Phoenix CN-UB-280DC-BB), a pre-assembled coax cable and a mounting bracket.

The surge voltage protector for coaxial lines has to be installed in the antenna line. The shield has to be connected to earth as short as possible. CN-UB-280DC-BB is equipped with two type-N female connectors. It has no dedicated input/output polarity or prefered mounting orientation.

Phoenix CN-UB-280DC-BB

Features:

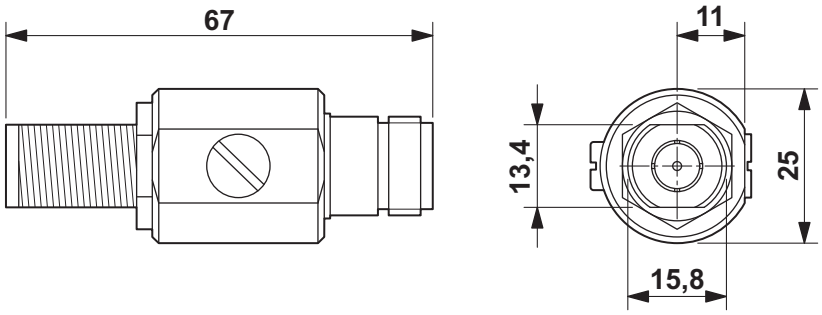
- High RF Performance
- Multiple Strike Capability
- 20 kA Surge Protection
- Bi-directional Protection
- Rugged and Waterproof

Mounting type	Connection-specific intermediate plugging	
Type	Attachment plug	
Direction of action	Line-Shield/Earth Ground	
Maximum continuous operating voltage	UC (wire-ground)	280 V DC 195 V AC
Nominal current	IN	5 A (25 °C)
Operating effective current	IC at UC	≤ 1 μA
Nominal discharge current	In (8/20)μs (Core-Earth)	20 kA
Nennableitstoßstrom	In (8/20)μs (Core-Shield)	20 kA
Total surge current	(8/20)μs	20 kA
Total surge current	(10/350)μs	2,5 kA

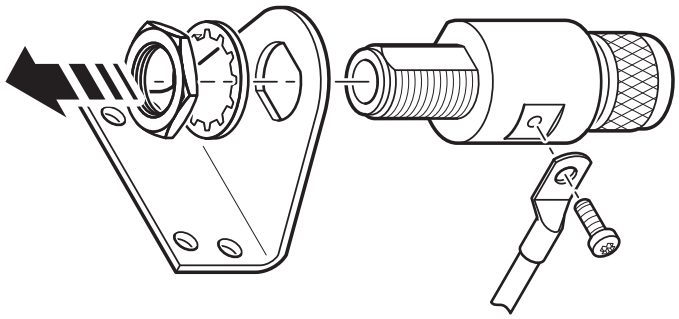
Max. discharge current	Imax (8/20)μs maximum (Core-Shield)	20 kA
Nominal pulse current	Ian (10/1000)μs (Core-Shield)	100 A
Impulse discharge current	(10/350) μs, peak value limp	2,5 kA
Output voltage limitation	at 1 kV/μs (Core-Earth) spike	$\leq$ 900 V
Output voltage limitation	at 1 kV/μs (Core-Earth) spike	$\leq$ 900 V
Response time	tA (Core-Earth)	$\leq$ 100 ns
Response time	tA (Core-GND)	$\leq$ 100 ns
Input attenuation	aE, asym.	typ. 0.1 dB ($\leq$ 1.2 GHz) typ. 0.2 dB ($\leq$ 2.2 GHz)
Cut-off frequency	fg (3 dB), asym. (shield) in 50 Ohm system	> 3 GHz
Standing wave ratio	SWR in a 50 Ω system	typ. 1.1 ($\leq$ 2 GHz)
Permissible HF power	Pmax at VSWR = xx (50 ohm system)	700 W (VSWR = 1.1) 200 W (VSWR = ∞)
Capacity	(Core-Earth)	typ. 1,5 pF
Capacity	asymmetrical (shield)	typ. 1,5 pF
Surge current resistance	(conductor-ground)	C1 - 1 kV/500 A C2 - 10 kV/5 kA C3 - 100 A D1 - 2,5 kA
Ambient temperature	(operation)	-40 °C ... 80 °C
Degree of protection	IP55	
Housing material	Nickel-plated brass Color nickel	
Dimensions	Height 25 mm, Width 25 mm, Depth 67 mm	
Connection data		N-Connector 50 Ohm
	IN	N-Connector Buchse
	OUT	N-Connector Buchse
Standards/regulations	IEC 61643-21	

Source: PHOENIXCONTACT.COM Surge Voltage Protector - CN-UB-280DC-BB

2.1 MBG S-PRO - Physical Dimensions



2.2 Installation and Grounding



3 Mounting the GPS Antenna

The GPS satellites are not stationary, but circle round the globe with a period of about 12 hours. They can only be received if no building is in the line-of-sight from the antenna to the satellite, so the antenna/downconverter unit must be installed in a location that has as clear a view of the sky as possible. The best reception is achieved when the antenna has a free view of 8° angular elevation above the horizon. If this is not possible, the antenna should be installed with the clearest free view to the equator, because the satellite orbits are located between latitudes 55° North and 55° South. If this is not possible, you may experience difficulty receiving the four satellites necessary to complete the receiver's position solution.

The antenna/converter unit can be mounted on a wall, or on a pole up to 60 mm in diameter. A 50 cm plastic tube, two wall-mount brackets, and clamps for pole mounting are included. A standard RG58 coaxial cable should be used to connect the antenna/downconverter unit to the receiver. The maximum length of cable between antenna and receiver depends on the attenuation factor of the coaxial cable.

Up to four receivers can be run with one antenna/downconverter unit by using an optional antenna splitter. The total length of an antenna line from antenna to receiver must not be longer than the max. length shown in the table below. The position of the splitter in the antenna line does not matter.

The optional delivered MBG S-PRO protection kit can also be used for outdoor installation (degree of protection: IP55).

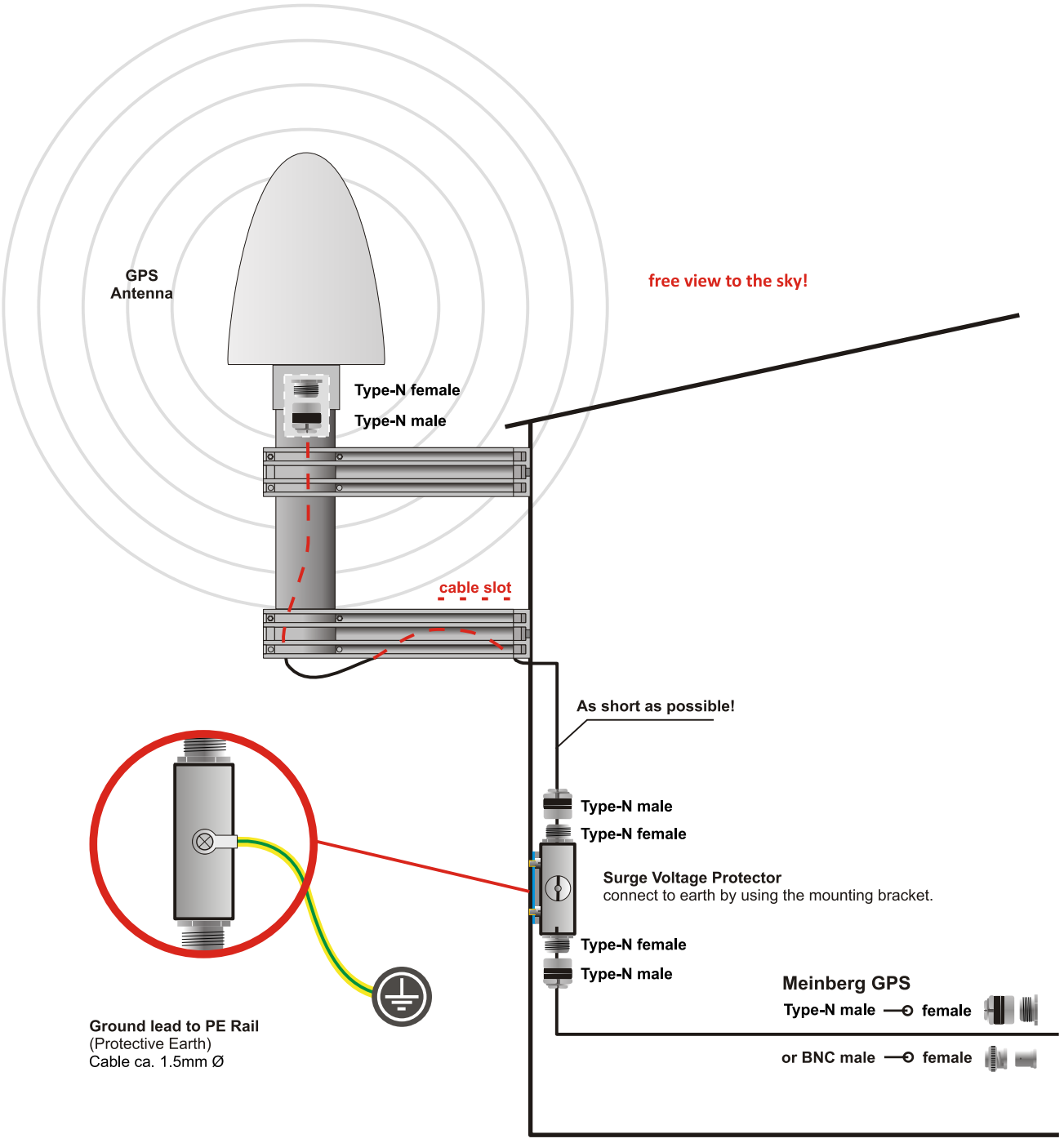
3.1 Example:

Type of cable	diameter Ø [mm]	Attenuation at 100MHz [dB]/100m	max lenght. [m]
RG58/CU	5mm	17	300 (1)
RG213	10.5mm	7	700 (1)

(1)This specifications are made for antenna/converter units produced after January, 2005
The values are typically ones; the exact ones are to find out from the data sheet of the used cable

3.2 Antenna Assembly with Surge Voltage Protection

Optional a surge voltage protector for coaxial lines is available. The shield has to be connected to earth as short as possible by using the included mounting bracket. Normally you connect the antenna converter directly with the antenna cable to the system.



3.3 Antenna Short-Circuit

(systems with front display only)
In case of an antenna line short-circuit the following message appears in the display:

If this message appears the clock has to be disconnected from the mains and the defect eliminated. After that the clock can be powered-up again. The antenna supply voltage must be $15V_{DC}$.