





# TVSS Surge Suppression

## ABB TVSS Surge Suppression OVR Range



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## Quick Selector

### 3 Easy steps to select a TVSS part number

#### 1st - Select the TVSS MCOV

(**M**aximum **C**ontinuous **O**perating **V**oltage). The MCOV should correspond to your system voltage.

Example:

If you have a 480VAC Delta system you will need a TVSS rated for 550VAC or 660VAC (See the selection chart on the next page)

#### 2nd - Select the TVSS kA rating.

The kA rating is the amount of lightning energy the unit can handle during a lightning event. The kA rating is not a short circuit rating. The higher the kA rating the longer the unit will protect your system.

Example: A 40kA rated unit will be able to divert a 30kA surge and still have enough remaining capacity for an additional lightning event. (See the selection chart on the next page)

#### 3rd - Select the TVSS options.

Depending on your application you may want to select a TVSS unit with additional options. The OVR range can be ordered with a safety reserve ("S" in the part number), a pluggable MOV ("P" in the part number), or with an auxiliary contact ("TS" in the part number). (See the selection chart on the next page)



### Part number breakdown ①

| <u>OVR</u> | <u>3N</u>          | <u>40</u> | <u>320</u>  | <u>S</u>            | <u>P</u>             | <u>TS</u>           |
|------------|--------------------|-----------|-------------|---------------------|----------------------|---------------------|
| ABB TVSS   | Phases             | kA Rating | Max Voltage | ABB Dual MOV Option | Pluggable MOV Option | Aux. Contact Option |
|            | 1ph = No Notation  | 15kA      | 150V        |                     |                      |                     |
|            | 3ph + Neutral = 3N | 40kA      | 275V        |                     |                      |                     |
|            |                    | 65kA      | 320V        |                     |                      |                     |
|            |                    | 100kA     | 550V        |                     |                      |                     |
|            |                    |           | 660V        |                     |                      |                     |

① This part number breakdown only explains our part numbering system; it is not to be used to build a part number for ordering purposes.

# Quick selector Part number description

Surge  
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|                          | Part number            | kA Rating              |       | Max Voltage            |      | Safety Reserve<br>Dual MOV Option                                                                  | Pluggable Option                                                                                                                                   | Auxiliary Contact<br>Option                                                    |
|--------------------------|------------------------|------------------------|-------|------------------------|------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 480VAC<br>Delta          | <b>OVR40550</b>        | <b>OVR40550</b>        | 40kA  | <b>OVR40550</b>        | 550V | OVR40660 <b>SP</b><br><br>OVR40660 <b>SPTS</b><br>OVR65660 <b>S</b>                                | OVR40660 <b>P</b><br>OVR40660 <b>SP</b><br>OVR40660 <b>PTS</b><br>OVR40660 <b>SPTS</b>                                                             | OVR40660 <b>PTS</b><br>OVR40660 <b>SPTS</b>                                    |
|                          | <b>OVR40660P</b>       | <b>OVR40660P</b>       | 40kA  | <b>OVR40660P</b>       | 660V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR40660SP</b>      | <b>OVR40660SP</b>      | 40kA  | <b>OVR40660SP</b>      | 660V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR40660PTS</b>     | <b>OVR40660PTS</b>     | 40kA  | <b>OVR40660PTS</b>     | 660V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR40660SPTS</b>    | <b>OVR40660SPTS</b>    | 40kA  | <b>OVR40660SPTS</b>    | 660V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR65660S</b>       | <b>OVR65660S</b>       | 65kA  | <b>OVR65660S</b>       | 660V |                                                                                                    |                                                                                                                                                    |                                                                                |
| 480/277VAC<br>Wye        | <b>OVR3N40320P</b>     | <b>OVR3N40320P</b>     | 40kA  | <b>OVR3N40320P</b>     | 320V | OVR3N65320 <b>SP</b><br>OVR3N65320 <b>SPTS</b><br>OVR3N100320 <b>SP</b><br>OVR3N100320 <b>SPTS</b> | OVR3N40320 <b>P</b><br>OVR3N40320 <b>PTS</b><br>OVR3N65320 <b>SP</b><br>OVR3N65320 <b>SPTS</b><br>OVR3N100320 <b>SP</b><br>OVR3N100320 <b>SPTS</b> | OVR3N40320 <b>PTS</b><br><br>OVR3N65320 <b>SPTS</b><br>OVR3N100320 <b>SPTS</b> |
|                          | <b>OVR3N40320PTS</b>   | <b>OVR3N40320PTS</b>   | 40kA  | <b>OVR3N40320PTS</b>   | 320V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR3N65320SP</b>    | <b>OVR3N65320SP</b>    | 65kA  | <b>OVR3N65320SP</b>    | 320V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR3N65320SPTS</b>  | <b>OVR3N65320SPTS</b>  | 65kA  | <b>OVR3N65320SPTS</b>  | 320V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR3N100320SP</b>   | <b>OVR3N100320SP</b>   | 100kA | <b>OVR3N100320SP</b>   | 320V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR3N100320SPTS</b> | <b>OVR3N100320SPTS</b> | 100kA | <b>OVR3N100320SPTS</b> | 320V |                                                                                                    |                                                                                                                                                    |                                                                                |
| 120/240VAC<br>120/208VAC | <b>OVR15275</b>        | <b>OVR15275</b>        | 15kA  | <b>OVR15275</b>        | 275V | OVR40275 <b>SP</b><br>OVR40275 <b>SPTS</b><br>OVR65275 <b>SP</b><br>OVR65275 <b>SPTS</b>           | OVR40275 <b>P</b><br>OVR40275 <b>PTS</b><br>OVR65275 <b>P</b><br>OVR65275 <b>PTS</b>                                                               | OVR40275 <b>SPTS</b><br><br>OVR65275 <b>SPTS</b>                               |
|                          | <b>OVR40275SP</b>      | <b>OVR40275SP</b>      | 40kA  | <b>OVR40275SP</b>      | 275V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR40275SPTS</b>    | <b>OVR40275SPTS</b>    | 40kA  | <b>OVR40275SPTS</b>    | 275V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR65275SP</b>      | <b>OVR65275SP</b>      | 65kA  | <b>OVR65275SP</b>      | 275V |                                                                                                    |                                                                                                                                                    |                                                                                |
| 120VAC                   | <b>OVR15150</b>        | <b>OVR15150</b>        | 15kA  | <b>OVR15150</b>        | 150V | OVR40150 <b>SP</b><br>OVR40150 <b>SPTS</b>                                                         | OVR40150 <b>P</b><br>OVR40150 <b>PTS</b>                                                                                                           | OVR40150 <b>SPTS</b><br><br>OVR40150 <b>SPTS</b>                               |
|                          | <b>OVR40150</b>        | <b>OVR40150</b>        | 40kA  | <b>OVR40150</b>        | 150V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR40150SP</b>      | <b>OVR40150SP</b>      | 40kA  | <b>OVR40150SP</b>      | 150V |                                                                                                    |                                                                                                                                                    |                                                                                |
|                          | <b>OVR40150SPTS</b>    | <b>OVR40150SPTS</b>    | 40kA  | <b>OVR40150SPTS</b>    | 150V |                                                                                                    |                                                                                                                                                    |                                                                                |

### Replacement MOV Cartridge

|                   |                  |       |
|-------------------|------------------|-------|
| 480VAC<br>Delta   | OVR40660SC       |       |
| 480/277VAC<br>Wye | OVR40320SC       | 40kA  |
|                   | OVR65320SC       | 65kA  |
|                   | OVR65320SC (2ea) | 100kA |
| 120/240VAC        | OVR40275SC 40kA  |       |
| 120/208VAC        | OVR65275SC 65kA  |       |
| 120VAC            | OVR40150SC 40kA  |       |

### Signal protection

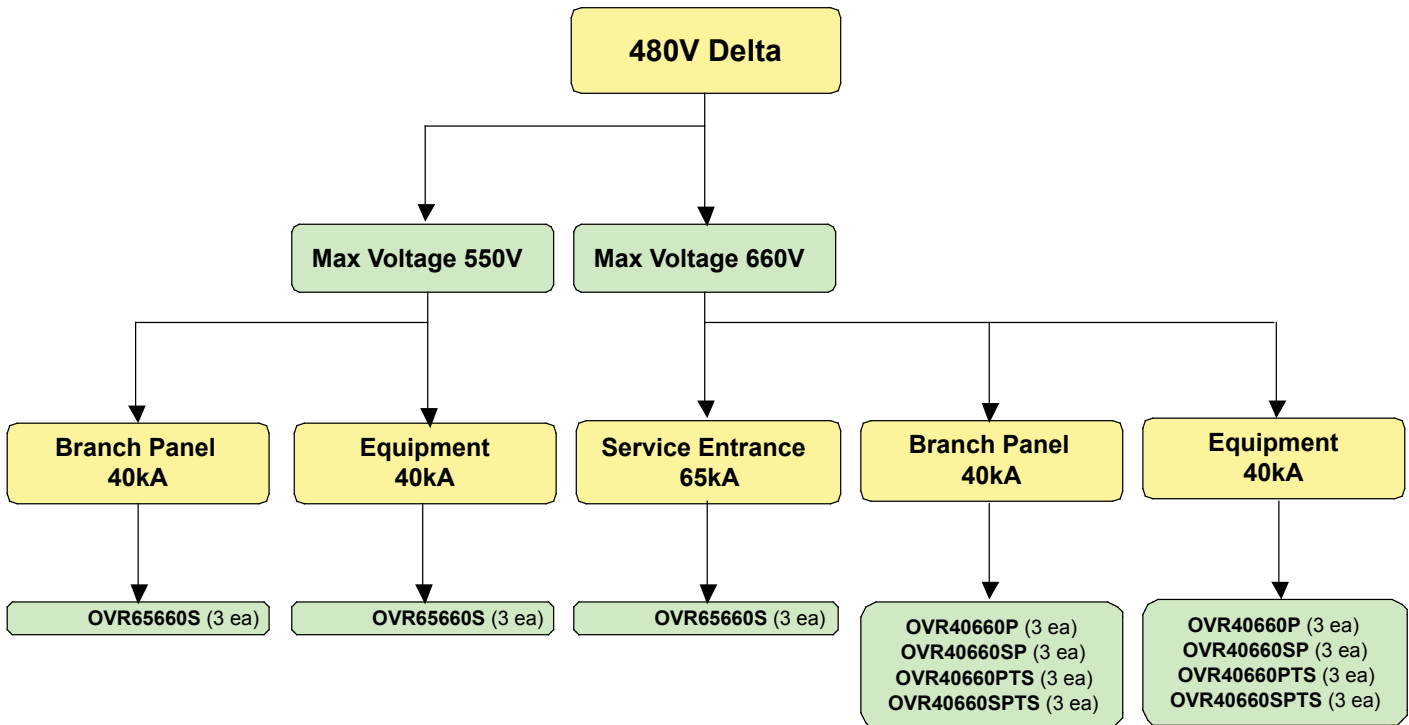
|               |     |          |
|---------------|-----|----------|
| 4-20mA signal | 6V  | OVRTC6V  |
|               | 12V | OVRTC12V |
|               | 24V | OVRTC24V |
|               | 48V | OVRTC48V |

### Neutral Protection

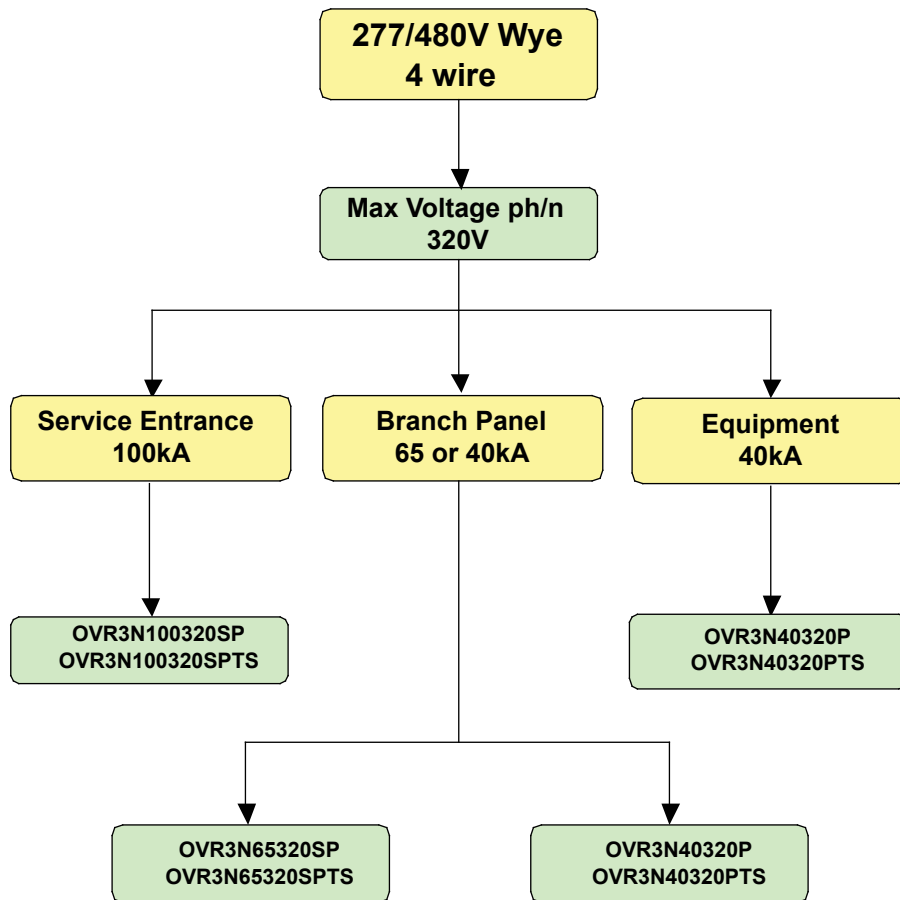
|         |
|---------|
| OVR65NP |
|---------|

Consult your local sales representative for any other applications.

## Quick selector 480V Delta

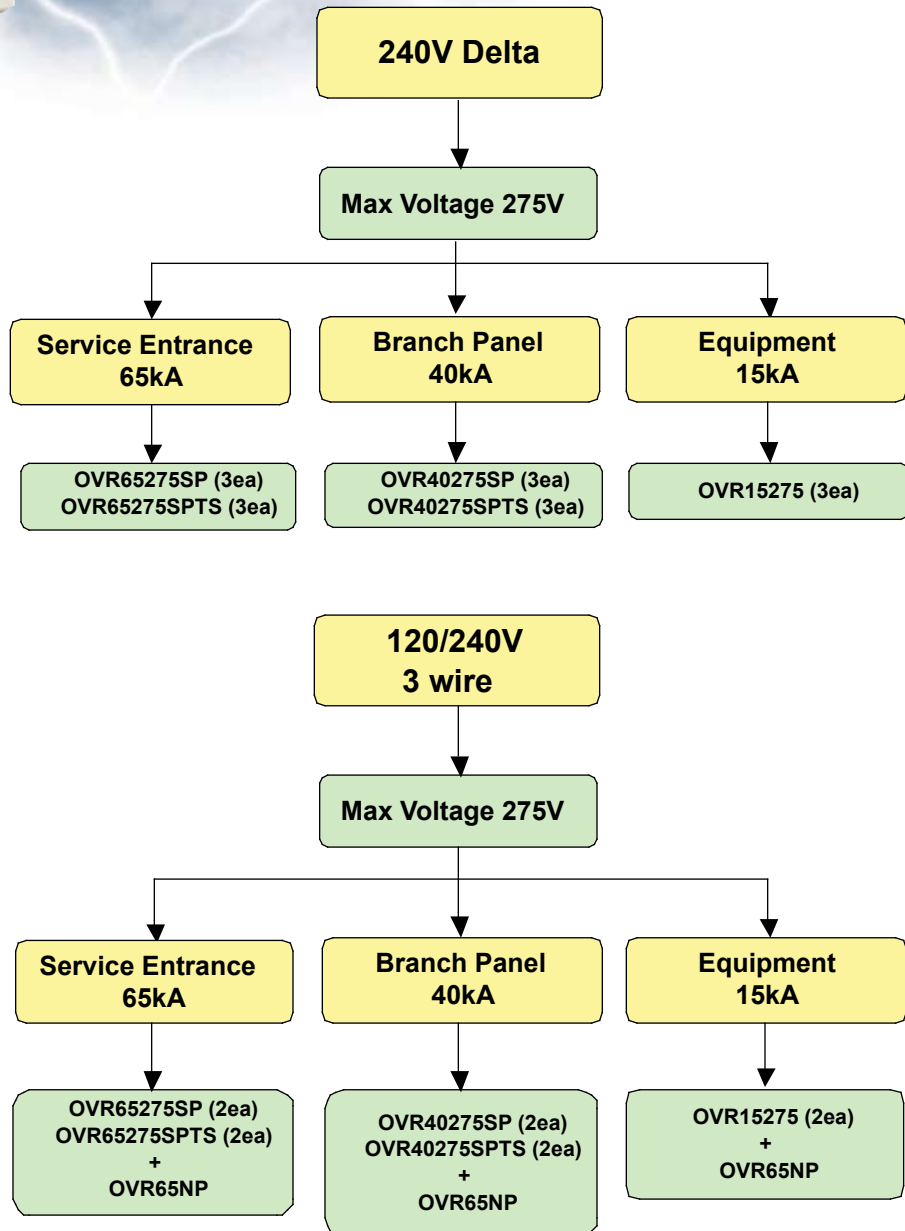


**Quick selector**  
277/480V Wye  
4 Wire



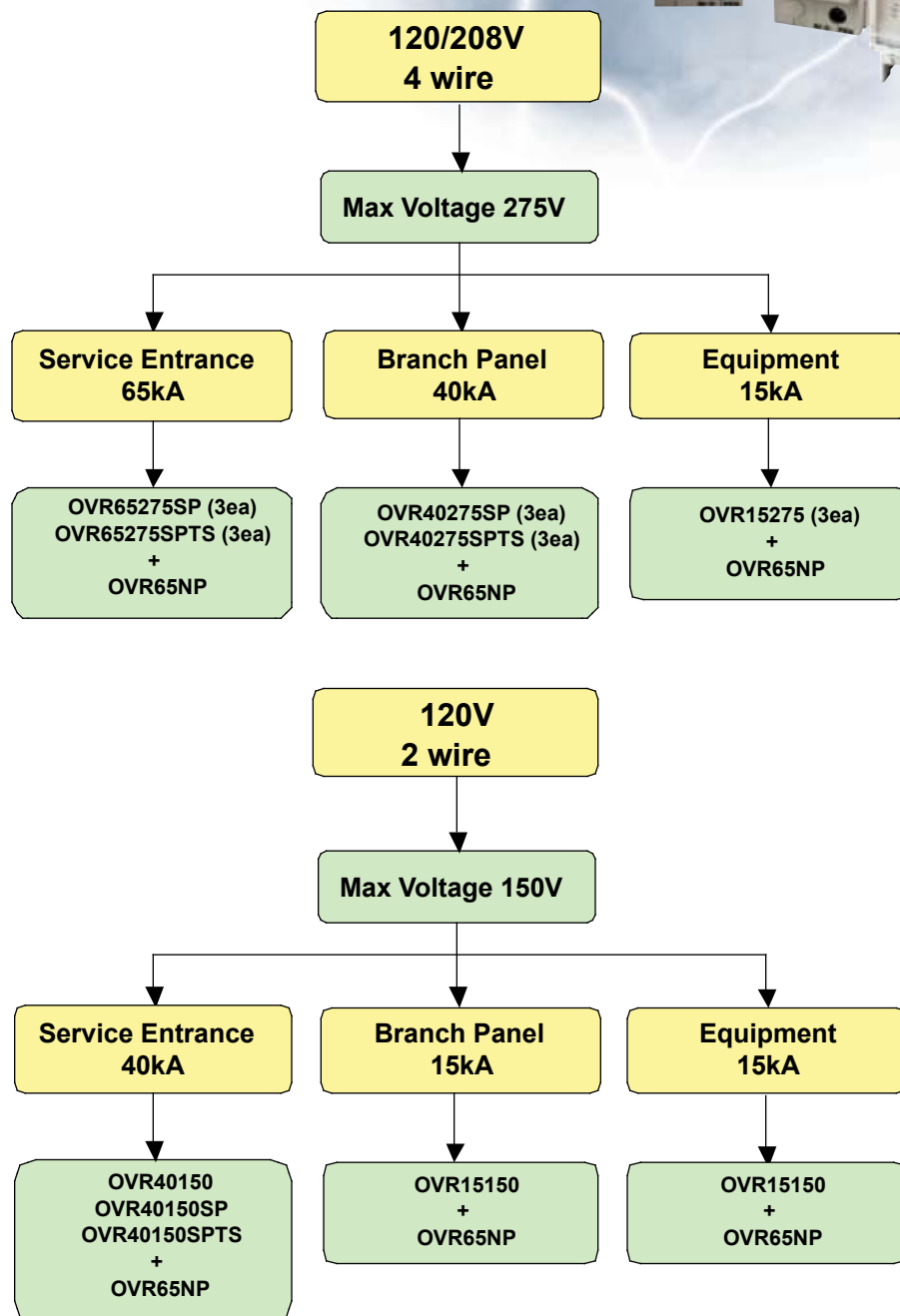


**Quick selector**  
 240V Delta  
 120/240V, 3 Wire

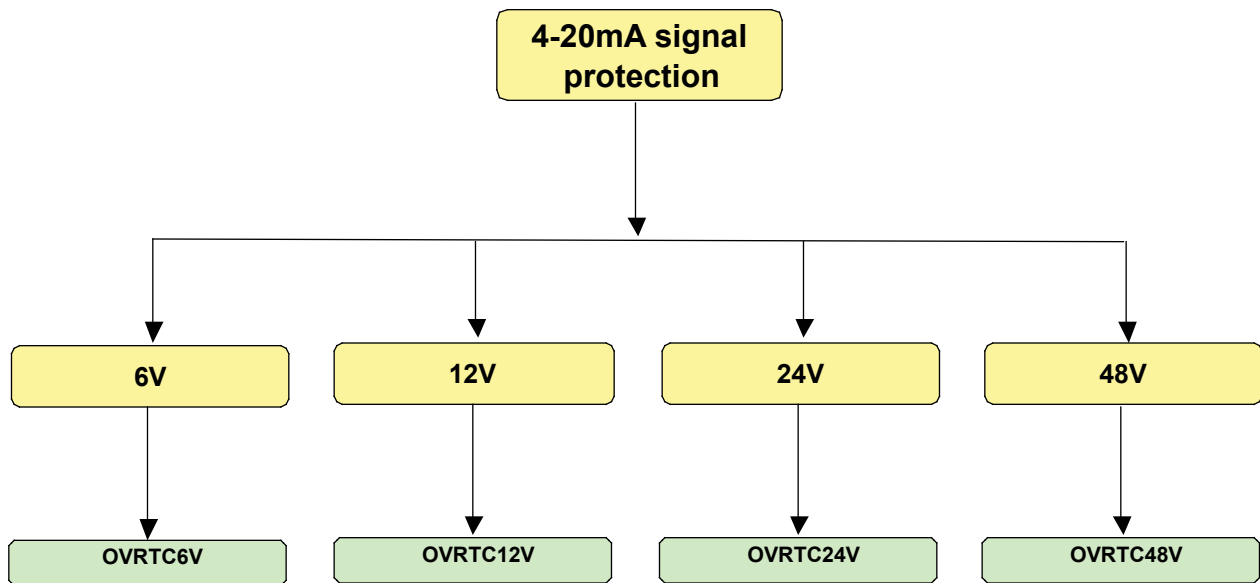




**Quick selector**  
 120/208V, 4 Wire  
 120V, 2 Wire

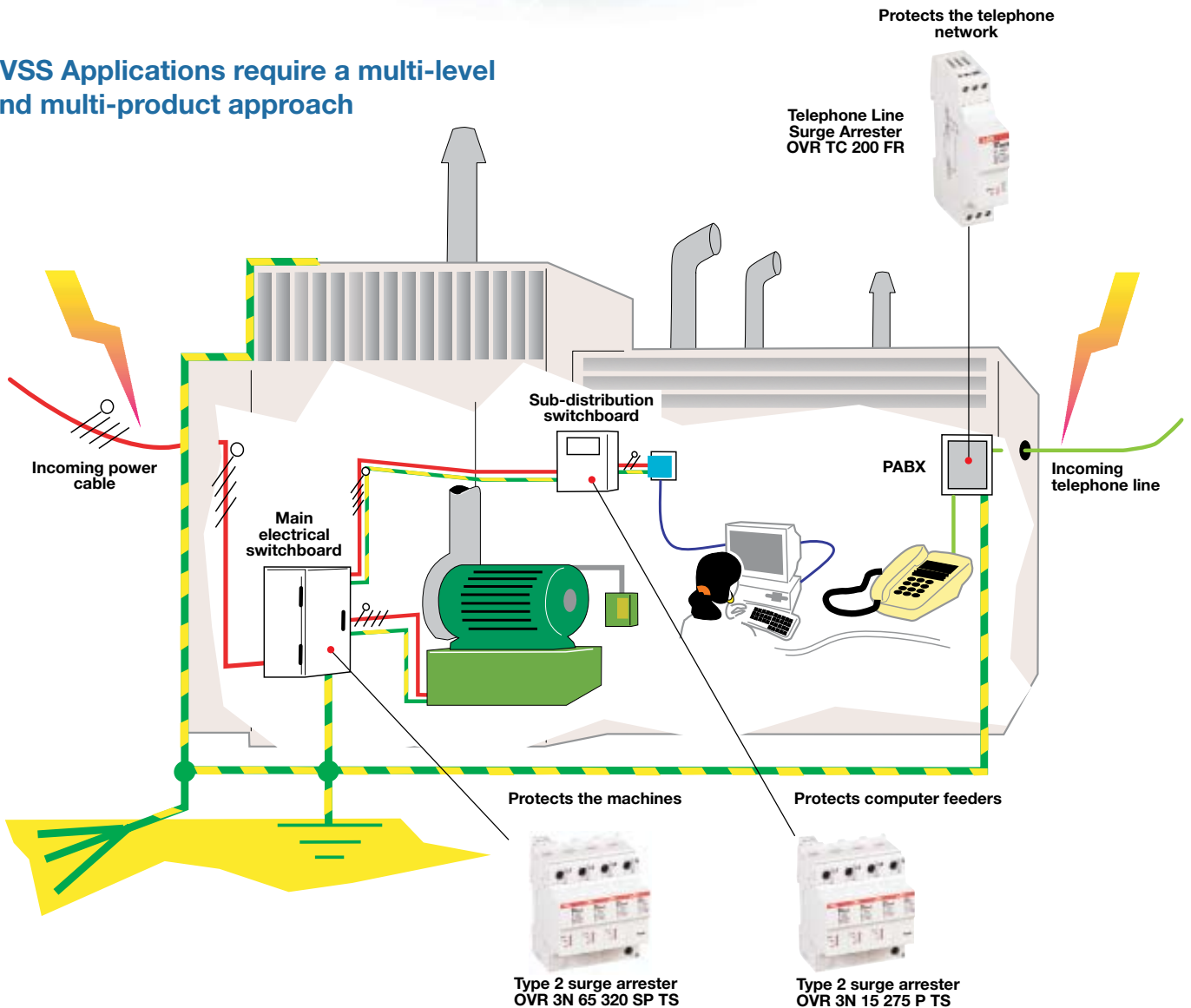


## Quick selector 4-20mA Signal protection





TVSS Applications require a multi-level and multi-product approach



## Cross reference Phoenix & Citel to ABB



### Phoenix to ABB

|                          | ABB                                                                              | Phoenix                                                                                        | Description                                                                           |
|--------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 480VAC<br>Delta          | <b>OVR40660SC</b><br><b>OVR40660P</b><br><b>OVR40660SC</b><br><b>OVR40660PTS</b> | VAL-MS-500ST (2807609)<br>VAL-MSBE (281741)<br>VAL-MS-500ST (2807609)<br>VAL-MSBE/FM (2817738) | Plug-In MOV Unit<br>Base W/O Aux Contact<br>Plug-In MOV Unit<br>Base with Aux Contact |
| 480/277VAC<br>Wye        | <b>OVR3N40320SPTS</b>                                                            | VAL-MS 320/3+1/FM-UD<br>(285668)                                                               | Base with Aux Contact and Plug-In Unit                                                |
| 120/240VAC<br>120/208VAC | <b>OVR40275SP</b><br><b>OVR40275SPTS</b>                                         | VAL-MS 230 (2839127)<br>VAL-MS 230/FM (2839130)                                                | Base W/O Aux Contact and Plug-In Unit<br>Base with Aux Contact and Plug-In Unit       |
| 120VAC                   | <b>OVR40150</b>                                                                  | VAL-MS 120ST (2807586)                                                                         | Base W/O Aux Contact and Plug-In Unit                                                 |

### Citel to ABB

|                          | ABB                                                                                                     | Citel                                                          | Description                                                                                                                                                    |
|--------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 480VAC<br>Delta          | <b>OVR40550</b>                                                                                         | DS41-480                                                       | 1P 40kA 550VAC                                                                                                                                                 |
| 480/277VAC<br>Wye        | <b>OVR3N40320SP</b><br><b>OVR3N40320SPTS</b><br><b>OVR3N65320SP</b><br><b>OVR3N65320SPTS</b>            | DS44-320/G<br>DS44S-320/G<br>DS74R-400<br>DS74RS-400           | 3P + N 40kA 320VAC W/O Aux Contact<br>3P + N 40kA 320VAC with Aux Contact<br>3P + N 70kA 400VAC W/O Aux Contact<br>3P + N 70kA 400VAC with Aux Contact         |
| 120/240VAC<br>120/208VAC | <b>OVR15275</b><br><b>OVR40275SP</b><br><b>OVR40275SPTS</b><br><b>OVR65275SP</b><br><b>OVR65275SPTS</b> | DS210D-230<br>DS41-230<br>DS41S-230<br>DS71R-230<br>DSM71R-230 | 1P 20kA 230V W/O Aux Contact<br>1P 40kA 230V W/O Aux Contact<br>1P 40kA 230V with Aux Contact<br>1P 70kA 230V W/O Aux Contact<br>1P 70kA 230V with Aux Contact |
| 120VAC                   | <b>OVR15150</b><br><b>OVR40150</b>                                                                      | DS210D-120<br>DU41-120                                         | 1P 20kA 120V W/O Aux Contact<br>1P 40kA 120V W/O Aux Contact                                                                                                   |

## Cross reference Ferraz & Square D to ABB

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### Ferraz to ABB

|                   | ABB                   | Ferraz   | Description                         |
|-------------------|-----------------------|----------|-------------------------------------|
| 480VAC<br>Delta   | <b>OVR40550</b>       | ST510-1  | 1P 40kA 510V W/O Aux Contact        |
|                   | <b>OVR40660P</b>      | ST550-1  | 1P 40kA 550V W/O Aux Contact        |
|                   | <b>OVR40660PTS</b>    | ST510-1M | 1P 40kA 510V with Aux Contact       |
|                   | <b>OVR40660SPTS</b>   | ST550-1M | 1P 40kA 550V with Aux Contact       |
| 480/277VAC<br>Wye | <b>OVR3N40320SP</b>   | ST320-4  | 3P + N 40kA 320VAC W/O Aux Contact  |
|                   | <b>OVR3N40320SPTS</b> | ST320-4M | 3P + N 40kA 320VAC with Aux Contact |
| 120/240VAC        | <b>OVR40275SP</b>     | ST270-1  | 1P 40kA 270V W/O Aux Contact        |
|                   | <b>OVR40275SPTS</b>   | ST270-1M | 1P 40kA 270V with Aux Contact       |
| 120VAC            | <b>OVR40150</b>       | ST150-1  | 1P 40kA 150V W/O Aux Contact        |
|                   | <b>OVR40150SPTS</b>   | ST150-1M | 1P 40kA 150V with Aux Contact       |

### Square D to ABB

|                          | ABB                    | Square D                    | Description                   |
|--------------------------|------------------------|-----------------------------|-------------------------------|
| 480/277VAC<br>Wye        | <b>OVR3N40320SP</b>    | Multi9 400V 4P 45kA         | 4P 45kA 400V W/O Aux Contact  |
|                          | <b>OVR3N40320SPTS</b>  | Multi9 400V 4P 45kA contact | 4P 45kA 400V with Aux Contact |
|                          | <b>OVR3N100320SP</b>   | Multi9 400V 4P 80kA         | 4P 80kA 400V W/O Aux Contact  |
|                          | <b>OVR3N100320SPTS</b> | Multi9 400V 4P 80kA contact | 4P 80kA 400V with Aux Contact |
| 120/240VAC<br>120/208VAC | <b>OVR15275</b>        | Multi9 230V 1P 20kA         | 1P 20kA 230V W/O Aux Contact  |
|                          | <b>OVR40275SP</b>      | Multi9 230V 1P 45kA         | 1P 45kA 230V W/O Aux Contact  |
|                          | <b>OVR40275SPTS</b>    | Multi9 230V 1P 45kA contact | 1P 45kA 230V with Aux Contact |
|                          | <b>OVR65275SP</b>      | Multi9 230V 1P 65kA         | 1P 65kA 230V W/O Aux Contact  |
|                          | <b>OVR65275SPTS</b>    | Multi9 230V 1P 65kA contact | 1P 65kA 230V with Aux Contact |
| 120VAC                   | <b>OVR15150</b>        | Multi9 120V 1P 20kA         | 1P 20kA 120V W/O Aux Contact  |
|                          | <b>OVR40150</b>        | Multi9 120V 1P 45kA         | 1P 20kA 120V W/O Aux Contact  |
|                          | <b>OVR40150SPTS</b>    | Multi9 120V 1P 45kA contact | 1P 20kA 120V with Aux Contact |

## General information

### Key features

TVSS Surge Suppressors are designed to intercept and divert transient surge events to ground. Surge events can be caused by electrical storms or bank switching on electrical distribution lines. These events are responsible for over 2 billion dollars of damage annually in the USA and can effect sensitive electrical equipment, telephone networks, and computer networks.

ABB offers a full line of Surge Suppressors designed to protect sensitive equipment, minimize preventative maintenance, and prevent unscheduled equipment downtime.

#### Key Features:

- Din rail mount
- Built-In Safety MOV reserve
- 3 step visual indication
- Remote alarm contacts
- Integrated terminal disconnecter to avoid fire risks
- Low clamping voltage - as low as 600V
- High discharge capability - up to 100kA per phase
- High energy withstand - up to 1600 joules per phase
- Plug-in modules for easy replacement
- UL1449 Second Edition recognized, CSA, IEC

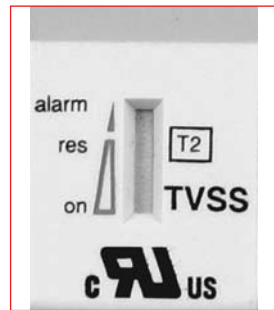
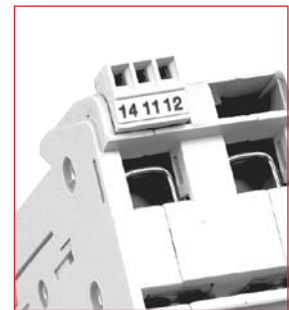
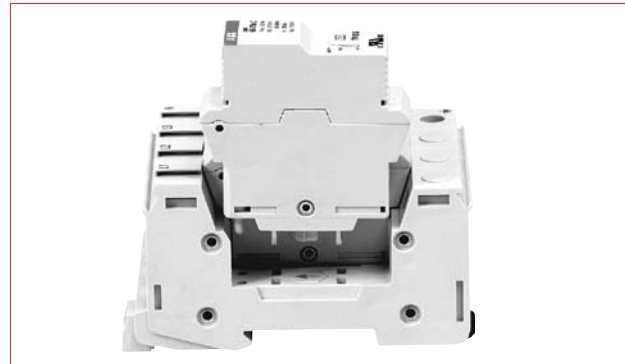


ABB safety reserve system



Contact for alarm connection



Pluggable unit / replacement modules



DIN rail unit, easy installation and wiring

# General information

## Glossary of terms

### SPD

Surge Protection Device - A Device that diverts electrical surges to ground.

### TVSS

Transient Voltage Surge Suppressor - A device that diverts electrical surges to ground.

### kA

The maximum lightning discharge a device can sustain once. A TVSS kA rating is not the same as an electrical withstand rating. (See Fig 2.)

### Up/Clamping Voltage/Let Through Voltage

The maximum voltage that will remain, in the system, after a TVSS has diverted all the electrical surge above the clamping voltage to ground.

### Max Voltage

The maximum voltage a TVSS unit can continuously operate.

### S "Safety Reserve"

A feature unique to ABB that provides for two MOV's wired into the electrical circuit. The first MOV is for primary protection and the second MOV is secondary back-up protection (See Fig. 1).

### P "Plug-In"

Plug-In units that allow MOV replacement without unwiring the unit base (See Fig. 1).

### TS "Dry-Contact"

A set of dry contacts that allow the integration of an alarm in the event that the primary MOV has failed (See Fig. 1).

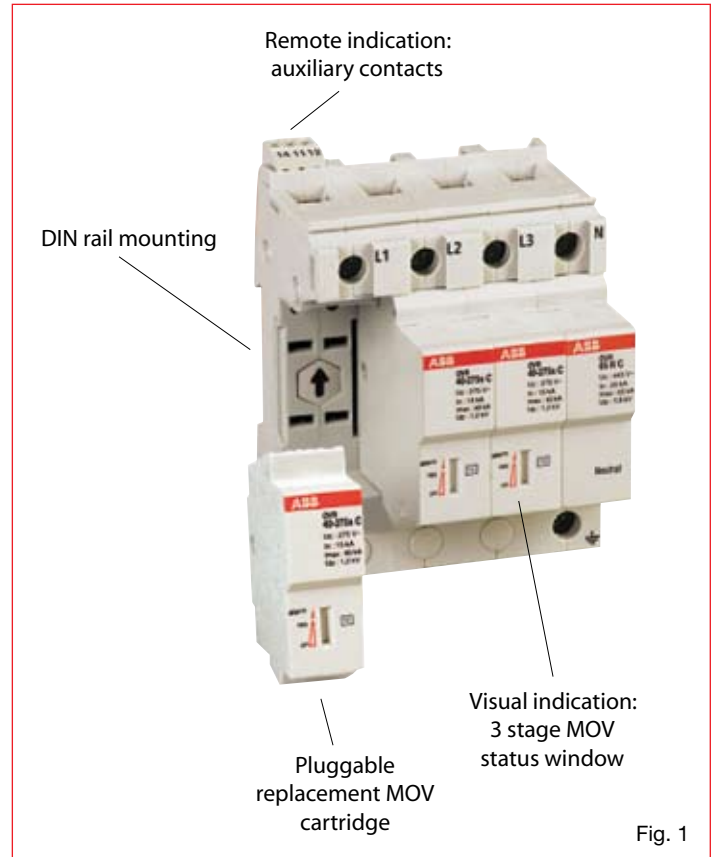


Fig. 1

**Number of lightning strikes per the life cycle of the OVR unit**

| kA per strike | OVR15 | OVR40 | OVR65 | OVR100 |
|---------------|-------|-------|-------|--------|
| 100           |       |       |       | 1      |
| 65            |       |       | 1     | 3      |
| 40            |       | 1     | 3     | 15     |
| 20            |       | 5     | 20    | 25     |
| 15            | 1     | 20    | 50    | 75     |
| 10            | 2     | 40    | 150   | 220    |
| 5             | 20    | 200   | 400   | 530    |
| 2             | 150   | 1000  | 2500  | 4500   |
| 1             | 1000  | 3000  | 9000  | 15000  |

OVR15 OVR40 OVR65 OVR100 OVR kA rating

Fig. 2





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