

## DATASHEET

# Specific systems protection

## OVR RF Series



Combined Category D, C, B tested protector (to BS EN 61643) suitable for RF systems using coaxial cables at frequencies between DC and 2.7 GHz and where DC power is present. Suitable for RF systems with power up to 1.9 kW. For use at boundaries up to LPZ 0 to protect against flashover (typically the service entrance location) through to LPZ 3 to protect sensitive electronic equipment.



### Features & benefits

- Very low let-through voltage (enhanced protection to IEC/BS EN 62305) between all lines - Full Mode protection
- Full Mode design capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- Repeated protection in lightning intense environments
- Wide bandwidth means a single product is suitable for a range of applications
- Very low attenuation and near unity VSWR over a wide range of frequencies ensure the protectors do not impair system performance
- Available with N, 7/16 DIN and BNC connectors
- Easily mounted and earthed via fixtures on the base of the unit that accept M3 and M5 screws or via mounting brackets
- Additional mounting plates give increased flexibility
- Robust aluminium housing

### Application

Use on coaxial cables to protect RF transmitter and receiver systems, including electronics located at the antenna or dish. Typical examples include cell sites, military communications, satellite earth stations, pager systems and emergency services communications systems.

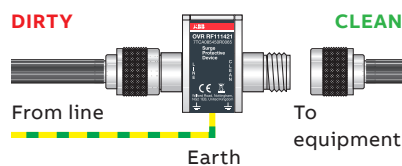
### Installation

In a building, connect in series with the coaxial cable near where it enters or leaves the structure, or close to the equipment being protected. This should be as close as possible to the system's earth star point (to enable a good connection to earth). On a mast, connect in series with the coaxial cable near the antenna/dish being protected. Install in a radio communications room, an existing cabinet or a suitable enclosure.

### Accessories

- OVR RF BK1 Straight mounting plates
- OVR RF BK2 90° angled mounting plates
- OVR RF BK3 Bulkhead through mounting plate (single)
- OVR RF BK4 Bulkhead through mounting plate (for 4 products)
- OVR RF GDT-4 Replacement gas discharge tube

### OVR RF 111421 with N female connectors installed in series

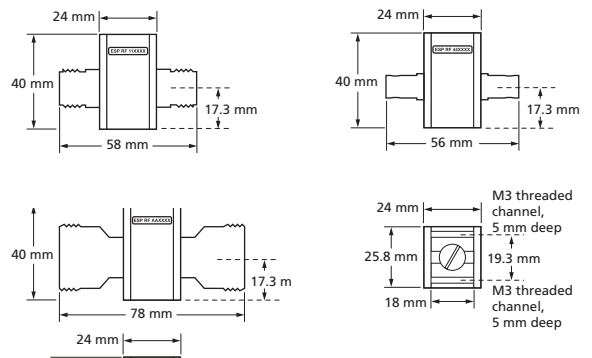


**NOTE:** These protectors are based on a continuous transmission line with a GDT connected between this line and screen/earth, and are suited for applications where DC is required to pass to the equipment. OVR CCTV/B and OVR CCTV/T are suitable for use on coaxial (or twisted pair) CCTV lines. For coaxial CATV lines, use the OVR CATV/F.

**OVR RF Series - Technical specification**

Electrical specification	OVR RF 111421, OVR RF AA1421, OVR RF 441421		
Gas Discharge Tube voltage	350 V		
Maximum working voltage Uc (RMS)	200 V		
Characteristic impedance	50 Ω		
Capacitance (@ 1 MHz)	< 5 pF		
Bandwidth	DC-2.7 GHz		
Voltage standing wave ratio	≤ 1.1		
Insertion loss over bandwidth	≤ 0.1 dB		
Maximum power <sup>(1)</sup>	650 W		
Transient specification	OVR RF 111421, OVR RF AA1421, OVR RF 441421		
Let-through voltage (all conductors) <sup>(2)</sup> Up			
C2 test 4 kV 1.2/50 μs, 2 kA 8/20 μs to BS EN/EN/IEC 61643-21	< 800 V		
C1 test 1 kV 1.2/50 μs, 0.5 kA 8/20 μs to BS EN/EN/IEC 61643-21	< 650 V		
B2 test 4 kV 10/700 μs to BS EN/EN/IEC 61643-21	< 550 V		
5 kV, 10/700 μs <sup>(3)</sup>	< 580 V		
Maximum surge current <sup>(4)</sup>			
D1 test 10/350 μs to BS EN/EN/IEC 61643-21	2.5 kA		
8/20 μs to ITU-T K.45:2003, IEEE C62.41.2:2002	20 kA		
Mechanical specification	OVR RF 111421	OVR RF AA1421	OVR RF 441421
ABB order code	7TCA085450R0065	7TCA085450R0063	7TCA085450R0066
Temperature range	-40 to +80 °C		
Connection type	N female	7/16 DIN female	BNC female
Conductor size (stranded)	Via mounting fixtures		
Case Material	Aluminium body, nickel plated. Brass connectors, white bronze plated		
Weight: – Unit	120 g	190 g	90 g
– Packaged	140 g	210 g	110 g
Dimensions	See diagram below		

<sup>(1)</sup> Power levels have been de-rated to allow for real life 'worst case' conditions, calculated with VSWR as 2:1. Higher power levels are possible, contact ABB for details.  
<sup>(2)</sup> The maximum transient voltage let-through of the protector throughout the test (±10%). Response time < 10 ns. This let-through voltage represents a deviation from the applied signal voltage, present at the time of the test  
<sup>(3)</sup> Test to IEC 61000-4-5:2006, ITU-T (formerly CCITT) K.20, K.21 and K.45, Telcordia GR-1089-CORE, Issue 2:2002, ANSI TIA/EIA/IS-968-A:2002 (formerly FCC Part 68)  
<sup>(4)</sup> The installation and connections external to the protector may limit the capability of the protector



**OVR RF BK1 (ABB order code: 7TCA085400R0416)**

Straight mounting bracket, 53 x 26.3 x 3 mm  
 2 x M4 clearance mounting holes, 16.3 mm apart

**OVR RF BK2 (ABB order code: 7TCA085400R0064 )**

90° mounting bracket, 33 x 26.3 x 3 mm, 20 x 26.3 x 3 mm  
 2 x M4 clearance mounting holes, 16.3 mm apart, 14 mm from fold line

**OVR RF BK3 (ABB order code: 7TCA085400R0412)**

90° mounting bracket, 50 x 24 x 1.5 mm, 60 x 24 x 1.5 mm  
 2 x M5 clearance mounting holes, 40 mm apart

**OVR RF BK4 (ABB order code: 7TCA085400R0413)**

90° quad mounting bracket, 50 x 24 x 1.5 mm, 210 x 24 x 1.5 mm  
 5 x M5 clearance mounting holes, various spacings  
 Mounting brackets supplied with screws for fixing to protector