

Type 2 AC Surge Protector

DS40



DS40 Type 2 AC Surge Protectors are used mainly for primary protection of single and 3-Phase networks at the main electrical panel. They provide common-mode (between L and PE) or common and differential mode (L/PE and L/N) when associated with DS40G (DS4x-xxx/G version). They are available in one-phase, single-phase, three-phase, and three-phase+neutral versions.

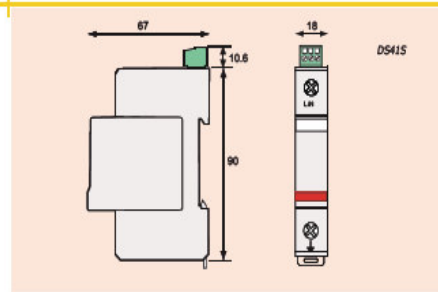
The DS40 impulse discharge capability classifies this SPD as regular Type 2, useful in case of medium lightning density areas. IEC60364 standard requests Type 2 SPD at the entrance of installation if the ceramic level  $N_k > 2.5$ .

This SPD is based on high energy varistor equipped with thermal disconnecter and failure indicator, to comply with standards. Version with a remote signaling for disconnection indication is also available (DS4\*S).

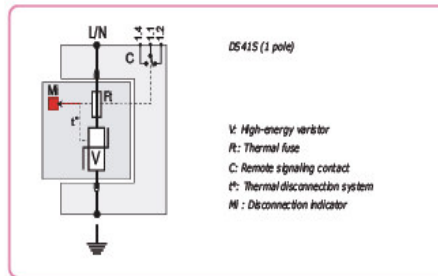
The DS40 is available for a large range of AC voltages. The DS40 is DIN rail compatible and is built with a plug-in module (DSM40-xxx) and a fixed base, which allows an easy and fast maintenance.

- Type 2 AC Surge Protector
- Discharge currents : In : 20 kA/Imax : 40 kA
- Pluggable module for each phase
- UL 1449 2nd edition

Dimensions (in mm)



Electrical Diagram



Characteristics

CITEL part number	DS40-480	DS40-400	DS40-230	DS40-120
Network	277/480V	230/400V	230/400V	120/208V
Max. operating voltage	Uc 550 Vac	277/480 Vac	275 Vac	150 Vac
Temporary overvoltage withstandy	U 480 Vac	400 Vac	275 Vac	150 Vac
Operating current	Ic <1 mA	<1 mA	<1 mA	<1 mA
Leakage current at Uc				
Follow current	If none	none	none	none
Nominal discharge current 15 x 8/20 µs impulse	In 20 kA	20 kA	20 kA	20 kA
Maximum discharge current max. withstand 8/20 µs	Imax 40 kA	40 kA	40 kA	40 kA
Protection level (at In)	Up 2.5 kV	1.8 kV	1.25 kV	0.9 kV
Residual voltage at 10 kA	2.0 kV	1.5 kV	1.1 kV	0.7 kV
Residual voltage at 5 kA	1.6 kV	1.3 kV	0.9 kV	0.6 kV
Admissible short-circuit current	25000 A	25000 A	25000 A	25000 A
Associated disconnection devices				
Thermal disconnecter	internal			
Fuses	Fuses type gG - 50 A max. (see Note 1)			
Installation ground fault breaker	Type «S» or delayed			
Mechanical characteristics				
Dimensions	see diagram			
Connection	by screw terminals - 4-25 mm <sup>2</sup> / bybus			
Disconnection indicator	1 mechanical indicator			
Remote signaling of disconnection	Option DS40S - output on changeover contact			
Mounting	symmetrical rail 35 mm			
Operating temperature	-40/+85 °C			
Protection class	P20			
Housing material	Thermoplastic UL94-V0			
Standards compliance				
EN 61643-11	Europe	Low Voltage SPD - Class II Test		
IEC 61643-1	International	Low Voltage SPD - Class II Test		
NF EN 61643-11	France	Parafoudre Basse Tension - Essais Classe II		
UL1449 ed.2	USA	Low Voltage SPD		

Note 1 : Rating in compliance with nominal discharge current. In order to increase service continuity, higher rating can be used (up to 125 A). For further information, please consult product instructions.



Type 2 AC Power Multipolar Surge Protector

DS42  
DS43  
DS44



The DS40 surge protectors are designed to be used in a multipolar configuration to protect single-phase, 3-phase or 3-phase+neutral AC networks. They are sometimes associated with dedicated N/PE surge protector based on gas tube technology (DS40G).

2 possible configurations :

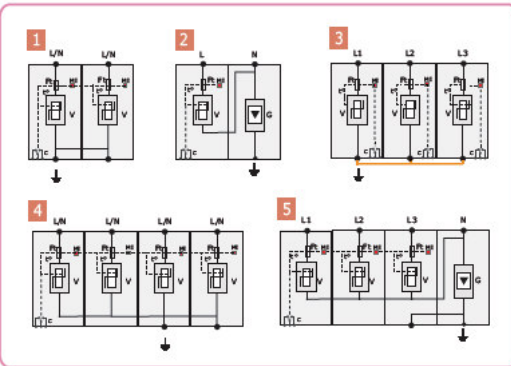
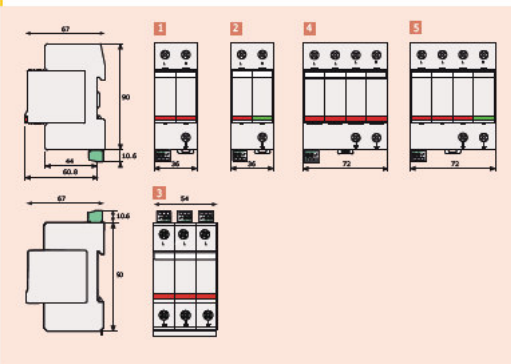
**Common mode : CT1 configuration**

DS40 surge protectors are connected between line(s), Neutral and protective wire (PE).

**Common and Differential mode : CT2 configuration**

DS40 surge protectors are connected between line(s) and Neutral to provide differential mode protection. A specific surge protector DS40G is connected between Neutral and Protective wire (PE) for common mode protection. This configuration provides the highest efficiency.

Dimensions and Diagram



Part Number	Network	AC system	Protection mode		I <sub>max</sub> total	U <sub>p</sub> L/PE	U <sub>p</sub> L/N	Diagram
			common	differential				
DS44-230/G	230/400 V 3-phase+N	TT-TN	•	•	40 kA	1.5 kV	1.25 kV	5
DS44-120/G	120/208 V 3-phase+N	TT-TN	•	•	40 kA	1.5 kV	0.9 kV	
DS44-400	230/400 V 3-phase+N	IT	•		160 kA	1.8 kV	-	4
DS44-230	230/400 V 3-phase+N	TN	•		160 kA	1.25 kV	-	
DS44-120	120/208 V 3-phase+N	TN	•		160 kA	0.9 kV	-	
DS43-400	400 V 3-phase	IT-TT-TNC	•		120 kA	1.8 kV	-	3
DS43-230	400 V 3-phase	TNC	•		120 kA	1.25 kV	-	
DS43-120	208 V 3-phase	TNC	•		120 kA	0.9 kV	-	
DS42-230/G	230 V Single phase	TT-TN	•	•	40 kA	1.5 kV	1.25 kV	2
DS42-120/G	120 V Single phase	TN	•	•	40 kA	1.5 kV	0.9 kV	
DS42-400	230V Single phase	IT	•		80 kA	1.8 kV	-	1
DS42-230	230V Single phase	TN	•		80 kA	1.25 kV	-	
DS42-120	120 V Single phase	TN	•		80 kA	0.9 kV	-	

\*) or DS4x-320x (e.g: DS44-320/G) in case of possible temporary voltages (bad quality AC voltage or supply by AC generator set)