

# Single-phase Overvoltage/Undervoltage Relay

## K8DT-VW

**Detect abnormal voltages applies to equipment to protect against equipment failure.**  
**Monitor for overvoltages and undervoltages simultaneously with one Relay.**



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

- Monitor AC or DC voltages with one Relay.
- Settings for the operating value, hysteresis, and operating time.
- 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.
- Models added with transistor outputs for superior contact reliability.



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

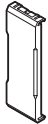
## Ordering Information

### Single-phase Overvoltage/Undervoltage Relay

Setting range	Power supply voltage	Output	Model
1 to 10 V AC/DC 3 to 30 V AC/DC 15 to 150 V AC/DC	24 VAC/DC	Relay: SPDT contact output	<b>K8DT-VW2CD</b>
		Transistor	<b>K8DT-VW2TD</b>
	100 to 240 VAC	Relay: SPDT contact output	<b>K8DT-VW2CA</b>
		Transistor	<b>K8DT-VW2TA</b>
20 to 200 V AC/DC 30 to 300 V AC/DC 60 to 600 V AC/DC	24 VAC/DC	Relay: SPDT contact output	<b>K8DT-VW3CD</b>
		Transistor	<b>K8DT-VW3TD</b>
	100 to 240 VAC	Relay: SPDT contact output	<b>K8DT-VW3CA</b>
		Transistor	<b>K8DT-VW3TA</b>

### Options (Order Separately)

#### Front Cover

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

## Ratings and Specifications

### Input Range

Model	Range *	Connection terminal	Setting range	Input impedance	Overload capacity
<b>K8AK-VW2</b> □□	0 to 10 V AC/DC	V1-COM	1 to 10 V AC/DC	Approx. 120 kΩ	Continuous input at 115% of maximum input. 10 s at 125% (up to 600 VAC)
	0 to 30 V AC/DC	V2-COM	3 to 30 V AC/DC	Approx. 320 kΩ	
	0 to 150 V AC/DC	V3-COM	15 to 150 V AC/DC	Approx. 1.6 MΩ	
<b>K8AK-VW3</b> □□	0 to 200 V AC/DC	V1-COM	20 to 200 V AC/DC	Approx. 1.2 MΩ	
	0 to 300 V AC/DC	V2-COM	30 to 300 V AC/DC	Approx. 1.7 MΩ	
	0 to 600 V AC/DC	V3-COM	60 to 600 V AC/DC	Approx. 3.1 MΩ	

\* The range is selected using connected terminals.

## Ratings

<b>Power supply voltage</b>	K8DT-VW□□D: 24 VAC 50/60 Hz, 24 VDC K8DT-VW□□A: 100 to 240 VAC 50/60 Hz
<b>Power consumption</b>	24 VAC/DC: 1.8 VA/1 W max. 100 to 240 VAC: 2.5 VA max.
<b>Rated insulation voltage</b>	600 VAC
<b>Operating value setting range (AL1 and AL2)</b>	10% to 100% of the maximum value of the setting range K8DT-VW2: 1 to 10 V AC/DC 3 to 30 V AC/DC 15 to 150 V AC/DC K8DT-VW3: 20 to 200 V AC/DC 30 to 300 V AC/DC 60 to 600 V AC/DC
<b>Operating value</b>	100% operation at set value
<b>Reset value</b>	5% of operating value (fixed)
<b>Reset method</b>	Manual reset/automatic reset (switchable) Manual reset: Turn OFF power supply for 1 s or longer.
<b>Operating time setting range (T)</b>	0.1 to 30 s
<b>Power ON lock time</b>	1 s or 5 s (Switched using DIP switch.)
<b>Indicators</b>	Power (PWR): Green, Relay output (RY): Yellow, Alarm output1 (AL1): Red, Alarm output2 (AL2): Red
<b>Input impedance</b>	Refer to <i>Input Range</i> on page 1.
<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×H×D)

## Specifications

<b>Allowable operating voltage range</b>	85% to 110% of rated power supply voltage	
<b>Allowable operating frequency range</b>	50/60 Hz ±5 Hz	
<b>Input frequency range</b>	40 to 500 Hz	
<b>Overload capacity</b>	Continuous input at 115% of maximum input, 10 s at 125% (up to 600 VAC).	
<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 (GB14048.5)
<b>Insulation resistance</b>	20 MΩ min. Between all external terminals and the case Between all power supply terminals and all input terminals Between all power supply terminals and all output terminals Between all input terminals and all output terminals	
<b>Dielectric strength</b>	2,000 VAC for 1 min Between all external terminals and the case Between all power supply terminals and all input terminals Between all power supply terminals and all output terminals Between all input terminals and all output terminals	
<b>Impulse withstand voltage</b>	6 kV (between live terminals and exposed, non-charged metal parts)	
<b>Noise immunity</b>	Square-wave noise of 1 μs/100-ns pulse width with 1-ns rise time 100 to 240 VAC: 1,500 V power supply terminal common/normal mode 24 VAC: 1,500 V power supply terminal common/normal mode 24 VDC: 480 V power supply terminal common	
<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	