

<b>SPECIFICATION</b>		Specification No.	T-110230C01~04			
		Drawing No.	T-110230C01	Revision	b	Page
Product Name	Communication Line Protector ZP-H3□□VJK□	Enactment Date	15.Apr.2015	Revision Date	10.Sep.2025	
		Drawing Section	Sales Engineering Department			

### 1. General

This is a SPD to protect devices from abnormal voltage that occurs on communication lines and instrumentation signal lines. It consists of a plug and jack (body) part, and the plug has a deterioration display by which you can check the deterioration with tester.

### 2. Service Condition

- 2.1 Install Location : Indoor
- 2.2 Ambient Temperature : -40°C ~ +70°C
- 2.3 Relative Humidity : ≤ 96% (non-condensing)
- 2.4 Storage Temperature : -40°C ~ +70°C
- 2.5 Storage Humidity : ≤ 96% (non-condensing)
- 2.6 Altitude : ≤ 2000m

### 3. Appearance, Dimensions and Marking

#### 3.1 Appearance and Dimensions

Table.1 shows appearance and dimensions.

Table.1

Product name	Kind of base	Model	Appearance and Dimension
ZP-H3	screw less terminal	ZP-H3 06,12,24,48VJK	T-110230A11
	screw terminal	ZP-H3 24VJKN	T-110230A12

Installation: On a DIN rail(width 35mm)

Structure: The signal will not shut down even in case of removing a plug.

#### 3.2 Marking

Following particulars are marked on the body of this product;

Plug: (1) Product name (2) Manufacturer name (3) Date of manufacture

(4) Maximum continuous operating voltage  $U_c$ .

Base: (1) Product name (2) Manufacturer name (3) Date of manufacture (4) Terminal marking

#### 3.3 Circuit structure

This SPD needs to be connected in a right direction. A wrong connection will damage the SPD. Please connect as the following drawing.

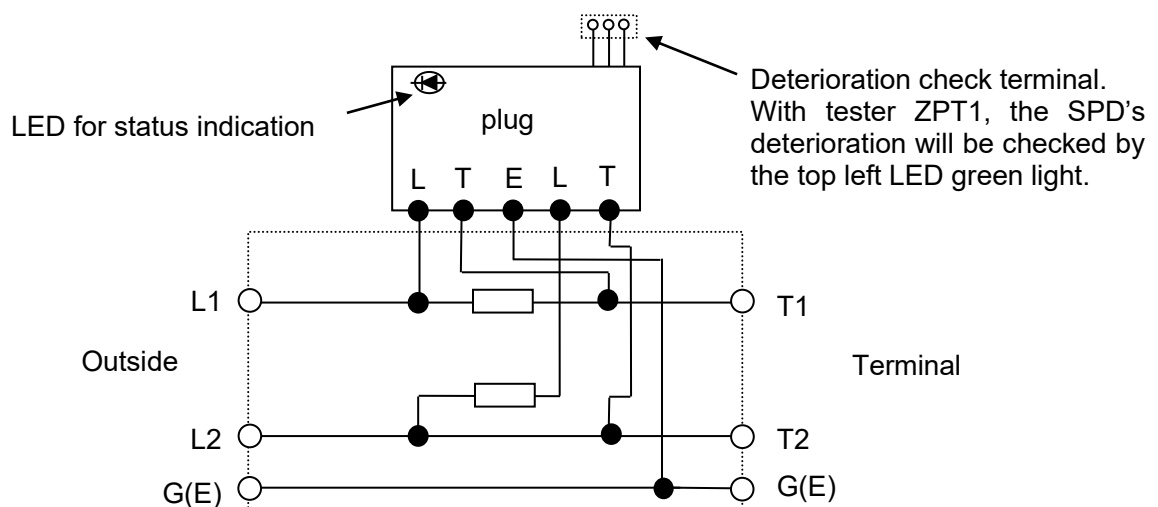


Fig.1 ZP-H3□□VJK□ circuit structure

<b>SPECIFICATION</b>		Specification No.	T-110230C01~04			
		Drawing No.	T-110230C02	Revision	b	Page
Product Name	Communication Line Protector ZP-H3□□VJK□	Enactment Date	15.Apr.2015	Revision Date	10.Sep.2025	
		Drawing Section	Sales Engineering Department			

#### 4. Electrical Characteristics

4.1 The electrical characteristics shown in Table.2

Table.2

Item	Measurement conditions	Characteristics			
		06V	12V	24V	48V
1. Type		06V	12V	24V	48V
2. Maximum continuous operating voltage $U_c$		DC9V	DC13.5V	DC27V	DC52V
3. Rated load current		DC400mA	DC100mA	DC100mA	DC100mA
4. Leakage current		$\leq 50\mu\text{A}$ (DC5V)	$\leq 10\mu\text{A}$ (DC13.5V)	$\leq 5\mu\text{A}$ (DC27V)	$\leq 5\mu\text{A}$ (DC52V)
5. Series resistance		$5\Omega \pm 10\%$ 400mA	$5\Omega \pm 10\%$ 100mA		
6. Insertion loss	DC~400kHz	$\leq 1.0\text{dB}$			
7. Voltage protection level $U_p$	1.2/50 $\mu\text{s}$ 10kV	$\leq 80\text{V}$	$\leq 100\text{V}$	$\leq 120\text{V}$	$\leq 140\text{V}$
8. Maximum discharge current	8/20 $\mu\text{s}$	10kA(per pole 5kA×2)			
	10/350 $\mu\text{s}$	2kA(per pole 1kA×2)			
9. Impulse durability	Category C2 8/20 $\mu\text{s}$ 5kA	10times(per pole)			
	Category D1 10/350 $\mu\text{s}$ 2.5kA	2times(per pole)			
10. AC durability	50Hz 0.5A 1s	5times			
11. Over stressed fault mode		Mode 1			
12.LED for status indications	Inspection by tester ZPT1	Normal: LED ON			
		Replace: LED OFF			

Note 1) Test Conditions

Temperature  $20 \pm 15^\circ\text{C}$ , Humidity  $65 \pm 20\%$  (IEC 160-1963 (normal condition of test place)).

Note 2) Each item shall have the test based on IEC61643-21 stipulation.

#### 4.2 Replacement

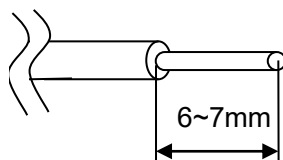
When abnormal current flows into the SPD, the lightning protective element will be automatically separated from connected lines.

By connecting the terminal of tester ZPT1 to a deterioration check terminal of the plug, the SPD's deterioration will be checked. When the LED turns green, it means no deterioration. When the light turns off, it is deteriorated. When it is deteriorated, please replace the plug.

#### 5. Connection Cable

Applicable wire: AWG28~AWG13 (0.08~2.5mm<sup>2</sup>)

Cable stripping length: about 6~7mm



<b>SPECIFICATION</b>		Specification No.	T-110230C01~04			
		Drawing No.	T-110230C03	Revision	b	Page
Product Name	Communication Line Protector ZP-H3□□VJK□	Enactment Date	15.Apr.2015	Revision Date	10.Sep.2025	
		Drawing Section	Sales Engineering Department			

### 6. Inspection Condition

The inspection of electrical characteristics, mechanical characteristics and exterior shall be held as following Table.3.

Table.3

Item	Inspection Type	Characteristics
1. Rated load current	Type	According to Table.2
2. Leakage current	Sampling	
3. Series resistance	Sampling	
4. Insertion loss	Type	
5. Voltage protection level $U_p$	Type	
6. Maximum discharge current	Type	
7. Impulse durability	Type	
8. Overstressed fault mode	Type	
9. AC durability	Type	
10. LED lighting check	Sampling	
11. Low temperature test	Type	According to Table.4
12. High temperature test	Type	
13. Temperature cycle test	Type	
14. Vibration test	Type	
15. Exterior	Sampling	According to Table.1
16. Size	Sampling	

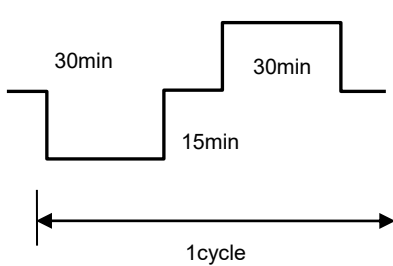
Note 1) Sampling Inspection; Single sampling plan, Normal inspection, Special inspection levels S-3 based ISO-2859 and AQL=2.5

Note 2) Type inspection; This inspection is executed when the main material is changed.

### 7. Environmental Tests

As shown in table 4. Leakage current, lightning protection level are to meet the following performance after each tests.

Table.4

Item	Test condition	Test time
1.Low temperature test	$T_a = -40 \pm 5^\circ\text{C}$	1000h
2.High temperature test	$T_a = +70 \pm 5^\circ\text{C}$	1000h
3.Temperature cycle test	 <p>The diagram shows a temperature cycle test waveform. It consists of three temperature levels: +70°C, +25°C, and -40°C. The cycle starts at +70°C for 30 minutes, then drops to +25°C for 15 minutes, then drops to -40°C for 30 minutes, and returns to +70°C. This sequence is labeled as '1cycle'.</p>	30cycles
4.Vibration test	Acceleration amplitude: $19.6\text{m/s}^2(2\text{G})$ Frequency: 40Hz	15min/3axis

<b>SPECIFICATION</b>		Specification No.	T-110230C01~04			
		Drawing No.	T-110230C04	Revision	b	Page
Product Name	Communication Line Protector ZP-H3□□VJK□	Enactment Date	15.Apr.2015	Revision Date	10.Sep.2025	
		Drawing Section	Sales Engineering Department			

## 8. Packaging and Marking of Wrapping Box

### 8.1 Packaging

Packaging unit 10 pieces packed in a box.

### 8.2 Marking of wrapping box

Following particulars are marking on wrapping box.

(1) Product name (2) Manufacturer name (3) Quantity

## 9. Quality Assurance Period and Content of Assurance

The warranty period for this product is generally one year (\*) from the date of delivery. Failures that occur during this time will be repaired free of charge or replaced only with non-defective ones if the cause is clearly judged to be our responsibility. The warranty does not cover any damage or damage to the device caused by lightning. The cost of replacement is not covered by the warranty.

This product is shipped after strict in-house inspection. However, please contact the dealer or each branch office of purchase for any trouble caused by a malfunction or accident during transportation.

Purchased items are not covered by our warranty but are covered by the manufacturer's warranty.

\*If you wish to extend the warranty, we will discuss the warranty separately

However, the warranty does not apply in the following cases:

- (1) If the product arises from use that is contrary to the conditions or precautions stated in the specifications or instruction manual, etc.
- (2) The effect of lightning strikes beyond product specifications, fire, earthquake, typhoon, eruption, flood, tsunami, salt damage, snow damage, freeze, abnormal temperature, abnormal vibration, cases caused by other natural disasters
- (3) When caused by changes in geology or topography, such as ground fluctuations or landslides
- (4) Cases resulting from external factors such as fire, explosion, collision, corrosive gas, or contact with flying objects
- (5) Cases arising from acts of a third party
- (6) If the product is modified irrespective of our company, or improper handling such as moving, transporting or dropping the installation site, cases arising from secondary construction
- (7) Cases caused by damage or improper construction of foundation or mounting pole (outside our construction scope)
- (8) The failure or failure of the equipment connected to this product
- (9) If it occurs without performing inspection and action for maintenance items recommended by us

When you found it deteriorated by the tester ZPT1, a replacement fee would be applied.

## 10. Environmental Correspondence (RoHS compliant)

This product does not contain more than specified provisions for substances subject to regulation in the EU RoHS Directive (\*), except for exemption items for lead, mercury, cadmium, hexavalent chromium, PBB, PBDE.

\* European Parliament / Council Directive 2011/65/EU

## 11. Identification of environmental

### (1) Identification of product

Environment-friendly products print or affix a seal "R" on the Nameplate.

### (2) Identification of Packaging

"RoHS" Marking is marking on wrapping box.