

## OPERATIONAL MANUAL – YD40K275DH2\*-A1 SPD for Single Phase Power Supply System

### 1. Cautions

- 1.1, This equipment should be installed by authorized professional person. Before performing installation, power supplied to the equipment should be cut off in order to avoid accidental contact to hazardous live parts.
- 1.2, This equipment must be installed in a restricted access location where access to this location is only through the use of tool or key; Or other means of security, and is controlled by the authority responsible for the location.
- 1.3, Only authorized person can be gained access to the restricted access location, who should be well-instructed about the reasons for the restriction applied to the location and about any precautions that shall be taken against touching the hot surface and hazardous live parts.
- 1.4, Wires with minimum 10mm<sup>2</sup> (AWG6) cross-sectional area should be used for earthing connected to the equipment, Wires with minimum 6mm<sup>2</sup> (AWG10) cross-sectional area should be used for power supply conductors connected to the equipment.
- 1.5, Circuit breaker or fuse should be used at the power supply side of the SPD. If the circuit breaker or fuse in the route of surge current, the circuit breaker should have the C thermomagnetic release characteristic and rated current about 32A, the fuse rated current about 50A. added, the select of circuit breaker or fuse should according to the standard IEC60364-4-43(GB16895.5-2000).
- 1.6, Protective earthing conductors should be connected earlier and disconnected later than the mains conductors (L/N).

### 2. Functions and Features

YD40K275DH2K-A1 type SPD for power supply system and electrical equipment against damages caused by lightning current and surges, etc. Its main features:

As Figure 1: YD40K275DH2\*-A1 consists of “1+1” protective circuit, namely: Use MOV between L and N, suppress the voltage surge between the L and N; Use GDT and PE. between N and PE, suppress the voltage surge of N

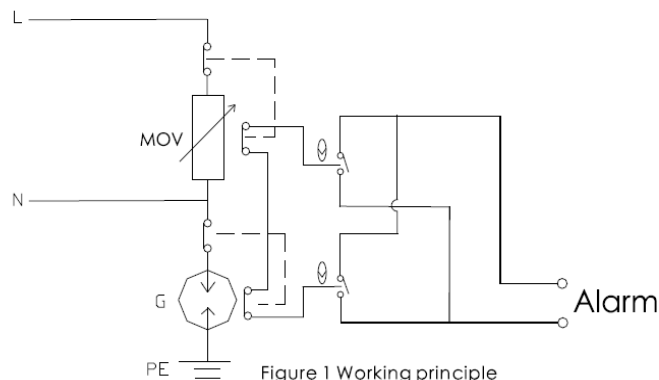


Figure 1 Working principle

### 3. Parameters

Model	YD40K275DH2-A1	YD40K275DH2K-A1
Location category	Indoor	
Number of ports	1	
Method of mounting	Fixed(DIN 35mm railway)	
Maximum Continuous operating voltage (U <sub>c</sub> )	275V~ ,50/60Hz (L-N)	
Maximum discharge current (I <sub>max</sub> )	Type 2: 40kA (L-N, N-PE)	
Nominal discharge current (I <sub>n</sub> )	20kA (L-N, N-PE)	
Protection level (U <sub>p</sub> )	1.2KV(L-N), 1.0KV(N-PE)	
Residual voltage level(U <sub>r</sub> )	900V@3KA, 8/20μs	
Failure indicator	Local indicated window: black means SPD OK and red mean failure. Remote output terminal: Open means SPD OK and short mean failure	
Isolation between separate circuits	The remote alarm interface is isolated from the main circuit by reinforced insulation on U <sub>0</sub> not exceed 250V condition according to EN 60950-1/A11:2004 and with dielectric withstand voltage 3000Vrms.	
Terminal block's capacity	1.5mm <sup>2</sup> — 25mm <sup>2</sup>	
Enclosure material and the class of resistance of fire	PA66+VG30; UL94 V-0	
IP code	IP20	
Dimensions	90×36×66 mm <sup>3</sup> ( without alarm interface)	
Working environments	Temperature -40~ +70°C, Relative humidity≤95%, Height≤3Km	
Standard	IEC61643-1、EN61643-11、YD/T1235.1、GB18802.1	

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#### 4. Structure&Shape

Adopt standard mount rail structure, and module design as figure 2.

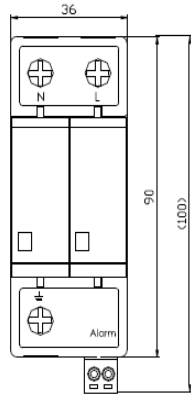
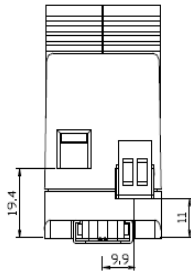


Figure 2 Enclosure and Structure

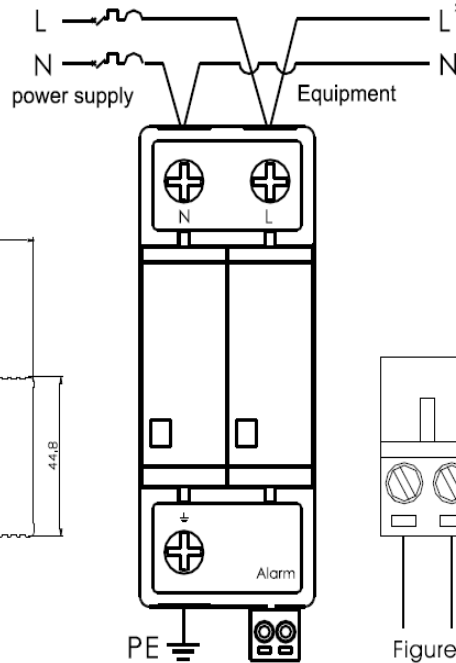
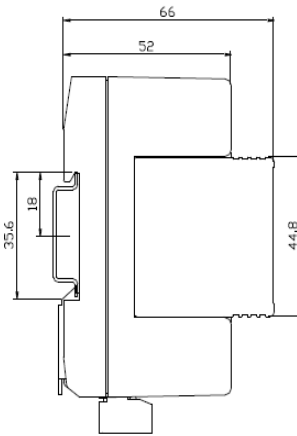


Figure 3 Connection (Kevin mode)

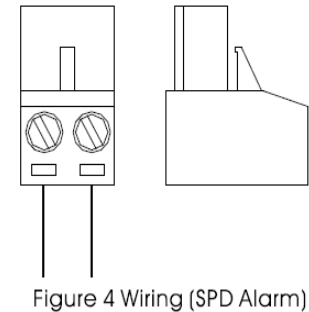


Figure 4 Wiring (SPD Alarm)

#### 5. Installation and wiring

- 5.1 Adopt standard mount rail structure, installed normally in power distributor cabinet.
- 5.2 Shown as Figure 3: Through SPD connection port, connect the input wire (power wire) and lead (for protected equipment). Connect the live line to the L port of the protector, and neutral wire to the N port. the connection can't be exchanged. This connection way (Kevin mode) is strongly suggested, to improve the protection effect. Earthing wire from earthing port of SPD should connect protective earth(Lightning earth) SPECIAL NOTICE : Earthing is obligatory, referring to requests of the lightning protection engineering field work. The grounding wire should be as short as possible, less than 0.5m is strongly recommended.
- 5.3 In case of remote alarm, alarm leads are connected to alarm terminals then be plugged into alarm interface. Please refer to Figure 4.

#### 6. Using and Maintenance

- 6.1 SPD should be inspected periodic, especially before the thunderstorm season. Check the connections should be reliable, the windows should be black and the protective module in its position.
- 6.2 Following status means SPD has a fault and need to be replaced immediately.
  - (1). The MOV unit's/GDT unit's windows are red.
  - (2). Remote output terminal is short when you insert all units.

Note: It being the fact that the instability of power net quality and heavy over-voltage happen in some area lower power supply system, for Un of 220/230V power system, Uc 385V SPD or Uc 320V SPD is recommended to be used, adopt Uc 275V SPD discreetly.