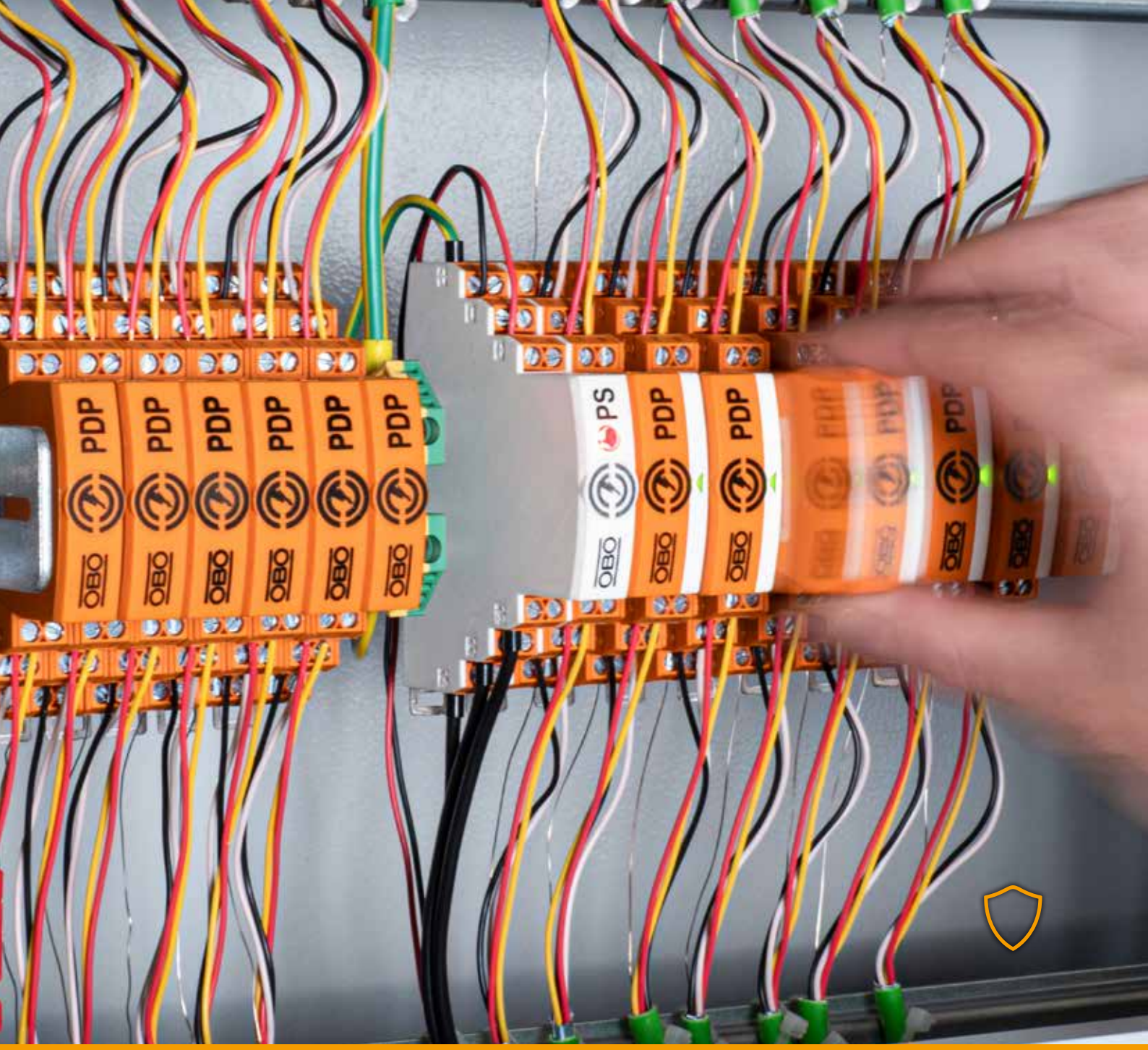


The new generation of data cable protection

The PDP(-OS) device series offers reliable protection of measurement and control technology systems

OBO BETTERMANN

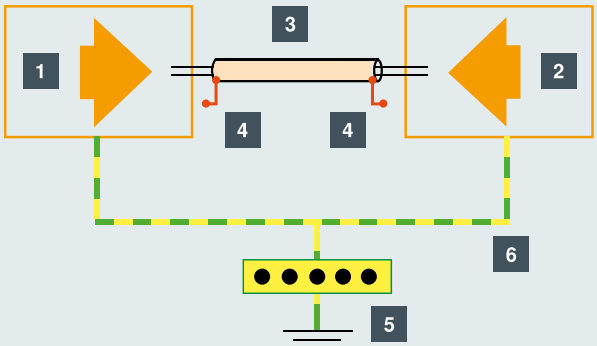
Data cable protection and EMC

Measurement and control technology forms the core of modern industrial companies. In this era of Industry 4.0, they enable the automated control and remote monitoring of systems, sensors and actuators.

To ensure system availability and prevent financial losses due to production downtimes, OBO surge protective devices protect electronics against damage caused by lightning strikes and surge voltages.

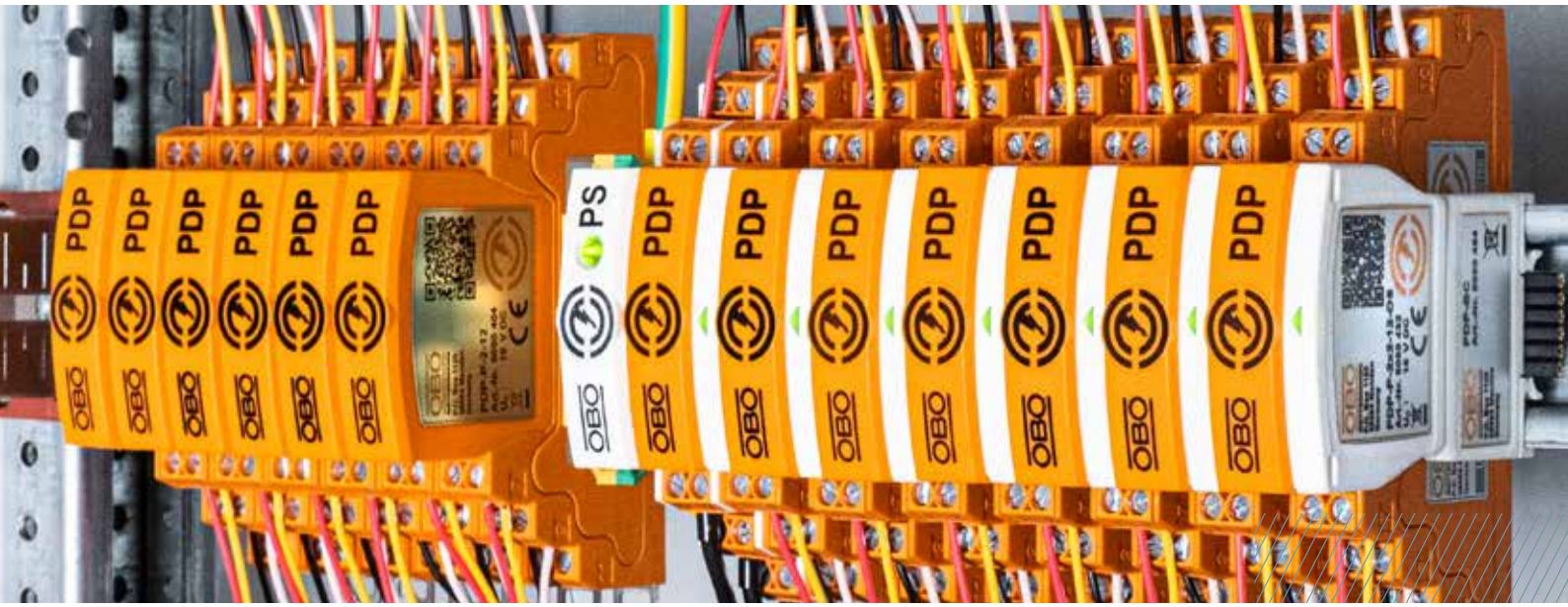
Due to their sensitive signal levels, data cables are particularly susceptible to interference, meaning that cable shields are used to minimise this. However, if the shield of a data cable is not earthed, then such influences cannot be arrested. In this case, the cable, and thus communication, is not protected against inductive, magnetic and capacitive coupling or crosstalk.

For effective protection of the system, it is important that the cable shields are connected to the equipotential bonding at both ends. The connection can be made directly or indirectly. For this reason, the PDP series offers devices for directly and indirectly earthed systems.



1	Device 1
2	Device 2
3	Data cable
4	Shield not connected
5	Equipotential busbar
6	Earth connection

Cable without shield connection



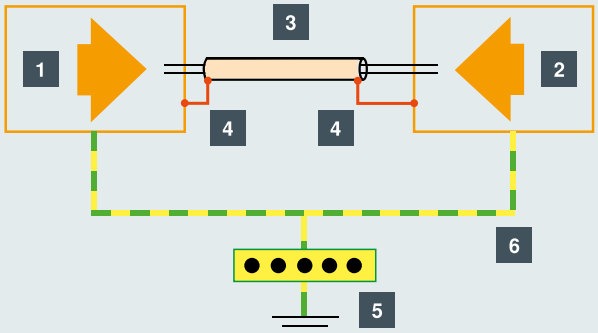
Direct shield earthing
The direct earthing of the shield on both sides should always be chosen when dealing with cables which are routed within a building and the earthing potentials do not differ from each other at the ends of the cable. This guarantees good protection against inductive, magnetic and capacitive couplings.

Indirect shield earthing
When dealing with particularly long cables or cables between buildings, it is wise to earth the shield indirectly on one side. For this, the shield is connected with the earth potential directly at one end of the cable and using a GDT* at the other end.

This prevents a possible load on the shield due to compensation currents through potential differences of the different earthing systems, as the spark gap insulates the connection to the second earth potential.

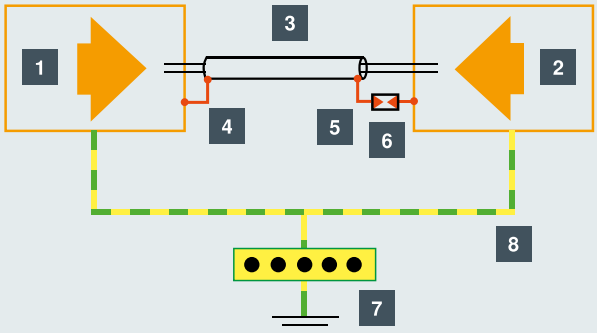
If a surge voltage does occur, then the spark gap ignites due to the very high potential difference, becomes low resistance and arrests the current.

*) Gas-filled surge arrester/spark gap (gas discharge tube)



1	Device 1
2	Device 2
3	Data cable
4	Shield connected at both ends
5	Equipotential busbar
6	Earth connection

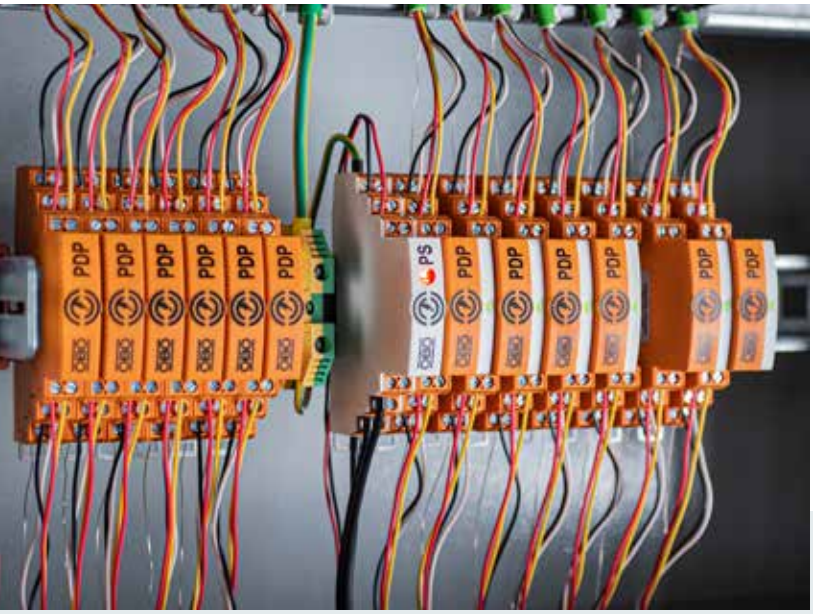
Cable shield earthed at both ends



1	Device 1
2	Device 2
3	Data cable
4	Direct connection to earth
5	Indirect connection to earth
6	Gas discharge tube
7	Equipotential busbar
8	Earthing cable

Indirect earth on one side

PDP and PDP-OS



The universal data cable protection devices of the type PDP supplement the OBO portfolio of measurement and control technology protection with a product series with plug-in arresters.

In combination with the PS power supply, the PDP-OS devices also offer visual signalling. Remote signalling is also possible via the power supply.

Overview of PDP and PDP-OS

- Tested according to DIN EN 61643-21 (D1/C2)
- Frequency range up to 100 MHz
- Variants for directly and indirectly earthed shield systems
- Total discharge current I_{total} 20 kA
- Impulse durability I_{imp} 2.5 kA
- Nominal discharge current, line-line and line-earth I_n 10 kA
- Earthing via DIN rail or connection cable possible

PDP PDP-OS PS

Connectable plug-in arresters

- No rewiring work during maintenance and plug-in arrester replacement
- High system availability: No signal interruption when no plug-in arrester is connected
- Voltage coding prevents incorrect assignment

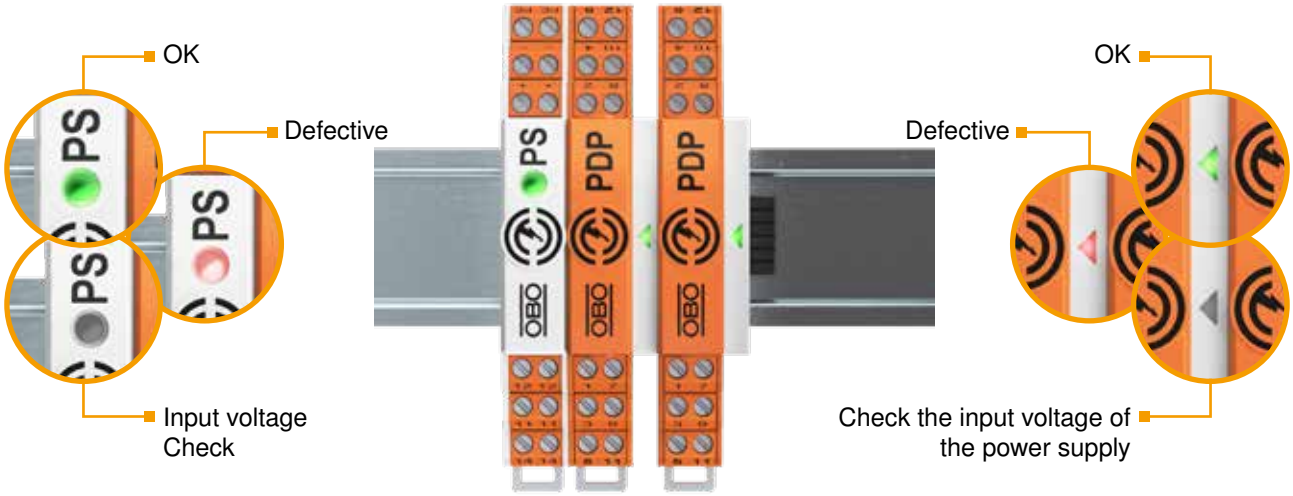
A block with up to 25 surge protective devices can be connected to each power supply

Combination of all the PDP-OS variants possible in a single block

With LED function display for visual signalling

Option of remote signalling of the entire block via the power supply

Visual signalling on each OS surge protective device



Mounting of the PDP-OS variant with power supply and bus connector

Reliable protection in every detail

	Direct earthing			
Type	**PDP-2-5-D**	**PDP-2-5-D-OS**	**PDP-2x2-5-D**	**PDP-2x2-5-D-OS**
Item no.	**5080301**	**5080341**	**5080317**	**5080357**
Visual and remote signalling	–	✓	–	✓
Maximum continuous voltage $U_{C\ DC}$	6 V			
Maximum continuous voltage $U_{C\ AC}$	4.2 V			
Voltage protection level $U_{P\ wire\text{-}wire\ (C2:\ 10\ kV/5\ kA)}$	140 V			

Type	**PDP-2-12-D**	**PDP-2-12-D-OS**	**PDP-2x2-12-D**	**PDP-2x2-12-D-OS**
Item no.	**5080303**	**5080343**	**5080319**	**5080359**
Visual and remote signalling	–	✓	–	✓
Maximum continuous voltage $U_{C\ DC}$	16 V			
Maximum continuous voltage $U_{C\ AC}$	12 V			
Voltage protection level $U_{P\ wire\text{-}wire\ (C2:\ 10\ kV/5\ kA)}$	150 V			

Type	**PDP-2-24-D**	**PDP-2-24-D-OS**	**PDP-2x2-24-D**	**PDP-2x2-24-D-OS**
Item no.	**5080305**	**5080345**	**5080321**	**5080361**
Visual and remote signalling	–	✓	–	✓
Maximum continuous voltage $U_{C\ DC}$	30 V			
Maximum continuous voltage $U_{C\ AC}$	21 V			
Voltage protection level $U_{P\ wire\text{-}wire\ (C2:\ 10\ kV/5\ kA)}$	150 V			

Type	**PDP-2-48-D**	**PDP-2-48-D-OS**	**PDP-2x2-48-D**	**PDP-2x2-48-D-OS**
Item no.	**5080307**	**5080347**	**5080323**	**5080364**
Visual and remote signalling	–	✓	–	✓
Maximum continuous voltage $U_{C\ DC}$	52 V			
Maximum continuous voltage $U_{C\ AC}$	37 V			
Voltage protection level $U_{P\ wire\text{-}wire\ (C2:\ 10\ kV/5\ kA)}$	200 V			

Other product data	
Mounting type	DIN rail
Voltage protection level $U_{P\ wire\text{-}earth\ (C2:\ 10\ kV/5\ kA)}$	1.3 kV
Voltage protection level $U_{P\ shield\text{-}earth\ (C2:\ 10\ kV/5\ kA)}$	–
Nominal discharge current (8/20 µs) $I_{n\ wire\text{-}wire}$	10 kA
Nominal discharge current (8/20 µs) $I_{n\ wire\text{-}earth}$	10 kA
Impulse durability (8/20 µs) $_{wire\text{-}wire}$	C2: 10 kV/5 kA
Impulse durability (8/20 µs) $_{wire\text{-}earth}$	C2: 10 kV/5 kA
Impulse durability (8/20 µs) $I_{total\ wire\text{-}earth}$	20 kA
Impulse discharge current (10/350 µs) $I_{imp\ wire\text{-}earth}$	D1: 2.5 kA
Impulse discharge current (10/350 µs) $I_{total\ wire\text{-}earth}$	D1: 5 kA

Product data, power supply	**Item no.**	**U_{in}**	**U_{BUS}**
PDP-PS	5080452	10...30 V DC	5 V DC

Scope of delivery

Indirect earthing			
PDP-2-5-I	**PDP-2-5-I-OS**	**PDP-2x2-5-I**	**PDP-2x2-5-I-OS**
5080309	**5080349**	**5080325**	**5080365**
–	✓	–	✓
6 V			
4.2 V			
140 V			
PDP-2-12-I	**PDP-2-12-I-OS**	**PDP-2x2-12-I**	**PDP-2x2-12-I-OS**
5080311	**5080351**	**5080327**	**5080367**
–	✓	–	✓
16 V			
12 V			
150 V			
PDP-2-24-I	**PDP-2-24-I-OS**	**PDP-2x2-24-I**	**PDP-2x2-24-I-OS**
5080313	**5080353**	**5080329**	**5080369**
–	✓	–	✓
30 V			
21 V			
150 V			
PDP-2-48-I	**PDP-2-48-I-OS**	**PDP-2x2-48-I**	**PDP-2x2-48-I-OS**
5080315	**5080355**	**5080331**	**5080371**
–	✓	–	✓
52 V			
37 V			
200 V			
DIN rail			
1.5 kV			
1.3 kV			
10 kA			
10 kA			
C2: 10 kV/5 kA			
C2: 10 kV/5 kA			
20 kA			
D1: 2.5 kA			
D1: 2.5 kA			

Remote signalling	Max. quantity PDP-OS
Potential-free changeover (NO/NC)	25 pieces

PDP

PDP-OS

PDP-PS

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