

NanQue®



**NQSP2Z**

**Photovoltaic  
DC Surge Protector**

*New Dirction  
New Option*



# DC Surge Protector

## NQSP2Z-20/40

### Product Introduction

NQSP2Z series high-throughput modular surge protector is suitable for lightning surge overvoltage protection of DC power system, and is used to protect the electrical and electronic equipment on the DC side of the inverter from lightning electromagnetic pulse induced voltage, operation transient and resonance ( $<100\mu\text{s}$ ) overvoltage effects. Widely used in power supply systems such as communication equipment, electric power, security, transportation, industrial control, etc., to protect the power grid due to lightning strikes or surge overvoltages, and can discharge a maximum of 40KA lightning strike current. The shell is designed to be installed on a 35mm electrical rail. The detachment device can automatically detach it from the grid, and at the same time the status indicator window turns from green to red.

Based on specific varistors, common mode and differential mode protection are provided, and the design complies with UL1449ed4 and EC61643-31 product test standards.

Photovoltaic systems must take into account the risk of lightning:

1. Due to the exposure characteristics of the photovoltaic array installation location, the risk of direct lightning strike is high;
2. There are multiple risks: direct lightning strikes (direct strikes on photovoltaic panels) indirectly affect photovoltaic modules, combiner boxes, inverters, etc. [surge effects] direct strikes or surge effects on other line signal lines];
3. It is necessary to consider the operation loss caused by lightning strikes and other accidents, especially in the application environment of high-power power generation;
4. When the photovoltaic system is located in an industrial field application, the risk of operating overvoltage must also be considered;
5. The risk level is directly related to the ground flash density and the exposure degree of local lines.





# DC Surge Protector

## NQSP2Z-20/40

### Model and Meaning

## NQSP2Z-20-2P-20KA-X

Model

Poles

Empty: without accessories  
X: remote signaling  
SG: Sound and light alarm  
NPE: gap (gas discharge tube)

Nominal discharge current(8/20 $\mu$ s)

### Normal Working Conditions

- Ambient air temperature: -40°C~+85°C
- The relative humidity of the air is not more than 95%
- The inclination to the vertical plane does not exceed 5°
- Without significant shaking and shock vibration
- Non-explosive medium, and there is no gas and dust (including conductive dust) in the medium that is sufficient to corrode metals and damage insulation

### Technical Parameters

Specification	NQSP2Z-20	NQSP2Z-40
Rated working voltage $U_n$ (DC)	75V/210V/385V/460V/625V/895V	
Max working voltage $U_c$ (DC)	100V/250V/500V/600V/800V/1000V	
Rated discharge current(8/20 $\mu$ s) $I_n$ (kA)	10	20
Max discharge current(8/20 $\mu$ s) $I_{max}$ (kA)	20	40
Voltage protection level $U_p$ (kV)	1/1.6/1.9/2.5/3.2	
Continuous working current $U_{cpv}$	<0.1mA	



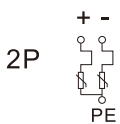
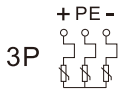
# DC Surge Protector

## NQSP2Z-20/40

Residual current Ucpv	<0.1mA	
Rated short circuit current Iscpv(kA)	15	
Thermal trip device	Built-in	
Response time (ns) I	<25	
Test classification	II	
IP grade	Ip20	
Environmental limit temperature	-40°C~+85°C	
Installation type	35MM Electrical rail	
Shell material	Thermoplastic material meet UL94-V0	
Shell color	White / grey	
Normal/fault display	green / red	
Recommended fuse or breaker (A)	10-16	16~25
Recommended phase/neutral wire diameter(mm <sup>2</sup> )	2.5~10	4~16
Ground wire PE	4~10 Double color	4~16 Double color

Note: It can be derived with alarm (add 8 to the tail number) or with remote signaling contact (add X to the tail number)

### Product Selection

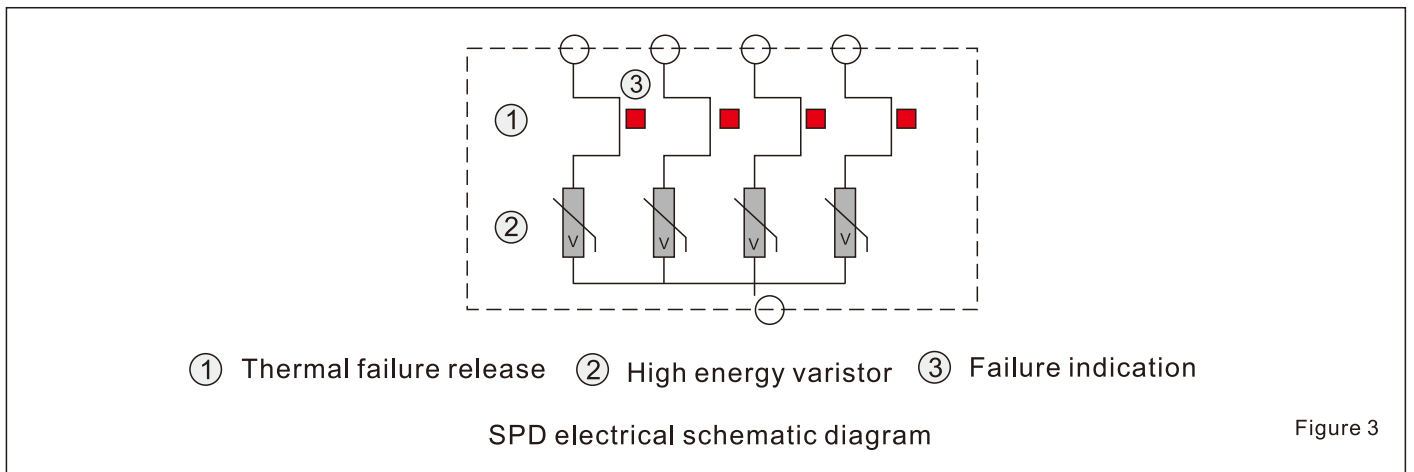
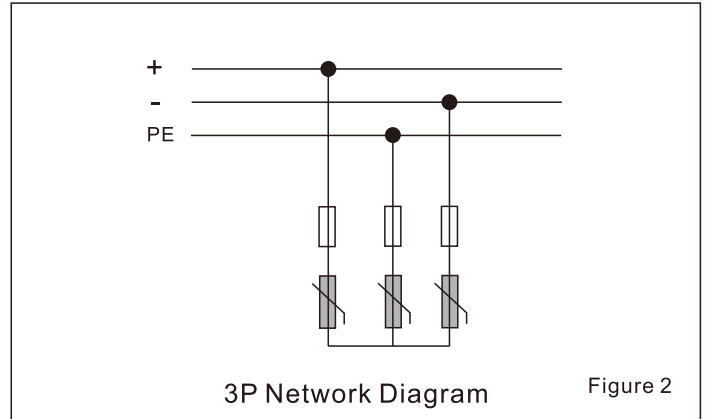
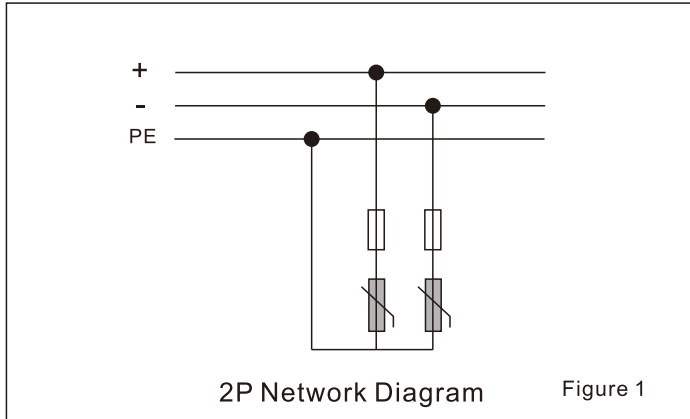
Model	Poles	Current	Shell
NQSP2Z	2P 	20KA/40KA	White / grey
	3P 		



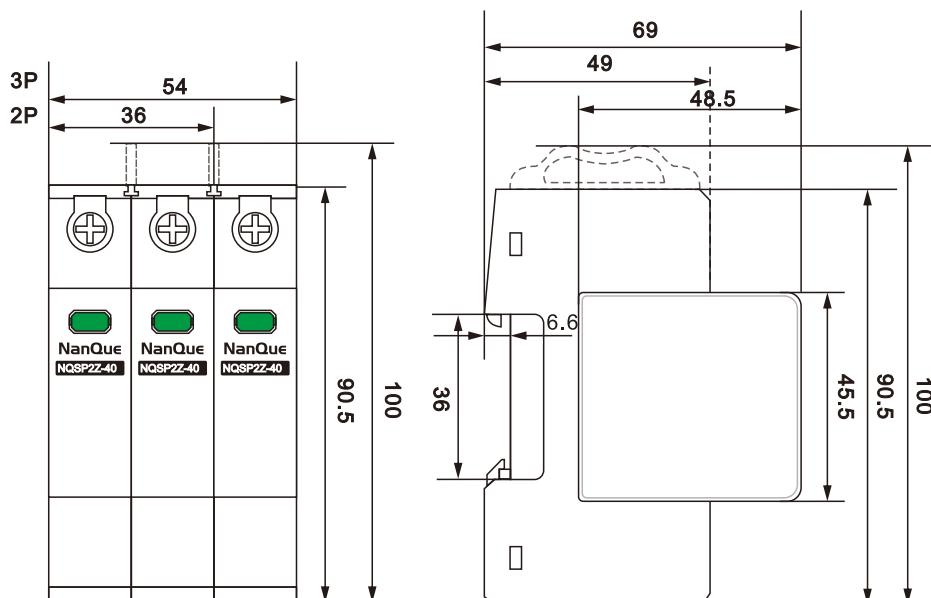
# DC Surge Protector

## NQSP2Z-20/40

### Main Structure and Working Principle



### Main Structure and Working Principle



Unit:mm



# DC Surge Protector

## NQSP2Z-20/40

### Surge Protector Accessories

#### ■ Fail disengagement device

The SPD module is equipped with a failure release device. When the protector is overheated or broken down, the failure release device can automatically disconnect it from the grid and give an indication signal at the same time. When the protector is normal, the sign is green, and when the protector is out of order, the sign is red. (SPD module can be replaced under the condition of working voltage)

#### ■ Alarm

The alarm is powered by AC230V. When the SPD is working normally, the indicator light is green, the normally open contact is closed, and the normally closed contact is disconnected. Sound and light alarm function: When the SPD module fails, the alarm will beep, and at the same time, the green light in normal operation will be turned into red light. If the maintenance personnel press the stop button, the beeping will temporarily stop (but the red light will continue to display), if the fault is still not eliminated after 24 hours, the alarm will beep again.

#### ■ Remote signaling contacts

SPD can be made into varieties with remote signaling contacts. The remote signaling contact is a normally open contact. If one or more modules of the SPD fail, the contacts will be closed and a fault message will be sent. Remote signaling contact rating: AC36V, 1A.

### Order Instructions

1. The user should indicate the product model, rated current, number of poles, accessories and quantity of the circuit breaker when ordering.
2. For example: NQSP2-40 surge protector 2P 40KA 200 pieces.
3. If the user has special requirements, such as customized printing, it can be negotiated separately.

# Appendix I

## Product selection datasheet



2P

3P

Model	Poles	Voltage	Current	Order Code	Customized
NQSP2Z	2P	DC100V	20KA	NQPD-0701-2PDC9001	NO
DC SPD	2P	DC100V	40KA	NQPD-0701-2PDC9002	NO
	2P	DC250V	20KA	NQPD-0701-2PDC1001	NO
	2P	DC250V	40KA	NQPD-0701-2PDC1002	NO
	2P	DC500V	20KA	NQPD-0701-2PDC2001	NO
	2P	DC500V	40KA	NQPD-0701-2PDC2002	NO
	2P	DC600V	20KA	NQPD-0701-2PDC7001	YES
	2P	DC600V	40KA	NQPD-0701-2PDC7002	YES
	2P	DC800V	20KA	NQPD-0701-2PDC8001	NO
	2P	DC800V	40KA	NQPD-0701-2PDC8002	NO
	2P	DC1000V	20KA	NQPD-0701-2PDC4001	NO
	2P	DC1000V	40KA	NQPD-0701-2PDC4002	NO
	3P	DC100V	20KA	NQPD-0701-3PDC9001	NO
	3P	DC100V	40KA	NQPD-0701-3PDC9002	NO
	3P	DC250V	20KA	NQPD-0701-3PDC1001	NO
	3P	DC250V	40KA	NQPD-0701-3PDC1002	NO
	3P	DC500V	20KA	NQPD-0701-3PDC2001	NO
	3P	DC500V	40KA	NQPD-0701-3PDC2002	NO
	3P	DC600V	20KA	NQPD-0701-3PDC7001	YES
	3P	DC600V	40KA	NQPD-0701-3PDC7002	YES
	3P	DC800V	20KA	NQPD-0701-3PDC8001	NO
	3P	DC800V	40KA	NQPD-0701-3PDC8002	NO

Remark:

1, "Customized products" (gray marked), cannot be ordered directly, you need to determine the quantity, price and order cycle before ordering,  
2, Customized products does not support returns and exchanges.