



Main catalogue

# System pro M compact® OVR surge protective devices

# OVR PLUS N1 40 and OVR PLUS N3 40



Residential



Commercial



Industrial



# System pro M compact<sup>®</sup>

## OVR surge protective devices

### Protection against overvoltages

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### OVR surge protective devices

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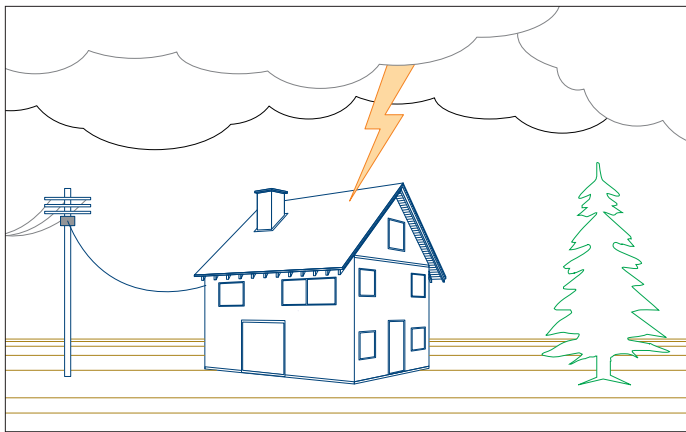
# Protection against overvoltages

## Causes of overvoltages

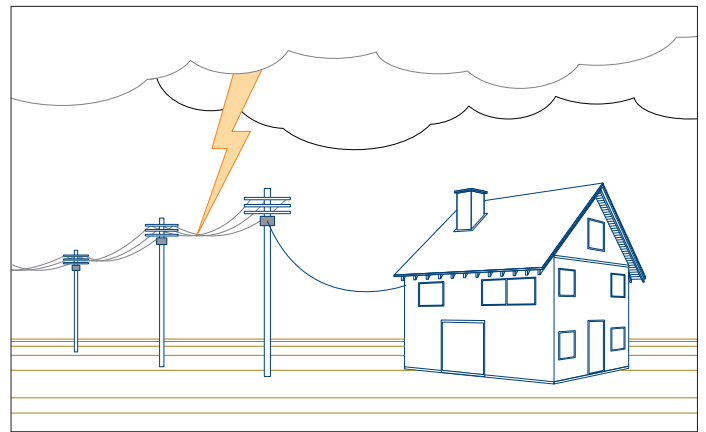
### Overvoltages due to direct lightning strikes

These can take two forms:

- When lightning strikes a lightning conductor or the roof of a building which is earthed, the lightning current is dissipated into the ground. The impedance of the ground and the current flowing through it create large difference of potential: this is the overvoltage. This overvoltage then propagates throughout the building via the cables, damaging equipment along the way.
- When lightning strikes a low voltage overhead cable, it will conduct high intensity currents. These will penetrate the building, also creating high voltages. The damage caused by this type of overvoltage is usually considerable and can have major financial consequences. For example, a fire in the electrical switchboard can destroy industrial equipment and even the building itself.



Direct lightning strike on a lightning conductor or the roof of a building



Direct lightning strike on an overhead line

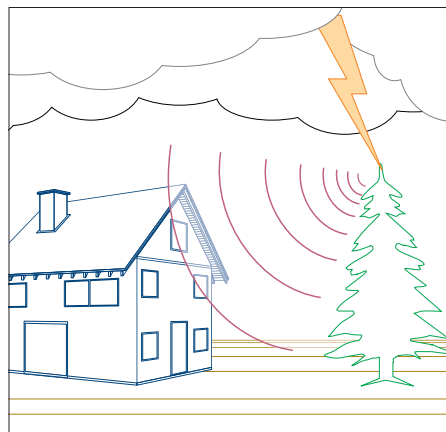
### Overvoltages due to the indirect effects of lightning strikes

The overvoltages mentioned above can also occur when lightning strikes close to a building, due to the increase in potential of the ground at the point of impact.

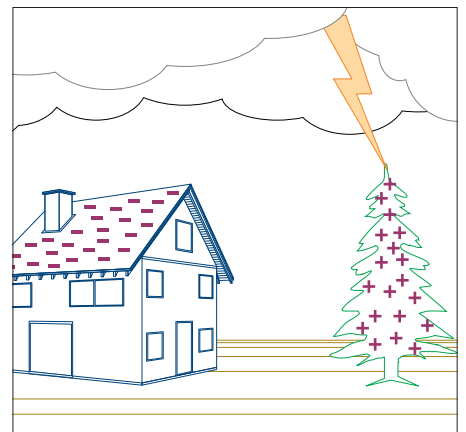
The electromagnetic fields created by the lightning current will generate inductive and capacitive couplings, resulting in other overvoltages. Within a radius of several hundreds of metres, or even several kilometres, the electromagnetic field caused by lightning in the clouds can also create sudden increases in voltage. Although the consequences are less serious than in the previous case, irreparable damage is caused to sensitive pieces of equipment such as fax machines, computer power supplies and safety and communication systems.



Increase in ground potential



Magnetic field



Electrostatic field

# Protection against overvoltages

## Terminology relating to surge protective device characteristics

### Surge protective device:

Device designed to limit transient overvoltages and run-off lightning currents. It consists of at least one non-linear component. It must comply with European standard EN 61643-11.

### 1.2/50 $\mu\text{s}$ wave:

Standardized overvoltage waveform created on networks and which adds to the network's voltage.

### 8/20 $\mu\text{s}$ wave:

Current waveform which passes through equipment when subjected to an overvoltage (low energy).

### 10/350 $\mu\text{s}$ wave:

Current waveform which passes through equipment when subjected to an overvoltage due to a direct lightning strike.

### Type 1 surge protective device:

Surge protective device designed to run-off energy caused by an overvoltage comparable to that of a direct lightning strike. It has successfully passed testing to the standard with the 10/350  $\mu\text{s}$  wave (class I test).

### Type 2 surge protective device:

Surge protective device designed to run-off energy caused by an overvoltage comparable to that of an indirect lightning strike or an operating overvoltage. It has successfully passed testing to the standard with the 8/20  $\mu\text{s}$  wave (class II test).

### $U_p$ :

Voltage protection level.

Parameter characterising surge protective device operation by the level of voltage limitation between its terminals and which is selected from the list of preferred values in the standard. This value is greater than the highest value obtained during voltage limitation measurements (at  $I_n$  for class I and II tests).

### $I_n$ :

Nominal discharge current.

Peak current value of an 8/20  $\mu\text{s}$  waveform (15 times) flowing in the surge protective device. It is used to determine the  $U_p$  value of the surge protective device.

### $I_{scpv}$ :

Short-circuit photovoltaic DC current withstand.

### $I_{max}$ :

Maximum discharge current for class II testing.

Peak current value of an 8/20  $\mu\text{s}$  waveform flowing in the surge protective device with an amplitude complying with the class II operating test sequence.  $I_{max}$  is greater than  $I_n$ .

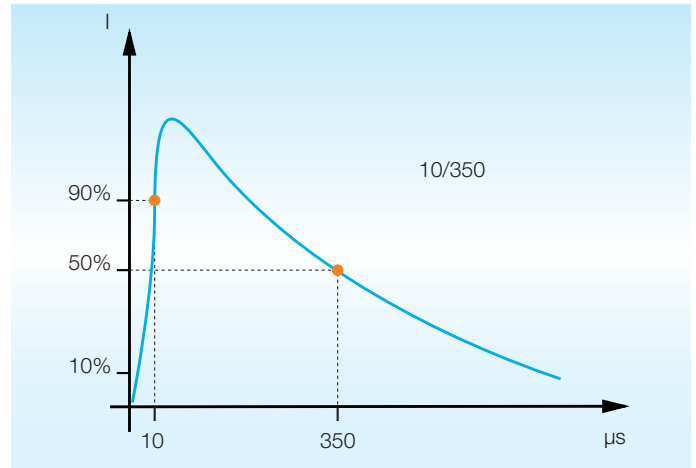
### $I_{imp}$ :

Impulse current for class I testing.

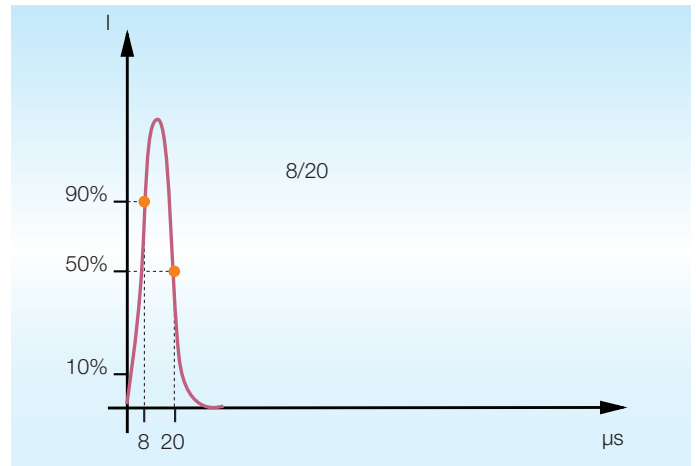
The impulse current  $I_{imp}$  is defined by a peak current  $I_{peak}$  and a charge  $Q$ , and tested in compliance with the operating test sequence. It is used to classify surge protective devices for class I testing (the 10/350  $\mu\text{s}$  wave corresponds to this definition).

### $U_n$ :

Nominal AC voltage of the network : nominal voltage between phase and neutral (AC rms value).



Type 1 Surge Protective devices  
 $I_{imp}$ : current wave



Type 2 Surge Protective Devices  
 $I_{max}$ : current wave

# Protection against overvoltages

## Terminology relating to surge protective device characteristics

**$U_c$ :**  
Maximum continuous operating voltage (IEC 61643-1).  
The maximum r.m.s. or d.c. voltage which may be continuously applied to the SPDs mode of protection. This is equal to the rated voltage.

**$U_{cpv}$ :**  
Maximum continuous operating voltage on specific photovoltaic DC networks.

**$N_g$ :**  
Lightning strike density expressed as the number of ground lightning strikes per km<sup>2</sup> and per year.

**$U_T$ :**  
Temporary overvoltage withstand.  
Behaviour of an SPD when subjected to a temporary overvoltage  $U_T$  for specific time duration  $t_T$

**$I_{fi}$ :**  
Follow current interrupting rating  $I_{fi}$  (kArms).  
It is a parameter for spark-gaps and gas discharge tubes (Type 1 SPDs) and does not concern varistors.  $I_{fi}$  is the rms-value of the follow current, which can be interrupted by the SPD under  $U_c$ . It is the prospective short-circuit current that a SPD is able to interrupt by itself.  $I_{fi}$  of the SPD should be equal to or higher than the prospective short-circuit current at the point of installation ( $I_p$ ). If not, the upstream fuse will melt each time the spark-gap ignites.

**$I_p$ :**  
Prospective short-circuit current of a power supply ( $I_p$ ) (kArms).  
 $I_p$  is the current which would flow at a given location in case of short-circuit at this location.

### Protection in common and/or differential mode

#### Common mode

Overvoltages in common mode concern all neutral point connections. They occur between the live conductors and earth (e.g. phase/earth or neutral/earth). The neutral conductor is a live cable, as well as the phase conductors.

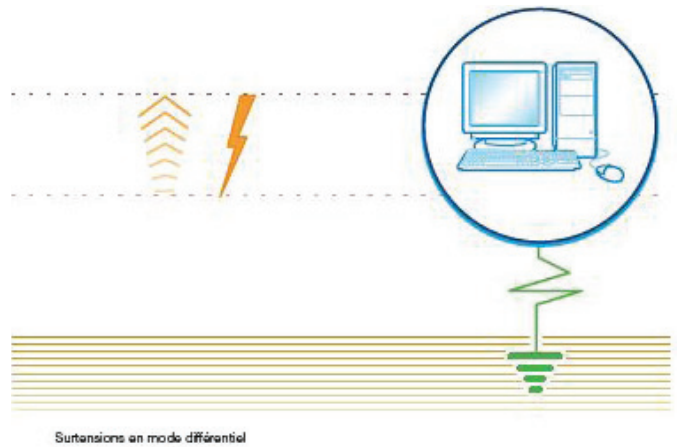
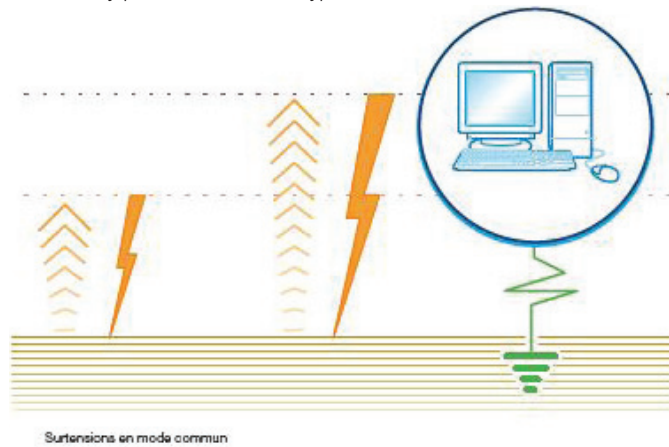
This overvoltage mode destroys not only earthed equipment (Class I), but also non-earthed equipment (Class II) with insufficient electrical insulation (a few kilovolts) located close to an earthed mass.

Class II equipment that is not situated close to an earthed mass is theoretically protected from this type of attack.

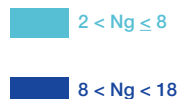
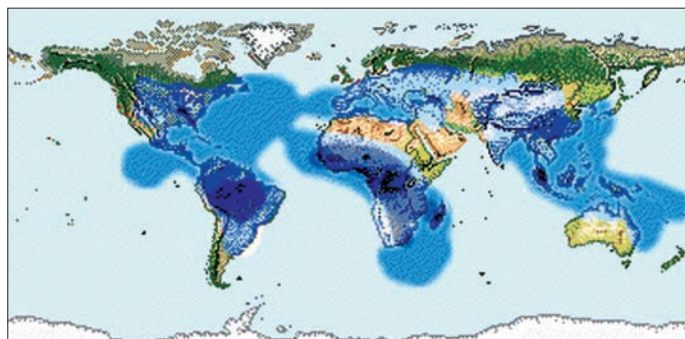
#### Differential mode

Overvoltages in differential mode circulate between the live phase/phase or phase/neutral conductors. They can cause considerable damage to any equipment connected to the electrical network, particularly "sensitive" equipment.

These overvoltages concern TT earthing systems. They also affect TN-S systems if there is a significant difference in length between the neutral cable and the protective cable (PE).



### Keraunic world map



# Protection against overvoltages

## Terminology relating to surge protective device characteristics

### Impulse withstand voltage of equipment

Equipment tolerance levels are classified according to 4 categories (as indicated in the following table) according to IEC 60364-4-44, IEC 60664-1 and IEC 60730-1.

| Categories | $U_n$       |             | Examples   |
|------------|-------------|-------------|--|
|            | 230 / 400 V | 400 / 690 V |  |
| I          | 1500 V      | 2500 V      | Equipment containing particularly sensitive electronic circuits :<br>– computer workstations, computers, TV, HiFi, Video, Alarms, etc;<br>– household appliances with electronic programmers, etc.               |
| II         | 2500 V      | 4000 V      | Domestic electrical equipment with mechanical programmers, portable tools, etc.  |
| III        | 4000 V      | 6000 V      | Distribution panels, switchgear (circuit-breakers, isolators, power socket bases, etc.), ducting and its accessories (cables, busbars, junction boxes, etc.).  |
| IV         | 6000 V      | 8000 V      | Equipment for industrial use and equipment such as fixed motors permanently connected to the fixed installation, Electrical meters, principle overcurrent protection equipment, remote measurement devices, etc. |

Whatever the type of overvoltage protection used, the maximum voltage corresponds to category II.

$U_p \text{ max} = 2500 \text{ V}$  if  $U_n = 230 \text{ V}$ .

However, it should be noted that some equipment requires a particularly low protection level.

E.g. medical equipment, UPSs (with very sensitive electronics)  $U_n < 0.5 \text{ kV}$ .

The protection level  $U_p$  is chosen according to the equipment to be protected.

#### Note:

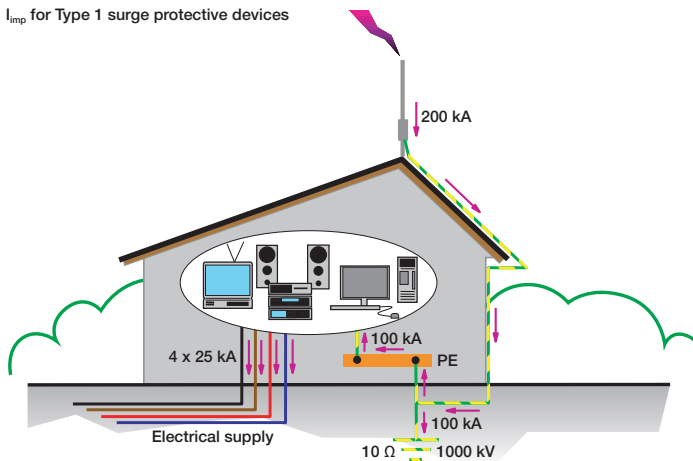
In certain cases, protection components can be integrated into the equipment. In this case, the manufacturer must communicate the type of protection that has been integrated.

### Selection - Choice of $I_{imp}$ and $I_{max}$ of the lightning current surge protective device

The run-off capacity of a surge protective device is determined by its electrical characteristics, and must be chosen according to the level of risk.

The choice of  $I_{imp}$  for Type 1 surge protective device in case of a 200 kA direct lightning strike (around 95% of strikes are less than 200 kA: IEC 62 305-1, Basic values of lightning current parameters), is 25 kA for each power line.

$I_{imp}$  for Type 1 surge protective devices



### ABB recommends a minimum $I_{imp}$ of 25 kA for Type 1 surge protective devices based on the following calculation :

- Prospective direct lightning strike current I: 200 kA (only 1% of discharges > 200 kA).
- Distribution of current within the building: 50 % to ground and 50 % to the electrical network (according to international standards IEC 61 643-12 Annex I-1-2).
- Equal distribution of the current in each of the conductors (3 L + N):

$$I_{imp} = \frac{100 \text{ kA}}{4} = 25 \text{ kA.}$$

### $I_{max}$ for Type 2 surge protective devices

| Optimization of $I_{max}$ for Type 2 surge protective devices |     |                  |                  |           |
|---|-----|------------------|------------------|-----------|
| $N_g$   | < 2 | $2 \leq N_g < 3$ | $3 \leq N_g < 4$ | $4 < N_g$ |
| $I_n$ (kA)  | 5   | 20               | 30               | 60        |
| $I_{max}$ (kA)  | 15  | 40               | 70               | 120       |

#### Note:

ABB defines its Type 2 surge protective devices according to their maximum current ( $I_{max}$ ). For a given  $I_{max}$  value, there is a corresponding nominal current value ( $I_n$ ).

# Protection against overvoltages

## Options and advantages

### End of life indicator of the surge protective device

This option enables indication of the surge protective device's state via a mechanical indicator which changes from white to red as the surge protective device comes to end-of-life. When this occurs, the surge protective device must be changed as protection is no longer guaranteed.

### End-of-life indicator

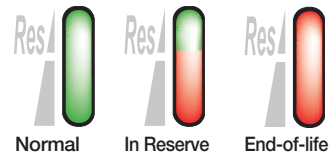


### Safety Reserve (s) system

In case of current surge exceeding the maximum capacity of the device, the surge protective device will switch to the Safety reserve position and the remote indicator (TS) will switch to defect.

Consequently, the user is warned in advance and has more response time to replace the cartridge, because in Safety reserve position the protection is still ensured due to the 2-stage disconnecting system.

### Safety Reserve system



### Pluggable

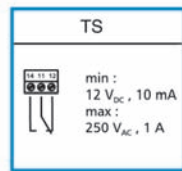
The pluggable feature of ABB surge protective devices facilitates maintenance. Should one or more worn cartridges need to be replaced, the electrical circuit does not have to be isolated nor do the wires have to be removed.

### Remote indication (TS)

This function, achieved by wiring a 3-point 1A volt-free contact, enables the operational state of the surge protective device to be checked remotely (maintenance premises).

### Technical features of the integrated auxiliary contact

- Contact complement: 1 NO (1 normally open contact), 1 NC (1 normally closed contact).
- Min. load: 12 V DC - 10 mA.
- Max. load: 250 V AC - 1 A.
- Connection cross-section: 1.5 mm<sup>2</sup>.



Wiring schematic  
Remote indication contact



Surge protective device fitted with the remote indication option

### NOTE:

A faulty surge protective device does not interrupt continuity of service (if wired such that priority is given to continuity of service), it simply disconnects itself. But, the equipment is no longer protected.



### NOTE:

Pluggable surge protective device cartridges have a foolproof system (Neutral cartridges different to Phase cartridges) preventing incorrect operations when replacing a cartridge.

### pro M compact® range

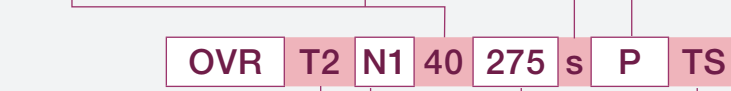
Max. discharge current  $I_{max}$  8/20  
15 kA  
40 kA  
70 kA  
120 kA

Impulse current  $I_{imp}$  10/350  
15 kA  
25 kA

s: with safety reserve

P: pluggable device  
without P: single unit

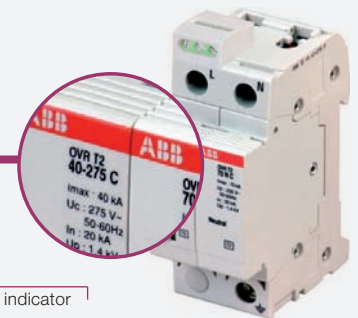
T1: Type 1 SPD  
HL: Type 1 SPD with MOVs  
T2: Type 2 SPD  
PLUS: Autoprotected SPD  
PV: Photovoltaic SPD  
TC: Dataline SPD



System:  
1N: 1 phase (left) - neutral (right)  
3N: 3 phases (left) - neutral (right)  
N1: neutral (left) - 1 phase (right)  
N3: neutral (left) - 3 phases (right)  
3L: 3 poles  
4L: 4 poles  
without: 1 pole

Max. operating voltage  $U_c$   
660 V  
550 V  
440 V  
385 V  
320 V  
275 V  
150 V  
75 V

TS: remote indicator





# Protection against overvoltages

## Coordination principle

After defining the characteristics of the incoming surge protective device, the protection must be completed with one or more additional surge protective devices.

The incoming surge protective device does not provide effective protection for the whole installation by itself. Certain electrical phenomena can double the protection's residual voltage if cable lengths exceed 10 m. Surge protective devices must be coordinated when they are installed (refer to the tables below).

### Required coordination

Coordination is required if the incoming surge protective device cannot achieve the protection voltage ( $U_p$ ) on its own.

### Recommended solution

Use of modular Type 2 OVR surge protective devices.

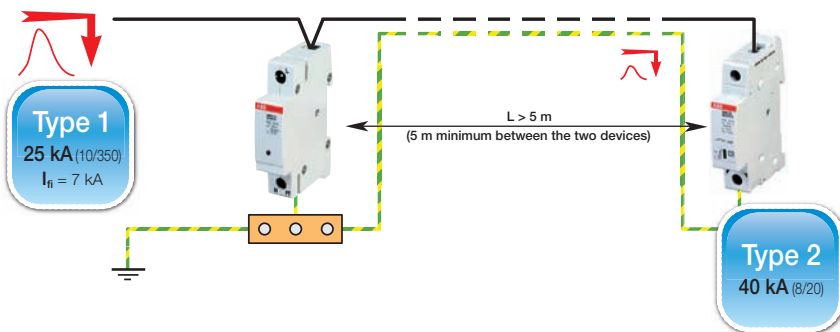
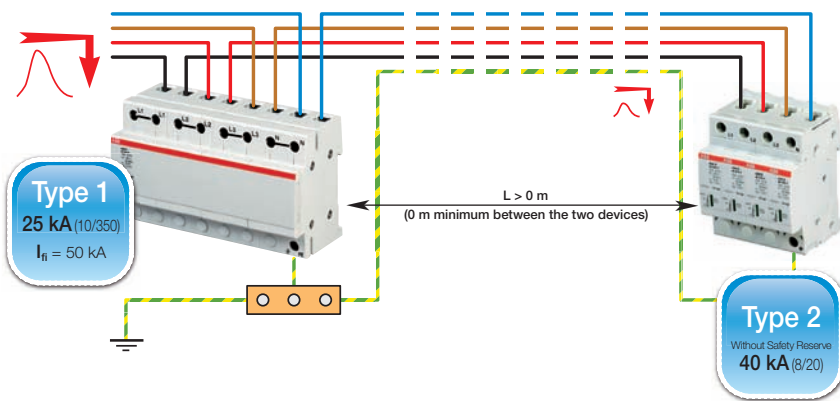
### Note:

The coordination of Type 2 surge protective devices is analysed using their respective maximum discharge currents  $I_{max}$  (8/20) starting from the installation's incoming switchboard and working towards the equipment which is to be protected.

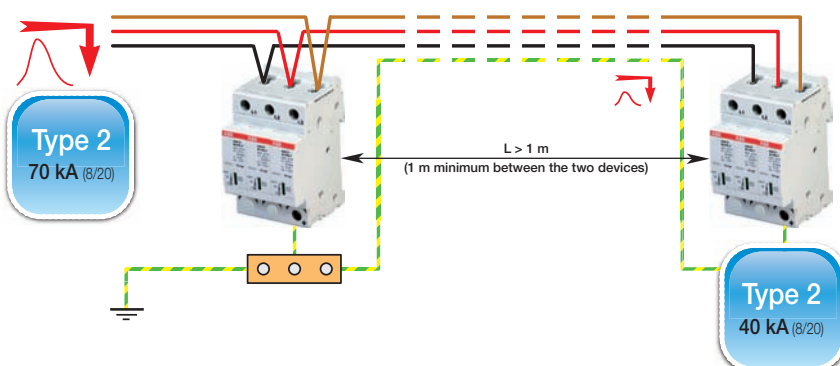
E.g. 70 kA followed by 40 kA.

All Type 2 surge protective devices coordinate with each other by maintaining a minimum distance of 1m between them.

### Coordination between Type 1 and Type 2 surge protective device



### Coordination between Type 2 surge protective devices

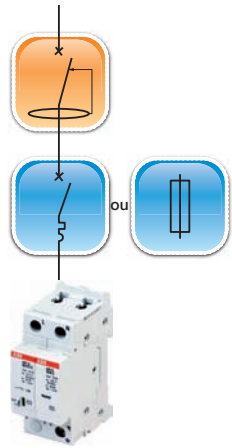


# Protection against overvoltages

## Surge protective device backup protection

### Choice of backup protection

Surge protective devices must be associated with a backup protection and residual current protection against indirect contact (usually already present in the installation).



| Function                            | Application   |
|-------------------------------------|---|
| Protection against indirect contact | <ul style="list-style-type: none"> <li>Differential circuit breaker mandatory for TT systems</li> <li>Differential circuit breaker possible for TN-S, IT and TN-C-5 systems</li> <li>Differential circuit breaker not permitted for TN-C systems</li> </ul> <p>If a differential circuit breaker is used, it is preferable to choose a type S device. There may be a risk of nuisance tripping, which may interrupt the circuit, but it will not make the surge protective device less effective.</p> |
| Protection against fault currents   | <p>The cut-off device associated with the surge protective device can be either a circuit breaker or a fuse.</p> <p>It is designed to take the surge protective device's characteristics into account.</p>  |
| Thermal protection                  | Thermal protection is integrated in the surge protective device.  |

Maximum circuit breaker or fuse protection rating depending on  $I_{max}$  or  $I_{imp}$  of surge protective device and perspective ( $I_p$ ) short circuit current at SPD location .



| Type 1 surge protective devices<br>OVR T1 / OVR T1+2  | Circuit breaker (Curve C) | Fuse (gG)            |
|---|---------------------------|----------------------|
| <b>limp(10/350): 25 kA</b><br>• $I_p = 0.3 \text{ kA to } I_{scw}$  |                           | $\leq 125 \text{ A}$ |
| Type 1+2 surge protective devices<br>OVR T1+2   |                           |                      |
| <b>limp(10/350): 15 kA</b><br>• $I_p = 0.3 \text{ kA to } I_{scw}$  |                           | $\leq 125 \text{ A}$ |
| <b>limp(10/350): 7 kA</b><br>• $I_p = 0.3 \text{ kA to } 2 \text{ kA}$  | $\leq 25 \text{ A}$       | $\leq 16 \text{ A}$  |
| • $I_p = 2 \text{ kA to } 6 \text{ kA}$   | $\leq 32 \text{ A}$       | $\leq 25 \text{ A}$  |
| • $I_p = 6 \text{ kA to } I_{scw}$  | $\leq 50 \text{ A}$       | $\leq 50 \text{ A}$  |
| Type 2 surge protective devices<br>OVR T2 pluggable or T2 & T3 non pluggable  |                           |                      |
| <b><math>I_{max}(8/20): 10 \text{ kA}, 15 \text{ kA}, 40 \text{ kA}, 70 \text{ kA or } 120 \text{ kA}</math></b><br>• $I_p = 0.3 \text{ kA to } 2 \text{ kA}$ | $\leq 25 \text{ A}$       | $\leq 16 \text{ A}$  |
| • $I_p = 2 \text{ kA to } 6 \text{ kA}$   | $\leq 32 \text{ A}$       | $\leq 25 \text{ A}$  |
| • $I_p = 6 \text{ kA to } I_{scw}$  | $\leq 50 \text{ A}$       | $\leq 50 \text{ A}$  |
| Type 2 surge protective devices<br>OVR T2 non pluggable   |                           |                      |
| <b><math>I_{max}(8/20): 15 \text{ kA or } 40 \text{ kA}</math></b><br>• $I_p = 0.3 \text{ kA to } I_{scw}$  | $\leq 50 \text{ A}$       | $\leq 50 \text{ A}$  |

Possible MCB's: Series S 941 N, SN 200, S 200 L, S 200 / S 200 M, and series S 200 P / S 500 / S 800.

$I_p$ : perspective short circuit at SPD location.

$I_{scw}$ : surge protective device's short circuit withstand capability.

# Application

## Auto-protected surge protective devices: the OVR PLUS family

### OVR PLUS N3 15 and OVR PLUS N3 40 for commercial and industrial applications

**NEW**



**Auto-protected**

Backup miniature circuit breaker integrated and fully coordinated with the surge protective device.

**Easy installation**

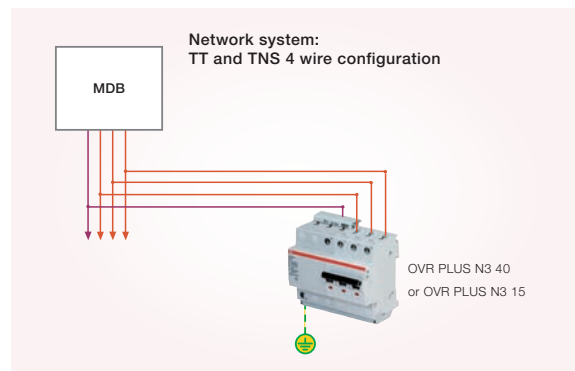
Fully coordinated unit with easy wiring with the complete ABB pro M modular range.

**High discharge capacity**

With  $I_{max}$  15 and 40 kA the OVR Plus N3 insure the protection of your low voltage installations and electric equipment.

**High reliability**

No welding inside the module and specific thermal disconnection with the "bilame" sensor.



### OVR PLUS N1 40 for residential applications



**Auto-protected**

Backup miniature circuit breaker integrated and fully coordinated with the surge protective device.

**Compact**

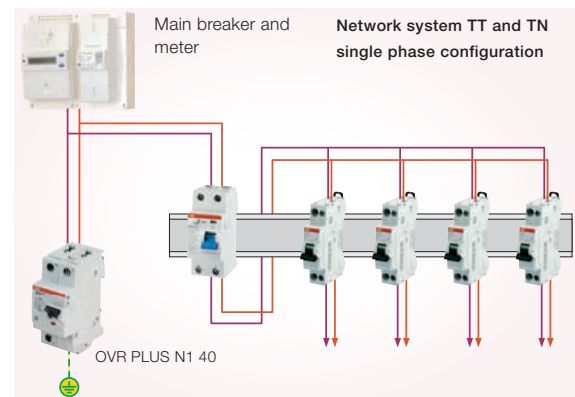
Only two modules (36 mm width), means more space and easy wiring with the complete ABB DIN rail range.

**High discharge capacity**

With  $I_{max}$  40 kA the OVR PLUS N1 can protect your electric equipment against high surges.

**High reliability**

No welding inside the module and specific thermal disconnection.



# OVR Type 1

## Spark gap surge protective devices



|                           |   |  |
|---------------------------|---|--|
| <b>TECHNICAL FEATURES</b> | <b>Type 1</b>   |  |
|                           | <b>OVR T1 <span style="color: blue;">■</span> 25 <span style="color: orange;">■</span> TS</b> |  |
| Technology                | <b>Triggered spark-gap</b>  |  |

### Electrical features

|   |  |   |   |  |  |  |
|---|--|---|---|--|--|--|
| Standard  | IEC 61643-1 / EN 61643-11              |   |   |  |  |  |
| Type / test class                                     | T1 / I                                 |   |   |  |  |  |
| Number of modules                                     | 1P <span style="color: blue;">■</span> | 1P <span style="color: blue;">■</span> , 2P <span style="color: blue;">■</span> | 3P <span style="color: blue;">■</span>  | 4P <span style="color: blue;">■</span> | 1P+N <span style="color: blue;">■</span> | 3P+N <span style="color: blue;">■</span> |
| Network   | IT-TNS-TNC                             | TNS-TNC   | TNC                                     | TNS                                    | TT - TNS                                 | TT - TNS                                 |
| Type of current                                       | AC                                     |   |   |  |  |  |
| Nominal voltage $U_n$                                 | V                                      | 400   | 230                                     | 230                                    | 230                                      | 230                                      |
| Max. cont. operating voltage $U_c$                    | V                                      | <span style="color: orange;">440</span>   | <span style="color: orange;">255</span> |  | 255                                      | 255                                      |
| Impulse current $I_{imp}$ (10/350 $\mu$ s) per pole   | kA                                     | 25  | 25                                      | 25                                     | 25                                       | 25                                       |
| Impulse current $I_{imp}$ (10/350 $\mu$ s) (PE)       | kA                                     | 25  | 25                                      | 25                                     | 25 / 50                                  | 25 / 100                                 |
| Maximum discharge current $I_{max}$ (8/20 $\mu$ s)    | kA                                     | -   | -                                       | -                                      | -  | -  |
| Nominal discharge current $I_n$ (8/20 $\mu$ s)        | kA                                     | 25  | 25                                      | 25                                     | 25                                       | 25                                       |
| Voltage protection level under $I_n$ $U_p$ (L-N/N-PE) | kV                                     | 2   | 2.5                                     | 2.5                                    | 2.5 / 2                                  | 2.5 / 2                                  |
| Follow current interrupting rating $I_f$              | kArms                                  | 50  | 50                                      | 50                                     | 50                                       | 50                                       |
| Temporary overvoltage (TOV) $U_t$ (L-N: 5 s)          | V                                      | 690   | 400                                     |  | 400                                      | 400                                      |
| Temporary overvoltage (TOV) $U_t$ (N-PE: 200 ms)      | V                                      | -   | -                                       |  | 1200                                     | 1200                                     |
| Operating current $I_c$                               | mA                                     | None  |   |  |  |  |
| Short-circuit withstand at $I_n$                      | kArms                                  | 50  |   |  |  |  |
| Load current $I_{load}$ (for V-wiring)                | A                                      | 125   |   |  |  |  |
| Maximum back-up fuse gG/gL                            |  | -   |   |  |  |  |
| Parallel Connection                                   | A                                      | $\leq 125$  |   |  |  |  |
| Serial Connection (V-wiring)                          | A                                      | $\leq 125$  |   |  |  |  |

### Mechanical features

|                                    |              |                  |  |  |  |  |
|------------------------------------|--------------|------------------|--|--|--|--|
| Stocking and operating temperature | $^{\circ}$ C | -40 to +80       |  |  |  |  |
| Degree of protection               |              | IP 20            |  |  |  |  |
| Fire resistance according to UL 94 |              | V0               |  |  |  |  |
| State indicator                    |              | Option (with TS) |  |  |  |  |
| TS remote indicator                |              | Option (TS)      |  |  |  |  |

### Installation

|                              |                 |            |  |  |  |  |
|------------------------------|-----------------|------------|--|--|--|--|
| Wire range (L, N, PE)        |                 |            |  |  |  |  |
| solid wire                   | mm <sup>2</sup> | 2.5 ... 50 |  |  |  |  |
| stranded wire                | mm <sup>2</sup> | 2.5 ... 35 |  |  |  |  |
| Stripping length (L, N, PE)  | mm              | 15         |  |  |  |  |
| Tightening torque (L, N, PE) | Nm              | 3.5        |  |  |  |  |

## TECHNICAL FEATURES OF THE INTEGRATED AUXILIARY CONTACT (TS)

### Electrical features

|                              |    |  |  |  |  |  |
|------------------------------|----|--|--|--|--|--|
| Contact complement           |    | 1NO (1 normally open contact),<br>+1NC (1 normally closed contact) |  |  |  |  |
| Min. load                    |    | 6 V DC - 10 mA   |  |  |  |  |
| Max. load                    |    | 250 V AC - 5 A   |  |  |  |  |
| Continuous operating current | mA | 10   |  |  |  |  |

### Installation

|                          |                 |     |  |  |  |  |
|--------------------------|-----------------|-----|--|--|--|--|
| Connection cross-section | mm <sup>2</sup> | 1.5 |  |  |  |  |
|--------------------------|-----------------|-----|--|--|--|--|

# OVR T1 & Type 1+2

## Spark gap and varistors surge protective devices



|  |  |   |  |  |
|--|--|---|--|--|
|  | <b>Type 1</b>  | <b>Type1+2</b>  | <b>Type 1+2</b>  | <b>Type 1+2</b>  |
|  | <b>OVR T1</b> <span style="background-color: #0070C0; color: white; padding: 2px;">25</span> 255-7 | <b>OVR T1+2</b> <span style="background-color: #0070C0; color: white; padding: 2px;">25</span> 255 TS | <b>OVR T1+2</b> <span style="background-color: #0070C0; color: white; padding: 2px;">15</span> 255-7 | <b>OVR T1+2</b> <span style="background-color: #0070C0; color: white; padding: 2px;">7</span> 275s P |
|  | Triggered spark-gap  | Triggered spark-gap/varistor  | Triggered spark-gap  | Varistor   |

| IEC 61643-1 / EN 61643-11  |   | IEC 61643-1 / EN 61643-11 |     | IEC 61643-1 / EN 61643-11  |   | IEC 61643-1 / EN 61643-11  |   |   |   |   |
|--|---|---------------------------|-----|--|---|--|---|---|---|---|
| T1 / I   |   | T1/I                      |     | T1 / I   |   | T1 / I   |   |   |   |   |
| 1P <span style="background-color: #0070C0; color: white; padding: 2px;">-</span> | 3P+N <span style="background-color: #0070C0; color: white; padding: 2px;">3N</span> |                           |     | 1P <span style="background-color: #0070C0; color: white; padding: 2px;">-</span> | 3P+N <span style="background-color: #0070C0; color: white; padding: 2px;">3N</span> | 1P <span style="background-color: #0070C0; color: white; padding: 2px;">-</span> | 3P <span style="background-color: #0070C0; color: white; padding: 2px;">3L</span> | 4P <span style="background-color: #0070C0; color: white; padding: 2px;">4L</span> | 1P+N <span style="background-color: #0070C0; color: white; padding: 2px;">1N</span> | 3P+N <span style="background-color: #0070C0; color: white; padding: 2px;">3N</span> |
| TT*-TNS-TNC  | TT - TNS  | TT* - TNS - TNC           |     | TT*-TNS-TNC  | TT - TNS  | TT*-TNS-TNC  | TNC   | TNS   | TT - TNS  | TT - TNS  |
| AC   |   | AC                        |     | AC   |   | AC   |   |   |   |   |
| 230  | 230/400   | 230                       | 230 | 230  | 230/400   | 230  | 230/400   | 230   | 230   | 230/400   |
| 255  | -   | 255                       | 255 | 255  | -   | 275  |   | 275   | 275   | 275 / 255   |
| 25   | -   | 25                        | 25  | 15   | -   | 7  |   |   | -   | -   |
| -  | 25 / 100  | -                         | -   | -  | 15 / 50   | -  |   |   | 7 / 12  | 7 / 12  |
| -  | -   | 40                        | 40  | 60   | -   | 70   |   |   | -   | -   |
| 25   | -   | 25                        | 25  | 15   | -   | 6  |   |   | -   | -   |
| -  | 2.5 / 1.5   | -                         | -   | -  | 1.5 / 1.5   | -  |   |   | 0.9 / 1.4   | 0.9 / 1.5   |
| 7  | 7   | 15                        | 15  | 7  | 7   | -  |   |   | -   | -   |
| 650  | 650   | 334                       | 334 | 650  | 650   | 334  |   |   | -   | 334   |
| -  | 1200  | -                         | -   | -  | 1200  | -  |   |   | -   | 1200  |
| < 2 (LED)  |   | < 1 (Varistor leakage)    |     | < 2 (LED)  |   | < 1  |   |   |   |   |
| 50   |   | 50                        |     | 50   |   | 50   |   |   |   |   |
| -  |   | 125                       |     | -  |   | -  |   |   |   |   |
| ≤125   |   | ≤125                      |     | ≤125   |   | ≤50  |   |   |   |   |
| NA   |   | 125                       |     | NA   |   | NA   |   |   |   |   |
| -40 to +80   |   | -40 to +80                |     | -40 to +80   |   | -40 to +80   |   |   |   |   |
| IP 20  |   | IP 20                     |     | IP 20  |   | IP 20  |   |   |   |   |
| V0   |   | V0                        |     | V0   |   | V0   |   |   |   |   |
| Yes  |   | Yes                       |     | Yes  |   | Yes  |   |   |   |   |
| No   |   | Yes                       |     | No   |   | No   |   |   |   |   |
| 2.5 ... 50   |   | 2.5 ... 50                |     | 2.5 ... 50   |   | 2.5 ... 25   |   |   |   |   |
| 2.5 ... 35   |   | 2.5 ... 35                |     | 2.5 ... 35   |   | 2.5 ... 16   |   |   |   |   |
| 15   |   | 15                        |     | 15   |   | 12.5   |   |   |   |   |
| 3.5  |   | 3.5                       |     | 3.5  |   | 2.8  |   |   |   |   |

|   |                                  |   |   |
|---|----------------------------------|---|---|
| - | 1NO (1 normally open contact),   | - | - |
| - | +1NC (1 normally closed contact) | - | - |
| - | 12 V DC - 10 mA                  | - | - |
| - | 250 V AC - 1 A                   | - | - |
| - | None                             | - | - |

|   |     |   |   |
|---|-----|---|---|
| - | 1.5 | - | - |
|---|-----|---|---|

# OVR Type 2

## Single pole and multi-pole surge protective devices



| TECHNICAL FEATURES                                       | Type 2 (pluggable)   |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
|--|--|---|---|---|--------------------------------------|---|---|---|---|------------|------|---------|---------|----------|
|  | OVR T2 <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:orange">■</span> (s) P (TS) |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Technology   | Varistor   |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| <b>Electrical features</b>                               | IEC 61643-1 / EN 61643-11  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Standard   | T2 / II  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Type / test class  | T2 / II  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Number of modules  | 1P <span style="color:blue">■</span>   | 3P <span style="color:blue">■</span> <span style="color:green">■</span> | 4P <span style="color:blue">■</span> <span style="color:green">■</span> | 3P+N <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:orange">■</span> | 1P <span style="color:blue">■</span> | 3P <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:orange">■</span> | 4P <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:orange">■</span> | 1P+N <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:orange">■</span> | 3P+N <span style="color:blue">■</span> <span style="color:green">■</span> <span style="color:orange">■</span> |            |      |         |         |          |
| Network  | IT - TN  | IT - TN   | TT - TN   | TNC - TNS   | TNC                                  | TNS   | TT-TNS  | TT-TNS  |   |            |      |         |         |          |
| Type of current  | AC   |   |   | AC  |                                      |   | AC  |   |   | AC         |      |         |         |          |
| Nominal voltage $U_n$                                    | 400  |   |   | 400   |                                      |   | 230   |   |   | 230        |      |         |         |          |
| Max. cont. operating voltage $U_c$                       | 440  |   |   | 440   |                                      |   | 275   |   |   | 275        |      |         |         |          |
| Maximum discharge current $I_{max}$ (8/20 $\mu$ s)       | 15   | 40  | 70  | 40  | 70                                   | 15  | 40  | 70  | 15  | 40         | 70   |         |         |          |
| Nominal discharge current $I_n$ (8/20 $\mu$ s)           | 5  | 20  | 30  | 20  | 30                                   | 5   | 20  | 30  | 5   | 20         | 30   |         |         |          |
| Voltage protection level under $I_n$ (L-N/N-PE)          | -  | -   | -   | -   | -                                    | 1.5/1.4   | 1.9/1.4   | 2/1.4   | -   | -          | -    | 1/1.4   | 1.4/1.4 | 1.5/1.4  |
| Voltage protection level under 3 kA $U_{res}$ (L-N/N-PE) | 1.4  | 1.4   | 1.3   | 1.4   | 1.3                                  | 1.4/1.2   | 1.4/1.2   | 1.3/1.2   | 0.9   | 0.9        | 0.85 | 0.9/1.2 | 0.9/1.2 | 0.85/1.2 |
| Follow current interrupting rating $I_f$                 | -  |   |   | -   |                                      |   | -   |   |   | -          |      |         |         |          |
| Temporary overvoltage (TOV) $U_t$ (L-N: 5 s)             | 440  | 440   | 440   | 440   | 440                                  | 334   | 334   | 334   | 334   | 334        | 334  |         |         |          |
| Temporary overvoltage (TOV) $U_t$ (N-PE: 200 ms)         | -  |   |   | -   |                                      |   | 440 / 1200  |   |   | 334 / 1200 |      |         |         |          |
| Continuous operating current $I_c$                       | < 1  |   |   | < 1   |                                      |   | < 1   |   |   | < 1        |      |         |         |          |
| Short-circuit withstand capability                       | 50   |   |   | 50  |                                      |   | 50  |   |   | 50         |      |         |         |          |
| Disconnectors  |  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| gG -gL fuse  | A  | $\leq 50$   |   | $\leq 50$   |                                      | $\leq 50$   |   | $\leq 50$   |   | $\leq 50$  |      |         |         |          |
| curve C circuit breaker                                  | A  | $\leq 50$   |   | $\leq 50$   |                                      | $\leq 50$   |   | $\leq 50$   |   | $\leq 50$  |      |         |         |          |
| <b>Mechanical features</b>                               |  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Stocking and operating temperature                       | °C -40 to +80  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Degree of protection                                     | IP 20  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Fire resistance according to UL 94                       | V0   |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Pluggable cartridge                                      | Yes  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Integrated thermal disconnecter                          | Yes  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| State indicator  | Yes  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Safety reserve   | Option (s)   |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| TS remote indicator                                      | Option (TS)  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| <b>Installation</b>                                      |  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Wire range (L, N, $\neq$ )                               |  |   |   |   |                                      |   |   |   |   |            |      |         |         |          |
| solid wire   | mm <sup>2</sup>  | 2.5 ... 25  |   |   |                                      |   |   |   |   |            |      |         |         |          |
| stranded wire  | mm <sup>2</sup>  | 2.5 ... 16  |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Stripping length (L, N, $\neq$ )                         | mm   | 12.5  |   |   |                                      |   |   |   |   |            |      |         |         |          |
| Tightening torque (L, N, $\neq$ )                        | Nm   | 2.8   |   |   |                                      |   |   |   |   |            |      |         |         |          |

### TECHNICAL FEATURES OF THE INTEGRATED AUXILIARY CONTACT (TS)

| Electrical features          |  |
|------------------------------|--|
| Contact complement           | 1NO (1 make contact), +1NC (1 normally closed contact) |
| Min. load                    | 12 V DC - 10 mA  |
| Max. load                    | 250 V AC - 1 A   |
| Continuous operating current | mA None  |
| Installation                 |  |
| Connection cross-section     | mm <sup>2</sup> 1.5                                    |

# OVR T2 & OVR TC

## Non pluggable and dataline surge protective devices



| Type 2 (non pluggable)<br>OVR T2 <span style="color: blue;">■</span> <span style="color: green;">■</span> 275<br>Varistor |            |                                       | Telecom / Dataline<br>OVR TC <span style="color: orange;">■</span> VP |  |  |  |   |   |
|---|------------|---------------------------------------|---|--|--|--|---|---|
| IEC 61643-1/EN 61643-11   |            |                                       | IEC 61643-21  |  |  |  |   |   |
| T2 / II   |            |                                       | TC  |  |  |  |   |   |
| 1P <span style="color: blue;">■</span>  |            |                                       | 1 pair  |  |  |  |   |   |
| TNC - TNS   |            |                                       | Dataline / Telecom  |  |  |  |   |   |
| AC  |            |                                       | DC  |  |  |  |   |   |
| 230   |            | 230/400                               | <span style="color: orange;">6</span>                                 | <span style="color: orange;">12</span> | <span style="color: orange;">24</span> | <span style="color: orange;">48</span> | <span style="color: orange;">200</span> | <span style="color: orange;">200FR</span> |
|   | 275        |                                       | 7   | 14                                     | 27                                     | 53                                     | 220                                     | 220                                       |
| <span style="color: green;">15</span>   |            | <span style="color: green;">40</span> | 10  |  |  |  |   |   |
| 5   |            | 20                                    | 5   |  |  |  |   |   |
| 1   |            | 1.4                                   | 15  | 20                                     | 35                                     | 70                                     | 700                                     | 400                                       |
| -   |            | -                                     |   |  |  |  |   |   |
|   | NA         |                                       | -   |  |  |  |   |   |
|   | 334        |                                       | -   |  |  |  |   |   |
|   | -          |                                       | -   |  |  |  |   |   |
|   | < 1        |                                       | 140   |  |  |  |   |   |
|   | 50         |                                       | -   |  |  |  |   |   |
|   | ≤50        |                                       | -   |  |  |  |   |   |
|   | ≤50        |                                       | -   |  |  |  |   |   |
|   | -40 to +80 |                                       | -40 to +80  |  |  |  |   |   |
|   | IP 20      |                                       | IP 20   |  |  |  |   |   |
|   | V0         |                                       | V0  |  |  |  |   |   |
|   | No         |                                       | Yes   |  |  |  |   |   |
|   | Yes        |                                       | Yes   | Yes                                    | Yes                                    | Yes                                    | No                                      | Yes                                       |
|   | Yes        |                                       | No  |  |  |  |   |   |
|   | No         |                                       | No  |  |  |  |   |   |
|   | No         |                                       | No  |  |  |  |   |   |
|   | 2.5 ... 25 |                                       | 0.5 ... 2.5   |  |  |  |   |   |
|   | 2.5 ... 16 |                                       | 0.5 ... 2.5   |  |  |  |   |   |
|   | 12.5       |                                       | -   |  |  |  |   |   |
|   | 2.8        |                                       | -   |  |  |  |   |   |
|   | -          |                                       | -   |  |  |  |   |   |
|   | -          |                                       | -   |  |  |  |   |   |
|   | -          |                                       | -   |  |  |  |   |   |
|   | -          |                                       | -   |  |  |  |   |   |
|   | -          |                                       | -   |  |  |  |   |   |

# OVR PLUS & OVR PV

## Auto-protected and specific PV surge protective devices

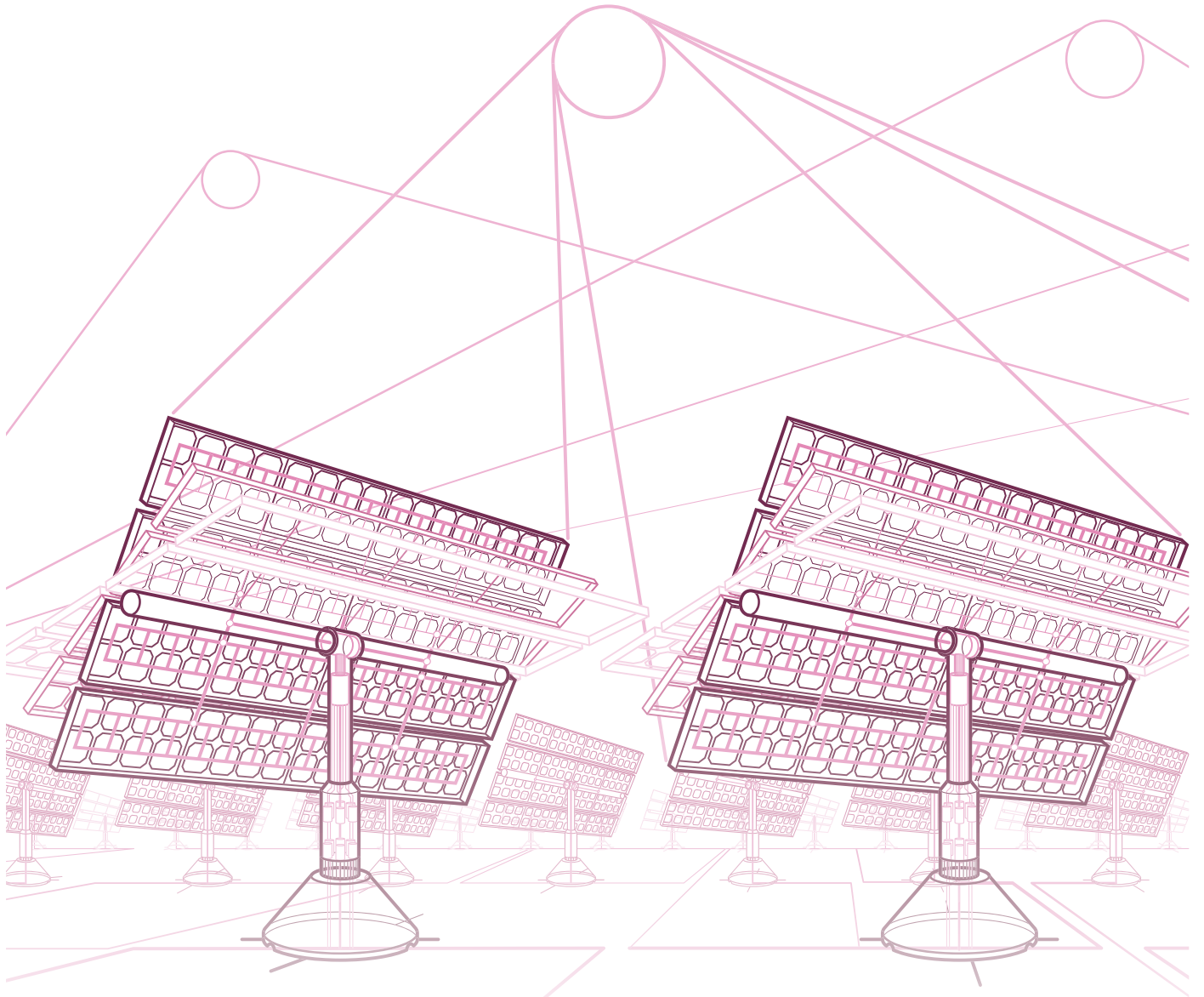


| TECHNICAL FEATURES                                       | Type 2 (non pluggable)                       |                |                | Type 2 Photovoltaic                     |            |
|--|--|----------------|----------------|---|------------|
|  | OVR PLUS N1 40                               | OVR PLUS N3 15 | OVR PLUS N3 40 | OVR PV                                  | P (TS)     |
| Technology   |  |                |                | Varistor                                |            |
| <b>Electrical features</b>                               |  |                |                |   |            |
| Standard   | IEC 61643-1/IEC 61643-11                     |                |                | IEC 61643-1/EN 61643-11/ UTE C 61740-51 |            |
| Type / test class  | T2 / II                                      |                |                | T2 / II                                 |            |
| Poles  | 2  | 6              |                | 3                                       |            |
| Types of networks  | TT - TNS                                     |                |                | Photovoltaic                            |            |
| Type of current  | AC   |                |                | DC                                      | DC         |
| Nominal voltage $U_n$ (L-N/L-L)                          | 230  |                |                | 600                                     | 1000       |
| Max. cont. operating voltage $U_c$                       | 320  |                |                | -                                       | -          |
| Max. cont. PV operating voltage $U_{cpv}$                |  |                |                | 670                                     | 1000       |
| Maximum discharge current $I_{max}$ (8/20 $\mu$ s)       | 40   | 15             | 40             | 40                                      | 40         |
| Nominal discharge current $I_n$ (8/20 $\mu$ s)           | 20   | 5              | 20             | 20                                      | 20         |
| Voltage protection level under $I_n$ (L-N/N-PE) $U_p$    | 1.6 / 1.5                                    | 1.3 / 1.5      | 2 / 1.5        | 2.8 / 1.4                               | 3.8        |
| Voltage protection level under 3 kA (L/N-N/PE) $U_{res}$ | 1 / 0.6                                      | 1.1 / 1        | 1.1 / 1        |   |            |
| Follow current interrupting rating $I_f$                 | kArms NA                                     |                |                | -                                       | -          |
| Temporary overvoltage (TOV) $U_t$ (L-N: 5 s)             | V -  |                |                | -                                       | -          |
| Temporary overvoltage (TOV) $U_t$ (N-PE: 200 ms)         | V -  |                |                | -                                       | -          |
| Operating current  | mA < 1                                       |                |                | < 0.05                                  | < 0.05     |
| Short-circuit withstand capability at $I_n$              | kArms 15                                     | 10             | 15             | -                                       | -          |
| Short-circuit DC current withstand $I_{scwpv}$           | A -  |                |                | 100                                     | 100        |
| Disconnecter   | Integrated MCB                               |                |                | If $I_{scwpv} > 100$ A                  |            |
| gG -gL fuse  | A -  |                |                | E90PV - 10 A                            | E90PV-10 A |
| curve C circuit breaker                                  | A -  |                |                | S802PV-S10                              | S804PV-S10 |
| <b>Mechanical features</b>                               |  |                |                |   |            |
| Temperature  |  |                |                |   |            |
| Stocking   | °C -40 to +70                                |                |                | -40 to +80                              |            |
| Operating  | °C -25 to +55                                |                |                | -40 to +80                              |            |
| Degree of protection                                     |  |                |                | IP 20                                   |            |
| Fire resistance according to UL 94                       |  |                |                | V0                                      |            |
| Pluggable cartridge                                      |  |                |                | No                                      |            |
| Integrated thermal disconnecter                          |  |                |                | Yes                                     |            |
| State indicator  |  |                |                | Yes                                     |            |
| Safety reserve   |  |                |                | No                                      |            |
| TS remote indicator                                      | Optional (S2C-H6R)<br>ABB<br>2CDS200912R0001 |                |                | No                                      |            |
| <b>Installation</b>                                      |  |                |                |   |            |
| Wire range (L, N, $\neq$ )                               |  |                |                |   |            |
| solid wire   | mm <sup>2</sup>                              |                |                | 2.5 ... 25                              |            |
| stranded wire  | mm <sup>2</sup>                              |                |                | 2.5 ... 16                              |            |
| Stripping length (L, N, $\neq$ )                         | mm   | 11             |                | 12.5                                    |            |
| Tightening torque (L, N, $\neq$ )                        | Nm   |                |                | 2.8                                     |            |

### TECHNICAL FEATURES OF THE INTEGRATED AUXILIARY CONTACT (TS)

| Electrical features          |                   |
|------------------------------|-------------------|
| Contact complement           | -                 |
| Min. load                    | -                 |
| Max. load                    | -                 |
| Continuous operating current | mA -              |
| Installation                 |                   |
| Connection cross-section     | mm <sup>2</sup> - |





# OVR Surge protective devices

## Selection tables

**T1**

### Surge Protective Devices, Type 1 / Type 1+2

**Function:** Type 1 and Type 1+2 surge protective devices are designed to discharge high current surges without any destruction of the installation. These surge protective devices are characterized by their capacity to withstand impulse current with 10/350  $\mu$ s wave form which simulate natural lightning current.

Type 1+2 ABB surge protective devices have a high impulse current withstand capacity with ensuring a low protection level ( $U_p$ ).

Type 1 and Type 1+2 SPDs can be installed at the entrance in the main switch board for a global protection of the electrical installation.

**Application:** residential, commercial, industrial

**Standard:** IEC 61643-1 / EN 61643-11

| Nb. of poles | Impulse current<br>10/350 $\mu$ s<br>kA | Follow current<br>interrupting<br>kA <sub>rms</sub> | Voltage protection level<br>$U_p$<br>kV | Nominal voltage<br>$U_n$<br>V | Max. cont. operating voltage<br>$U_c$<br>V | Order details<br><br>Type code | Order code | Bbn<br>3660308 | Price<br>1 piece | Price group | Weight<br>kg | Pack<br>1 piece unit<br>pc. |
|--------------|---|---|---|-------------------------------|--|--------------------------------|------------|----------------|------------------|-------------|--------------|-----------------------------|
|--------------|---|---|---|-------------------------------|--|--------------------------------|------------|----------------|------------------|-------------|--------------|-----------------------------|

#### Type 1 ( $I_{fi} = 50$ kA)

##### TNS, TNC, TT\*

|   |    |    |     |     |     |                      |                 |               |  |  |      |   |
|---|----|----|-----|-----|-----|----------------------|-----------------|---------------|--|--|------|---|
| 1 | 25 | 50 | 2.5 | 230 | 255 | <b>OVR T1 25 255</b> | 2CTB815101R0100 | <b>510877</b> |  |  | 0.25 | 1 |
|---|----|----|-----|-----|-----|----------------------|-----------------|---------------|--|--|------|---|

##### IT (230/400 V), TT, TNC (400/690 V)

|   |    |    |   |     |     |                         |                 |               |  |  |      |   |
|---|----|----|---|-----|-----|-------------------------|-----------------|---------------|--|--|------|---|
| 1 | 25 | 50 | 2 | 400 | 440 | <b>OVR T1 25 440-50</b> | 2CTB815101R9300 | <b>514929</b> |  |  | 0.27 | 1 |
|---|----|----|---|-----|-----|-------------------------|-----------------|---------------|--|--|------|---|

##### TNS (1 Ph+N), TT

|   |                   |    |     |     |     |  |                 |               |  |  |      |   |
|---|-------------------|----|-----|-----|-----|--|-----------------|---------------|--|--|------|---|
| 2 | 25 <sup>(2)</sup> | 50 | 2.5 | 230 | 255 | <b>OVR T1 2L 25 255</b>                  | 2CTB815101R1200 | <b>510891</b> |  |  | 0.50 | 1 |
| 2 | 25 <sup>(2)</sup> | 50 | 2.5 | 230 | 255 | <b>OVR T1 2L 25 255 TS<sup>(3)</sup></b> | 2CTB815101R1100 | <b>510945</b> |  |  | 0.60 | 1 |

##### TT (1 Ph+N), TNS

|     |                      |    |                      |     |     |  |                 |               |  |  |      |   |
|-----|----------------------|----|----------------------|-----|-----|--|-----------------|---------------|--|--|------|---|
| 1+N | 25/50 <sup>(1)</sup> | 50 | 2.5/2 <sup>(1)</sup> | 230 | 255 | <b>OVR T1 1N 25 255</b>                  | 2CTB815101R1500 | <b>510921</b> |  |  | 0.50 | 1 |
| 1+N | 25/50 <sup>(1)</sup> | 50 | 2.5/2 <sup>(1)</sup> | 230 | 255 | <b>OVR T1 1N 25 255 TS<sup>(3)</sup></b> | 2CTB815101R1000 | <b>510976</b> |  |  | 0.60 | 1 |

##### TNC

|   |                   |    |     |     |     |  |                 |               |  |  |      |   |
|---|-------------------|----|-----|-----|-----|--|-----------------|---------------|--|--|------|---|
| 3 | 25 <sup>(2)</sup> | 50 | 2.5 | 230 | 255 | <b>OVR T1 3L 25 255</b>                  | 2CTB815101R1300 | <b>510907</b> |  |  | 0.75 | 1 |
| 3 | 25 <sup>(2)</sup> | 50 | 2.5 | 230 | 255 | <b>OVR T1 3L 25 255 TS<sup>(3)</sup></b> | 2CTB815101R0600 | <b>510952</b> |  |  | 0.85 | 1 |

##### TNS (3 Ph+N)

|   |                   |    |     |     |     |  |                 |               |  |  |      |   |
|---|-------------------|----|-----|-----|-----|--|-----------------|---------------|--|--|------|---|
| 4 | 25 <sup>(2)</sup> | 50 | 2.5 | 230 | 255 | <b>OVR T1 4L 25 255</b>                  | 2CTB815101R1400 | <b>510914</b> |  |  | 1.00 | 1 |
| 4 | 25 <sup>(2)</sup> | 50 | 2.5 | 230 | 255 | <b>OVR T1 4L 25 255 TS<sup>(3)</sup></b> | 2CTB815101R0800 | <b>510969</b> |  |  | 1.10 | 1 |

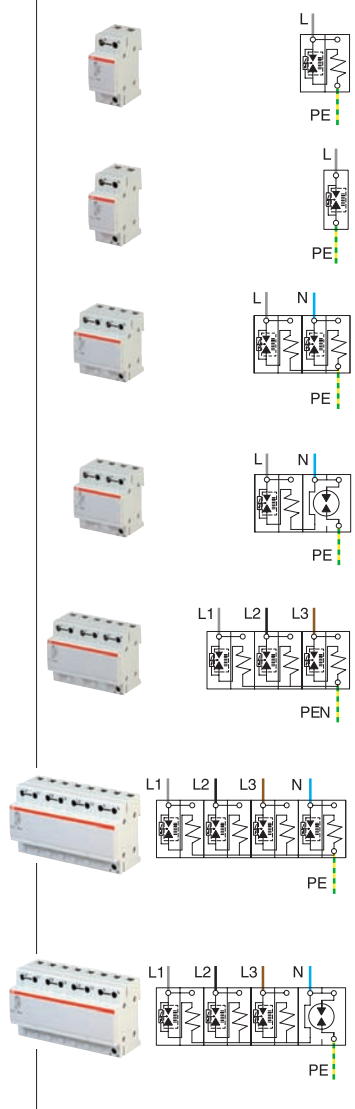
##### TT, TNS

|     |                       |    |                      |     |     |  |                 |               |  |  |      |   |
|-----|-----------------------|----|----------------------|-----|-----|--|-----------------|---------------|--|--|------|---|
| 3+N | 25/100 <sup>(1)</sup> | 50 | 2.5/2 <sup>(1)</sup> | 230 | 255 | <b>OVR T1 3N 25 255</b>                  | 2CTB815101R1600 | <b>510938</b> |  |  | 1.00 | 1 |
| 3+N | 25/100 <sup>(1)</sup> | 50 | 2.5/2 <sup>(1)</sup> | 230 | 255 | <b>OVR T1 3N 25 255 TS<sup>(3)</sup></b> | 2CTB815101R0700 | <b>510983</b> |  |  | 1.10 | 1 |

(1) L-N / N- $\perp$

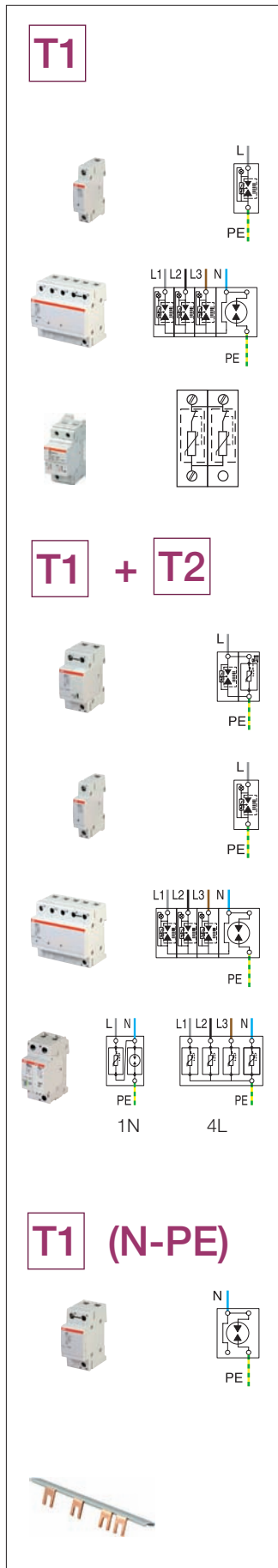
(2) per pole.

(3) TS: tele-signal contact for remote control of the status of the Surge Protective Device.



# OVR Surge protective devices

## Selection tables



| Nb. of poles | Impulse current limp (10/350 μs) kA | Follow current interrupting level If <sub>i</sub> kA <sub>rms</sub> | Voltage protection level Up kV | Nominal voltage Un V | Max. cont. operating voltage Uc V | Order details | Bbn 3660308 | Price 1 piece | Price group | Weight 1 piece | Pack unit |
|--------------|-------------------------------------|---|--------------------------------|----------------------|-----------------------------------|---------------|-------------|---------------|-------------|----------------|-----------|
|              |                                     |   |                                |                      |                                   | Type code     | Order code  | EAN           | kg          | pc.            |           |

### Type 1 (If<sub>i</sub> = 7 kA)

#### TNS, TNC, TT\*

|   |    |   |     |     |     |                 |                 |        |      |   |
|---|----|---|-----|-----|-----|-----------------|-----------------|--------|------|---|
| 1 | 25 | 7 | 2.5 | 230 | 255 | OVR T1 25 255-7 | 2CTB815101R8700 | 514110 | 0.12 | 1 |
|---|----|---|-----|-----|-----|-----------------|-----------------|--------|------|---|

#### TT (3 Ph+N), TNS

|     |                       |                      |                        |     |     |                    |                 |        |      |   |
|-----|-----------------------|----------------------|------------------------|-----|-----|--------------------|-----------------|--------|------|---|
| 3+N | 25/100 <sup>(1)</sup> | 7/0.1 <sup>(1)</sup> | 2.5/1.5 <sup>(1)</sup> | 230 | 255 | OVR T1 3N 25 255-7 | 2CTB815101R8800 | 514127 | 0.60 | 1 |
|-----|-----------------------|----------------------|------------------------|-----|-----|--------------------|-----------------|--------|------|---|

#### OVR HL (classic)

#### TT, TNS, TNC, IT

|   |    |    |     |     |     |                     |                 |        |      |   |
|---|----|----|-----|-----|-----|---------------------|-----------------|--------|------|---|
| 1 | 15 | NA | 1.4 | 400 | 440 | OVR HL 15 440s P TS | 2CTB815201R0800 | 509802 | 0.25 | 1 |
|---|----|----|-----|-----|-----|---------------------|-----------------|--------|------|---|

#### TT, TNS

|   |    |    |     |     |     |                        |                 |        |     |   |
|---|----|----|-----|-----|-----|------------------------|-----------------|--------|-----|---|
| 2 | 15 | NA | 1.4 | 400 | 440 | OVR HL 2L 15 440s P TS | 2CTB815303R0400 | 509826 | 0.5 | 1 |
|---|----|----|-----|-----|-----|------------------------|-----------------|--------|-----|---|

### Type 1+2

|   |    |    |     |     |     |                                   |                 |        |      |   |
|---|----|----|-----|-----|-----|-----------------------------------|-----------------|--------|------|---|
| 1 | 25 | 15 | 1.5 | 230 | 255 | OVR T1+2 25 255 TS <sup>(3)</sup> | 2CTB815101R0300 | 510884 | 0.30 | 1 |
| 1 | 15 | 7  | 1.5 | 230 | 255 | OVR T1+2 15 255-7                 | 2CTB815101R8900 | 514134 | 0.12 | 1 |
| 1 | 7  | 0  | 0.9 | 230 | 275 | OVR T1+2 7 275s P                 | 2CTB815101R3900 | 513403 | 0.12 | 1 |
| 3 | 7  | 0  | 0.9 | 230 | 275 | OVR T1+2 3L 7 275s P              | 2CTB815101R4000 | 513410 | 0.4  | 1 |
| 4 | 7  | 0  | 0.9 | 230 | 275 | OVR T1+2 4L 7 275s P              | 2CTB815101R4100 | 513427 | 0.5  | 1 |

#### TT, TNS

|     |                      |                      |                        |     |     |                      |                 |        |      |   |
|-----|----------------------|----------------------|------------------------|-----|-----|----------------------|-----------------|--------|------|---|
| 3+N | 15/50 <sup>(1)</sup> | 7/0.1 <sup>(1)</sup> | 1.5/1.5 <sup>(1)</sup> | 230 | 255 | OVR T1+2 3N 15 255-7 | 2CTB815101R9000 | 514141 | 0.60 | 1 |
| 2   | 7                    | 0                    | 0.9/1.4                | 230 | 275 | OVR T1+2 1N 7 275s P | 2CTB815302R1000 | 515728 | 0.27 | 1 |
| 4   | 7                    | 0                    | 0.9/1.4                | 230 | 275 | OVR T1+2 3N 7 275s P | 2CTB815502R1000 | 515735 | 0.5  | 1 |
| -   | 7                    | 0                    | 0.9                    | 230 | 275 | OVR T1+2 7 275s C    | 2CTB815101R3800 | 513458 | 0.1  | 1 |
| -   | 7                    | 0                    | 1.4                    | 230 | 275 | OVR T1+2 70 NC       | 2CTB815101R5100 | 515742 | 0.05 | 1 |

### Type 1 Neutral

For TT networks when used in combination with phase SPDs Type 1 or Type 1+2

|   |     |     |     |   |     |              |                 |        |      |   |
|---|-----|-----|-----|---|-----|--------------|-----------------|--------|------|---|
| 1 | 25  | 0.1 | < 4 | - | 690 | OVR T1 25 N  | 2CTB815101R9700 | 517043 | 0.25 | 1 |
| 1 | 50  | 0.1 | 1.5 | - | 255 | OVR T1 50 N  | 2CTB815101R0400 | 510853 | 0.25 | 1 |
| 1 | 100 | 0.1 | 2   | - | 255 | OVR T1 100 N | 2CTB815101R0500 | 510860 | 0.25 | 1 |

(1) L-N / N- $\perp$ .

(3) TS: tele-signal contact for remote control of the status of the Surge Protective Device.

TT\*: in TT network for L/N protection only

### Bus bar

For TT (3Ph+N) networks, this bus bar can be used to connect four single pole Type 1 & Type 1+2 SPDs (except for Type 1 with If<sub>i</sub> = 7 kA)

|   |   |   |   |   |   |            |                 |        |       |    |
|---|---|---|---|---|---|------------|-----------------|--------|-------|----|
| - | - | - | - | - | - | Bus bar 3N | 2CTB815102R0400 | 516091 | 0.005 | 50 |
|---|---|---|---|---|---|------------|-----------------|--------|-------|----|

# OVR Surge protective devices

## Selection tables

**T2**

### Surge Protective Devices, Type 2

**Function:** Type 2 surge protective devices are designed to protect electric installations and sensible equipment against indirect surges with ensuring a low protection level (Up). They are characterized by their capacity to safely discharge current with 8/20  $\mu$ s wave form.

**Application:** residential, commercial, industrial

**Standard:** IEC 61643-1 / EN 61643-11

| Nb. of poles | Maxi. discharge current I <sub>max</sub> (8/20 $\mu$ s) kA | Nominal discharge current I <sub>n</sub> kA | Voltage protection level Up kV | Nom. voltage U <sub>n</sub> V | Max. cont. operating voltage U <sub>c</sub> V | Order details | Bbn 3660308 | Price 1 piece | Price group | Weight 1 piece | Pack unit |
|--------------|--|---|--------------------------------|-------------------------------|---|---------------|-------------|---------------|-------------|----------------|-----------|
|              |  |   |                                |                               |   | Type code     | Order code  | EAN           |             | kg             | ppc.      |

### Type 2 (pluggable)

#### TNS, TNC

|   |    |    |     |     |     |                                    |                 |        |  |      |   |
|---|----|----|-----|-----|-----|------------------------------------|-----------------|--------|--|------|---|
| 1 | 15 | 5  | 1.0 | 230 | 275 | OVR T2 15 275 P                    | 2CTB803851R2400 | 512840 |  | 0.12 | 1 |
| 1 | 40 | 20 | 1.4 | 230 | 275 | OVR T2 40 275 P                    | 2CTB803851R2300 | 512833 |  | 0.12 | 1 |
| 1 | 40 | 20 | 1.4 | 230 | 275 | OVR T2 40 275s P                   | 2CTB803851R2000 | 512826 |  | 0.12 | 1 |
| 1 | 40 | 20 | 1.4 | 230 | 275 | OVR T2 40 275 P TS                 | 2CTB803851R1700 | 514363 |  | 0.14 | 1 |
| 1 | 40 | 20 | 1.4 | 230 | 275 | OVR T2 40 275s P TS <sup>(3)</sup> | 2CTB803851R1400 | 512802 |  | 0.15 | 1 |
| 1 | 70 | 30 | 1.5 | 230 | 275 | OVR T2 70 275s P                   | 2CTB803851R1900 | 512819 |  | 0.12 | 1 |
| 1 | 70 | 30 | 1.5 | 230 | 275 | OVR T2 70 275s P TS <sup>(3)</sup> | 2CTB803851R1300 | 512796 |  | 0.15 | 1 |

#### IT (230/400 V), TT

|   |    |    |     |     |     |                                    |                 |        |  |      |   |
|---|----|----|-----|-----|-----|------------------------------------|-----------------|--------|--|------|---|
| 1 | 15 | 5  | 1.5 | 400 | 440 | OVR T2 15 440 P                    | 2CTB803851R1100 | 512772 |  | 0.12 | 1 |
| 1 | 40 | 20 | 1.9 | 400 | 440 | OVR T2 40 440 P                    | 2CTB803851R1200 | 512789 |  | 0.12 | 1 |
| 1 | 40 | 20 | 1.9 | 400 | 440 | OVR T2 40 440s P                   | 2CTB803851R0800 | 512765 |  | 0.12 | 1 |
| 1 | 40 | 20 | 1.9 | 400 | 440 | OVR T2 40 440 P TS                 | 2CTB803851R0500 | 514370 |  | 0.14 | 1 |
| 1 | 40 | 20 | 1.9 | 400 | 440 | OVR T2 40 440s P TS <sup>(3)</sup> | 2CTB803851R0200 | 512741 |  | 0.15 | 1 |
| 1 | 70 | 30 | 2   | 400 | 440 | OVR T2 70 440s P                   | 2CTB803851R0700 | 512758 |  | 0.12 | 1 |
| 1 | 70 | 30 | 2.0 | 400 | 440 | OVR T2 70 440s P TS <sup>(3)</sup> | 2CTB803851R0100 | 512734 |  | 0.15 | 1 |

#### TT, TNS, TNC, IT

|   |     |    |     |     |     |                                     |                 |        |  |      |   |
|---|-----|----|-----|-----|-----|-------------------------------------|-----------------|--------|--|------|---|
| 1 | 120 | 60 | 2.5 | 400 | 440 | OVR T2 120 440s P TS <sup>(3)</sup> | 2CTB803951R1300 | 517036 |  | 0.12 | 1 |
|---|-----|----|-----|-----|-----|-------------------------------------|-----------------|--------|--|------|---|

#### TT, TN-S (1 Ph+N)

|     |    |    |                        |     |     |                                       |                 |        |  |      |   |
|-----|----|----|------------------------|-----|-----|---------------------------------------|-----------------|--------|--|------|---|
| 1+N | 15 | 5  | 1.0/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 1N 15 275 P                    | 2CTB803952R1200 | 513106 |  | 0.22 | 1 |
| 1+N | 40 | 20 | 1.4/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 1N 40 275 P                    | 2CTB803952R1100 | 513250 |  | 0.27 | 1 |
| 1+N | 40 | 20 | 1.4/1.4                | 230 | 275 | OVR T2 1N 40 275s P                   | 2CTB803952R0800 | 513090 |  | 0.27 | 1 |
| 1+N | 40 | 20 | 1.4/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 1N 40 275 P TS                 | 2CTB803952R0500 | 514387 |  | 0.27 | 1 |
| 1+N | 40 | 20 | 1.4/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 1N 40 275s P TS <sup>(3)</sup> | 2CTB803952R0200 | 513076 |  | 0.27 | 1 |
| 1+N | 70 | 30 | 1.5/1.4                | 230 | 275 | OVR T2 1N 70 275s P                   | 2CTB803952R0700 | 513083 |  | 0.27 | 1 |
| 1+N | 70 | 30 | 1.5/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 1N 70 275s P TS <sup>(3)</sup> | 2CTB803952R0100 | 513069 |  | 0.27 | 1 |

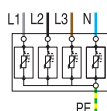
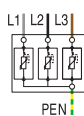
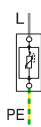
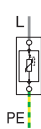
#### TNC (3 Phases)

|   |                   |                   |     |     |     |                                       |                 |        |  |      |   |
|---|-------------------|-------------------|-----|-----|-----|---------------------------------------|-----------------|--------|--|------|---|
| 3 | 15                | 5                 | 1.0 | 230 | 275 | OVR T2 3L 15 275 P                    | 2CTB803853R3400 | 512987 |  | 0.35 | 1 |
| 3 | 40                | 20                | 1.4 | 230 | 275 | OVR T2 3L 40 275 P                    | 2CTB803853R2400 | 513366 |  | 0.35 | 1 |
| 3 | 40 <sup>(2)</sup> | 20                | 1.4 | 230 | 275 | OVR T2 3L 40 275s P                   | 2CTB803853R2200 | 512963 |  | 0.35 | 1 |
| 3 | 40 <sup>(2)</sup> | 20 <sup>(2)</sup> | 1.4 | 230 | 275 | OVR T2 3L 40 275 P TS                 | 2CTB803853R2500 | 514400 |  | 0.40 | 1 |
| 3 | 40 <sup>(2)</sup> | 20 <sup>(2)</sup> | 1.4 | 230 | 275 | OVR T2 3L 40 275s P TS <sup>(3)</sup> | 2CTB803853R2300 | 512970 |  | 0.40 | 1 |
| 3 | 70 <sup>(2)</sup> | 30 <sup>(2)</sup> | 1.5 | 230 | 275 | OVR T2 3L 70 275s P                   | 2CTB803853R4100 | 512994 |  | 0.35 | 1 |
| 3 | 70 <sup>(2)</sup> | 30 <sup>(2)</sup> | 1.5 | 230 | 275 | OVR T2 3L 70 275s P TS <sup>(3)</sup> | 2CTB803853R4400 | 513007 |  | 0.40 | 1 |

#### TNS (4 Phases)

|   |                   |                   |     |     |     |                                       |                 |        |  |      |   |
|---|-------------------|-------------------|-----|-----|-----|---------------------------------------|-----------------|--------|--|------|---|
| 4 | 15                | 5                 | 1.0 | 230 | 275 | OVR T2 4L 15 275 P                    | 2CTB803853R6000 | 513038 |  | 0.45 | 1 |
| 4 | 40                | 20                | 1.4 | 230 | 275 | OVR T2 4L 40 275 P                    | 2CTB803853R5600 | 513274 |  | 0.45 | 1 |
| 4 | 40                | 20 <sup>(2)</sup> | 1.4 | 230 | 275 | OVR T2 4L 40 275s P                   | 2CTB803853R5400 | 513021 |  | 0.45 | 1 |
| 4 | 40                | 20 <sup>(2)</sup> | 1.4 | 230 | 275 | OVR T2 4L 40 275 P TS                 | 2CTB803853R5200 | 514417 |  | 0.50 | 1 |
| 4 | 40 <sup>(2)</sup> | 20 <sup>(2)</sup> | 1.4 | 230 | 275 | OVR T2 4L 40 275s P TS <sup>(3)</sup> | 2CTB803853R5000 | 513014 |  | 0.50 | 1 |
| 4 | 70 <sup>(2)</sup> | 30 <sup>(2)</sup> | 1.5 | 230 | 275 | OVR T2 4L 70 275s P                   | 2CTB803919R0200 | 513045 |  | 0.45 | 1 |
| 4 | 70 <sup>(2)</sup> | 30 <sup>(2)</sup> | 1.5 | 230 | 275 | OVR T2 4L 70 275s P TS <sup>(3)</sup> | 2CTB803919R0400 | 513052 |  | 0.50 | 1 |

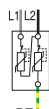
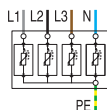
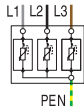
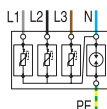
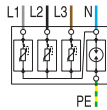
(1) L-N / N-PE. (2) per pole. (3) TS: telesignal contact for remote control of the status of the Surge Protective Device. The safety reserve (s) ensures a preventive maintenance of the installation.



# OVR Surge protective devices

## Selection tables

### T2



| Nb. of poles | Maxi. discharge current I <sub>max</sub> (8/20 μs) kA | Nominal discharge current I <sub>n</sub> kA | Voltage protection level U <sub>p</sub> kV | Nom. voltage U <sub>n</sub> V | Max. cont. operating voltage U <sub>c</sub> V | Order details | Bbn 3660308 | Price 1 piece | Price group | Weight 1 piece | Pack unit |
|--------------|---|---|--|-------------------------------|---|---------------|-------------|---------------|-------------|----------------|-----------|
|              |   |   |  |                               |   | Type code     | Order code  | EAN           |             | kg             | ppc.      |

#### TT, TN-S (3 Ph+N)

|     |    |    |                        |     |     |                                       |                 |        |  |      |   |
|-----|----|----|------------------------|-----|-----|---------------------------------------|-----------------|--------|--|------|---|
| 3+N | 15 | 5  | 1.0/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 3N 15 275 P                    | 2CTB803953R1200 | 513151 |  | 0.45 | 1 |
| 3+N | 40 | 20 | 1.4/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 3N 40 275 P                    | 2CTB803953R1100 | 513267 |  | 0.45 | 1 |
| 3+N | 40 | 20 | 1.4/1.4                | 230 | 275 | OVR T2 3N 40 275s P                   | 2CTB803953R0800 | 513144 |  | 0.45 | 1 |
| 3+N | 40 | 20 | 1.4/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 3N 40 275 P TS                 | 2CTB803953R0500 | 514394 |  | 0.50 | 1 |
| 3+N | 40 | 20 | 1.4/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 3N 40 275s P TS <sup>(3)</sup> | 2CTB803953R0200 | 513120 |  | 0.50 | 1 |
| 3+N | 70 | 30 | 1.5/1.4                | 230 | 275 | OVR T2 3N 70 275s P                   | 2CTB803953R0700 | 513137 |  | 0.45 | 1 |
| 3+N | 70 | 30 | 1.5/1.4 <sup>(1)</sup> | 230 | 275 | OVR T2 3N 70 275s P TS <sup>(3)</sup> | 2CTB803953R0100 | 513113 |  | 0.50 | 1 |

(1) L-N / N-PE, (2) per pole. (3) TS: tele-signal contact for remote control of the status of the Surge Protective Device. The safety reserve (s) ensures a preventive maintenance of the installation.

#### TT, TN-S (3 Ph+N)

|     |    |    |                        |     |     |                                       |                 |        |  |      |   |
|-----|----|----|------------------------|-----|-----|---------------------------------------|-----------------|--------|--|------|---|
| 3+N | 15 | 5  | 1.5/1.4 <sup>(1)</sup> | 230 | 440 | OVR T2 3N 15 440 P                    | 2CTB803953R1300 | 516800 |  | 0.45 | 1 |
| 3+N | 40 | 20 | 1.9/1.4 <sup>(1)</sup> | 230 | 440 | OVR T2 3N 40 440 P                    | 2CTB803953R1400 | 516817 |  | 0.45 | 1 |
| 3+N | 40 | 20 | 1.9/1.4 <sup>(1)</sup> | 230 | 440 | OVR T2 3N 40 440 P TS <sup>(3)</sup>  | 2CTB803953R1500 | 516824 |  | 0.45 | 1 |
| 3+N | 40 | 20 | 1.9/1.4 <sup>(1)</sup> | 230 | 440 | OVR T2 3N 40 440s P TS <sup>(3)</sup> | 2CTB803953R1600 | 516831 |  | 0.45 | 1 |
| 3+N | 70 | 30 | 2/1.4 <sup>(1)</sup>   | 230 | 440 | OVR T2 3N 70 440s P                   | 2CTB803953R1700 | 516848 |  | 0.45 | 1 |
| 3+N | 70 | 30 | 2/1.4 <sup>(1)</sup>   | 230 | 440 | OVR T2 3N 70 440s P TS <sup>(3)</sup> | 2CTB803953R1800 | 516855 |  | 0.23 | 1 |

#### TNC (3 Phases)

|   |    |    |     |     |     |                        |                 |        |  |      |   |
|---|----|----|-----|-----|-----|------------------------|-----------------|--------|--|------|---|
| 3 | 40 | 20 | 1.9 | 230 | 440 | OVR T2 3L 40 440 P     | 2CTB803853R2600 | 516879 |  | 0.35 | 1 |
| 3 | 40 | 20 | 1.9 | 230 | 440 | OVR T2 3L 40 440 P TS  | 2CTB803853R2700 | 516886 |  | 0.40 | 1 |
| 3 | 70 | 30 | 2   | 230 | 440 | OVR T2 3L 70 440s P    | 2CTB803853R4200 | 516893 |  | 0.35 | 1 |
| 3 | 70 | 30 | 2   | 230 | 440 | OVR T2 3L 70 440s P TS | 2CTB803853R4300 | 516909 |  | 0.40 | 1 |

#### TNS (4 Phases)

|   |    |    |                        |     |     |                        |                 |        |  |      |   |
|---|----|----|------------------------|-----|-----|------------------------|-----------------|--------|--|------|---|
| 4 | 40 | 20 | 1.9/1.4 <sup>(1)</sup> | 230 | 440 | OVR T2 4L 40 440 P     | 2CTB803853R5100 | 516916 |  | 0.45 | 1 |
| 4 | 40 | 20 | 1.9/1.4 <sup>(1)</sup> | 230 | 440 | OVR T2 4L 40 440 P TS  | 2CTB803853R5300 | 516923 |  | 0.50 | 1 |
| 4 | 70 | 30 | 2/1.4 <sup>(1)</sup>   | 230 | 440 | OVR T2 4L 70 440s P    | 2CTB803853R7000 | 516930 |  | 0.45 | 1 |
| 4 | 70 | 30 | 2/1.4 <sup>(1)</sup>   | 230 | 440 | OVR T2 4L 70 440s P TS | 2CTB803853R7100 | 516947 |  | 0.50 | 1 |

#### Type 2 Neutral

|   |    |    |     |     |     |               |                 |        |  |  |  |
|---|----|----|-----|-----|-----|---------------|-----------------|--------|--|--|--|
| 1 | 70 | 30 | 1.4 | 230 | 255 | OVR T2 70 N P | 2CTB803953R1900 | 516862 |  |  |  |
|---|----|----|-----|-----|-----|---------------|-----------------|--------|--|--|--|

#### OVR T2 in 75V

These Type 2 SPD's can be used in very low voltages & data lines for current higher than 140mA.

|   |    |   |         |    |    |                   |                 |        |  |      |   |
|---|----|---|---------|----|----|-------------------|-----------------|--------|--|------|---|
| 1 | 15 | 5 | 0.3     | 57 | 75 | OVR 15 75 P       | 2CTB813851R2800 | 504647 |  | 0.12 | 1 |
| 1 | 15 | 5 | 0.3     | 57 | 75 | OVR 15 75 P TS    | 2CTB813851R2700 | 504630 |  | 0.13 | 1 |
| 2 | 15 | 5 | 0.3/0.6 | 57 | 75 | OVR 2 15 75 P     | 2CTB813852R1700 | 504609 |  | 0.22 | 1 |
| 2 | 15 | 5 | 0.3/0.6 | 57 | 75 | OVR 2 15 75 P TS  | 2CTB813852R1600 | 504593 |  | 0.23 | 1 |
| 2 | 15 | 5 | 0.3/0.6 | 57 | 75 | OVR 2 15 75s P TS | 2CTB813852R1300 | 504579 |  | 0.23 | 1 |

Back-up protection by fuse: 16 A gG under AC, 16 A gR under DC

#### Replacement cartridges for OVR T2

##### Phase cartridge, 75 V

|   |    |   |     |    |    |             |                 |        |  |      |   |
|---|----|---|-----|----|----|-------------|-----------------|--------|--|------|---|
| - | 15 | 5 | 0.3 | 57 | 75 | OVR 15 75 C | 2CTB813854R1400 | 508892 |  | 0.10 | 1 |
|---|----|---|-----|----|----|-------------|-----------------|--------|--|------|---|

##### Phase cartridge, 275 V

|   |    |    |     |     |     |                                 |                 |        |  |      |   |
|---|----|----|-----|-----|-----|---------------------------------|-----------------|--------|--|------|---|
| - | 15 | 5  | 1.0 | 230 | 275 | OVR T2 15 275 C                 | 2CTB803854R1200 | 513168 |  | 0.10 | 1 |
| - | 40 | 20 | 1.4 | 230 | 275 | OVR T2 40 275 C                 | 2CTB803854R1000 | 513182 |  | 0.10 | 1 |
| - | 40 | 20 | 1.4 | 230 | 275 | OVR T2 40 275s C <sup>(1)</sup> | 2CTB803854R0900 | 513199 |  | 0.10 | 1 |
| - | 70 | 30 | 1.5 | 230 | 275 | OVR T2 70 275s C <sup>(1)</sup> | 2CTB803854R0700 | 513229 |  | 0.10 | 1 |

##### Neutral cartridge for products OVR T2 1N (..) & OVR T2 3N (..), 275 V

|   |    |    |     |   |     |               |                 |        |  |      |   |
|---|----|----|-----|---|-----|---------------|-----------------|--------|--|------|---|
| - | 70 | 30 | 1.4 | - | 440 | OVR T2 70 N C | 2CTB803854R0000 | 513243 |  | 0.05 | 1 |
|---|----|----|-----|---|-----|---------------|-----------------|--------|--|------|---|

##### Phase cartridge, 440 V

|   |    |    |     |     |     |                                 |                 |        |  |      |   |
|---|----|----|-----|-----|-----|---------------------------------|-----------------|--------|--|------|---|
| - | 15 | 5  | 1.5 | 400 | 440 | OVR T2 15 440 C                 | 2CTB803854R0600 | 513175 |  | 0.10 | 1 |
| - | 40 | 20 | 1.9 | 400 | 440 | OVR T2 40 440 C                 | 2CTB803854R0400 | 513205 |  | 0.10 | 1 |
| - | 40 | 20 | 1.9 | 400 | 440 | OVR T2 40 440s C <sup>(1)</sup> | 2CTB803854R0300 | 513212 |  | 0.10 | 1 |
| - | 70 | 30 | 2.0 | 400 | 440 | OVR T2 70 440s C <sup>(1)</sup> | 2CTB803854R0100 | 513236 |  | 0.10 | 1 |

# OVR Surge protective devices

## Selection tables

### T2 + T3



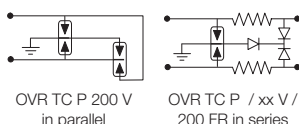
### T2



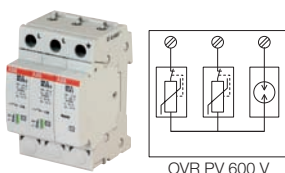
### T2 auto-protected



### TC



### PV



| Nb. of poles | Maxi. discharge current I <sub>max</sub> (8/20 μs) kA | Nominal discharge current I <sub>n</sub> kA | Voltage protection level U <sub>p</sub> kV | Voltage protection level U <sub>p</sub> at U <sub>oc</sub> kV | Voltage combination wave U <sub>oc</sub> kV | Nom. voltage U <sub>n</sub> V | Max. cont. operating voltage U <sub>c</sub> V | Order details | Bbn 3660308 | Price 1 piece | Price group | Weight 1 piece | Pack unit |
|--------------|---|---|--|---|---|-------------------------------|---|---------------|-------------|---------------|-------------|----------------|-----------|
|              |   |   |  |   |   |                               |   | Type code     | Order code  | EAN           | kg          | ppc.           |           |

#### Type 2 & Type 3 (non pluggable), TT, TNS

|     |    |   |         |         |   |     |     |                      |                 |               |  |      |   |
|-----|----|---|---------|---------|---|-----|-----|----------------------|-----------------|---------------|--|------|---|
| 1+N | 10 | 3 | 0.9/1.4 | 0.9/1.4 | 6 | 230 | 275 | <b>OVR 1N 10 275</b> | 2CTB813912R1000 | <b>509208</b> |  | 0.25 | 1 |
| 3+N | 10 | 3 | 0.9/1.4 | 0.9/1.4 | 6 | 230 | 275 | <b>OVR 3N 10 275</b> | 2CTB813913R1000 | <b>509215</b> |  | 0.45 | 1 |

| Nb. of poles | Maxi. discharge current I <sub>max</sub> (8/20 μs) kA | Nominal discharge current I <sub>n</sub> kA | Voltage protection level U <sub>p</sub> kV | Nom. voltage U <sub>n</sub> V | Max. cont. operating voltage U <sub>c</sub> V | Order details | Bbn 3660308 | Price 1 piece | Price group | Weight 1 piece | Pack unit |
|--------------|---|---|--|-------------------------------|---|---------------|-------------|---------------|-------------|----------------|-----------|
|              |   |   |  |                               |   | Type code     | Order code  | EAN           | kg          | ppc.           |           |

#### Type 2 (non pluggable), TT, TNS

|   |    |    |     |     |     |                         |                 |               |  |      |   |
|---|----|----|-----|-----|-----|-------------------------|-----------------|---------------|--|------|---|
| 1 | 15 | 5  | 1   | 230 | 275 | <b>OVR T2 15 275</b>    | 2CTB804200R0100 | <b>514882</b> |  | 0.12 | 1 |
| 1 | 40 | 20 | 1.4 | 230 | 275 | <b>OVR T2 40 275</b>    | 2CTB804201R0100 | <b>514103</b> |  | 0.12 | 1 |
| 4 | 15 | 5  | 1   | 230 | 275 | <b>OVR T2 4L 15 275</b> | 2CTB804600R0500 | <b>515612</b> |  | 0.45 | 1 |
| 4 | 40 | 20 | 1.4 | 230 | 275 | <b>OVR T2 4L 40 275</b> | 2CTB804601R0500 | <b>515988</b> |  | 0.45 | 1 |

#### OVR PLUS (auto-protected), TT, TNS

|     |     |    |         |     |     |                           |                 |               |  |      |   |
|-----|-----|----|---------|-----|-----|---------------------------|-----------------|---------------|--|------|---|
| 1+N | 10  | 5  | 1/1.4   | 230 | 275 | <b>OVR PLUS 1N 10 275</b> | 2CTB813812R2600 | <b>516770</b> |  | 0.3  | 1 |
| N+1 | 40* | 20 | 1.6/1.5 | 230 | 320 | <b>OVR PLUS N1 40</b>     | 2CTB803701R0100 | <b>517005</b> |  | 0.26 | 1 |
| N+3 | 15  | 5  | 1.3/1.5 | 230 | 320 | <b>OVR PLUS N3 15</b>     | 2CTB803701R0400 | <b>517081</b> |  | 0.79 | 1 |
| N+3 | 40  | 20 | 2/1.5   | 230 | 320 | <b>OVR PLUS N3 40</b>     | 2CTB803701R0300 | <b>517074</b> |  | 0.79 | 1 |

\*I<sub>m</sub> = I<sub>max</sub> MOV

#### OVR TC dataline protection

The transmission line pluggable surge protective devices (OVR TC P) provide protection against transient overvoltages for equipment connected to telephone lines (digital or analog), computer links or current loops, for applications such as RS-485, or 4-20 mA.

|   |    |   |       |     |   |                         |                 |               |  |      |   |
|---|----|---|-------|-----|---|-------------------------|-----------------|---------------|--|------|---|
| 1 | 10 | 5 | 0.015 | 6   |   | <b>OVR TC 6V P</b>      | 2CTB804820R0000 | <b>515230</b> |  | 0.05 | 1 |
| 1 | 10 | 5 | 0.02  | 12  |   | <b>OVR TC 12V P</b>     | 2CTB804820R0100 | <b>515247</b> |  | 0.05 | 1 |
| 1 | 10 | 5 | 0.035 | 24  |   | <b>OVR TC 24V P</b>     | 2CTB804820R0200 | <b>515254</b> |  | 0.05 | 1 |
| 1 | 10 | 5 | 0.07  | 48  |   | <b>OVR TC 48V P</b>     | 2CTB804820R0300 | <b>515261</b> |  | 0.05 | 1 |
| 1 | 10 | 5 | 0.7   | 200 |   | <b>OVR TC 200V P</b>    | 2CTB804820R0400 | <b>515278</b> |  | 0.05 | 1 |
| 1 | 10 | 5 | 0.3   | 200 |   | <b>OVR TC 200FR P</b>   | 2CTB804820R0500 | <b>515285</b> |  | 0.05 | 1 |
| - | 10 | 5 | 0.015 | 7   |   | <b>OVR TC 6V C</b>      | 2CTB804821R0000 | <b>515292</b> |  | 0.02 | 1 |
| - | 10 | 5 | 0.02  | 14  |   | <b>OVR TC 12V C</b>     | 2CTB804821R0100 | <b>515308</b> |  | 0.02 | 1 |
| - | 10 | 5 | 0.035 | 27  |   | <b>OVR TC 24V C</b>     | 2CTB804821R0200 | <b>515315</b> |  | 0.02 | 1 |
| - | 10 | 5 | 0.07  | 53  |   | <b>OVR TC 48V C</b>     | 2CTB804821R0300 | <b>515322</b> |  | 0.02 | 1 |
| - | 10 | 5 | 0.7   | 220 |   | <b>OVR TC 200V C</b>    | 2CTB804821R0400 | <b>515339</b> |  | 0.02 | 1 |
| - | 10 | 5 | 0.3   | 220 |   | <b>OVR TC 200FR C</b>   | 2CTB804821R0500 | <b>515346</b> |  | 0.02 | 1 |
| 1 | -  | - | -     | -   | - | <b>Base OVR TC RJ11</b> | 2CTB804840R1000 | <b>515599</b> |  | 0.02 | 1 |
| 2 | -  | - | -     | -   | - | <b>Base OVR TC RJ45</b> | 2CTB804840R1100 | <b>515605</b> |  | 0.04 | 1 |

#### OVR PV photovoltaic protection

The photovoltaic pluggable surge protective devices OVR PV provide protection for equipment on photovoltaic system (connected), against transient overvoltages that occur on the electrical network. The OVR PV range complies with the new UTE C 61-740-51.

| Nb. of poles | Maxi. discharge current I <sub>max</sub> (8/20 μs) kA | Nominal discharge current I <sub>n</sub> kA | Voltage protection level U <sub>p</sub> kV | Nom. voltage U <sub>ocpv</sub> V | Short-circuit DC current withstand I <sub>scwpv</sub> A | Order details              | Bbn 3660308     | Price 1 piece | Price group | Weight 1 piece | Pack unit |
|--------------|---|---|--|----------------------------------|---|----------------------------|-----------------|---------------|-------------|----------------|-----------|
|              |   |   |  |                                  |   | Type code                  | Order code      | EAN           | kg          | ppc.           |           |
| 3            | 40  | 20  | 1.4  | 670                              | 100   | <b>OVR PV 40 600 P</b>     | 2CTB803953R5300 | <b>516510</b> |             | 0.27           | 1         |
| 3            | 40  | 20  | 1.4  | 670                              | 100   | <b>OVR PV 40 600 P TS</b>  | 2CTB803953R5400 | <b>516527</b> |             | 0.27           | 1         |
| 3            | 40  | 20  | 3.8  | 1000                             | 100   | <b>OVR PV 40 1000 P</b>    | 2CTB803953R6400 | <b>516534</b> |             | 0.27           | 1         |
| 3            | 40  | 20  | 3.8  | 1000                             | 100   | <b>OVR PV 40 1000 P TS</b> | 2CTB803953R6500 | <b>516541</b> |             | 0.27           | 1         |

#### Replacement cartridges for OVR PV

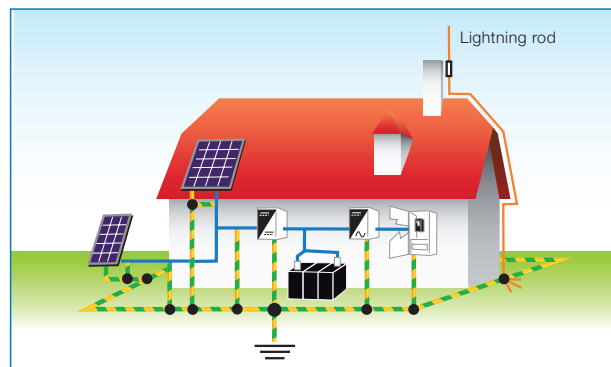
|   |    |    |     |      |   |                         |                 |               |  |      |   |
|---|----|----|-----|------|---|-------------------------|-----------------|---------------|--|------|---|
| - | 40 | 20 | 1.4 | 600  | - | <b>OVR PV 40-600 C</b>  | 2CTB803950R0000 | <b>516558</b> |  | 0.10 | 1 |
| - | 40 | 20 | 1.9 | 1000 | - | <b>OVR PV 40-1000 C</b> | 2CTB803950R0100 | <b>516565</b> |  | 0.10 | 1 |
| - | 70 | 30 | 1.4 | 1000 | - | <b>OVR PV MC*</b>       | 2CTB803950R0300 | <b>516756</b> |  | 0.10 | 1 |

# Applications

## OVR in 75 V

### Systems with battery

- Photovoltaic standalone applications
- Possibility of installation between batteries and charger
- Data line if the current is higher than 140 mA



### Telecoms, wind turbines, industrial applications under very low voltage

Between transformer 230/48 V or 24 V (AC-DC) and equipment to be protected, for example:

- PLC's
- Sensors



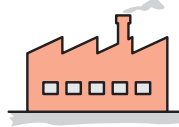
### Available products for very low voltage applications

| Description                                 | Max discharge current $I_{max}$ (8/20)<br>kA | Nominal discharge current $I_n$<br>kA | Nominal Voltage $U_n$<br>V | Protection level $U_p$<br>kV |
|---|--|---------------------------------------|----------------------------|------------------------------|
| OVR 15 75 P<br><b>2CTB813851R2800</b>       | 15   | 5                                     | 57                         | 0.3                          |
| OVR 15 75 P TS<br><b>2CTB813851R2700</b>    | 15   | 5                                     | 57                         | 0.3                          |
| OVR 2 15 75 P<br><b>2CTB813852R1700</b>     | 15   | 5                                     | 57                         | 0.3/0.6                      |
| OVR 2 15 75 P TS<br><b>2CTB813852R1600</b>  | 15   | 5                                     | 57                         | 0.3/0.6                      |
| OVR 2 15 75s P TS<br><b>2CTB813852R1300</b> | 15   | 5                                     | 57                         | 0.3/0.6                      |

# Applications

## Residential, commercial and industrial

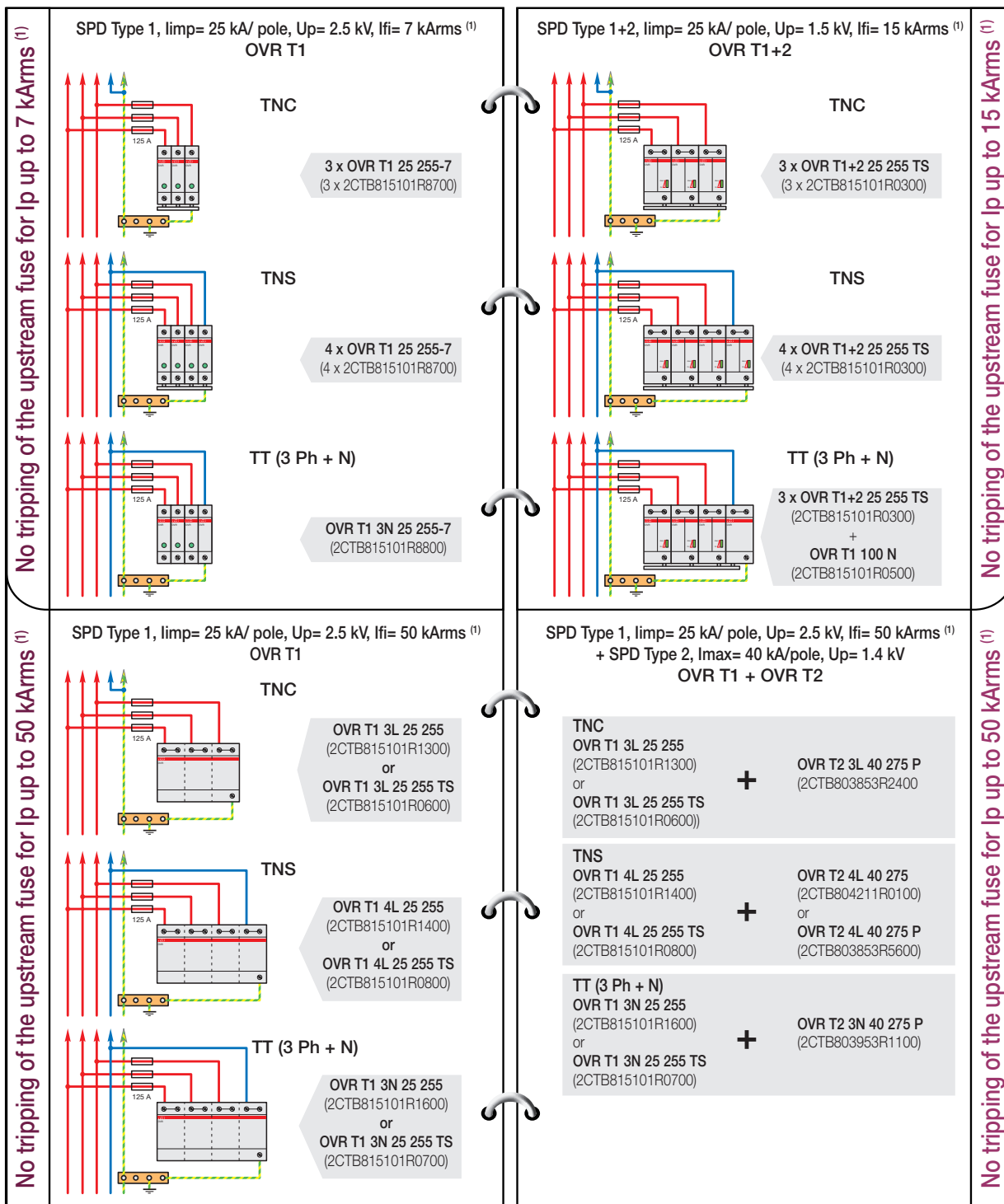
Industry, Commercial Building,  
Apartment Building



Sensitive equipment is directly connected downstream of the SPD ?

No

Yes



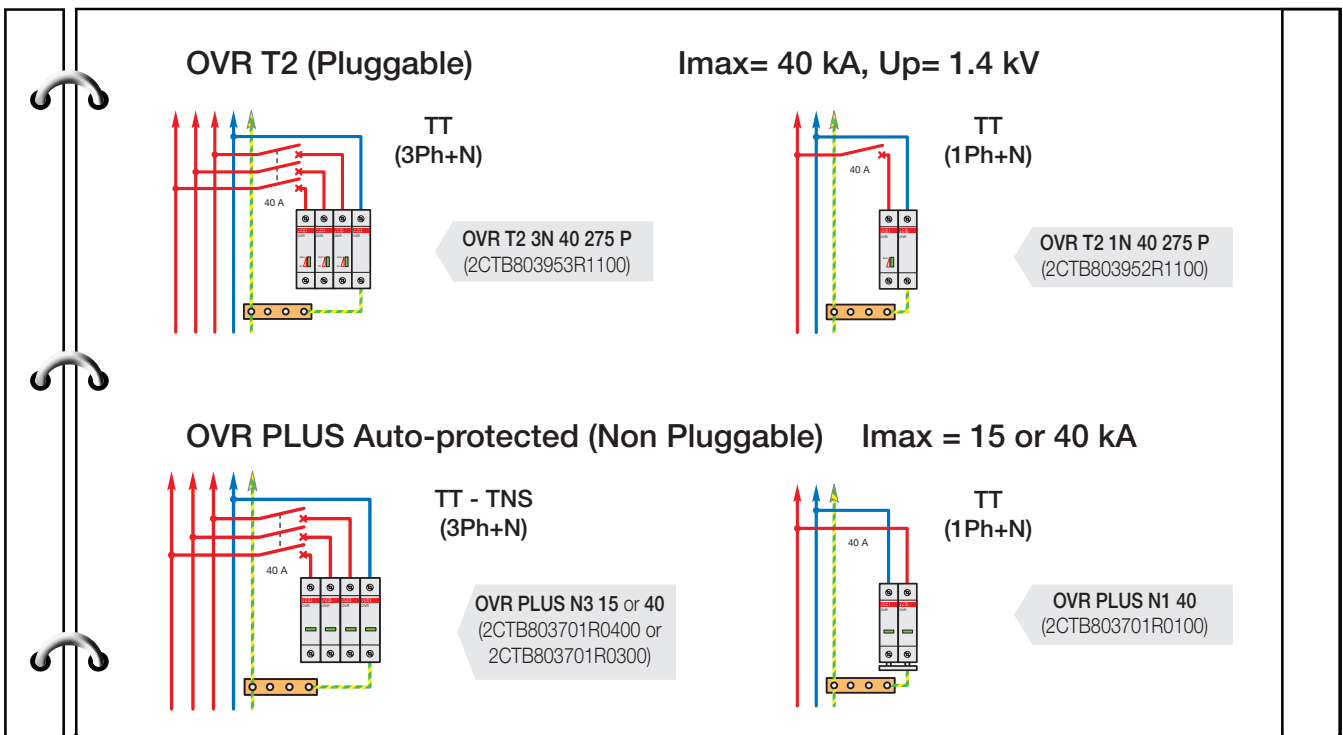
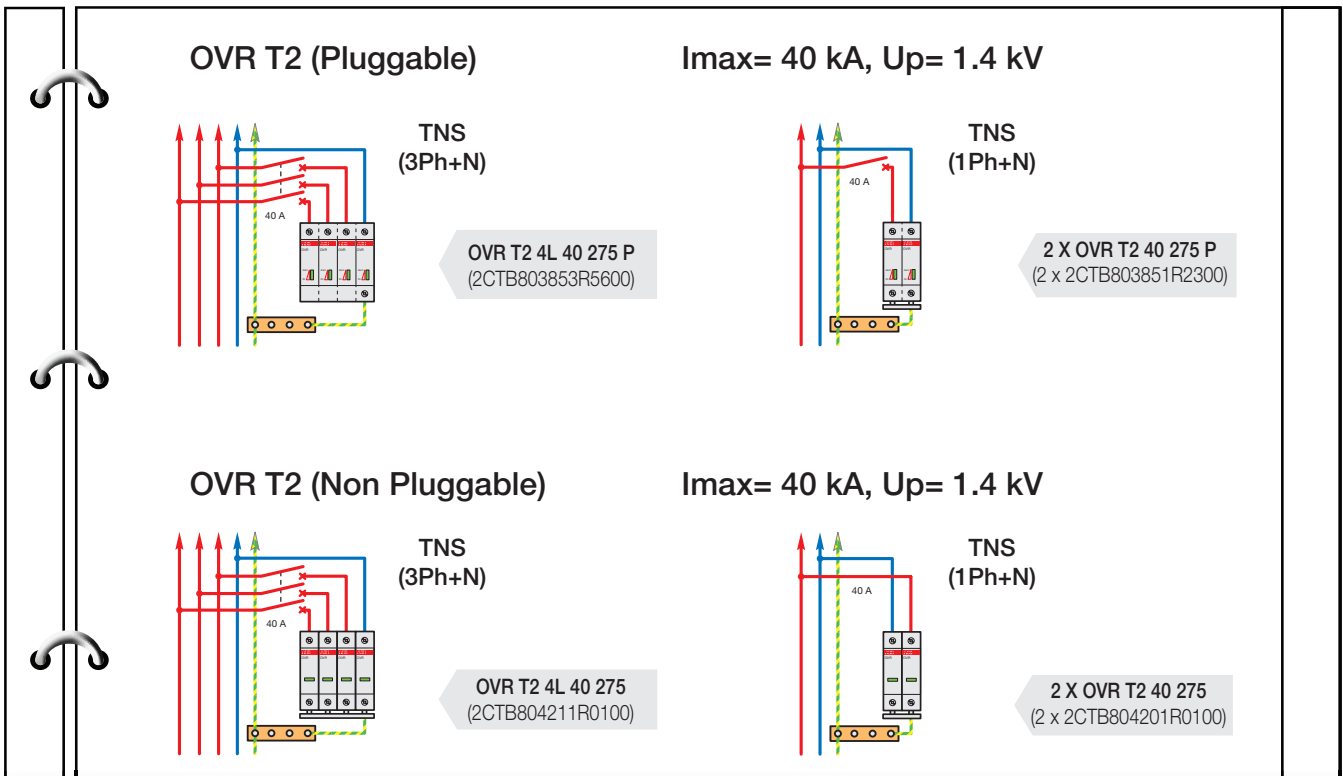


# Applications

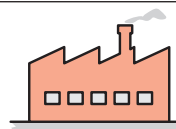
## Residential, commercial and industrial

### Additional SPD Type 2 in sub-distribution boards (for industry and big houses), or in each apartment (for apartment buildings) or at each floor/in each office (for office buildings).

- Needed when the voltage protection level of the upstream Type 1 SPD is too high with regards to the withstand capability to overvoltage of the equipment to protect. No minimum distance for coordination is required between Type 1 SPD and Type 2 SPD, excepted between OVR T1xx xx 255-7 and Type 2, minimum distance required is 5 meters.
- Needed when the distance between the upstream SPD (Type 1, Type 1+2 or Type 2) and the equipment to be protected is too high. Additional Type 2 SPD close to the equipment to protect is recommended when this distance overcomes 10 meters and compulsory above 30 meters. Additional Type 2 SPD is not necessary when the distance is less than 10 meters and it shall not be installed for coordination reasons.



## Industry



Lightning rod



Low current-  
protection



OVR TC 48 V P  
2CTB804820R0300



OVR T2 3N 40 275 P TS  
2CTB803953R0500






Sub-distribution  
board

Main-distribution  
board



OVR T1 3N 25 255 TS  
2CTB815101R0700

### Equipment protection in industrial sector

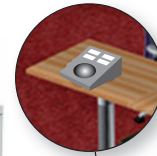
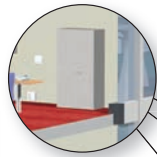
|   | Description  | Impulse current<br>$I_{imp}$ (10/350)                 | Follow current<br>$I_{fi}$ | Max. discharge current<br>$I_{max}$ (8/20) | Nominal discharge current<br>$I_n$ | Nominal voltage<br>$U_n$ (L/N-LL) | Protection level<br>$U_p$ |
|---|--|---|----------------------------|--|------------------------------------|-----------------------------------|---------------------------|
|   | OVR T1 3N 25 255 TS<br>2CTB815101R0700                               | 25 kA   | 50 kA                      | /  | 25 kA                              | 230/400 V                         | 2.5 kV                    |
|  | OVR T2 3N 40 275 P TS; /<br>2CTB803953R0500                          | /   | /                          | 40 kA                                      | 20 kA                              | 230/400 V                         | 1.4 kV                    |
|  | OVR TC 48V P<br>2CTB804820R0300                                      | /   | /                          | 10 kA                                      | 5 kA                               | 48 V                              | 70 V                      |
|  | Lightning rod OPR 30<br>stainless steel with mast<br>2CTB899800R7300 | Please contact us and ask for leaflet 2CTC432004B0202 |                            |  |                                    |                                   |                           |
|  | Lightning rod OPR 60<br>stainless steel with mast<br>2CTB899800R7400 | Please contact us and ask for leaflet 2CTC432004B0202 |                            |  |                                    |                                   |                           |



## Commercial Building, Apartment Building



OVR PLUS N3 40  
2CTB803701R0300



OVR TC 24 V P  
2CTB804820R0200

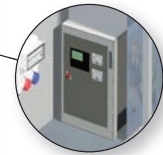
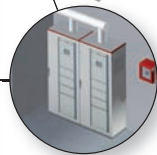
Interphone  
protection

Telephone-  
protection







OVR TC 48 V P - ISDN (S<sub>0</sub>)  
2CTB804820R0300

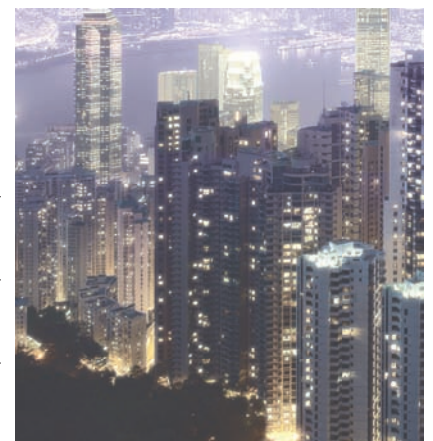
Automatic  
exchange  
protection

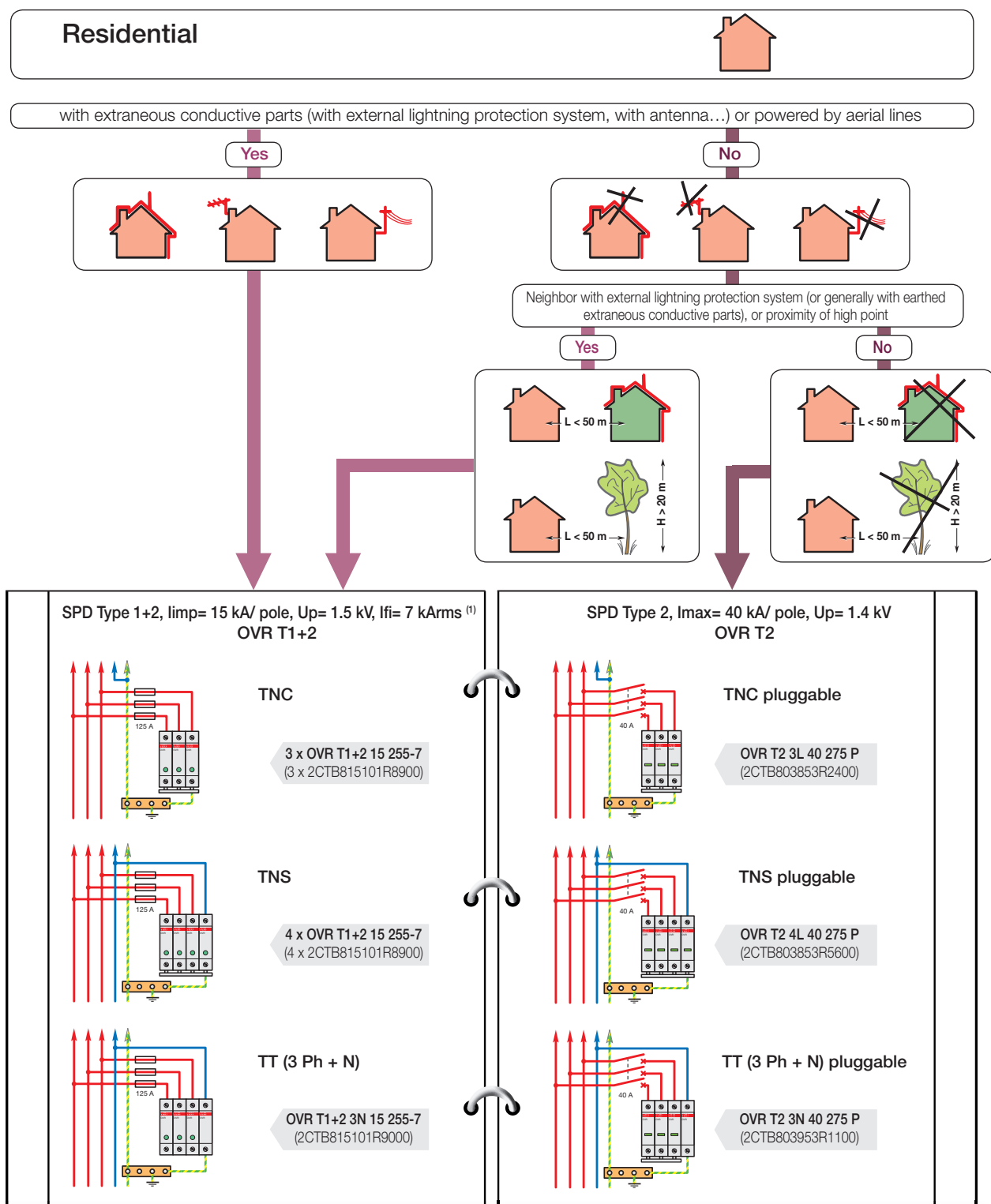


OVR T1 3N 25 255 TS  
2CTB815101R0700

### Equipment protection in commercial sector

|   | Description                            | Impulse current<br>$I_{imp}$ (10/350) | Follow current<br>$I_n$ | Max. discharge current<br>$I_{max}$ (8/20) | C2 nominal discharge current<br>$I_n$ | Nominal voltage<br>$U_n$ | Protection level<br>$U_p$ |
|---|--|---------------------------------------|-------------------------|--|---------------------------------------|--------------------------|---------------------------|
|  | OVR TC 24V P<br>2CTB804820R0200        | /                                     | /                       | 10 kA                                      | 5 kA                                  | 24 V                     | 35 V                      |
|  | OVR TC 48V P<br>2CTB804820R0300        | /                                     | /                       | 10 kA                                      | 5 kA                                  | 48 V                     | 70 V                      |
|  | OVR T1 3N 25 255 TS<br>2CTB815101R0700 | 25 kA                                 | 50 kA                   | /  | 25 kA                                 | 230 V                    | 2.5 kV                    |
|  | OVR PLUS N3 40<br>2CTB803701R0300      | /                                     | /                       | $I_m = 40$ kA<br>$I_{max} = 20$ kA         | 20 kA                                 | 230 V                    | 1.6 kV                    |





(1) Taking into consideration of the prospective short-circuit current of the power supply ( $I_p$ ):

For Type 1 Products based on spark-gap technology when overvoltage reaches the SPD, an electrical arc is created between the electrodes of the spark-gap. This arc will short-circuit the phase to earth and will enable the surge to be discharged. Once the surge has been discharged, current from the mains (follow-current) will still flow through the SPD as the spark-gap is short-circuiting the phase to earth. If not interrupted by the SPD, this follow-current will cause the upstream fuse to melt.

The proposed Type 1 products in this selection table are able to interrupt the follow-current by themselves without tripping of the upstream fuse. For these solutions  $I_{fi} \geq I_p$  ( $I_{fi}$  is the follow-current interrupting rating of the SPD: it is the follow-current which can be interrupted by the SPD alone).

- Only required if a fuse of the same or a lower nominal value is not already provided in the upstream power supply.
- Maximum value allowed (fuse or MCB of lower value can be used). Only required if a fuse or MCB of the same or smaller nominal value is not provided in the upstream power supply.

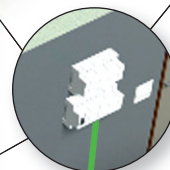
Residential



Telephone protection



OVR TC 200FR P  
2CTB804820R0500





Enclosure



OVR PLUS N1 40  
2CTB803701R0100

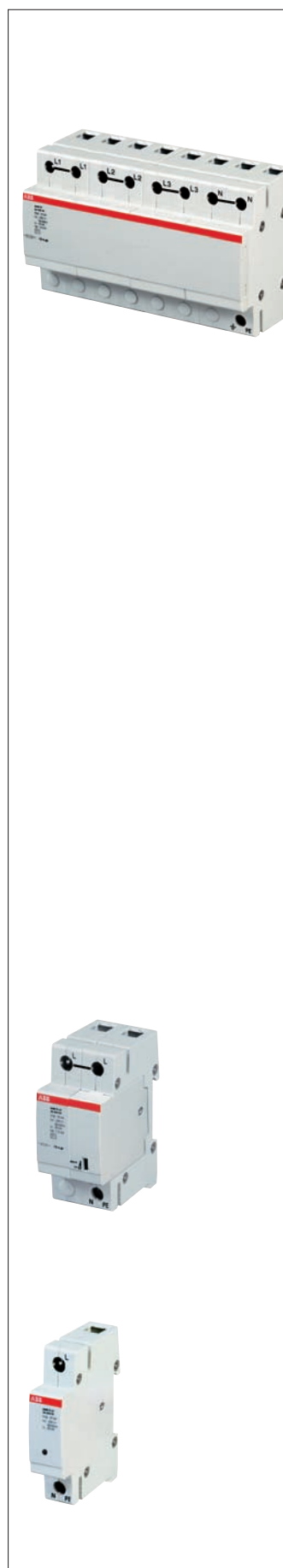
Equipment protection in the domestic sector

|   | Description                       | Max. discharge current<br>$I_{max}$ (8/20) | C2 nominal discharge current<br>$I_n$ | Nominal voltage<br>$U_n$ | Protection level<br>$U_p$ |
|---|-----------------------------------|--|---------------------------------------|--------------------------|---------------------------|
|  | OVR TC 200FR P<br>2CTB804820R0500 | 10 kA                                      | 5 kA                                  | 200 V                    | 400 V                     |
|  | OVR PLUS N1 40<br>2CTB803701R0100 | 40 kA                                      | 20 kA                                 | 230 V                    | 1.5 kV                    |

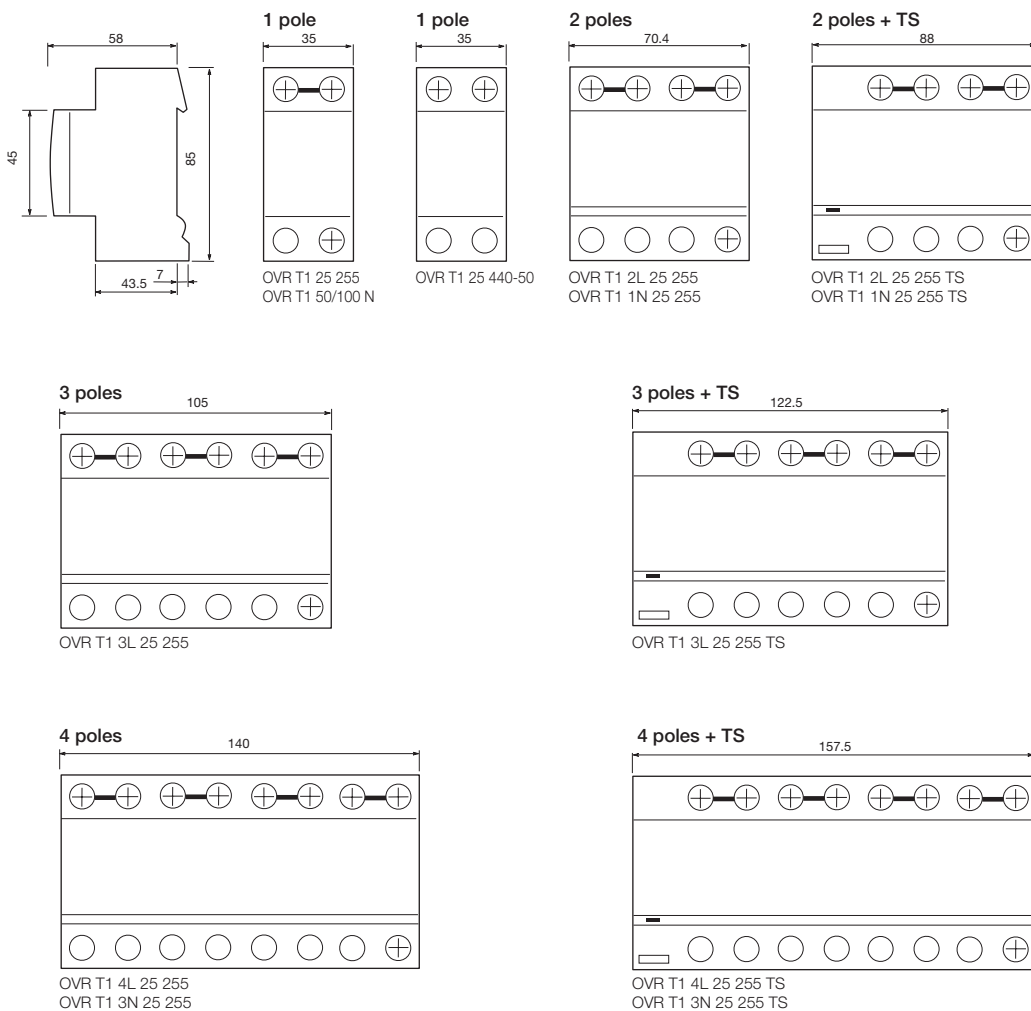


# OVR Surge protective devices

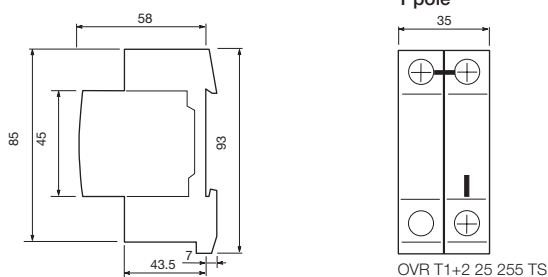
## Dimensions



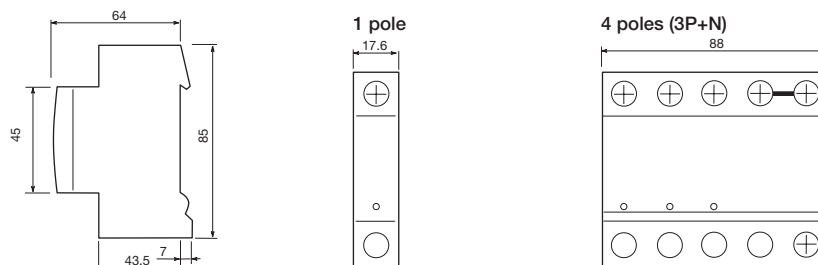
### Type 1 SPDs



### Type 1+2 SPDs



### Type 1 & Type 1+2 SPDs

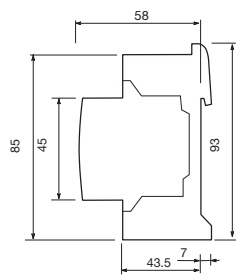


# OVR Surge protective devices

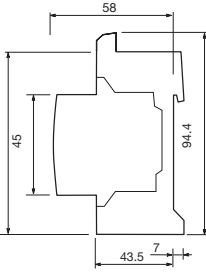
## Dimensions

### Type 1 + 2 / Type 2 SPDs

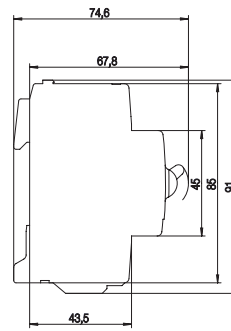
Type 2 without TS



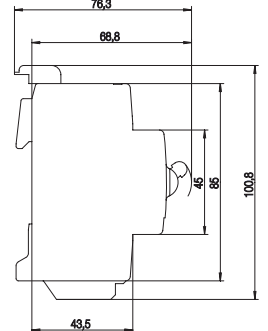
Type 2 with TS



OVR PLUS N1



OVR PLUS N3



1 pole



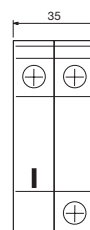
OVR TC 06V P

1 pole



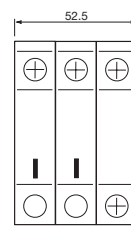
OVR T2 15  
OVR T2 40  
OVR T2 70  
OVR T1+2 7 275s P

2 poles (1P+N)



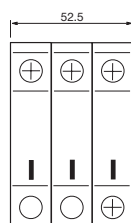
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OVR T2 N1 70  
OVR T1+2 N1 7 275s P

3 poles



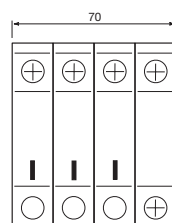
OVR PV 40 600  
OVR PV 40 1000

3 poles



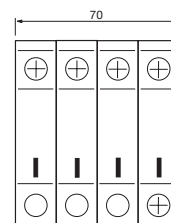
OVR T2 3L 15  
OVR T2 3L 40  
OVR T2 3L 70  
OVR T1+2 3L 7 275s P

3 poles (3P+N)



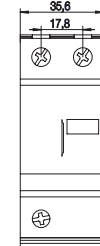
OVR T2 N3 15  
OVR T2 N3 40  
OVR T2 N3 70  
OVR T1+2 7 275s P

4 poles (4P+0)



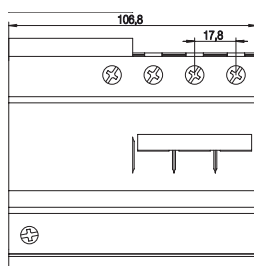
OVR T2 4L 15  
OVR T2 4L 40  
OVR T2 4L 70  
OVR T1+2 4L 7 275s P

OVR PLUS N1



OVR Plus N1 10  
OVR Plus N1 40

OVR PLUS N3



OVR Plus N3 15  
OVR Plus N3 40

Dimensions in mm

# Index

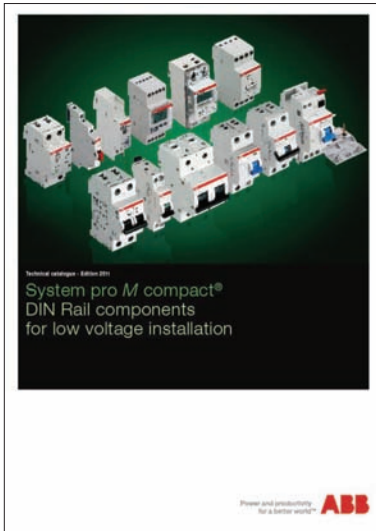
## Order codes

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| 2CTB803701R0300 | OVR PLUS N3 40         | 20   | 2CTB803953R1700 | OVR T2 3N 70 440s P    | 19   |
| 2CTB803701R0400 | OVR PLUS N3 15         | 20   | 2CTB803953R1800 | OVR T2 3N 70 440s P TS | 19   |
| 2CTB803851R0100 | OVR T2 70 440s P TS    | 18   | 2CTB803953R1900 | OVR T2 70 N P          | 19   |
| 2CTB803851R0200 | OVR T2 40 440s P TS    | 18   | 2CTB803953R5300 | OVR PV 40 600 P        | 20   |
| 2CTB803851R0500 | OVR T2 40 440 P TS     | 18   | 2CTB803953R5400 | OVR PV 40 600 P TS     | 20   |
| 2CTB803851R0700 | OVR T2 70 440s P       | 18   | 2CTB803953R6400 | OVR PV 40 1000 P       | 20   |
| 2CTB803851R0800 | OVR T2 40 440s P       | 18   | 2CTB803953R6500 | OVR PV 40 1000 P TS    | 20   |
| 2CTB803851R1100 | OVR T2 15 440 P        | 18   | 2CTB804200R0100 | OVR T2 15 275          | 20   |
| 2CTB803851R1200 | OVR T2 40 440 P        | 18   | 2CTB804201R0100 | OVR T2 40 275          | 20   |
| 2CTB803851R1300 | OVR T2 70 275s P TS    | 18   | 2CTB804600R0500 | OVR T2 4L 15 275       | 20   |
| 2CTB803851R1400 | OVR T2 40 275s P TS    | 18   | 2CTB804601R0500 | OVR T2 4L 40 275       | 20   |
| 2CTB803851R1700 | OVR T2 40 275 P TS     | 18   | 2CTB804820R0000 | OVR TC 6V P            | 20   |
| 2CTB803851R1900 | OVR T2 70 275s P       | 18   | 2CTB804820R0100 | OVR TC 12V P           | 20   |
| 2CTB803851R2000 | OVR T2 40 275s P       | 18   | 2CTB804820R0200 | OVR TC 24V P           | 20   |
| 2CTB803851R2300 | OVR T2 40 275 P        | 18   | 2CTB804820R0300 | OVR TC 48V P           | 20   |
| 2CTB803851R2400 | OVR T2 15 275 P        | 18   | 2CTB804820R0400 | OVR TC 200FR P         | 27   |
| 2CTB803853R2200 | OVR T2 3L 40 275s P    | 18   | 2CTB804820R0400 | OVR TC 200V P          | 20   |
| 2CTB803853R2300 | OVR T2 3L 40 275s P TS | 18   | 2CTB804820R0500 | OVR TC 200FR P         | 20   |
| 2CTB803853R2400 | OVR T2 3L 40 275 P     | 18   | 2CTB804821R0000 | OVR TC 6V C            | 20   |
| 2CTB803853R2500 | OVR T2 3L 40 275 P TS  | 18   | 2CTB804821R0100 | OVR TC 12V C           | 20   |
| 2CTB803853R2600 | OVR T2 3L 40 440 P     | 19   | 2CTB804821R0200 | OVR TC 24V C           | 20   |
| 2CTB803853R2700 | OVR T2 3L 40 440 P TS  | 19   | 2CTB804821R0300 | OVR TC 48V C           | 20   |
| 2CTB803853R3400 | OVR T2 3L 15 275 P     | 18   | 2CTB804821R0400 | OVR TC 200V C          | 20   |
| 2CTB803853R4100 | OVR T2 3L 70 275s P    | 18   | 2CTB804821R0500 | OVR TC 200FR C         | 20   |
| 2CTB803853R4200 | OVR T2 3L 70 440s P    | 19   | 2CTB804840R1000 | Base OVR TC RJ1 1      | 20   |
| 2CTB803853R4300 | OVR T2 3L 70 440s P TS | 19   | 2CTB804840R1100 | Base OVR TC RJ45       | 20   |
| 2CTB803853R4400 | OVR T2 3L 70 275s P TS | 18   | 2CTB813812R2600 | OVR PLUS 1N 10 275     | 20   |
| 2CTB803853R5000 | OVR T2 4L 40 275s P TS | 18   | 2CTB813851R2700 | OVR 15 75 P TS         | 19   |
| 2CTB803853R5100 | OVR T2 4L 40 440 P     | 19   | 2CTB813851R2800 | OVR 15 75 P            | 19   |
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| 2CTB803853R6000 | OVR T2 4L 15 275 P     | 18   | 2CTB813912R1000 | OVR 1N 10 275          | 20   |
| 2CTB803853R7000 | OVR T2 4L 70 440s P    | 19   | 2CTB813913R1000 | OVR 3N 10 275          | 20   |
| 2CTB803853R7100 | OVR T2 4L 70 440s P TS | 19   | 2CTB815101R0100 | OVR T1 25 255          | 16   |
| 2CTB803854R0000 | OVR T2 70 N C          | 19   | 2CTB815101R0300 | OVR T1+2 25 255 TS     | 17   |
| 2CTB803854R0100 | OVR T2 70 440s C       | 19   | 2CTB815101R0400 | OVR T1 50 N            | 17   |
| 2CTB803854R0300 | OVR T2 40 440s C       | 19   | 2CTB815101R0500 | OVR T1 100 N           | 17   |
| 2CTB803854R0400 | OVR T2 40 440 C        | 19   | 2CTB815101R0600 | OVR T1 3L 25 255 TS    | 16   |
| 2CTB803854R0600 | OVR T2 15 440 C        | 19   | 2CTB815101R0700 | OVR T1 3N 25 255 TS    | 16   |
| 2CTB803854R0700 | OVR T2 70 275s C       | 19   | 2CTB815101R0800 | OVR T1 4L 25 255 TS    | 16   |
| 2CTB803854R0900 | OVR T2 40 275s C       | 19   | 2CTB815101R1000 | OVR T1 1N 25 255 TS    | 16   |
| 2CTB803854R1000 | OVR T2 40 275 C        | 19   | 2CTB815101R1100 | OVR T1 2L 25 255 TS    | 16   |
| 2CTB803854R1200 | OVR T2 15 275 C        | 19   | 2CTB815101R1200 | OVR T1 2L 25 255       | 16   |
| 2CTB803919R0200 | OVR T2 4L 70 275s P    | 18   | 2CTB815101R1300 | OVR T1 3L 25 255       | 16   |
| 2CTB803919R0400 | OVR T2 4L 70 275s P TS | 18   | 2CTB815101R1400 | OVR T1 4L 25 255       | 16   |
| 2CTB803950R0000 | OVR PV 40 600 C        | 20   | 2CTB815101R1500 | OVR T1 1N 25 255       | 16   |
| 2CTB803950R0100 | OVR PV 40 1000 C       | 20   | 2CTB815101R1600 | OVR T1 3N 25 255       | 16   |
| 2CTB803950R0300 | OVR PV MC              | 20   | 2CTB815101R3800 | OVR T1+2 7 275s C      | 17   |
| 2CTB803951R1300 | OVR T2 120 440s P TS   | 18   | 2CTB815101R3900 | OVR T1+2 7 275s P      | 17   |
| 2CTB803952R0100 | OVR T2 1N 70 275s P TS | 18   | 2CTB815101R4000 | OVR T1+2 3L 7 275s P   | 17   |
| 2CTB803952R0200 | OVR T2 1N 40 275s P TS | 18   | 2CTB815101R4100 | OVR T1+2 4L 7 275s P   | 17   |
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| 2CTB803952R0700 | OVR T2 1N 70 275s P    | 18   | 2CTB815101R8700 | OVR T1 25 255-7        | 17   |
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| 2CTB803952R1200 | OVR T2 1N 15 275 P     | 18   | 2CTB815101R9000 | OVR T1+2 3N 15 255-7   | 17   |
| 2CTB803953R0100 | OVR T2 3N 70 275s P TS | 19   | 2CTB815101R9300 | OVR T1 25 440 50       | 16   |
| 2CTB803953R0200 | OVR T2 3N 40 275s P TS | 19   | 2CTB815101R9700 | OVR T1 25 N            | 17   |
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| 2CTB803953R0700 | OVR T2 3N 70 275s P    | 19   | 2CTB815201R0800 | OVR HL 15 440s P TS    | 17   |
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| 2CTB803953R1100 | OVR T2 3N 40 275 P TS  | 24   | 2CTB815502R1000 | OVR T1+2 3N 7 275s P   | 17   |
| 2CTB803953R1200 | OVR T2 3N 15 275 P     | 19   | 2CTB899800R7300 | Lightning rod OPR 30   | 24   |
| 2CTB803953R1300 | OVR T2 3N 15 440 P     | 19   | 2CTB899800R7400 | Lightning rod OPR 60   | 24   |
| 2CTB803953R1400 | OVR T2 3N 40 440 P     | 19   |                 |                        |      |
| 2CTB803953R1500 | OVR T2 3N 40 440 P TS  | 19   |                 |                        |      |

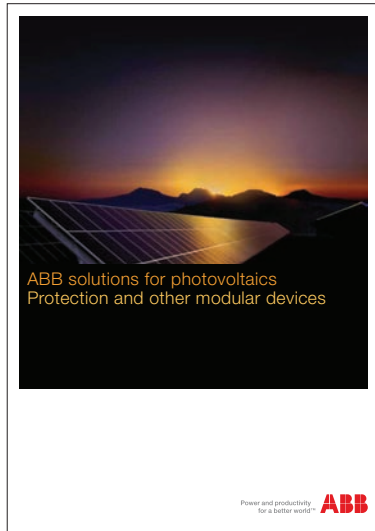


# Index Types

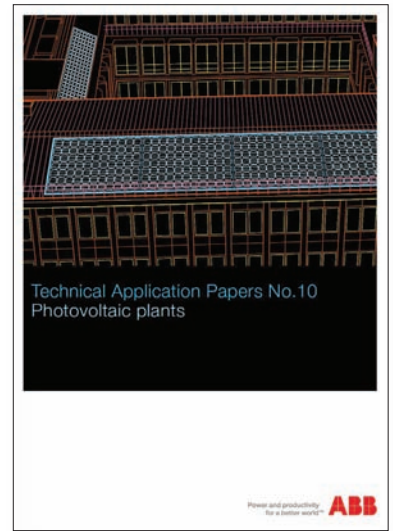
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| Base OVR TC RJ45       | 2CTB804840R1100 | 20   | OVR T2 3L 40 440 P     | 2CTB803853R2600 | 19   |
| Bus bar 3N             | 2CTB815102R0400 | 17   | OVR T2 3L 40 440 P TS  | 2CTB803853R2700 | 19   |
| Lightning rod OPR 30   | 2CTB899800R7300 | 24   | OVR T2 3L 70 275s P    | 2CTB803853R4100 | 18   |
| Lightning rod OPR 60   | 2CTB899800R7400 | 24   | OVR T2 3L 70 275s P TS | 2CTB803853R4400 | 18   |
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| OVR 15 75 P            | 2CTB813851R2800 | 19   | OVR T2 3L 70 440s P TS | 2CTB803853R4300 | 19   |
| OVR 15 75 P TS         | 2CTB813851R2700 | 19   | OVR T2 3N 15 275 P     | 2CTB803953R1200 | 19   |
| OVR 1N 10 275          | 2CTB813912R1000 | 20   | OVR T2 3N 15 440 P     | 2CTB803953R1300 | 19   |
| OVR 2 15 75 P          | 2CTB813852R1700 | 19   | OVR T2 3N 40 275 P     | 2CTB803953R1100 | 19   |
| OVR 2 15 75 P TS       | 2CTB813852R1600 | 19   | OVR T2 3N 40 275 P TS  | 2CTB803953R0500 | 19   |
| OVR 2 15 75s P TS      | 2CTB813852R1300 | 19   | OVR T2 3N 40 275 P TS  | 2CTB803953R1100 | 24   |
| OVR 3N 10 275          | 2CTB813913R1000 | 20   | OVR T2 3N 40 275s P    | 2CTB803953R0800 | 19   |
| OVR HL 15 440s P TS    | 2CTB815201R0800 | 17   | OVR T2 3N 40 275s P TS | 2CTB803953R0200 | 19   |
| OVR HL 2L 15 440s P TS | 2CTB815303R0400 | 17   | OVR T2 3N 40 440 P     | 2CTB803953R1400 | 19   |
| OVR PLUS 1N 10 275     | 2CTB813812R2600 | 20   | OVR T2 3N 40 440 P TS  | 2CTB803953R1500 | 19   |
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| OVR PLUS N3 15         | 2CTB803701R0400 | 20   | OVR T2 3N 70 275s P    | 2CTB803953R0700 | 19   |
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| OVR PV 40 1000 C       | 2CTB803950R0100 | 20   | OVR T2 3N 70 440s P    | 2CTB803953R1700 | 19   |
| OVR PV 40 1000 P       | 2CTB803953R6400 | 20   | OVR T2 3N 70 440s P TS | 2CTB803953R1800 | 19   |
| OVR PV 40 1000 P TS    | 2CTB803953R6500 | 20   | OVR T2 40 275          | 2CTB804201R0100 | 20   |
| OVR PV 40 600 C        | 2CTB803950R0000 | 20   | OVR T2 40 275 C        | 2CTB803854R1000 | 19   |
| OVR PV 40 600 P        | 2CTB803953R5300 | 20   | OVR T2 40 275 P        | 2CTB803851R2300 | 18   |
| OVR PV 40 600 P TS     | 2CTB803953R5400 | 20   | OVR T2 40 275 P TS     | 2CTB803851R1700 | 18   |
| OVR PV MC              | 2CTB803950R0300 | 20   | OVR T2 40 275s C       | 2CTB803854R0900 | 19   |
| OVR T1 100 N           | 2CTB815101R0500 | 17   | OVR T2 40 275s P       | 2CTB803851R2000 | 18   |
| OVR T1 1N 25 255       | 2CTB815101R1500 | 16   | OVR T2 40 275s P TS    | 2CTB803851R1400 | 18   |
| OVR T1 1N 25 255 TS    | 2CTB815101R1000 | 16   | OVR T2 40 440 C        | 2CTB803854R0400 | 19   |
| OVR T1 25 255          | 2CTB815101R0100 | 16   | OVR T2 40 440 P        | 2CTB803851R1200 | 18   |
| OVR T1 25 255-7        | 2CTB815101R8700 | 17   | OVR T2 40 440 P TS     | 2CTB803851R0500 | 18   |
| OVR T1 25 440 50       | 2CTB815101R9300 | 16   | OVR T2 40 440s C       | 2CTB803854R0300 | 19   |
| OVR T1 25 N            | 2CTB815101R9700 | 17   | OVR T2 40 440s P       | 2CTB803851R0800 | 18   |
| OVR T1 2L 25 255       | 2CTB815101R1200 | 16   | OVR T2 40 440s P TS    | 2CTB803851R0200 | 18   |
| OVR T1 2L 25 255 TS    | 2CTB815101R1100 | 16   | OVR T2 4L 15 275       | 2CTB804600R0500 | 20   |
| OVR T1 3L 25 255       | 2CTB815101R1300 | 16   | OVR T2 4L 15 275 P     | 2CTB803853R6000 | 18   |
| OVR T1 3L 25 255 TS    | 2CTB815101R0600 | 16   | OVR T2 4L 40 275       | 2CTB804601R0500 | 20   |
| OVR T1 3N 25 255       | 2CTB815101R1600 | 16   | OVR T2 4L 40 275 P     | 2CTB803853R5600 | 18   |
| OVR T1 3N 25 255 TS    | 2CTB815101R0700 | 16   | OVR T2 4L 40 275 P TS  | 2CTB803853R5200 | 18   |
| OVR T1 3N 25 255-7     | 2CTB815101R8800 | 17   | OVR T2 4L 40 275s P    | 2CTB803853R5400 | 18   |
| OVR T1 4L 25 255       | 2CTB815101R1400 | 16   | OVR T2 4L 40 275s P TS | 2CTB803853R5000 | 18   |
| OVR T1 4L 25 255 TS    | 2CTB815101R0800 | 16   | OVR T2 4L 40 440 P     | 2CTB803853R5100 | 19   |
| OVR T1 50 N            | 2CTB815101R0400 | 17   | OVR T2 4L 40 440 P TS  | 2CTB803853R5300 | 19   |
| OVR T1+2 15 255-7      | 2CTB815101R8900 | 17   | OVR T2 4L 70 275s P    | 2CTB803919R0200 | 18   |
| OVR T1+2 1N 7 275s P   | 2CTB815302R1000 | 17   | OVR T2 4L 70 275s P TS | 2CTB803919R0400 | 18   |
| OVR T1+2 25 255 TS     | 2CTB815101R0300 | 17   | OVR T2 4L 70 440s P    | 2CTB803853R7000 | 19   |
| OVR T1+2 3L 7 275s P   | 2CTB815101R4000 | 17   | OVR T2 4L 70 440s P TS | 2CTB803853R7100 | 19   |
| OVR T1+2 3N 15 255-7   | 2CTB815101R9000 | 17   | OVR T2 70 275s C       | 2CTB803854R0700 | 19   |
| OVR T1+2 3N 7 275s P   | 2CTB815502R1000 | 17   | OVR T2 70 275s P       | 2CTB803851R1900 | 18   |
| OVR T1+2 4L 7 275s P   | 2CTB815101R4100 | 17   | OVR T2 70 275s P TS    | 2CTB803851R1300 | 18   |
| OVR T1+2 7 275s C      | 2CTB815101R3800 | 17   | OVR T2 70 440s C       | 2CTB803854R0100 | 19   |
| OVR T1+2 7 275s P      | 2CTB815101R3900 | 17   | OVR T2 70 440s P       | 2CTB803851R0700 | 18   |
| OVR T1+2 70 NC         | 2CTB815101R5100 | 17   | OVR T2 70 440s P TS    | 2CTB803851R0100 | 18   |
| OVR T2 120 440s P TS   | 2CTB803951R1300 | 18   | OVR T2 70 N C          | 2CTB803854R0000 | 19   |
| OVR T2 15 275          | 2CTB804200R0100 | 20   | OVR T2 70 N P          | 2CTB803953R1900 | 19   |
| OVR T2 15 275 C        | 2CTB803854R1200 | 19   | OVR TC 12V C           | 2CTB804821R0100 | 20   |
| OVR T2 15 275 P        | 2CTB803851R2400 | 18   | OVR TC 12V P           | 2CTB804820R0100 | 20   |
| OVR T2 15 440 C        | 2CTB803854R0600 | 19   | OVR TC 200FR C         | 2CTB804821R0500 | 20   |
| OVR T2 15 440 P        | 2CTB803851R1100 | 18   | OVR TC 200FR P         | 2CTB804820R0400 | 27   |
| OVR T2 1N 15 275 P     | 2CTB803952R1200 | 18   | OVR TC 200FR P         | 2CTB804820R0500 | 20   |
| OVR T2 1N 40 275 P     | 2CTB803952R1100 | 18   | OVR TC 200V C          | 2CTB804821R0400 | 20   |
| OVR T2 1N 40 275 P TS  | 2CTB803952R0500 | 18   | OVR TC 200V P          | 2CTB804820R0400 | 20   |
| OVR T2 1N 40 275s P    | 2CTB803952R0800 | 18   | OVR TC 24V C           | 2CTB804821R0200 | 20   |
| OVR T2 1N 40 275s P TS | 2CTB803952R0200 | 18   | OVR TC 24V P           | 2CTB804820R0200 | 20   |
| OVR T2 1N 70 275s P    | 2CTB803952R0700 | 18   | OVR TC 48V C           | 2CTB804821R0300 | 20   |
| OVR T2 1N 70 275s P TS | 2CTB803952R0100 | 18   | OVR TC 48V P           | 2CTB804820R0300 | 20   |
| OVR T2 3L 15 275 P     | 2CTB803853R3400 | 18   | OVR TC 6V C            | 2CTB804821R0000 | 20   |
| OVR T2 3L 40 275 P     | 2CTB803853R2400 | 18   | OVR TC 6V P            | 2CTB804820R0000 | 20   |
| OVR T2 3L 40 275 P TS  | 2CTB803853R2500 | 18   |                        |                 |      |
| OVR T2 3L 40 275s P    | 2CTB803853R2200 | 18   |                        |                 |      |



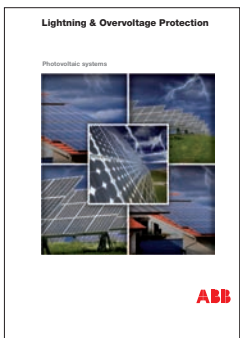
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for low voltage installation



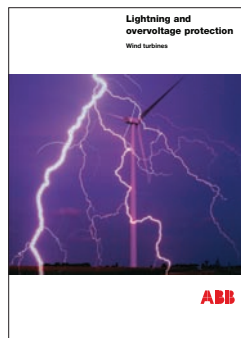
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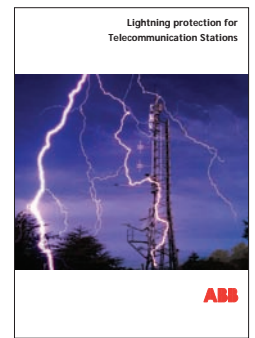
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