INTRODUCTION

This document explains how to install ABB OVR Surge Protection Devices (SPDs) for CCTV video lines:

OVR CCTV/B
OVR CCTV/B-15V
OVR CCTV/B-30V
OVR CCTV/B-50V
for coaxial lines with BNC connectors.

OVR CCTV/T
OVR CCTV/T-15V
OVR CCTV/T-30V
OVR CCTV/T-50V
for twisted pair lines with screw terminals.

1. Safety note:

Warning! Installation by person with electrotechnical expertise only.

Warnung! Installation nur durch elektrotechnische Fachkraft.

Avvertenza! Fare installare solo da un elettricista qualificato.

Avertissement! Installation uniquement par des personnes qualifiées en électrotechnique.

Advertencia! La instalación deberá ser realizada únicamente por electricistas especializados.

The OVR CCTV/B SPD and its 15 V, 30 V & 50 V variants are supplied with a plastic screw attached.

This allows it to be reconfigured, for use on systems with an isolated screen (see 'Installation' Section 3.5 - Screen connection).

2. Before installation

2.1 Make sure that the system's maximum line voltage (DC or AC peak) will never exceed the OVR SPD's maximum working voltage. Otherwise the OVR SPD will clamp signal voltages as though they were transient overvoltages.

	Nominal Voltage	Maximum Working Voltage
OVR CCTV/B	1 V	7.79 V
OVR CCTV/B-15V	1 V	16.7 V
OVR CCTV/B-30V	1 V	36.7 V
OVR CCTV/B-50V	1 V	56.7 V
OVR CCTV/T	2 V	7.79 V
OVR CCTV/T-15V	2 V	16.7 V
OVR CCTV/T-30V	2 V	36.7 V
OVR CCTV/T-50V	2 V	56.7 V

2.2 Ensure that the current passing through the OVR SPD does not exceed:

	Maximum Current
All CCTV variants	300 mA DC or AC RMS

2.3 For coaxial lines, check whether the cable also carries the power supply. Often the video signal is superimposed on to the DC power.

If the cable does carry the power supply, ensure the correct OVR CCTV SPD is to be installed (ie the 15 V, 30 V, or 50 V variant as appropriate).

3. Installation

3.1 Series connection

ABB OVR CCTV/B & OVR CCTV/T SPDs are connected in series with the coaxial or twisted pair CCTV video line.

The dirty, or line side of the OVR SPD should be connected to the cable carrying the incoming transient overvoltages. The output, or clean side of the OVR SPD ensures a transient free signal to the equipment being protected (see Figures 1 & 2).

Note: Do NOT use power driven screwdrivers to make connections to the OVR SPD. Hand tighten only.

3.2 SPD location

The OVR SPD should be installed in a convenient place close to the equipment it is protecting:

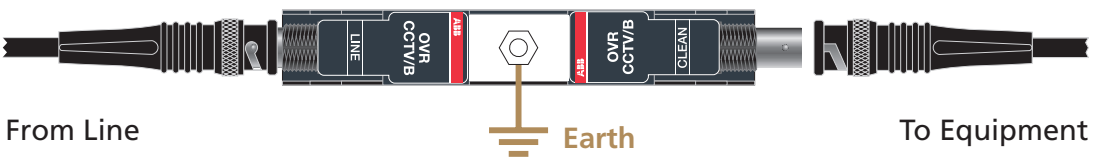


Figure 1: Series connection for OVR CCTV/B, OVR CCTV/B-15V, OVR CCTV/B-30V & OVR CCTV/B-50V.

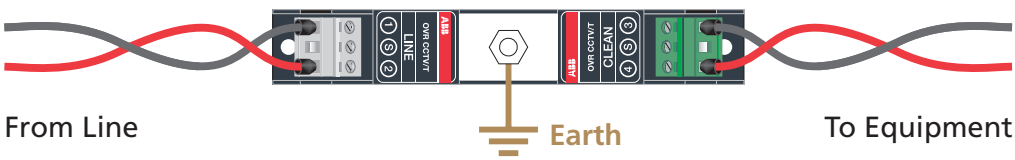


Figure 2: Series connection for OVR CCTV/T, OVR CCTV/T-15V, OVR CCTV/T-30V & OVR CCTV/T-50V.

Figure 3: Base hole flat mounting.

Figure 4: Side hole flat mounting.

Figure 5: Installation on 'top hat' DIN rail.

(a) External cameras

To protect outdoor CCTV cameras the OVR SPD should be mounted in the junction box near the camera.

(b) Central control & monitoring equipment

Equipment inside the building can be protected from transient overvoltages on incoming or outgoing lines by installing OVR SPDs either:

(a) near to where the CCTV video line enters or leaves the building
(b) close to the equipment being protected (or actually within its control panel)

OVR SPD location may be determined by the need to keep its connection to earth (or SPD earth bond) short (see Section 3.8 - Connect to earth).

3.3 Enclose the SPD

OVR SPDs should be installed within a panel or enclosure.

The OVR SPD can be installed either within an existing cabinet/cubicle or in an enclosure to the required IP rating. Suitable enclosures are available from ABB.

OVR SPDs should always be installed in a dry environment.

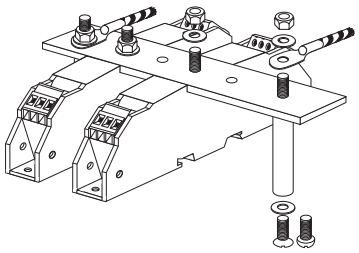


Figure 6: Installation on a CME kit.

Figure 7: Earthing or isolation screw.

3.4 Fixing methods

ABB OVR SPDs can be mounted in one of three ways:

(a) Flat mounting

Fixing holes on the base and sides of the OVR SPD enable small quantities to be screwed to flat surfaces (see Figures 3 and 4).

(b) DIN rail mounting

The OVR SPD has a built-in DIN rail foot for clipping on to 'top hat' DIN rails (see Figure 5).

(c) On a Combined Earthing & Mounting (CME) kit

Accessory CME kits enable groups of OVR SPDs to be simultaneously mounted and earthed. These utilise the SPD's earth stud to connect it to the CME kit's heavy duty copper earth bar (see Figure 6).

3.5 Screen connection

If the screen is 'isolated', it will only be connected to earth during a surge.

(a) OVR CCTV/B (and 15 V, 30 V & 50 V variants)

The OVR CCTV/B is supplied ready for use on systems with an earthed screen. To configure it for use on systems with an isolated screen, remove the metal screw next to the earth stud (see Figure 7).

Replace this with the plastic screw (supplied with the OVR SPD) and the screen will be isolated.

(b) OVR CCTV/T (and 15 V, 30 V & 50 V variants)

If the cable has an isolated screen this should be connected to the terminal marked 'S'.

If the cable screen is earthed, the screen should be connected to the OVR SPD's central earth stud.

... continued overleaf

Contact us

ABB Ltd
Tower Court
Foleshill Enterprise Park
Courtaulds Way
Coventry CV6 5NX
Tel: 0333 999 9900
Fax: 0333 999 9901
E-Mail: LV.Enquiries@gb.abb.com
Twitter: @ABBUKLVP

www.abb.co.uk/lowvoltage

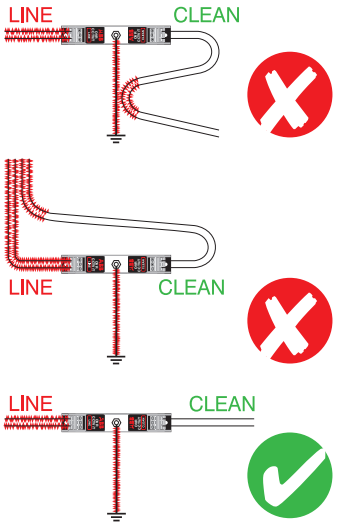


Figure 8:
Cable routeing.

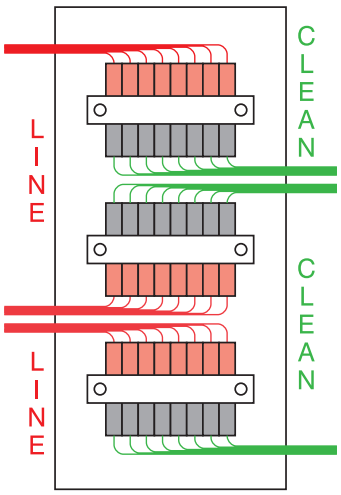
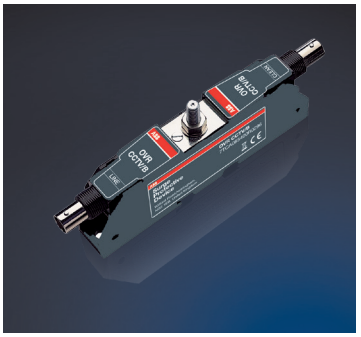


Figure 9:
Positioning of adjacent rows of OVR SPDs.

INSTALLATION INSTRUCTIONS

for CCTV Surge Protection Devices

OVR CCTV Series



3.6 Clean and line connections

(a) OVR CCTV/B (and 15 V, 30 V & 50 V variants)

To install OVR CCTV/B SPDs, divide and terminate the coaxial cable.

The OVR CCTV/B is fitted with female BNC connectors and can easily be connected to the cable.

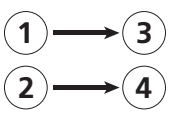
Connect the line end of the OVR CCTV/B to the dirty, incoming cable. Connect the clean end of the OVR CCTV/B to the cable to the protected equipment (see Figure 1, overleaf).

(b) OVR CCTV/T (and 15 V, 30 V & 50 V variants)

Cable wires should be terminated with a bootlace ferrule.

The screw terminals should be tightened between 0.3 and 0.5 Nm (do not exceed 0.5 Nm). Cable stripping length is 6 mm.

The line (grey) terminal of the OVR CCTV/T should be connected to the dirty, incoming cable. The clean (green) terminal of the OVR CCTV/T should be connected to the protected equipment cable (see Figure 2, overleaf). **Hand tighten connections - do not use power driven screwdrivers.**
The input/line and output/clean terminals are paired:



3.7 Keep clean cables away from line (dirty) cables

Cables connected to the OVR SPD's clean end should never be routed next to dirty line cables or dirty SPD earth bonds (see Figure 8).

If rows of OVR SPDs are installed close to each other, dirty line and clean cables must be kept at least 5 cm apart, (see Figure 9).

3.8 Connect to earth

The OVR SPD must be connected to earth, either:

(a) by connecting a crimped earth cable to the SPD's central earth stud, or

(b) through installation on a CME kit (which in turn is connected to earth)

10 mm² stranded green/yellow cable should be used for this bond to earth.

Within the building the earth star point will be the earth bar of the local power distribution board, from where the equipment is supplied (see Figure 10).

For outdoor cameras the OVR SPD should be connected to the power earth (see Figure 11).

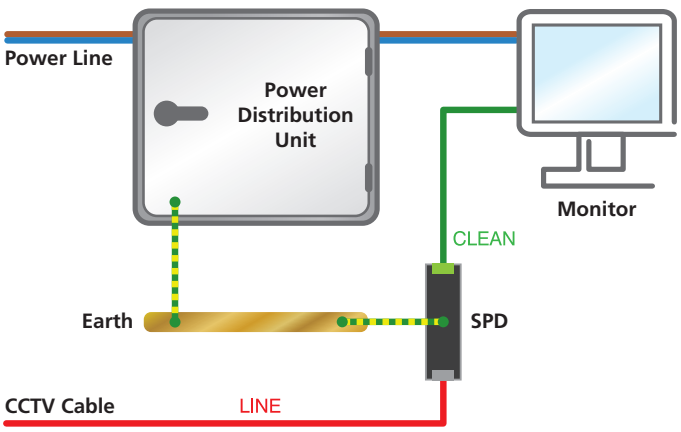


Figure 10:
Within the building the earth star point is usually the local power distribution board.

The OVR SPD should be bonded to the earth star point.

This is the point where all the earths of the system converge.

If the camera is mounted on a metal pole or mast the OVR SPD earth should also be cross- bonded to the pole or mast.

If the OVR SPD is housed in a metal cabinet or cubicle, this should also be bonded to the earth star point.

The OVR SPD to earth bond should be as short as possible and certainly less than 1 metre long (otherwise the effectiveness of the OVR SPD will be reduced).

SPD earth bonds of 2, 3 or 4 metres are allowed if:

- 2, 3 or 4 parallel earth bonds are used and these parallel earth bonds are kept at least 5 cm apart from each other, or
- both the main earth bar and the OVR SPDs are located on a large metal sheet, the SPDs can be bonded to the metal sheet which in turn is bonded to the earth bar

Where even 4 metres of connecting lead is not sufficient, the signal line should be re-routed to bring it within 4 metres of the earth.

Figure 11:
For outdoor installations the OVR SPD should be bonded to the power earth. The CCTV video line and the control line SPDs are connected to the mains power line protector, and hence the power earth, via the CME 4 earth bar. This, in turn, is cross-bonded to the mast or pole.

Environment
Consider the protection of the environment!
Used electrical and electronic equipment must NOT be disposed of with domestic waste. The device contains valuable raw materials which can be recycled. Therefore, contact ABB for disposal of this equipment.