

Transient Voltage Surge Suppressors

OVR Series



ABB

Contents:

1. Main causes of transient overvoltages

3. The solution:
ABB OVR Transient Voltage Surge Suppressor Series

5. Selection / Application

8. Feature / Benefits

10. Installation Information

11. OVR Series Part Number Breakdown

12. Technical Data

13. Part numbers / Pricing

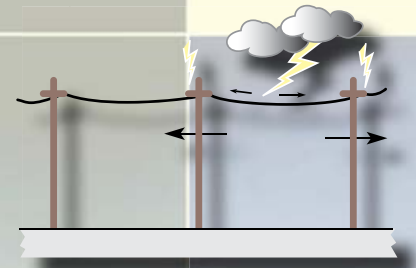
14. Application for "Data" Products

Main causes of transient overvoltages

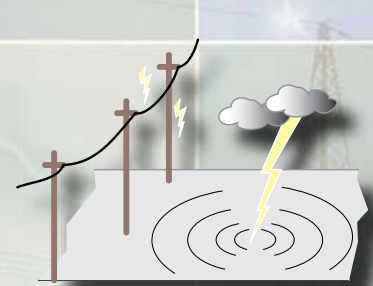
Lightning strike

- A lightning strike can have a destructive or disturbing effect on electrical installations situated up to several miles away from the actual point of the strike.
- During a storm, underground cables can transmit the effect of a lightning strike to electrical equipment installed inside buildings.
- A lightning protection device (such as a lightning rod or a Faraday cage) installed on a building to protect it against the risk of a direct strike (fire) can increase the risk of damage to electrical equipment connected to the main supply near or inside the building.

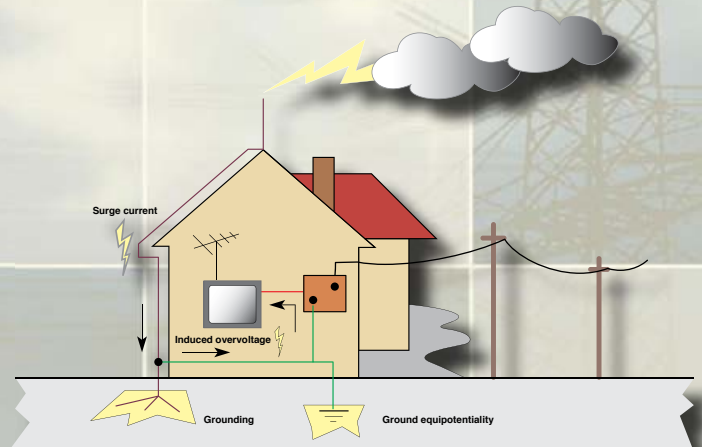
The lightning protection device diverts the high strike current to earth, considerably raising the potential of the ground close to the building on which it is installed. This causes overvoltages on the electrical equipment directly via the earth terminals and induced via the underground supply cables.



Direct strike on overhead line



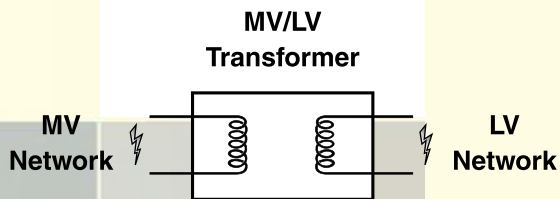
Indirect lightning strike



Strike on a lightning rod

Switching operation on the power distribution system

The switching of transformers, motors or inductances in general, sudden variation of load, disconnection of circuit breakers or cut outs (i.e in the distribution circuits) lead to overvoltages that penetrate the user's building.



MV disturbance Transmitted to LV

Significantly, the closer the building is to a generating station or sub station, the higher the overvoltages may be.

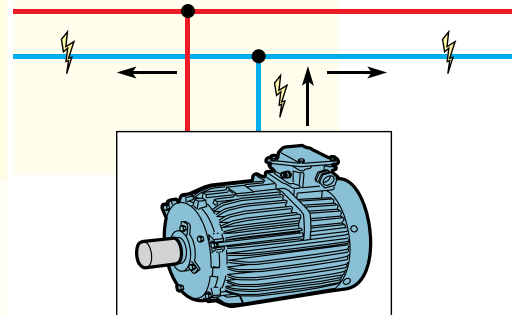
It is also necessary to take into account mutual induction effects between the high voltage power line and aerial sections of the low voltages lines as well as direct contact between lines of different voltages caused by accidental breaking of cables.

Parasitic interferences

These are freak interferences with indifferent amplitudes and frequencies that are re-injected into the electrical supply by the user himself or his environment.

The parasites can, for example, be due to:

- Light fittings with discharge lamps
- Arc furnaces
- Welding equipment
- Thyristors operation
- Contactors operation
- Opening circuit breakers
- Starting a motor
- Etc...



Disturbance generated by the user

These interferences have little energy but their short duration, their steep wave front and their peak value (that can reach several kilovolts) can have harmful effects on the proper functioning of sensitive equipment causing either disruption or complete destruction.

The solution:

ABB OVR Transient Voltage Surge Suppressor Series

Why is there a need for TVSS?

- Economical, service and security parameters: replacement and unavailability cost of the equipment to be protected, risk for the environment or for human life (petrochemical sites, stadium, ...).
- Cost of repair
- Threat to human life
 - direct shock
 - security systems
 - magnetic locks
 - fire protection
- Protect sensitive electronics



Surge suppression is crucial to any power quality and power protection system, including lightning protection and three phases power systems. TVSS guard against transient overvoltages, sometimes call transients, spikes or surges, hence the name Transient Voltage Surge Suppressor or TVSS. Transients are known to damage sensitive electronic equipment in homes, schools, commercial, industrial, and medical facilities, wastewater treatment plants, factories, etc..

The downtime, damage, and destruction caused to critical or electronic loads costs billions of dollars a year.

TVSS is now the standard technology for increasing the reliability and uptime of microprocessors.

Where do we need TVSS?

Type I: Main AC power entrance protection

The type I TVSS is designed to protect commercial and industrial facilities from the damaging affects of lightning. Power cables carry the damaging current into facilities. The device shunts these damaging currents safely to earth ground.

Type II: Distribution power — Panel protection

The type II TVSS is designed to protect all standard power Sub-distribution panel from damaging power line transients.

Type III: Branch circuit and equipment protection

Telecom / Data line protector:

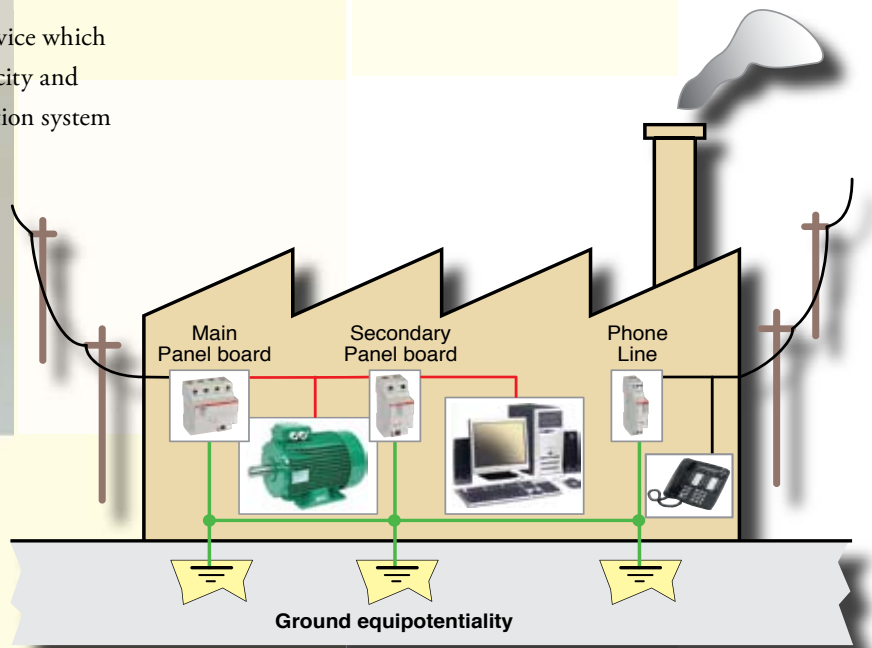
Protection of equipment connected onto telephone lines, computer, communication or data links, and current loops.

Need for multi-stage protection

Sometimes it is not possible to find a device which provides both the required current capacity and protection level. In this case, the protection system

has to have two or more stages, with a first device at the entrance of the installation (i.e. as close as possible to the point of entrance of the lightning surge), which handles the current capacity, and a second device as close as possible to the protected equipment, which gives the required voltage protection level.

The telecommunication lines entering the installation have to be protected as well; the grounding connections for all protections have to be equipotentially bonded.



Selection / Application

Determination of the voltage protection level (U_p)

The surge protective devices have to provide a level of protection compatible with the withstand voltage of the equipment. This withstand voltage depends on the type of equipment and its sensitivity.

Electrotechnical equipment



Required protection level
 U_p 1, 8 to 2.5 kV

Electrotechnical equipment containing slightly sensitive electronics



Required protection level
 U_p 1.5 to 1.8 kV

Sensitive electronic equipment



Required protection level
 U_p 1 to 1.5 kV

Highly sensitive equipment



Required protection level
 U_p 0.5 to 1 kV

Definition of the parameters

Purpose the protection

Protective devices are used to prevent current surges from flowing through the network by diverting them harmlessly to the ground. They also limit overvoltages to values compatible with the withstand of the equipment or devices connected.

Parameters of the protection

It can be easily understood from the above that the critical parameters of a surge protective device are its ability to divert high values of current to the ground (i.e. to dissipate large amount of energy) and to limit the voltage to the lowest possible level. Other parameters correspond to the fact that surge protective devices have to be adapted to the network they are connected to.

The applicable international standards give a precise definition of these parameters:

- **Maximum current I_{max} or I_{imp}**

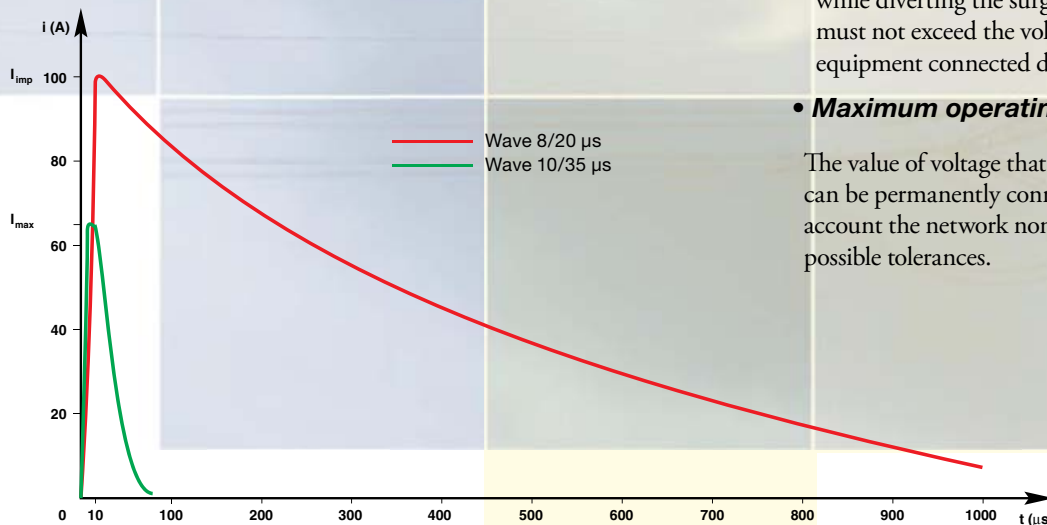
This is the maximum value of a surge current that can be diverted by the surge protective device; current surges with two different waveshapes are necessary to represent lightning currents: a long waveshape (10/350 μ s) which corresponds to a direct lightning strike and a short waveshape (8/20 μ s) which represents a damped indirect strike; I_{max} is the maximum value of a short waveshape current and I_{imp} is the value of a long waveshape current; the value I_{max} or I_{imp} has to be adapted to the expected value of the possible lightning currents.

- **Voltage protection level U_p**

The voltage given by the surge protective device, while diverting the surge current to the ground U_p , must not exceed the voltage withstand value of the equipment connected downstream.

- **Maximum operating voltage U_c**

The value of voltage that the surge protective device can be permanently connected to has to take into account the network nominal voltage U_n plus the possible tolerances.

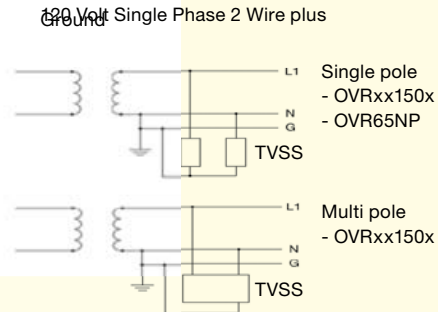


Selection/Application

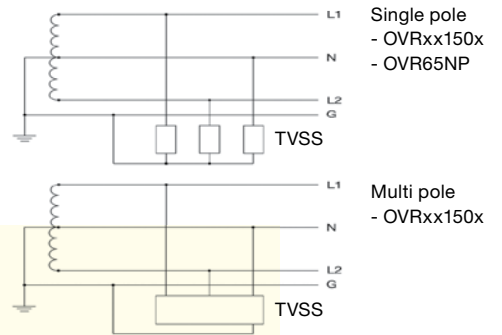
• Identification of the network

The type of product (single pole or multi pole) and the connection depend on the network, as follows:

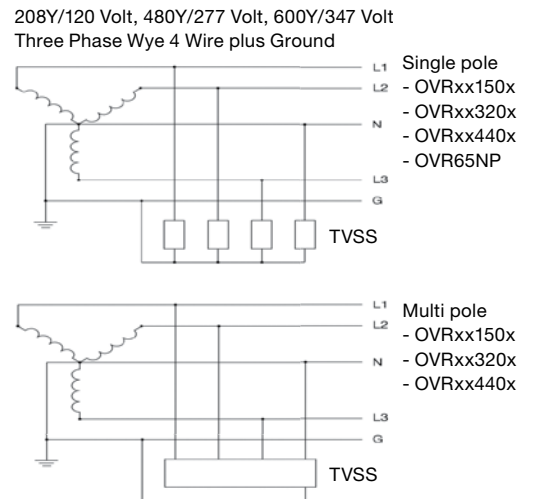
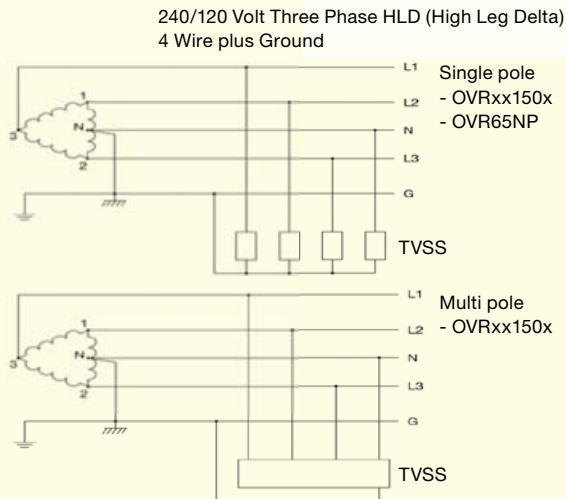
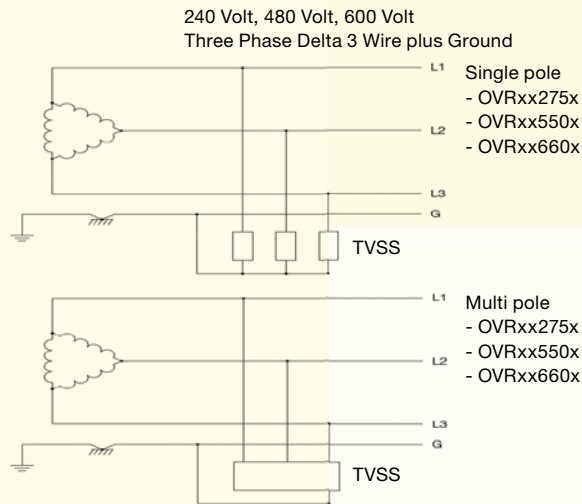
1 - phase networks



240/120 Volt Single Phase 3 Wire plus Ground (split phase)



3 - phase networks



Selection / Application

Type of protector

Main features

Type 1 TVSS according to EN 61643-11
(= Class I TVSS according to IEC 61643-1)



- high energy capability to handle direct lightning strike
- surge current, $I_{imp} = 15 \text{ kA}$ (10/350 wave)
- low protection level ($U_p = 1.2 \text{ kV}$)
- single and multi pole versions
- easy maintenance thanks to pluggable modules
- safety reserve(s)
- remote indicator (TS)

Type 2 TVSS according to EN 61643-11
(= Class II TVSS according to IEC 61643-1)

kit)



- high energy capacity (up to 100 kA 8/20)
- single and multi-pole versions
- adapted to all types of networks
- adapted to all network voltages (120 to 600 V)
- single block and pluggable versions
- local status indicator on front side
- possible remote indicator (integrated in the product or with optical monitoring)
- possibility of Safety reserve

Type 3 TVSS according to EN 61643-11
(= Class III TVSS according to IEC 61643-1)



- low protection level ($U_p = 1.2 \text{ kV}$)
- local status indicator on front side
- possible remote indicator with optical monitoring kit
- adapted to all types of 230/400 V networks
- multi-pole versions

Telecom and dataline protectors:
adapted to analog and digital transmission lines



- compact design (17.5 mm width)
- local status indicator on front side
- possible remote indicator with optical monitoring kit

Feature / Benefits

Single block products

single pole



multi pole



All models include a mechanical indicator showing the arrester status. Some models feature a safety reserve function allowing preventive maintenance (the indicator will go into the reserve position first). Replacing the arrester is recommended; however protection is still ensured.

Pluggable products

single pole



multi pole



The pluggability is the main advantage of this range of surge protective devices, because their replacement is very easy (no tools needed) due to a system of cartridges with pins connection.

Each pluggable TVSS may be delivered with the safety reserve(s) system of and/or an integrated contact (TS) for the remote indication.

There are two connection possibilities, wired or comb.

Optical monitoring block



The optical monitoring block (OVR SIGN) allows the easy status monitoring of all the modular lightning arresters (single block and pluggable, low current versions). The optical link between the transmitter module and the receiver module

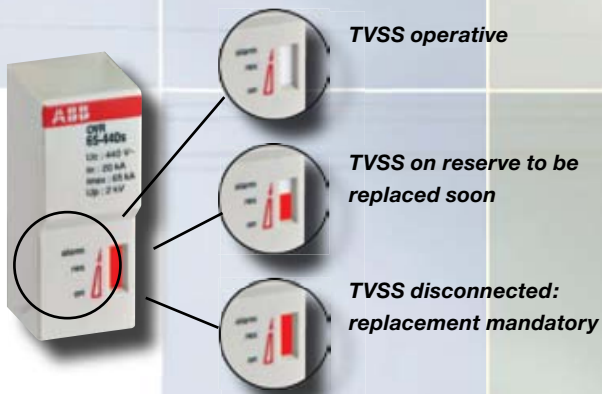
coupled to a dry 5 A power contact allows remote alarming via a complementary remote indication in addition to the visual status identification on each arrester.

Telecommunication line protectors

Telecommunication line protectors (OVR TC) are used for the protection of equipment connected to computer communication or data links and current loops.

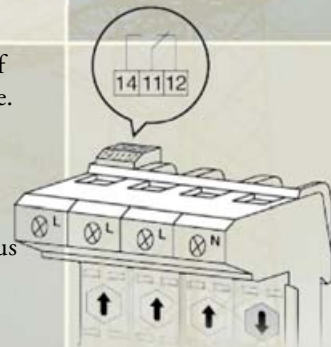


Safety reserve(s) and normal indication



The safety reserve allows preventive maintenance of the surge protective device. **Remote indication (TS)**

The contact TS allows remote control of the status of the protection.

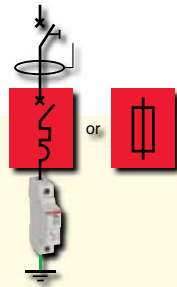


Installation Information

• Associated switching element

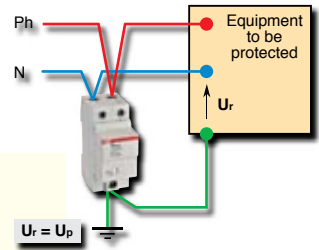
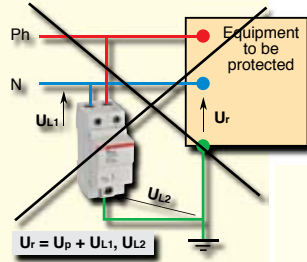
Even if all lightning arresters are provided with a built-in thermal disconnecter, they must be associated with an upstream protection element for protection against short-circuit currents.

For some types of networks (TT for example), protection from indirect contact has to be provided by a residual current device.

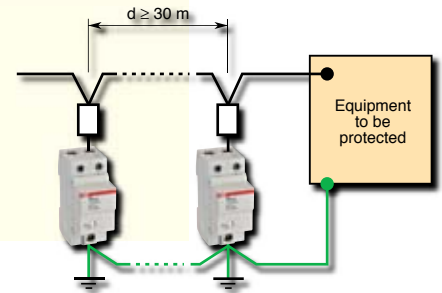
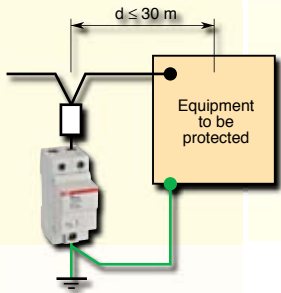


• Wiring rules

The impedance of the cables increases the voltage across the connected equipment, i.e. the protection level. Therefore, the length of cable between the surge protector and the equipment should be minimized, and the wiring should be done as follows:



The surge protective device should also be installed as close as possible to the equipment to be protected. If this is not possible (e.g. the equipment is too far away from the entrance panel), then a second protector has to be installed.



• Energy coordination

When it is necessary to use a multi-stage protection, the energy coordination between the various stages should be studied carefully. It consists of ensuring that when the maximum discharge current is flowing through the first stage surge protector, the remaining current flowing through the remaining stage(s) protector(s) does not exceed its (their) capacity.

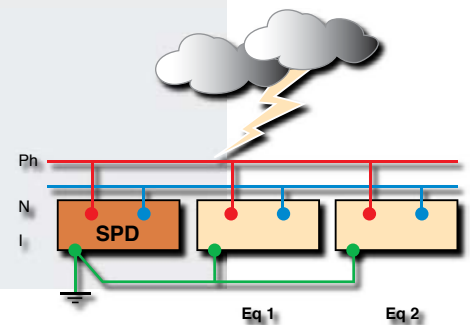
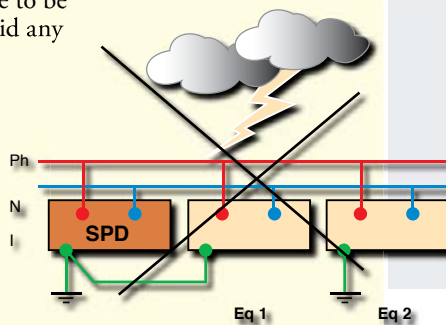
• Cross section of cables

The cross section of the cables depends on the prospective short-circuit current that can be delivered by the network to the installation.

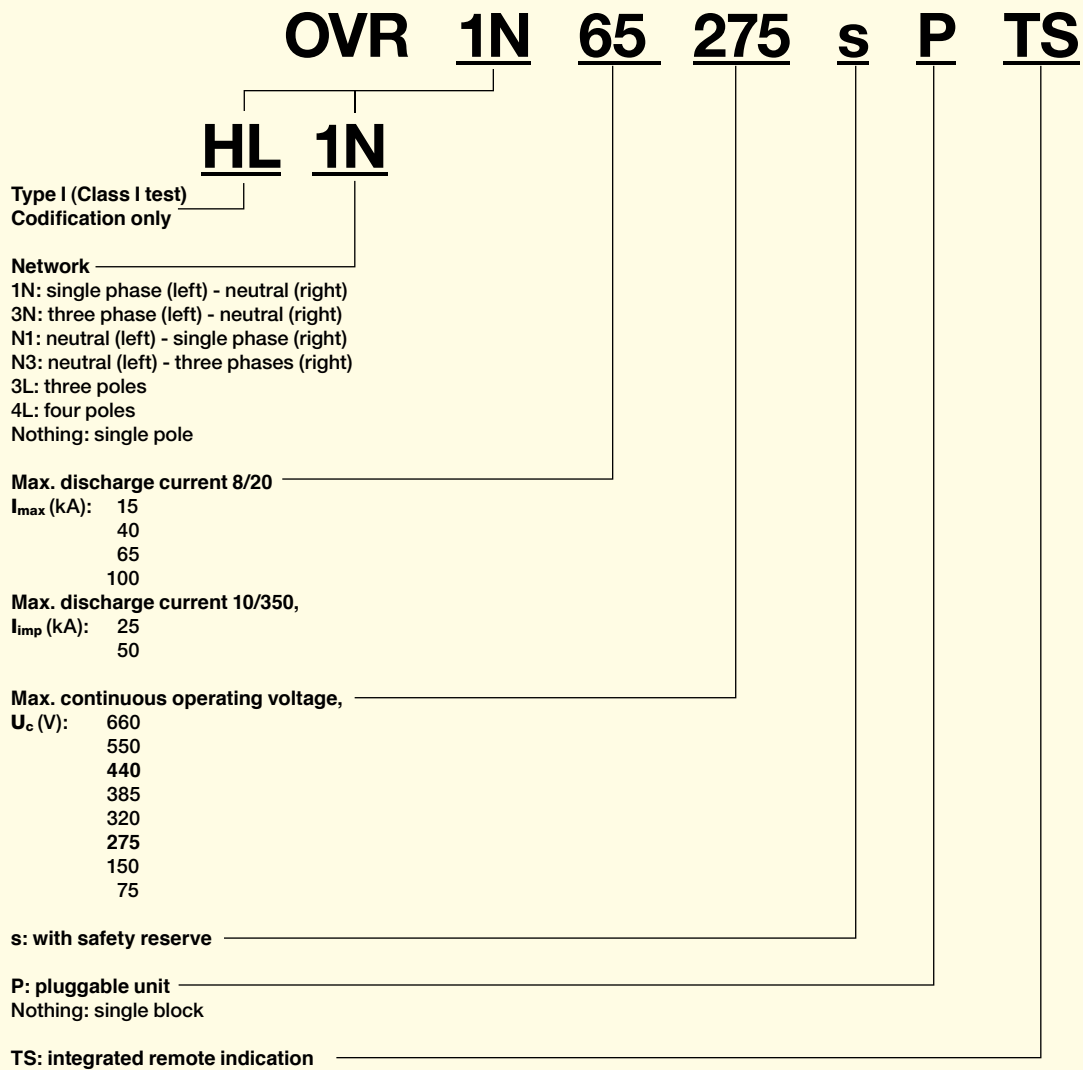
The cross section of the cables must be at least equal to the cross section of the rest of the installation.

• Ground equipotentiality

The ground conductors of all surge protectors and equipment connected together have to be equipotentially bonded, in order to avoid any difference of potential between local grounding points that would lead to annihilate the protection level provided by the surge protectors.



OVR Series Part Number Breakdown

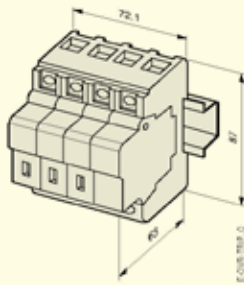


Technical Data

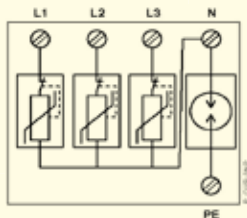
Note: Technical data for all other part numbers are available upon request



OVR 3N 40-320s P TS



Overall dimensions (in mm)



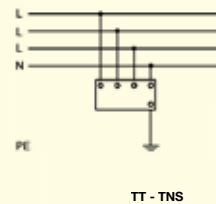
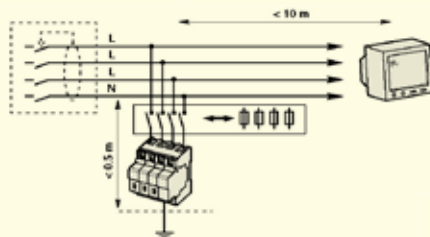
Operating diagram

Pluggable Unit

Electrical characteristics

Types of networks		TNS - TT
Modes of protection		common + differential
Number of poles		4
Type / test class		T2 / II
Type of current		A.C.
Nominal voltage Un		V 277
Max. cont. operating voltage Uc (L-N / L-PE / N-PE)		V 320 / 550 / 255
Voltage protection level Up at In (L-N / L-PE / N-PE)		kV 1.4 / 1.4 / 1.4
Nominal discharge current In (8/20)		kA 15
Maximal discharge current Imax (8/20)		kA 40
TOV withstand Ut (5s.) (L-N / N-PE)		V 340 / 440
Follow current If		None
Operating current I_c		mA < 1
Short circuit withstand I_{cc}		kA 25
Degree of protection		IP 203
Disconnecter		
gG - gL fuse		A 32
curve C circuit breaker		A 25 to 50
Mechanical characteristics		
Wire range L/N		
solid wire		mm_ 2.5 ... 25
stranded wire		mm_ 2.5 ... 16
Stripping length L/N		mm 12.5
Tightening torque L/N		Nm 2
Wire range PE		
solid wire		mm_ 2.5 ... 25
stranded wire		mm_ 2.5 ... 16
Stripping length PE		mm 12.5
Tightening torque PE		Nm 2
Integrated thermal disconnecter		Yes
State indicator		Yes
Compatibility with OVR Sign		Yes
Safety reserve		Yes
TS remote indicator		Yes
Miscellaneous characteristics		
Stocking temperature		°C -40 to +80
Operating temperature		°C -40 to +80
Maximal altitude		m 2000
Weight		g 500
Material of Housing		PC grey RAL 7032
Fire resistance according to UL 94		V2
Reference standards		IEC 61643-1 / EN 61643-11
Certifications		cULus - GOST

Wiring schematics



Part numbers

All products are UL Listed

Type II				
	Uc (V)	Un (V)	kA	Part Number
Single pole	150	120	15	OVR15150
			40	OVR40150sP OVR40150sPTS
	275	240	15	OVR15275
			40	OVR40275sP OVR40275sPTS
			65	OVR65275sP OVR65275sPTS
			100	OVR100275sP OVR100275sPTS
			150	OVR150275sP OVR150275sPTS
	320	277	15	OVR15320
			40	OVR40320sP OVR40320sPTS
			65	OVR65320sP OVR65320sPTS
			100	OVR100320sP OVR100320sPTS
	440	400	15	OVR15440
			40	OVR40440sP OVR40440sPTS
			65	OVR65440sP OVR65440sPTS
			100	OVR100440sP OVR100440sPTS
	550	480	15	OVR15550
			40	OVR40550s
			65	OVR65550s
	660	600	15	OVR15660
			40	OVR40660s
65			OVR65660s	
100			OVR100660s	
Single pole (Neutral)			65	OVR65NP
			100	OVR100NP
3 phases + Neutral	320	480Y/277	40	OVR3N40320sP OVR3N40320sPTS
			65	OVR3N65320sP OVR3N65320sPTS
			100	OVR3N100320sP OVR3N100320sPTS
			150	OVR3N150320sP OVR3N150320sPTS
Telecom and Dataline Protection			10	OVRTC06V OVRTC12V OVRTC24V OVRTC48V OVRTC200V OVRTC200FR
				OVRTC200FR
				OVRTC200FR
				OVRTC200FR
				OVRTC200FR
				OVRTC200FR
				OVRTC200FR
Optical Monitoring Block	230			OVRSIGN
Type I				OVRHLxxxx
Type III				OVRxxxxx
Cartridge	150	120	40	OVR40150sC
			40	OVR40275sC
	275	240	40	OVR40275sC
			40	OVR40275sC
	320	277	40	OVR40320sC
			40	OVR40320sC
	440	400	40	OVR40440sC
			40	OVR40440sC
275	240	65	OVR65275sC	
		65	OVR65275sC	
320	277	65	OVR65320sC	
		65	OVR65320sC	
440	400	65	OVR65440sC	
		65	OVR65440sC	
			65	OVR65NC

Availability code:

A: Stock item

B: Contact ABB

Application for “Data” Products

Contact ABB for price and delivery

Network or Applications

ABB products

Serial Links

RS232C (V24)	DATA PU3-200 12V	0008 030.01
	DATA PU1-200 12V	0008 032.27
RS422-485 (V11)	DATA PU5-200 5V	0008 041.00
Current loop	DATA PU3-200 24V	0008 037.24
	DATA PU1-200 24V	0008 033.20

Networks

Profibus (500 kBits/S)	DATA PU3-200 5V	0008 029.04
Interbus-S	DATA PU5-200 5V	0008 041.00

Telephone

DATA PU4-200 240V	0008 040.13
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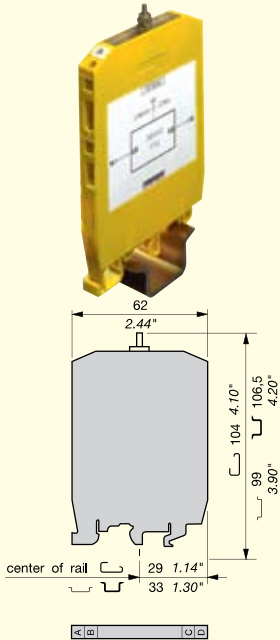
Analog

Loop 0/4-20 mA	DATA SP BE/C	
0-10 V	DATA PU1-200 12V	0008 032.27
	DATA PU3-200 12V	0008 030.01

protechline

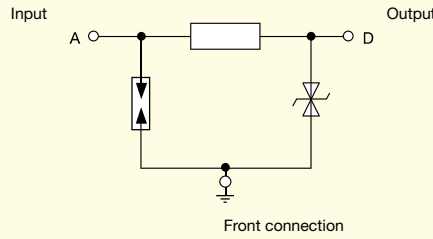
Protection modules
Surge protection units
Series 8 000

DIN 1 - 3



**Surge protection unit
DATA PU1 - 200**
5 to 48 V DC

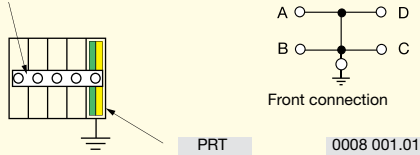
Spacing 9 mm .354"



- Protection of an active wire in relation to ground between "ZONE 1" and "ZONE 2"
- DC voltage.
- Cascade protection in common mode by discharger, power resistor, zener.
- Ground connection on front using a simple jumper bar.

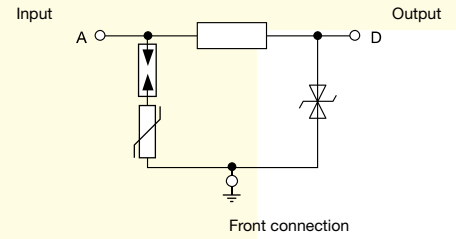
- The use of a PRT and BJS jumper bar will provide an easy jumping method for ground connections. The PRT provides 4 screw terminal connections for ground connections.

BJS9 8 poles 0177 583.12
BJS9 16 poles 0177 584.13



**Surge protection unit
DATA PU2 - 200**
110 to 240 V AC

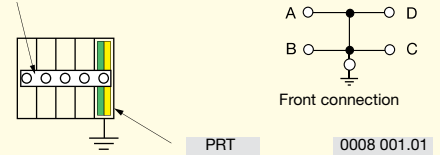
Spacing 9 mm .354"



- Protection of an active wire in relation to ground between "ZONE 1" and "ZONE 2"
- AC voltage.
- Cascade protection in common mode by discharger in series with varistor, power resistor, zener.
- Ground connection on front using a simple jumper bar.

- The use of a PRT and BJS jumper bar will provide an easy jumping method for ground connections. The PRT provides 4 screw terminal connections for ground connections.

BJS9 8 poles 0177 583.12
BJS9 16 poles 0177 584.13



Part numbers

Type		P/N
DATA PU1-200	5 V DC	0008 031.26
DATA PU1-200	12 V DC	0008 032.27
DATA PU1-200	24 V DC	0008 033.20
DATA PU1-200	48 V DC	0008 034.21

Type		P/N
DATA PU2-200	110 to 130 V AC	0008 035.22
DATA PU2-200	220 to 240 V AC	0008 036.23

Approvals (Contact ABB)



Characteristics

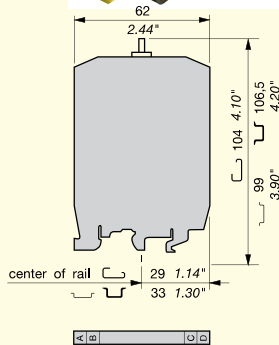
	5 V DC	12 V DC	24 V DC	48 V DC	110 to 130 V AC	220 to 240 V AC
Rated voltage V_n	5 V DC	12 V DC	24 V DC	48 V DC	110 to 130 V AC	220 to 240 V AC
Max. voltage V_c	7 V DC	15 V DC	28 V DC	55 V DC	150 V AC	265 V AC
Max. current I_n	0.2 A				0.2 A	
Max. upstream fuse	0.2 A				0.2 A	
Wave flow current	5 x 10 kA surges				5 x 5 kA surges	
(test conducted with a 20 kV / 10 kA hybrid generator)	10 x 2.5 kA surges				10 x 2.5 kA surges	
(1.2 / 50 μ s - 8 / 20 μ s wave)	20 x 2 kA surges				20 x 2 kA surges	
	100 x 1 kA surges				100 x 1 kA surges	
	10^3 x 600 A surges				10^3 x 600 A surges	
	10^4 x 250 A surges				10^4 x 250 A surges	
Response frequency - 1 dB	1 MHz / 150 Ω				1 MHz / 150 Ω	
Serial / Line resistance	10 Ω				10 Ω	
Peak voltage on output = protection level V_p	< 25 V		< 60 V		< 400 V	
6 kV / 3 kA	< 10 V		< 20 V		< 280 V	
1 kV / μ s	< 10 V		< 40 V		< 500 V	
Tightening torque on front connection (Nm)	0.4 min. / 0.6 max.				0.4 min. / 0.6 max.	
Degree of protection	IP20				IP20	
TEMPERATURE						
Ambient temperature						
Storage	- 40°C to + 80°C				- 40°C to + 80°C	
Operating	- 20°C to + 50°C				- 20°C to + 50°C	

Accessories, marking, wire size : contact ABB.

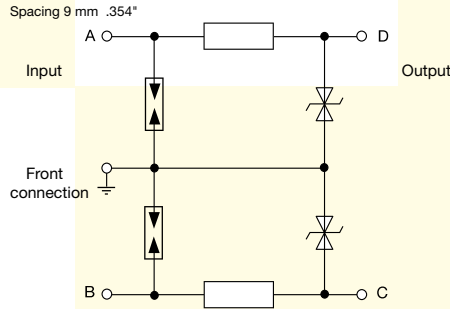
protechline

Protection modules
Surge protection units
Series 8 000

DIN 1 - 3



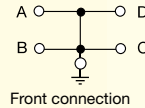
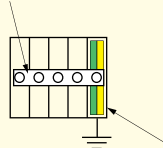
Surge protection unit
DATA PU3 - 200
5 to 48 V DC



- Protection of two active wires in relation to ground between "ZONE 1" and "ZONE 2".
- DC voltage.
- Protection in common mode and in differential mode by discharger, power resistor, zener.
- Ground connection on front using a simple jumper bar.

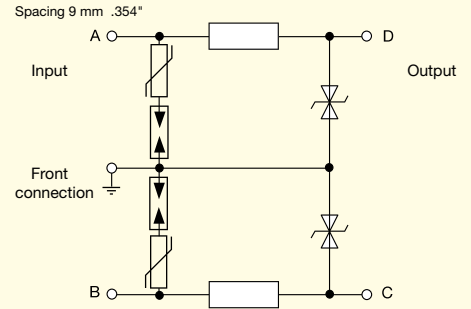
- The use of a PRT and BJS jumper bar will provide an easy jumping method for ground connections. The PRT provides 4 screw terminal connections for ground connections.

BJS9 8 poles 0177 583.12
BJS9 16 poles 0177 584.13



PRT 0008 001.01

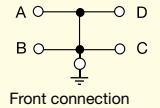
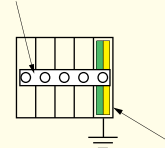
Surge protection unit
DATA PU4 - 200
110 to 240 V AC



- Protection of two active wires in relation to ground between "ZONE 1" and "ZONE 2".
- AC voltage.
- Protection in common mode and in differential mode by discharger in series with varistor, power resistor, zener.
- Ground connection on front using a simple jumper bar.

- The use of a PRT and BJS jumper bar will provide an easy jumping method for ground connections. The PRT provides 4 screw terminal connections for ground connections.

BJS9 8 poles 0177 583.12
BJS9 16 poles 0177 584.13



PRT 0008 001.01

Part number	Type	P/N
DATA PU3-200	5 V DC	0008 029.04
DATA PU3-200	12 V DC	0008 030.01
DATA PU3-200	24 V DC	0008 037.24
DATA PU3-200	48 V DC	0008 038.05
DATA PU4-200	110 to 130 V AC	0008 039.06
DATA PU4-200	220 to 240 V AC	0008 040.13

Approvals (Contact ABB)

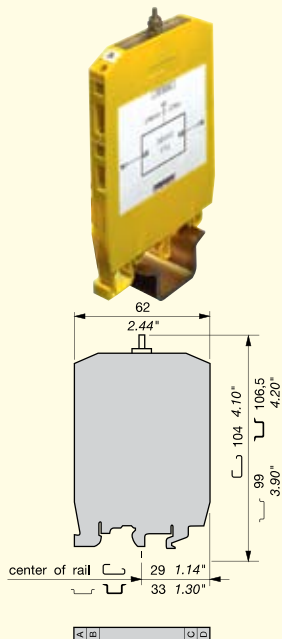
Characteristics		5 V DC				12 V DC				24 V DC				48 V DC				110 to 130 V AC		220 to 240 V AC	
Rated voltage	V_n	5 V DC				12 V DC				24 V DC				48 V DC				110 to 130 V AC		220 to 240 V AC	
Max. voltage	V_c	7 V DC				15 V DC				28 V DC				55 V DC				150 V AC		265 V AC	
Max. current	I_n	0.2 A																			
Max. upstream fuse		0.2 A																			
Wave flow current		5 x 10 kA surges																			
(test conducted with a		10 x 2.5 kA surges																			
20 kV / 10 kA hybrid generator)		20 x 2 kA surges																			
(1.2 / 50 μ s - 8 / 20 μ s wave)		100 x 1 kA surges																			
		10 ³ x 600 A surges																			
		10 ⁴ x 250 A surges																			
Response frequency - 1 dB		1 MHz / 150 Ω																			
Serial / Line resistance		10 Ω																			
Peak voltage on output = protection																					
level Vp	6 kV / 3 kA	< 25 V	< 60 V	< 100 V	< 200 V	< 400 V	< 800 V	< 10 V	< 20 V	< 40 V	< 80 V	< 280 V	< 500 V	< 20 V	< 40 V	< 80 V	< 160 V	< 280 V	< 560 V	< 1000 V	
	1 kV / μ s CM	< 10 V	< 20 V	< 40 V	< 80 V	< 280 V	< 500 V	< 1 kV / μ s DM	< 20 V	< 40 V	< 80 V	< 160 V	< 280 V	< 500 V	< 1000 V	< 20 V	< 40 V	< 80 V	< 160 V	< 280 V	< 500 V
Tightening torque on front connection (Nm)		0.4 min. / 0.6 max.																			
Degree of protection		IP20																			
TEMPERATURE																					
Ambient temperature																					
Storage		- 40°C to + 80°C																			
Operating		- 20°C to + 50°C																			

Accessories, marking, wire size : contact ABB.

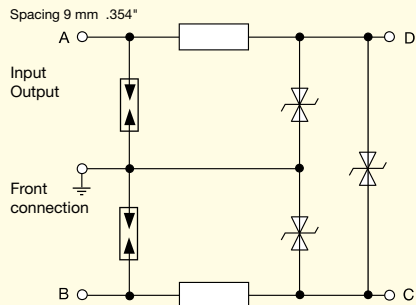
protechline

Protection modules
Surge protection units
Series 8 000

DIN 1 - 3



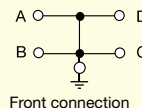
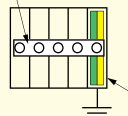
Surge protection unit
DATA PU5 - 200
5 V DC



- Protection of two active wires in relation to ground between "ZONE 1" and "ZONE 2" - DC voltage.
- Protection in common mode and in differential mode by discharger, power resistor, zener.
- Ground connection on front using a simple jumper bar.
- Addition of a 6.8 V transorb in differential mode for 5 V

- The use of PRT and BJS jumper bar will provide an easy jumping method for ground connections. The PRT provides 4 screw terminal connections for ground connections.

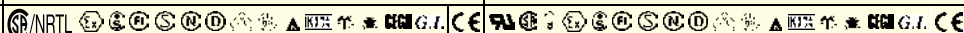
BJS9 8 poles 0177 583.12
BJS9 16 poles 0177 584.13



PRT 0008 001.01

Part number	Type	P/N	Type	P/N
DATA PU5-200	5 V DC	0008 041.00		

Approvals (Contact ABB)



Characteristics

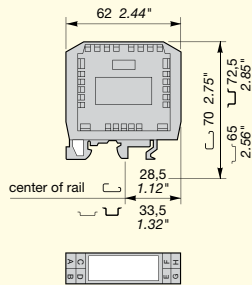
Rated voltage	V_n	24 V in CM	5 V in DM
Max. voltage	V_c	28 V in CM	5.8 V in DM
Max. current	I_n	0.2 A	
Max. upstream fuse		0.2 A	
Wave flow current		5 x 10 kA surges	
(test conducted with a 20 kV / 10 kA hybrid generator)		10 x 2.5 kA surges	
(1.2 / 50 μ s - 8 / 20 μ s wave)		20 x 2 kA surges	
		100 x 1 kA surges	
		10 ³ x 600 A surges	
		10 ⁴ x 250 A surges	
Response frequency - 1 dB		1 MHz / 150 Ω	
Serial / Line resistance		10 Ω	
Peak voltage on output = protection level V_p	6 kV / 3 kA	< 13.4 V	
	1 kV / μ s CM	< 40 V	
	1 kV / μ s DM	< 10 V	
Tightening torque on front connection (Nm)		0.4 min. / 0.6 max.	
Degree of protection		IP20	
TEMPERATURE			
Ambient temperature			
Storage		- 40°C to + 80°C	
Operating		- 20°C to + 50°C	

Accessories, marking, wire size : contact ABB.

protechline

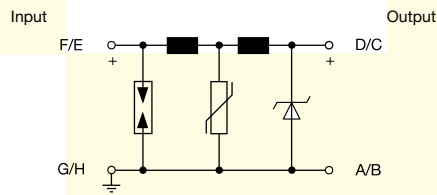
Protection modules
Surge protection units
Series 10 000

DIN 1 - 3



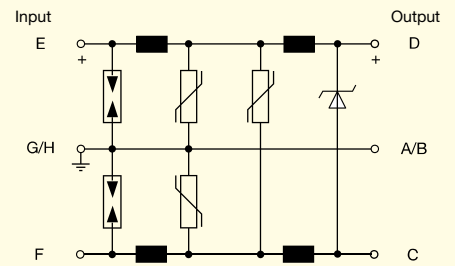
Surge protection unit
PU1
12 to 60 V DC

Spacing 23 mm .906"



Surge protection unit
PU3
12 to 60 V DC

Spacing 23 mm .906"



- Double protection of an active wire in relation to ground.
- Cascade protection in common mode by discharger, mov, varistor, mov, zener.
- High energy protection :
 - . control voltages
 - . PLC outputs.

- Double protection of two active wires in relation to ground.
- Protection in common mode by discharger, mov, varistor.
- Protection in differential mode by varistor, mov, zener.
- High energy protection :
 - . control voltages
 - . PLC outputs.

Part number	Type	P/N	Type	P/N				
	PU1	12 V DC	0010 620.02	PU3	12 V DC	0010 627.25		
	PU1	24 V DC	0010 621.27	PU3	24 V DC	0010 628.06		
	PU1	48 V DC	0010 622.20	PU3	48 V DC	0010 629.07		
	PU1	60 V DC	0010 623.21	PU3	60 V DC	0010 630.04		
Approvals (Contact ABB)								
Characteristics								
Rated voltage $\pm 10\%$	12 V DC	24 V DC	48 V DC	60 V DC	12 V DC	24 V DC	48 V DC	60 V DC
Rated current	1 A				1 A			
Wave flow current (test conducted with a 6 kV / 3 kA hybrid generator) (1.2 / 50 μ s - 8 / 20 μ s wave)	10 kA				10 kA			
Max. voltage for a disturbing input voltage of 1 kV/ μ s :	<ul style="list-style-type: none"> U A-D ≤ 1.7 V rated U D-ground ≤ 2 V rated U A-ground 				<ul style="list-style-type: none"> ≤ 1.7 V rated ≤ 2 V rated 			
Transmission frequency	20 kHz / 50 Ω				20 kHz / 50 Ω			
Response time for an output voltage on :	<ul style="list-style-type: none"> A-B/D-C 0.1 ns D-ground 100 ns 				<ul style="list-style-type: none"> 0.1 ns 100 ns 			
TEMPERATURE								
Ambient temperature								
Storage	- 40°C to + 80°C				- 40°C to + 80°C			
Operating	- 20°C to + 60°C				- 20°C to + 60°C			

Accessories, marking, wire size : contact ABB.



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