HVD Series
High Voltage Indicator

User Manual

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Read me

When you use HVD Series High voltage indicator, be sure to read this user manual carefully, and be able to fully understand the implications, the correct guidance of operations in accordance with user manual, which will help you make better use of HVD Series High voltage indicator and help to solve the various problems on the site.

1. Always keep safe distance between the high voltage part and the instrument, probe and operator.

2. Measurements must not be taken when thunderstorms are nearby.

3. Do not operate the instrument or accessories in explosive atmospheres.

4. After the battery alarm of the instrument, please turn off the power to charge.

5. Do not open the instrument without permission, this will affect the warranty of the product. The factory is not responsible for self-disassembly.

6. When the instrument is transported, it should avoid rain erosion and prevent collision and falling.

7. When storing and keeping the instrument, attention should be paid to the ambient temperature and humidity, and it should be protected from dust, moisture, shock, acid, and corrosive gas.

- **Please read this user manual carefully**
- **Please save this document**

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Directory

1.- SUMMARIZE

The HVD Series High Voltage Indicator is designed for application in 7.2- 40.53 kV medium-voltage systems with rated frequencies of 50/60 Hz. It is suitable for installation in switchgear incoming busbars, circuit breakers, main transformers, and other critical points where reliable voltage presence detection is required. The device provides three-phase voltage indication and supports multiple LED display modes to suit various operational and safety needs. When high voltage is present, the LED indicators will flash according to preset conditions, offering clear and intuitive visual alerts to maintenance personnel and operators.

In addition to on-site indication, the HVD Series integrates configurable relay output for remote voltage presence alarm, control signaling, or fault protection linkage, enhancing both the safety and flexibility of the entire system. Its compact design, high reliability, and easy panel mounting make it an ideal solution for high-voltage distribution systems. Furthermore, the device incorporates a self-test function, allowing users to verify the indicator's operational status at any time, thus improving system reliability and reducing the risk of operational errors.

FEATURES

- Multiple LED flashing modes;
- IEC 61243-5:2021 compliant;
- Threshold voltage 10%*Un<U<40%*Un;
- Wide auxiliary input range (85-265VAC/DC);
- 1 Change-over contacts for status monitoring;
- Single-phase/three-phase voltage indication.

APPLICATIONS

- High and low voltage switchgear;
- Ring network cabinet, outdoor terminal box;
- Transformer, circuit breaker, isolating switch;
- Power distribution room, bus-bar system;
- Mechanical control cabinet, motor control center;
- Outdoor distribution pillar, feeder terminal unit (FTU);
- Industrial plant power distribution cabinet, factory substation;

2.- TECHNICAL SPECIFICATION

Parameter	Value
Power supply	85-265Vac/dc
Rated voltage	7.2~40.5 KV
Power consumption	Less than 2W
Rated frequency	50-60Hz
Light-emitting element	Ultra-high brightness LED, operating voltage < 2.5 VDC, service life > 50,000 hours.
Digital output	Passive, dry contact, NO, load capacity: 5A@250VAC
Insulation	Input, output, power supply to shell >5MΩ
Withstand voltage	2 kV AC RMS 1 minute, between power supply to ground/ between relay contact to ground.
Standards	Compliant with IEC 61243-5:2021
Protection class	IP54
Installation dimension	96x48x43mm
Hole size	92*44mm
Working environment	-25~40°C Altitude ≤2000m, 0~95%RH, non-condensing, non-corrosive gas

Adaptation capacity parameter table:

Voltage Level (kV)	7.2	12	24	40.5
Adaptable Capacitance (pF)	150(±15)	115(±15)	80(±10)	45(±10)

3. - INSTALLATION AND START-UP

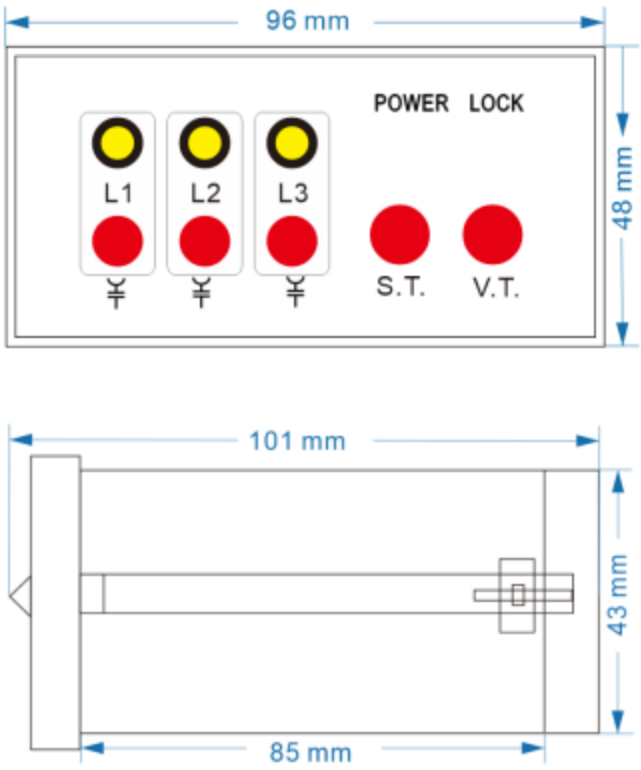
The manual you hold in your hand contains information and warnings that the user should respect in order to guarantee a proper operation of all the instrument functions and keep it in safety conditions. The instrument must not be powered on and used until its definitive assembly is on the cabinet's door.

If the instrument is not used as manufacturer's specifications, the protection of the instrument will be damaged.

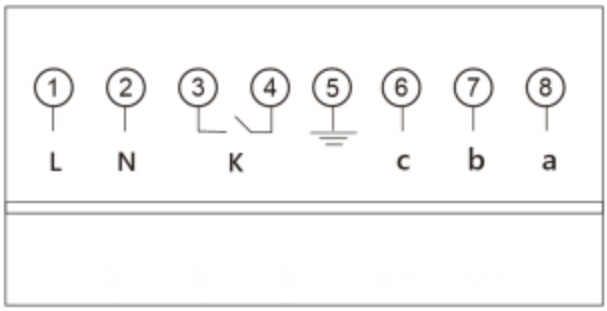
When any protection failure is suspected to exist (for example, it presents external visible damages), the instrument must be immediately powered off. In this case contact a qualified service representative.

3.1.- Installation

Dimension (WXHXD): 96x48x43mm, hole size: 92*44mm

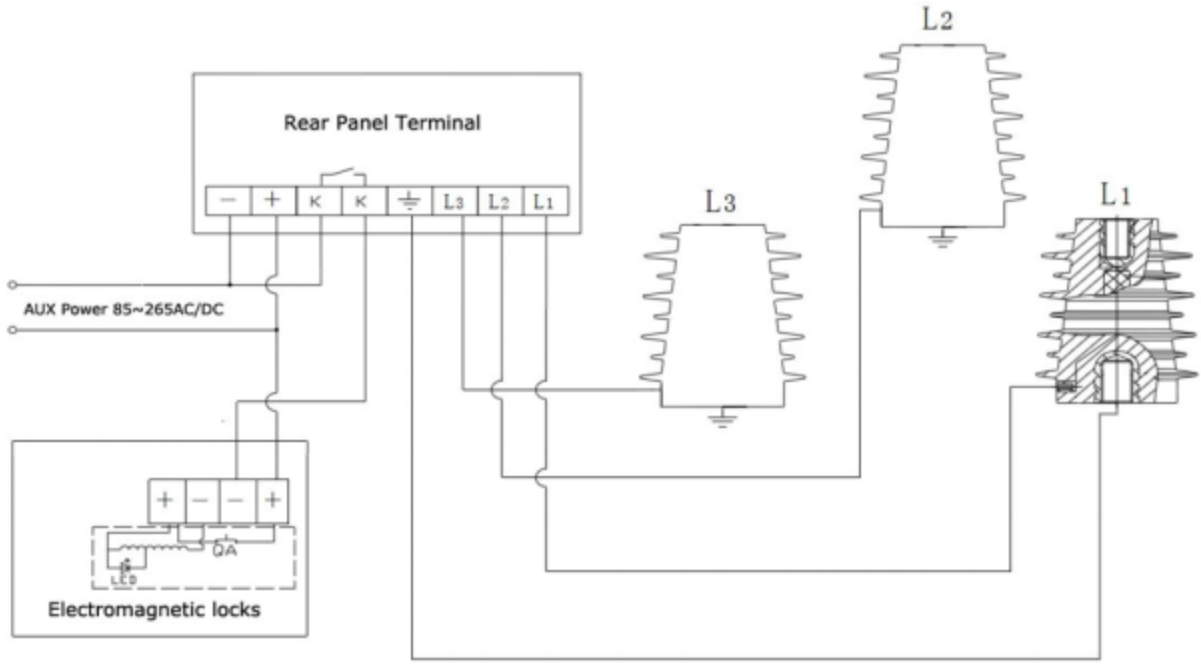


3.2.- Terminal definition



No.	Marked	Notes
1-2	**L, N**	85-265Vac/dc
3-4	**K**	Digital output, passive, dry contact, NO
5	⏚	Earth
6-8	**c, b, a**	Connect L3, L2, L1 phase capacitance sensor

3.3.- Wiring Diagram



Note:

This connection drawing is for reference only; the actual connecting terminal, please refer to the label on the rear part.

4.- FUNCTION INTRODUCTION

4.1.- Voltage Presence indication function

HVD series is equipped with three LED indicators to display the voltage status of phases L1, L2, and L3. When voltage is detected on any phase, the corresponding LED indicator lights up, providing a clear and intuitive system status display.

Additionally, the device integrates relay outputs, enabling remote alarm functions, interlocking control, or fault protection, significantly enhancing system safety and operational flexibility.

Indication status:

No.	HV Terminal Voltage (%)	Interlock Power Supply Voltage (%)	Phase LED (Self-Test Pressed)	Power LED	Interlock LED	Interlock Relay Status (Self-Test Pressed)
1	0 (all three phases)	85–110	ON	ON	ON	Opened
2	≥ 40%*U_n (any phase)	85–110	ON (Voltage Present)	ON	ON	Opened
3	0 (all three phases)	0	OFF	OFF	OFF	Opened
4	≥ 40%*U_n (any phase)	0	ON (Voltage Present)	OFF	OFF	Opened

Note:

No. 3 and 4 are in the indicator's protection status. When the indicator power loss, regardless of whether the high-voltage terminals are energized. the interlocking relay output is always opened.

4.2.- Phase sequence verification function

HVD series is equipped with a phase sequence verification function, which detects and indicates the phase rotation order of the incoming voltage. This ensures the correct connection sequence before circuit closing, preventing phase errors that could lead to equipment malfunction or operational hazards.

4.3.- Self-test button function

1. When high-voltage side powered off, when the secondary working power is connected, press this button, the L1, L2, L3 indicator lights are on, and the interlocking relay output contacts be opened; release this button, the L1, L2, L3 indicator lights are off, and the interlocking relay outputs are closed.

2. When the high-voltage terminal voltage reaches or exceeds 40% of the nominal voltage, whether the secondary power is connected or not, press the self-test button, the L1, L2, L3 indicator lights are on, the interlocking relay output contacts be opened.

4.4.- Voltage test button function

1. When the high-voltage side is powered off, press this button, and the L1, L2, and L3 indicator lights will not be on.

2. When the high-voltage terminal voltage reaches or exceeds 40% of the nominal voltage, press this button, and the L1, L2, L3 indicator lights must be on.

Note:

The above description presents the full set of available features. Actual functions depend on the selected configuration. Please refer to the selectable models **chapter 5** for details.

5.- Selectable Models

Num.	Code	Description
1	T	Indication type
	Q	Interlocking type
2	92	92×45 mm
	100	101×71 mm
3	A	AC power supply
	D	DC power supply
	N	Passive type
4	H	Phase sequence verification
	Y	Voltage presence detection
	Z	Self-test function

Note: If select passive type **(N)** power supply, the self-test function **(Z)** is unavailable.

6.- SAFETY CONSIDERATIONS

All installation specification described at the previous chapters named:
INSTALLATION AND STARTUP, INSTALLATION MODES and SPECIFICATIONS.

Please note that with the instrument powered on, the terminals could be dangerous to touching and cover opening actions or elements removal may allow accessing dangerous parts. This instrument is factory-shipped at proper operation condition.

- The device must have a professional installation and maintenance.
- Any operation of the device, you must cut off the input signal and power.

For any inquiry about the instrument performance or any failure, contact to Blue Jay's technical service.

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