



Application

A surge arrester is a device designed to limit transient overvoltages to a non-dangerous value for the installation and electrical switchgear.

Common technical data

- **Permanent operating full withstand current (Uc):** permissible r.m.s. value that can be continuously applied to the surge arrester's terminals without affecting its operation.
 - It must be higher than the system rated voltage, including variations:
 - For protection between active conductors and the earth:
TT: $U_c \geq 1.5 U_o$,
TN: $U_c \geq 1.1 U_o$ (1.5 U_o in France),
IT: $U_c \geq e U_o$.
 - For protection between phases and the neutral:
TT, TN, IT: $U_c \geq 1.1 U_o$.
- **Residual voltage (Ures):** the peak value of the voltage that appears at surge arrester terminals when a discharge current runs through them.
- **Simple system voltage (Uo):** the voltage between phase and neutral.
- **System rated voltage (Un):** value of the reference voltage which designates the network
- **Level of protection (Up):** voltage that characterises the protection performance of a surge arrester at I_n .
- **Full discharge current (Imax):** maximum peak value of the discharge current with a 8/20 μ s wave form which the surge arrester can withstand one time.
- **Rated discharge current (In):** peak value of the discharge current with a 8/20 μ s wave form used to designate a surge arrester.
- **Permanent operating current (Ic):** current that circulates in the surge arrester, when it is supplied under permanent operating full withstand current (Uc) in the absence of a fault.
- **Common mode overvoltages (MC):** overvoltages that appear between active conductors and protective conductor.
- **Differential mode overvoltages (MD):** overvoltages that appear between active conductors (phase/neutral).



16561

PRD

Application

PRD removable surge arresters allow the rapid replacement of damaged cartridges. Removable surge arresters PRD 65r, PRD 40r have a remote indication function.

Uc voltage depends on:

- The earthing system.
- The protection mode (MC/MD).

Each surge arrester in the range has a specific use:

- **Incomer end protection:**
 - The PRD 65r is recommended for a very high risk level (highly exposed site),
 - PRD 40r/PRD 40 are recommended for a high risk level,
 - The PRD 15 is recommended for a low risk level.
- **Secondary protection:**
 - The PRD 8 ensures secondary protection of loads to be protected and is placed in a cascading configuration with surge arresters at the incomer end.

Common technical data for PRD's

- **Frequency:** 50...60Hz.
- **Ic:**
 - 1P and 3P: < 800µA,
 - 1P+N and 3P+N: 0µA.
- **Operation indication by means of a mechanical indicator:**
 - White: normal operation,
 - White/red: cartridge replacement to be scheduled in the near future,
 - Red: cartridge must be immediately replaced.
- Disconnection of the short circuited surge arrester to be conducted with a circuit breaker.
- **Permissible internal short circuit current for PRD 8 and PRD 15:**
 - 1P+N, 3P and 3P+N: 10kA,
 - 1P (230 V): 10kA,
 - 1P (400): 3kA.
- **Permissible internal short circuit current for PRD 40 and PRD 65:**
 - 1P+N, 3P and 3P+N: 25kA,
 - 1P (230 V): 10kA,
 - 1P (400): 3kA.
- **Downstream and upstream terminal connection:**
 - 2.5 to 16mm² flexible cable,
 - 2.5 to 25mm² rigid cable,
 - ≥10mm² flexible or rigid cable if installation with lightning conductor.
- **Operating temperature:** -25°C, +60°C.
- **Storage temperature:** -40°C, +70°C.
- **Protection class:**
 - IP20 at terminals,
 - IP40 on front panel.
- **Weight (g):**
 - 1P: 90,
 - 1P+N: 180,
 - 3P: 395,
 - 3P+N: 460.

standards

- IEC 61643-11 class 2 test.
- NF C 61740/95.

Specific technical data

PRD 65r

- **I_{max} (8/20 µs):** 65kA.
- **I_n (8/20 µs):** 20kA.
- Operating back-up indicator on front panel.
- **Remote indication contact:**
 - Electrical data:
DC: 12V, ≥10mA,
AC: 250V, ≤1A.
 - Connection using 0.5mm² to 1.5mm² cable.

PRD 40r/PRD 40

- **I_{max} (8/20 µs):** 40kA.
- **I_n (8/20 µs):** 15kA.
- **The PRD 40r includes:**
 - Operating back-up indicator on front panel.
- **Remote indication contact:**
 - Electrical data:
DC: 12V, ≥10mA,
AC: 250V, ≤1A.
 - Connection using 0.5mm² to 1.5mm² cable.

PRD 15

- **I_{max} (8/20 µs):** 15kA.
- **I_n (8/20 µs):** 5kA.

PRD 8

- **I_{max} (8/20 µs):** 8kA
- **I_n (8/20 µs):** 2kA.

Spare cartridges

- 40, 15, 8kA and neutral cartridges.
- The C65r, C40r and C neutral r cartridges have operating back-up.

Auxiliaries

- Adaptable remote indication modules, EM/RM.

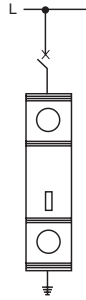
Surge arresters

PRD draw out



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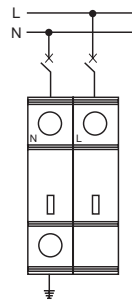
Type PRD	Un (V)	Uc MC (V)	Up (kV)	Width in 18mm SP ways	Part N°.	
1P	PRD 65r	230	440	2	1	16555
		230	275	1.5	1	16556
PRD 40r		230	440	1.8	1	16560
		230	275	1.2	1	16561
PRD 40		230	440	1.8	1	16565
		230	275	1.2	1	16566
PRD 15		230	440	1.8	1	16570
		230	275	1.2	1	16571
PRD 8		230	440	1.8	1	16575
		230	275	1.2	1	16576



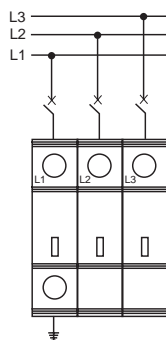
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Type PRD	Un (V)	Uc MC/MD (V)	Up (kV)	Width in 18mm SP ways	Part N°.	
1P+N	PRD 65r	230	440/275	1.2 (1)	2	16557
	PRD 40r	230	440/275	1.2	2	16562
PRD 40		230	440/275	1.2	2	16567
	PRD 15	230	440/275	1.2	2	16572
PRD 8	230	440/275	1.2	2	16577	

(1) Up: $L/\text{Ⓧ} = 1.5\text{kV}$
L/N=1.5kV



Type PRD	Un (V)	Uc MC (V)	Up (kV)	Width in 18mm SP ways	Part N°.	
3P	PRD 65r	400	440	2	3	16558
	PRD 40r	400	440	1.8	3	16563
	PRD 40	400	440	1.8	3	16568
	PRD 15	400	440	1.8	3	16573
	PRD 8	400	440	1.8	3	16578

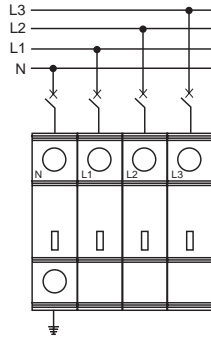




Surge arresters

PRD draw out

Type PRD	Un (V)	Uc MC/MD (V)	Up (kV)	Width in 18mm SP ways	Part N°.
3P+N					
PRD 65r	400	440/275	1.2 (1)	4	16559
PRD 40r	400	440/275	1.2	4	16564
PRD 40	400	440/275	1.2	4	16569
PRD 15	400	440/275	1.2	4	16574
PRD 8	400	440/275	1.2	4	16579



(1) Up: $L/\oplus = 1.5\text{kV}$.
L/N=1.5kV.

Replacement spare cartridges	Uc MC (V)	Up (kV)	Width in 18mm SP ways	Part N°.
C65r-440	440	2	1	16580
C65r-275	275	1.5	1	16581
C40r-440	440	1.8	1	16582
C40r-275	275	1.2	1	16583
C40-440	440	1.8	1	16584
C40-275	275	1.2	1	16585
C15-440	440	1.8	1	16586
C15-275	275	1.2	1	16587
C8-440	440	1.8	1	16588
C8-275	275	1.2	1	16589
C neutral r	440	1.2	1	16590
C neutral	440	1.2	1	16591



15689

PF

Application

The PF self-contained, multiple pole surge arrester range is especially adapted to TT, TN-S and IT earthing systems. PF surge arresters PF65r and PF30r have a remote indication function.

Each surge arrester in the range has a specific use:

- **Incomer end protection:**
 - The PF65r is recommended for a very high risk level (highly exposed site),
 - PF30r/PF30 are recommended for a high risk level,
 - The PF15 is recommended for a low risk level.
- **Secondary protection:**
 - The PF8 ensures the secondary protection of loads to be protected and is placed in a cascading configuration with surge arresters at the incomer end.

Common technical data for PF's

- **Frequency:** 50...60Hz.
- **Max. leakage current** < 200mA.
- **Operation indication by means of an orange indicator:**
 - Not lit: ok,
 - Flashing: surge arrester must be immediately replaced.
- **Disconnection upon thermal overload** built into the surge arrester.
- **Disconnection of the short-circuited surge arrester** to be with a circuit breaker.
- **Permissible internal short circuit current for PF8 and PF15:**
 - 1P+N and 3P+N: 10kA.
- **Permissible internal short circuit current for PF30 and PF65:**
 - 1P+N and 3P+N: 25kA.
- **Operating temperature:** -25°C to +60°C.
- **Storage temperature:** -40°C to +70°C.
- **Protection class:**
 - IP20 at terminals,
 - IP40 on front panel.
- **Weight (g):**
 - 1P+N: 475,
 - 3P+N: 650.

Standard

- NF C 61740/95.

Specific technical data

PF65r

- **Common mode protection:**
 - I_{max} (8/20μs): 65kA,
 - I_n (8/20μs): 20kA,
 - U_p: 2kV.
- **Test button for front panel indicator.**
- **Remote indication contact:**
 - Normally closed,
 - Connection using tunnel terminals 2 x 2.5mm².
- **Connection using tunnel terminals:**
 - Phase and neutral: 25mm².
 - Earth: 50mm².
 - Flexible or solid cable ≥10 mm².

PF30r and PF30

- **Common mode protection:**
 - I_{max} (8/20μs): 30kA,
 - I_n (8/20μs): 10kA,
 - U_p: 1.8kV.
- **Test button for front panel indicator.**
- **The PF30r has a built-in remote indication contact:**
 - Normally closed,
 - Connection using tunnel terminals 2 x 2.5mm²,
- **Connection using tunnel terminals:**
 - Phase and neutral: 25mm²,
 - Earth: 50mm².
 - Flexible or solid cable ≥10mm².

PF15

- **Common mode protection:**
 - I_{max} (8/20μs): 15kA,
 - I_n (8/20μs): 5kA,
 - U_p: 1.8kV.
- **Differential mode protection:**
 - I_{max} (8/20μs): 8kA,
 - I_n (8/20μs): 2kA,
 - U_p: 1kV.
- **Connection using tunnel terminals:**
 - Phase and neutral: 16mm²,
 - Earth: 25mm²,
 - Flexible or rigid cable ≥10mm² if installation using lightning conductor.

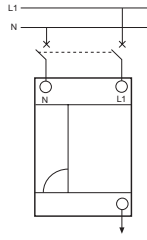
PF8

- **Common mode protection:**
 - I_{max} (8/20μs): 8kA,
 - I_n (8/20μs): 2kA,
 - U_p: 1.5kV.
- **Differential mode protection:**
 - I_{max} (8/20μs): 8kA,
 - I_n (8/20μs): 2kA,
 - U_p: 1kV.
- **Connection using tunnel terminals:**
 - Phase and neutral: 16mm²,
 - Earth: 25mm²,
 - Flexible or rigid cable ≥10mm² if installation using lightning conductor.

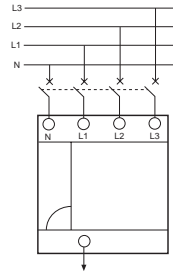


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Type	Un (V)	Uc (V)	In (kA)	Width in 18mm SP ways	Part N°.
PF					
1P+N					
PF 65r	400	440	20	7	15684
PF 30r	400	440	10	3	15689
PF 30	400	440	10	3	15687
PF 15	400	440	5	2	15692
PF 8	400	440	2	2	15695



Type	Un (V)	Uc (V)	In (kA)	Width in 18mm SP ways	Part N°.
PF					
3P+N					
PF 65r	400	440	20	7	15685
PF 30r	400	440	10	4	15690
PF 30	400	440	10	4	15688
PF 15	400	440	5	4	15693
PF 8	400	440	2	4	15696





Application

The EM/RM remote indication modules are made up of two optical blocks, a transmitter and a receiver. They are designed to remotely signal the disconnection of the surge arrester.

- The EM transmitter is mounted to the left and the RM receiver to the right side of a surge arrester.
- The RM receiver has an output contact for the remote transfer of surge arrester disconnection information.
- The modules can monitor up to 15 surge arrester modules (18mm) with a limit of 270mm.

Technical data

- **Voltage rating:** 230V AC.
- **Frequency:** 50...60Hz.
- **Surge arrester status indication:** by means of green and red indicators on the front panel
- **Output contact:**
 - NO/NC (closed between terminals 2 and 4 if fault on surge arrester),
 - Min. power: 6V DC and 10mA,
 - Max. power: 250V AC and 5A,
 - Insulation between contacts: 1kV AC,
 - Insulation between the contacts and the coil: 2.5kV AC.
- **Flexible or solid cable connection:**
 - Up to 2.5mm².
- **Operating temperature:** -20°C, +40°C.
- **Storage temperature:** -40°C, +70°C.
- **Weight (g):** 20.

Type	Width in 18mm	Part N°.
Remote indication module	SP ways	
EM/RM	1 + 1	16592

