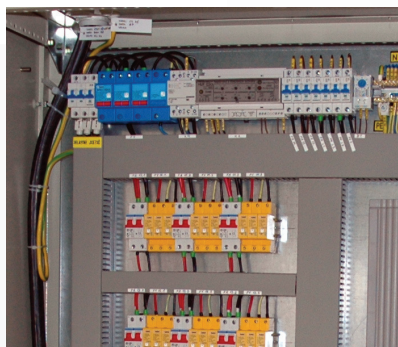
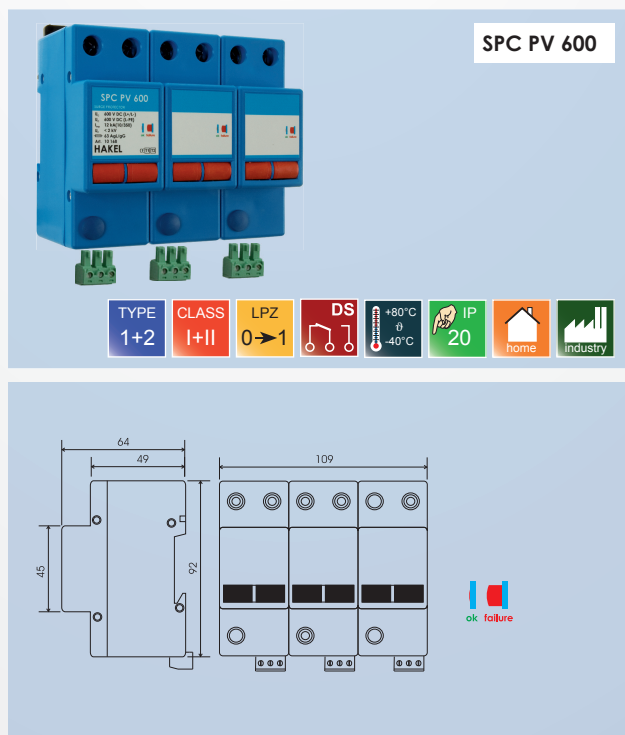




LIGHTNING AND SURGE ARRESTERS - VARISTOR

SPC PV is lightning arrester type 1+2 according to EN 61643-11. It is designed for protection of positive and negative busbars of photovoltaic systems against the surge effects. These arresters are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 0-1 (according to IEC 1312-1 and EN 62305). Particular varistor sectors connected between terminals L+, L- and PE are equipped with fitted internal disconnectors which are activated when varistors fail (overheat). Failure indication of these disconnectors is partly mechanical (by red signaling target) and partly remote monitoring (by potential free switching contacts).

Three-pole MOV lightning and surge arrester



SPC PV 600

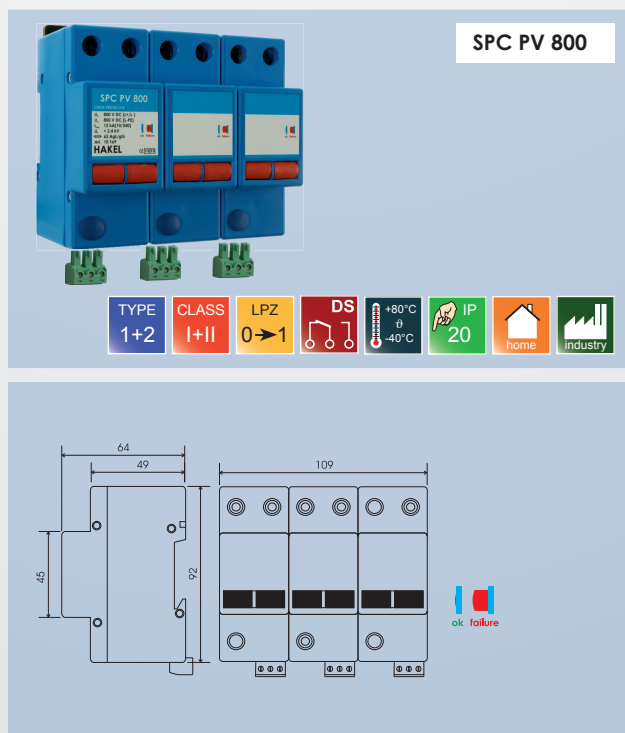
Type SPC PV 600/ SPC PV 600 DS

Max. continuous operating voltage	U_c	600 V DC
Lightning impulse current (10/350)	I_{imp}	12,5 kA
- charge	Q	6 As
- specific energy	W/R	36 kJ/Ω
Application		L+/L-, L+/PE, L-/PE
Nominal discharge current (8/20)	I_n	25 kA
Voltage protection level at I_{imp}	U_P	<2 kV
Response time	t_A	<25 ns
Max. back-up fuse ("V" connection)		63 AgL/gG
Max. back-up fuse		315 AgL/gG
Weight	m	720 g
Lifetime		min.100 000 h
Article number		
SPC PV 600		10 168
SPC PV 600 DS		10 068



ML102

Three-pole MOV lightning and surge arrester



SPC PV 800

Type SPC PV 800/ SPC PV 800 DS

Max. continuous operating voltage	U_c	800 V DC
Lightning impulse current (10/350)	I_{imp}	12,5 kA
- charge	Q	6 As
- specific energy	W/R	36 kJ/Ω
Application		L+/L-, L+/PE, L-/PE
Nominal discharge current (8/20)	I_n	25 kA
Voltage protection level at I_{imp}	U_P	<2,4 kV
Response time	t_A	<25 ns
Max. back-up fuse ("V" connection)		63 AgL/gG
Max. back-up fuse		315 AgL/gG
Weight	m	720 g
Lifetime		min.100 000 h
Article number		
SPC PV 800		10 169
SPC PV 800 DS		10 069



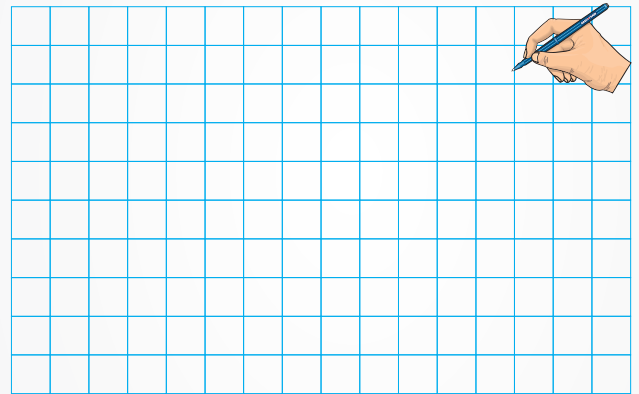
ML102



Function of remote monitor terminals

When the SPC PV DS is operating correctly, the terminations 1-2 are connected to normally closed contacts, 2-3 are normally open. If the internal varistor component is damaged as a result of thermal overloading, terminations 1-2 will then be open and 2-3 closed.

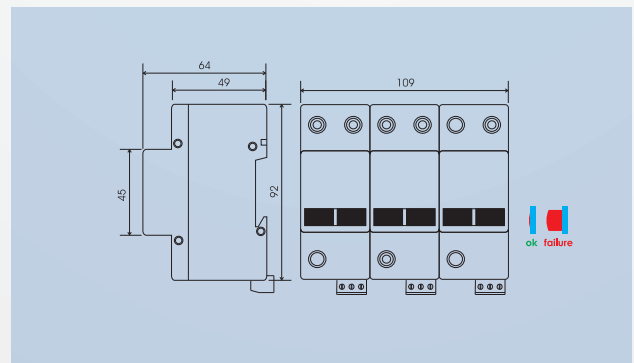
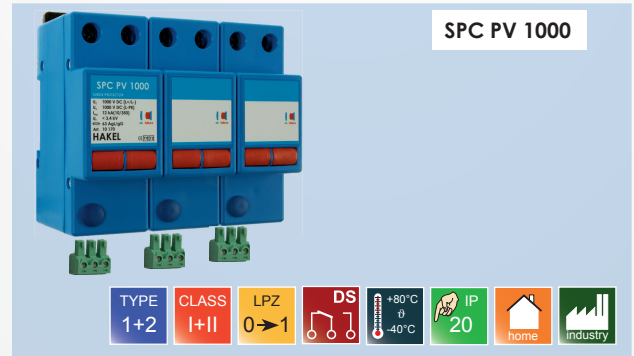
el. strength against suround. circuits	3750 V _{rms}
el. strength against network circuits	3750 V _{rms}
insulation resistance	$2 \times 10^7 \Omega$
max. switching current	~ 0,5 A
max. switching voltage	~ 250 V



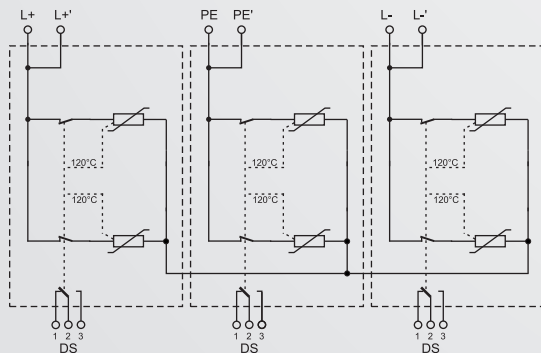
Three-pole MOV lightning and surge arrester

Type SPC PV 1000/ SPC PV 1000 DS

Max. continuous operating voltage	U _c	1000 V DC
Lightning impulse current (10/350)	I _{imp}	12,5 kA
- charge	Q	6 As
- specific energy	W/R	36 kJ/Ω
Application		L+/L-, L+/PE, L-/PE
Nominal discharge current (8/20)	I _n	25 kA
Voltage protection level at I _{imp}	U _p	<3,4 kV
Response time	t _A	<25 ns
Max. back-up fuse ("V" connection)		63 AgL/gG
Max. back-up fuse		315 AgL/gG
Weight	m	720 g
Lifetime		min.100 000 h
Article number		
SPC PV 1000		10 170
SPC PV 1000 DS		10 070



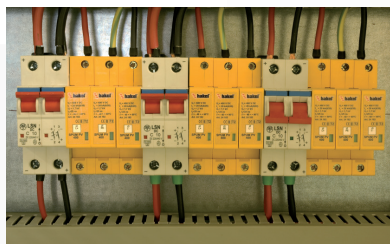
Basic circuit diagram of SPC PV



Housing material - Polyamide **PA6**

Recommended cable cross-sections of the connected conductors (at tightening torque of clamps 4Nm)

35 mm² (solid), 25 mm² (flexible)

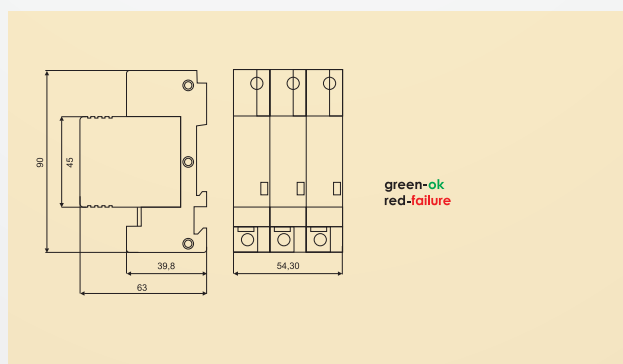


SURGE ARRESTERS - VARISTOR

SPUM PV is surge arrester type 2 according to EN 61643-11. Complete device consists of a base part and pluggable modules. These arresters are recommended for use in the Lightning Protection Zones Concept at the boundaries of LPZ 1-2 (according to IEC 1312-1 and EN 62305) for equipotential bonding of positive and negative busbars of photovoltaic systems and elimination of transient overvoltage that originate during atmospheric discharges or switching processes.

Failure indication of these disconnectors is partly visual (discoloration of the signal field) and partly remote monitoring by potential free switching contacts (only SPUM PV* DS type).

Three-pole MOV surge arrester



Type SPUM PV 200/ SPUM PV 200 DS

Max. continuous operating voltage	U_c	200 V DC
Max. discharge current (8/20)	I_{max}	40 kA
Nominal discharge current (8/20)	I_n	15 kA
Application		L+/L-, L+/PE, L-/PE
Voltage protection level at I_n	U_p	<0,95 kV
Response time	t_A	<25 ns
Max. back-up fuse		125 AgL/gG
Weight	m	300 g
Lifetime		min.100 000 h
Article number		
SPUM PV 200		24 181
SPUM PV 200 DS		24 081



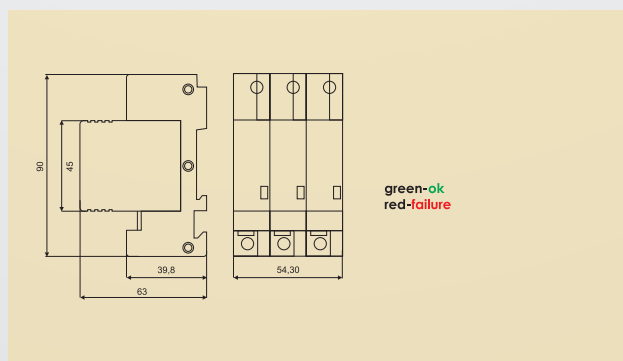
Varistor-based spare module

Art. No.

SPUM PV 200/M

24 381

Three-pole MOV surge arrester



Type SPUM PV 400/ SPUM PV 400 DS

Max. continuous operating voltage	U_c	400 V DC
Max. discharge current (8/20)	I_{max}	40 kA
Nominal discharge current (8/20)	I_n	20 kA
Application		L+/L-, L+/PE, L-/PE
Voltage protection level at I_n	U_p	<1,7 kV
Response time	t_A	<25 ns
Max. back-up fuse		125 AgL/gG
Weight	m	300 g
Lifetime		min.100 000 h
Article number		
SPUM PV 400		24 182
SPUM PV 400 DS		24 082



Varistor-based spare module

Art. No.

SPUM PV 400/M

24 382

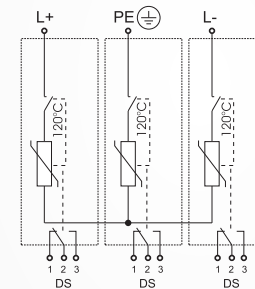


Function of remote monitor terminals

When the SPUM PV DS is operating correctly, the terminations 1-2 are connected to normally closed contacts, 2-3 are normally open. If the internal varistor component is damaged as a result of thermal overloading, terminations 1-2 will then be open and 2-3 closed.

el. strength against surround. circuits	3750 V _{rms}
el. strength against network circuits	3750 V _{rms}
insulation resistance	$2 \times 10^7 \Omega$
max. switching current	~ 0,5 A
max. switching voltage	~ 250 V

Basic circuit diagram



Three-pole MOV surge arrester

Type SPUM PV 600/ SPUM PV 600 DS		
Max. continuous operating voltage	U _c	600 V DC
Max. discharge current (8/20)	I _{max}	40 kA
Nominal discharge current (8/20)	I _n	20 kA
Application		L+/L-, L+/PE, L-/PE
Voltage protection level at I _n	U _p	<2,5 kV
Response time	t _A	<25 ns
Max. back-up fuse		125 AgL/gG
Weight	m	300 g
Lifetime		min.100 000 h
Article number		
SPUM PV 600		24 183
SPUM PV 600 DS		24 083

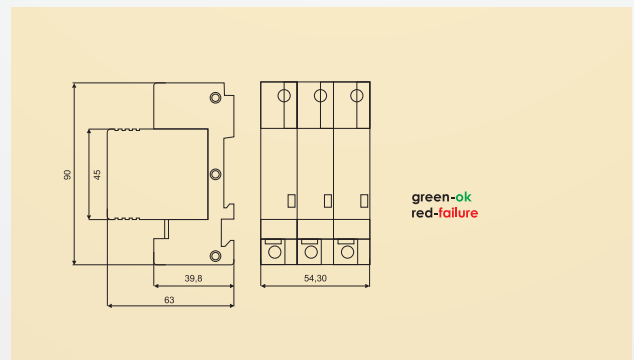
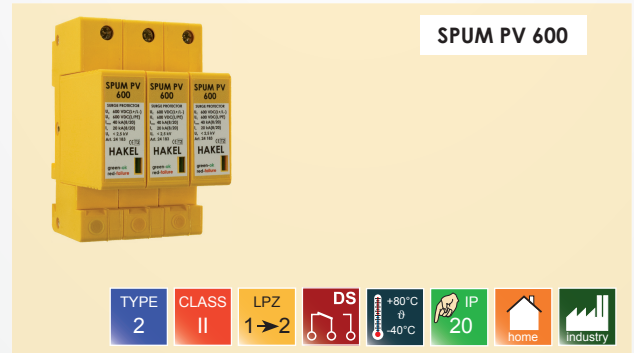


Varistor-based spare module

SPUM PV 600/M

Art. No.

24 383



Three-pole MOV surge arrester

Type SPUM PV 800/ SPUM PV 800 DS		
Max. continuous operating voltage	U _c	800 V DC
Max. discharge current (8/20)	I _{max}	40 kA
Nominal discharge current (8/20)	I _n	20 kA
Application		L+/L-, L+/PE, L-/PE
Voltage protection level at I _n	U _p	<2,8 kV
Response time	t _A	<25 ns
Max. back-up fuse		125 AgL/gG
Weight	m	300 g
Lifetime		min.100 000 h
Article number		
SPUM PV 800		24 184
SPUM PV 800 DS		24 084

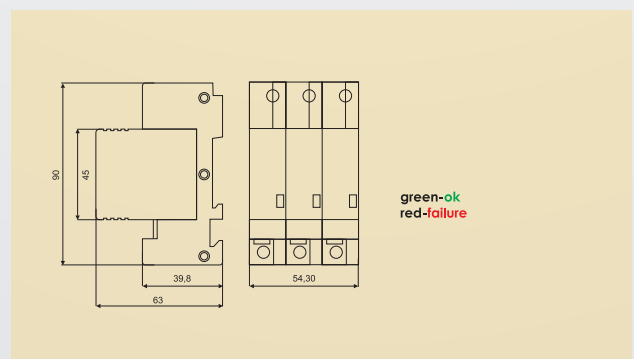


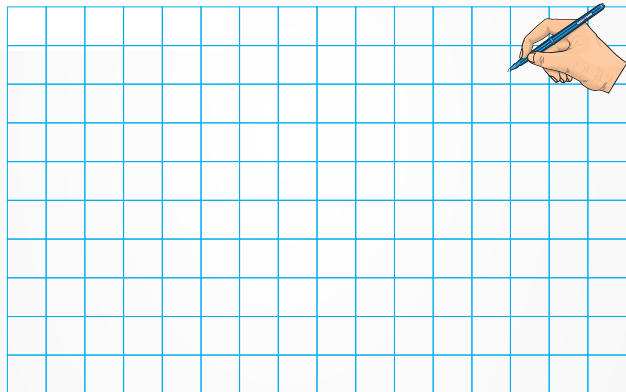
Varistor-based spare module

SPUM PV 800/M

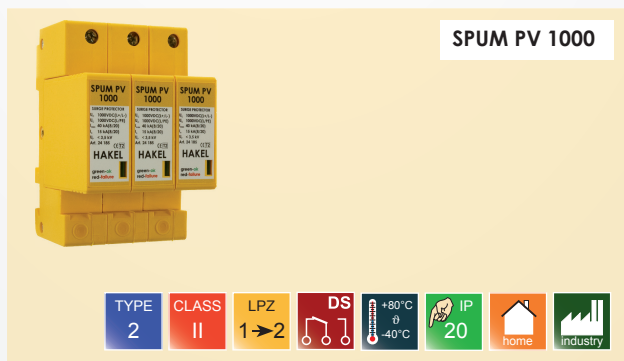
Art. No.

24 384

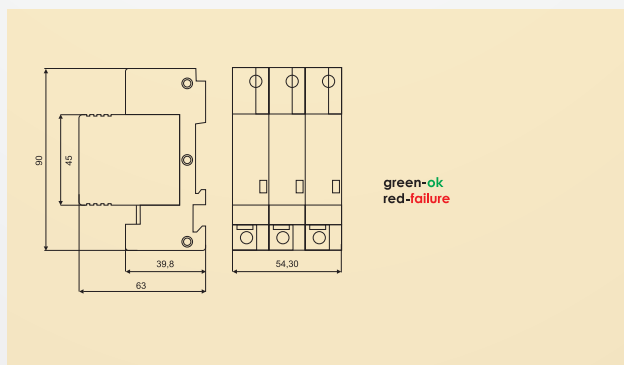




Three-pole MOV surge arrester



SPUM PV 1000



Type SPUM PV 1000/ SPUM PV 1000 DS

Max. continuous operating voltage	U_c	1000 V DC
Max. discharge current (8/20)	I_{max}	40 kA
Nominal discharge current (8/20)	I_n	15 kA
Application		L+/L-, L+/PE, L-/PE
Voltage protection level at I_n	U_p	<3,5 kV
Response time	t_A	<25 ns
Max. back-up fuse		125 AgL/gG
Weight	m	300 g
Lifetime		min.100 000 h
Article number		
SPUM PV 1000		24 185
SPUM PV 1000 DS		24 085



Varistor-based spare module

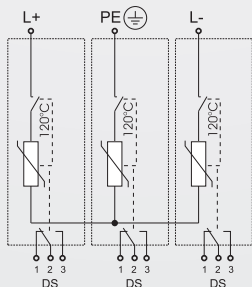
SPUM PV 1000/M

Art. No.

24 385



Basic circuit diagram of SPUM PV



Function of remote monitor terminals

When the SPUM PV DS is operating correctly, the terminations 1-2 are connected to normally closed contacts, 2-3 are normally open. If the internal varistor component is damaged as a result of thermal overloading, terminations 1-2 will then be open and 2-3 closed.

el. strength against surround. circuits	3750 V _{rms}
el. strength against network circuits	3750 V _{rms}
insulation resistance	2 x 10 ⁷ Ω
max. switching current	~ 0,5 A
max. switching voltage	~ 250 V

Housing material - Polyamide **PA6**

Recommended cable cross-sections of the connected conductors (at tightening torque of clamps 4Nm)

16 mm² (solid), 10 mm² (flexible)