

# Three-phase Voltage, Asymmetry, and Phase-sequence Phase-loss Relay K8DT-PZ

Protect motors and other equipment from unstable voltages in the power supply system.

Detect overvoltages, undervoltages, voltage asymmetry, phase sequence, and phase loss for three-phase power supplies.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

- Phase loss detection while the motor is operating.
- Global power supply support. (Changed with a switch.)
- Greater resistance to inverter noise.
- Width of 17.5 mm to reduce space required in panels.
- Push-In Plus Terminal that reduce wiring work.
  - The use of cage clamps enables wiring with bare stranded wires.
  - Double-insertion holes for crossover wiring (all terminals).
- UL listed for easy shipping to North America.
- Certified for maritime standards (LR).
- Models added with transistor outputs for superior contact reliability.



Refer to *Safety Precautions* on page 9.  
Refer to pages 7 to 8 for commonly asked questions.

## Ordering Information


### Three-phase Voltage, Asymmetry, and Phase-sequence Phase-loss Relay

Rated input voltage *	Output	Model
3-phase 3-wire mode 200, 220, 230, 240 VAC	Relay: SPDT contact output	<b>K8DT-PZ1CN</b>
	Transistor	<b>K8DT-PZ1TN</b>
3-phase 3-wire mode 380, 400, 415, 480 VAC	Relay: SPDT contact output	<b>K8DT-PZ2CN</b>
	Transistor	<b>K8DT-PZ2TN</b>

**Note:** The input range is set with a rotary switch.

\* The power supply voltage is the same as the rated input voltage.

### Options (Order Separately) Front Cover

Appearance	Model
	<b>Y92A-D1A</b>

# K8DT-PZ

## Ratings and Specifications

### Ratings

<b>Rated input voltage</b>	K8DT-PZ1□N: Three-phase, three-wire Mode: 200, 220, 230, or 240 VAC K8DT-PZ2□N: Three-phase, three-wire Mode: 380, 400, 415, or 480 VAC	
<b>Input load</b>	K8DT-PZ1: Approx. 1.7 VA K8DT-PZ2: Approx. 2.7 VA	
<b>Rated insulation voltage</b>	528 VAC	
<b>Operating value setting range</b>	Overvoltage/Undervoltage 2% to 30% of rated input voltage Asymmetry 5% to 22% of rated input voltage <b>Note:</b> The rated input voltage can be switched by using the DIP switches.	
<b>Operating value</b>	Overvoltage/Undervoltage Operates at 100% of set value. Asymmetry Asymmetry operating value = Rated input voltage × Asymmetry set value (%) The asymmetry operation will function when the potential difference between the highest and lowest voltage phases equals or exceeds the asymmetry operating value.	
<b>Reset value</b>	2% of operating value (fixed)	
<b>Reset method</b>	Automatic reset	
<b>Operating time setting range</b>	<b>Overvoltage/Undervoltage</b>	0.1 to 30 s
	<b>Asymmetry</b>	0.1 to 30 s
	<b>Phase sequence</b>	0.1 s±0.05 s
	<b>Phase loss</b>	0.1 s max.
<b>Power ON lock time (LOCK)</b>	1 s/5 s (switched by using the DIP switch)	
<b>Indicators</b>	Power (PWR): Green, Output (OUT): Yellow, Alarm outputs (ALM): Red	
<b>Output form</b>	Relay Output: SPDT contact Transistor Output: 1	
<b>Output relay ratings</b>	Rated load 5 A at 250 VAC (Resistive load) 5 A at 30 VDC (Resistive load) 1 A at 250 VAC (Inductive load) 0.2 A at 48 VDC (Inductive load) Minimum load: 5 VDC, 10 mA (reference values) Mechanical life: 10 million operations min. Electrical life: 5 A at 250 VAC or 30 VDC: 50,000 operations 3 A at 250 VAC or 30 VDC: 100,000 operations	
<b>Transistor output ratings</b>	Rated voltage: 24 VDC (maximum voltage: 26.4 VDC) Maximum current: 50 mA DC	
<b>Ambient operating temperature</b>	-20 to 60°C (with no condensation or icing)	
<b>Storage temperature</b>	-25 to 65°C (with no condensation or icing)	
<b>Ambient operating humidity</b>	25% to 85% RH (with no condensation)	
<b>Storage humidity</b>	25% to 85% RH (with no condensation)	
<b>Altitude</b>	2,000 m max.	
<b>Applicable wires</b>	Stranded wires, solid wires, or ferrules	
<b>Applicable wire size</b>	0.25 to 1.5 mm <sup>2</sup> (AWG24 to AWG16)	
<b>Wire insertion force</b>	8 N max. for AWG20 wire	
<b>Screwdriver insertion force</b>	15 N max.	
<b>Wire stripping length</b>	8 mm	
<b>Ferrule length</b>	8 mm	
<b>Recommended flat-blade screwdriver</b>	XW4Z-00B (Omron) SZF 0.4 × 2.5 (Phoenix Contact) 210-719 (Wago) SDI 0.4 × 2.5 × 75 (Weidmuller)	
<b>Current capacity</b>	10 A (per pole)	
<b>Number of insertions</b>	50 times	
<b>Case color</b>	N1.5	
<b>Case material</b>	PC, UL 94 V-0	
<b>Weight</b>	Approx. 100 g	
<b>Mounting</b>	Mounts to DIN Track, or screw mounting	
<b>Dimensions</b>	17.5 × 90 × 90 mm (W×D×H)	

### Specifications

<b>Input frequency</b>	50/60 Hz	
<b>Overload capacity</b>	Continuous 528 V	
<b>Repeat accuracy</b>	<b>Operating value</b>	±0.5% full scale (at 25°C and 65% humidity, rated power supply voltage)
	<b>Operating time</b>	±50 ms (at 25°C and 65% humidity, rated power supply voltage)
<b>Applicable standards</b>	<b>Conforming standards</b>	EN 60947-5-1 Installation environment (pollution level 2, Overvoltage category III)
	<b>EMC</b>	EN 60947-5-1
	<b>Safety standards</b>	UL 60947-5-1 (Listing), Korean Radio Waves Act (Act 10564), CCC (GB 14048.5), LR (Category ENV1.2)
<b>Insulation resistance</b>	20 MΩ min. Between external terminals and case Between input terminals and output terminals	
<b>Dielectric strength</b>	2,000 VAC for one minute Between external terminals and case Between input terminals and output terminals	
<b>Impulse withstand voltage</b>	6 kV (between live terminals and exposed, non-charged metal parts)	
<b>Noise immunity</b>	1,500 V power supply terminal common/normal mode Square-wave noise of 1 μs/100 ns pulse width with 1-ns rise time	
<b>Vibration resistance</b>	Frequency: 10 to 55 Hz, 0.35-mm single amplitude 10 sweeps of 5 min each in X, Y, and Z directions	
<b>Shock resistance</b>	100 m/s <sup>2</sup> , 3 times each in 6 directions along 3 axes	
<b>Degree of protection</b>	Terminals: IP20	