

Measuring and Monitoring Relays

K8DT

Achieve Downsizing Control Panels
and Reducing Wiring



- Models with transistor outputs available for long-term contact reliability.
- Control panel downsizing and reduced wiring; flexible layout with a 17.5-mm width
- Push-In Plus terminal blocks for easy wiring

New Value For Control Panels

Control Panels: The Heart of Manufacturing Sites.

Evolution in control panels results in large evolution in production facilities.

And if control panel design, control panel manufacturing processes, and human interaction with them are innovated, control panel manufacturing becomes simpler and takes a leap forward.

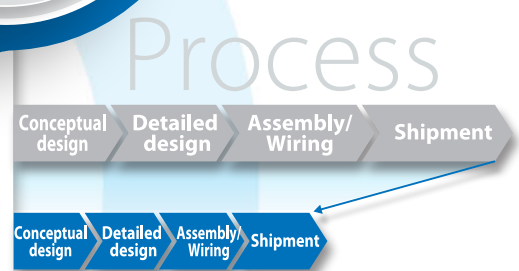
OMRON will continue to achieve a control panel evolution and process innovation through many undertakings starting with the shared Value Design for Panel ^{*1} concept for the specifications of products used in control panels.

*1 Value Design for Panel



Our shared Value Design for Panel (herein after referred to as "Value Design") concept for the specifications of products used in control panels will create new value to our customer's control panels.

Combining multiple products that share the Value Design concept will further increase the value provided to control panels.



Panels

People



Achieve Downsizing Control Panels and Reducing Wiring

Protect Your Important Equipment from the Chance of Troubles

Do You Face These Problems?

1. Alarms do not occur before equipment is damaged.
2. Protection is necessary because of poor power supply quality overseas.
3. Preventing excessive temperature increases in heaters is necessary.
4. Control panels for electrode-based water level control must be downsized.
5. Measuring and Monitoring Relays that conform to international safety standards are necessary.



Let the K8DT Solve Your Problems

Install the K8DT for predictive maintenance and problem prevention measures for your equipment.



K8DT-AS K8DT-AW K8DT-VS K8DT-VW K8DT-PH K8DT-PM K8DT-PZ
K8DT-TH
K8DT-LS
Motor Protection Relays
Temperature Monitoring Relays
Water Level Control Relays
(Current detection, voltage detection, reverse operation detection, etc.)

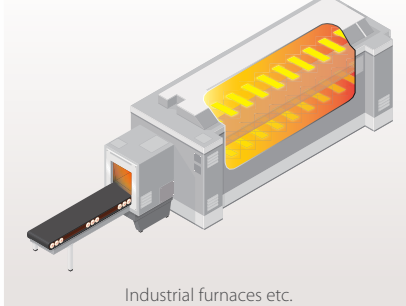
Motor Protection Relays

Detect abnormalities in motors and other equipment.



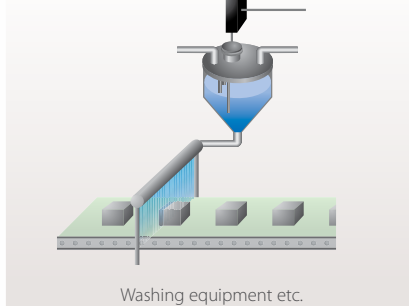
Temperature Monitoring Relays

Detect excessive temperature increases in heaters.



Water Level Control Relays

Detect abnormal water levels.



What Are K8DT Measuring and Monitoring Relays?

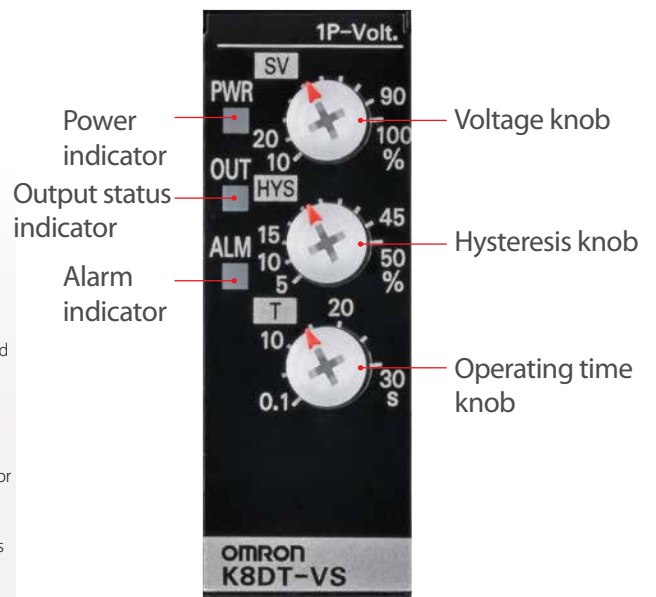
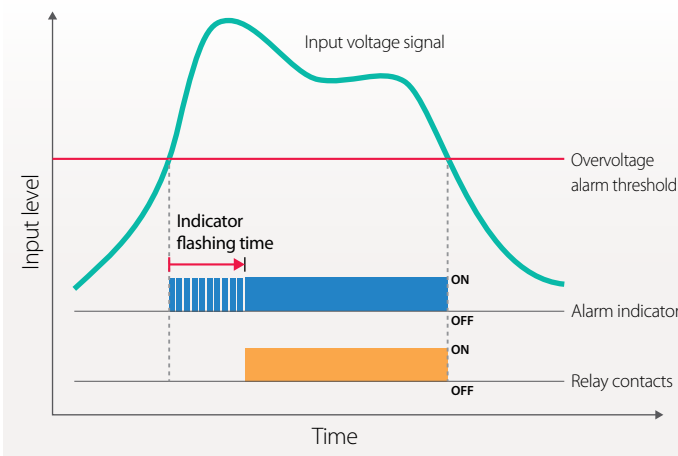
These Relays function as alarms for which you can set a threshold value

Input signal* A voltage, current, temperature (thermocouple or platinum resistance thermometer), or water level (electrode) can be input.

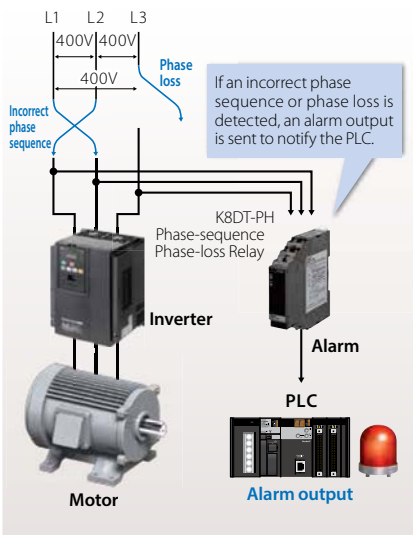
Alarm output You can select a relay or transistor output.

*There are different models for different inputs.

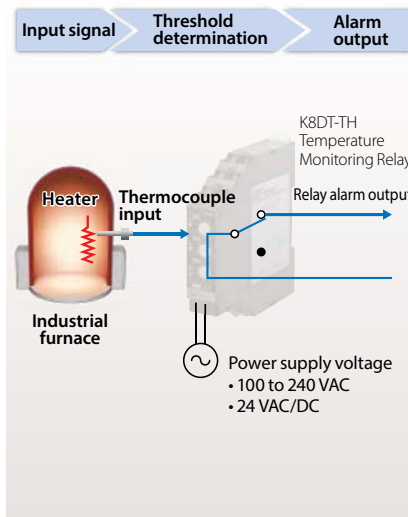
K8DT-VS Relay for voltage monitoring
Operation Timing Chart



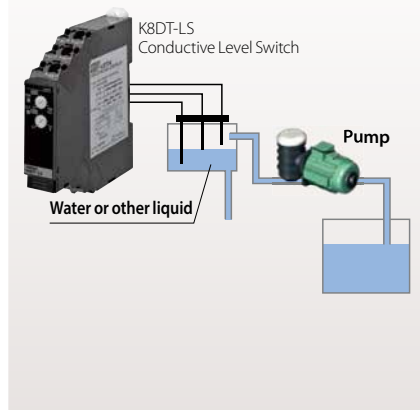
Motor Protection Relays



Temperature Monitoring Relays



Water Level Control Relays



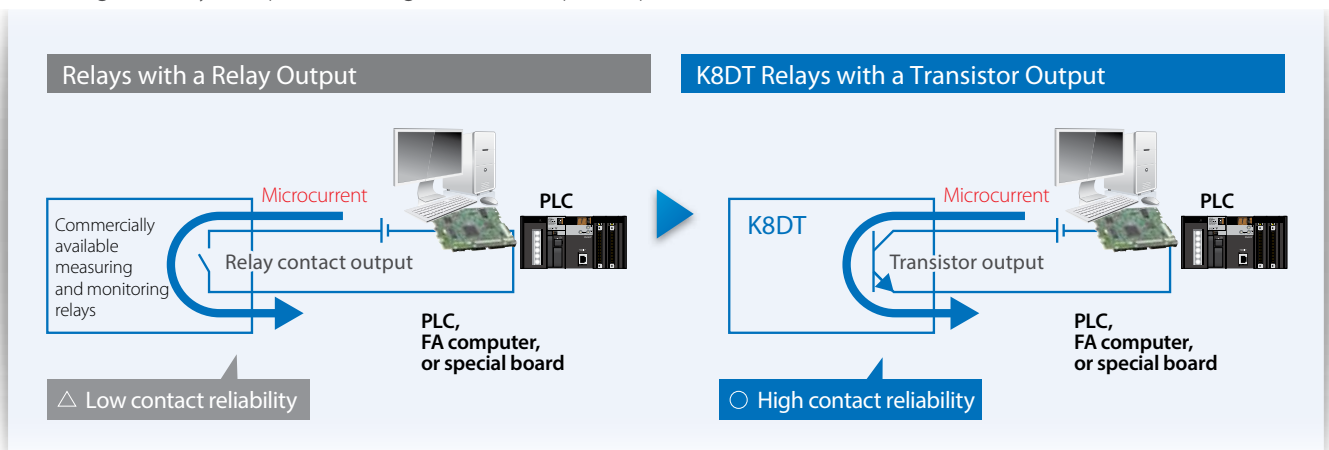
Long-term Contact Reliability Contributes to Visualization of Fault Status

Industry First*: Models with Transistor Outputs

*According to OMRON investigation in November 2015.

Use transistor outputs to take advantage of the long-term contact reliability.

The operating frequency of Measuring and Monitoring Relays is low, which means the surfaces of relay contacts can deteriorate and reduces reliability. Particularly for microcomputer board and PLC inputs, a microcurrent of 5 mA or less for switching reliability is required, making transistor outputs superior.



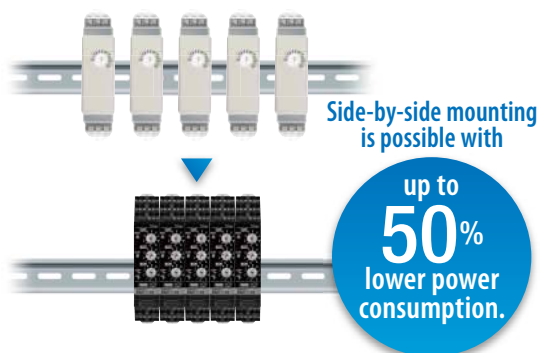
Point **Visualization of Fault Status**
 Visualization of fault status can be achieved by inputting it to a PLC or other host devices. In turn, visualization of fault status contributes to rapid recovery from equipment faults. The use of transistor outputs enables stable input of fault signals to a PLC or other host devices, helping to create IoT equipment.

Low Power Consumption Design Enables Side-by-side Mounting

The power consumption has been greatly reduced in comparison with commercially available measuring and monitoring relays.

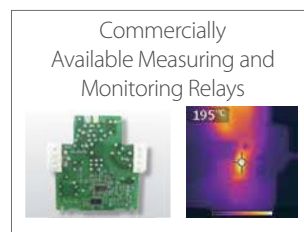
A lower power consumption means that internal heat generation is suppressed, which enables side-by-side mounting.

Commercially Available Measuring and Monitoring Relays

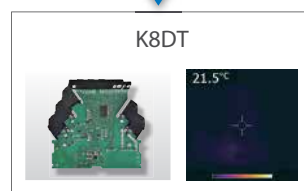


Reliability Even in Poor Noise Environments

There is no heat generated by high-frequency noise, which enhances reliability.



Commercially available measuring and monitoring relays use a capacitor voltage divider, which generates heat due to high-frequency inverter noise and leads to a shorter product life.



The K8DT-series Relays, however, use a switch mode power supply. There is no heat resulting from inverter noise, for safe, reliable application.

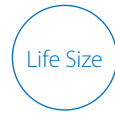
Control Panel Downsizing and Reduced Wiring; Flexible Layout with a 17.5-mm Width

This Is the Shape That Resulted from Efforts to Downsize Panels and Reduce Wiring.

- The slim body is only 17.5 mm wide to enable control panel downsizing.
- To simplify wiring, Push-In Plus terminal blocks are positioned at the front.
- To simplify changing settings, the setting switches were placed on the front.



Setting Switches on the Front Panel



A Slim

17.5 mm

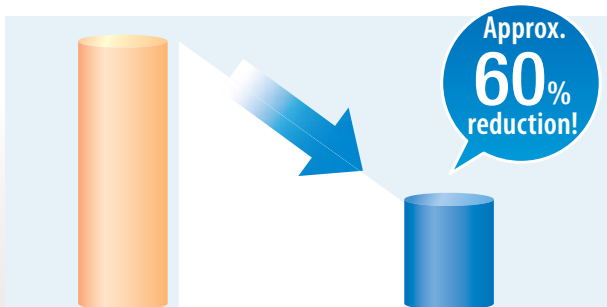
Push-In Plus Terminal Blocks for Easy Wiring



Just Insert Wires: No Tools Required

Now you can use Push-In Plus terminal blocks to reduce the time and work involved in wiring.

Greatly Reduce Wiring Work with Push-In Plus Terminal Blocks



Conventional screw terminal blocks OMRON Push-In Plus terminal block

*Information for Push-In Plus and screw terminal blocks is based on OMRON's actual measurement value data.

Wiring Possible with Stranded Wires

You can insert wires with pin terminals or ferrules, or you can also insert solid wires or stranded wires.



Application Examples: Motor Protection



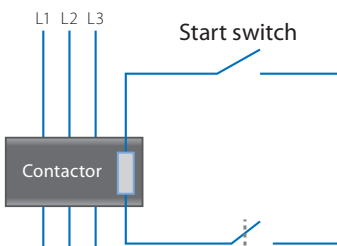
* LR certification applies only to the K8DT-PC.

K8DT-A□/V□/P□

Application Ideal for monitoring for error trends in motors and other equipment (e.g., equipment with three-phase motors, expensive equipment, and equipment with compressors).

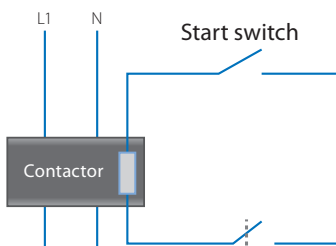
Features High reliability for worry-free application.

Handle a Wide Range of Applications



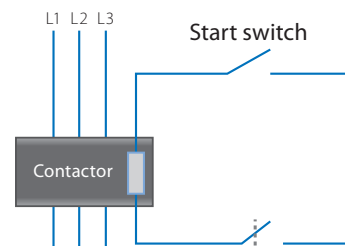
K8DT-A□
Single-phase Current Relay

Abnormal currents are detected to detect equipment deterioration.



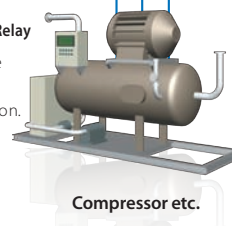
K8DT-V□
Single-phase Voltage Relay

Abnormal voltages are detected to detect equipment deterioration.



K8DT-P□
Three-phase Measuring and Monitoring Relay

Preventing motor reverse operation. Three-phase voltage imbalances are detected to protect the motor and other equipment.



Greater Reliability

The product lineup includes new models with transistor outputs for greater reliability when inputting signals to PLCs.

Long Service Life

Low power consumption and low heat generation design achieve a long service life.

Applicable Standards

Certified for main safety standards. Applicable with the voltage specifications of various countries.

Handles Power Supply Voltages Worldwide

Area	Power supply voltage
China	Three-phase, 380 V
India	Three-phase, 400 or 415 V
Thailand	Three-phase, 380 V
USA	Three-phase, 460 or 480 V
Europe	Three-phase, 380, 400, or 415 V



Application Examples:

Temperature Monitoring Relay



K8DT-TH

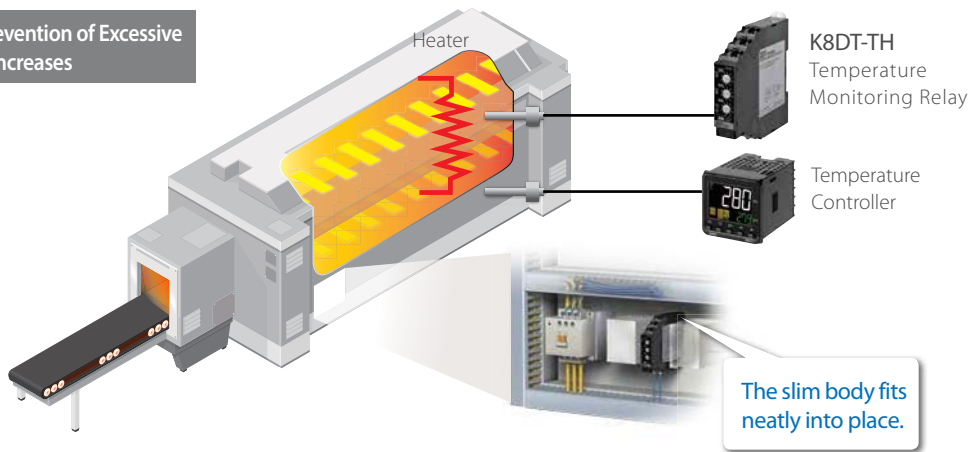
Application Ideal for prevention of excessive temperature increase in heaters

(e.g., electronic components, semiconductors, and industrial furnaces).

Features

- (1) Slim design enables addition to narrow spaces.
- (2) Rotary switches simplify setting procedure.
- (3) Safety considerations with a manual reset button.

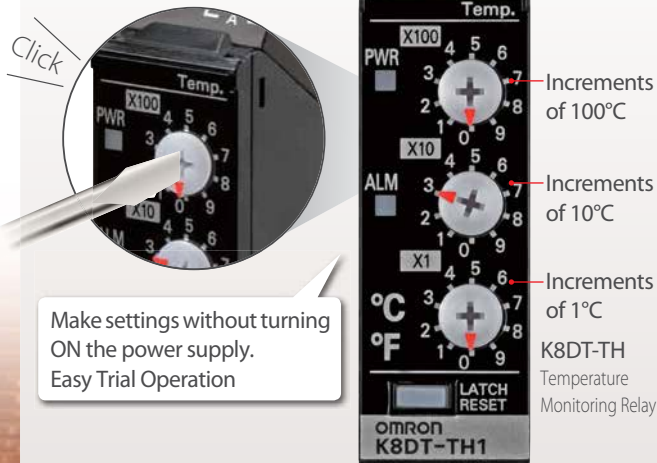
Redundant Prevention of Excessive Temperature Increases



Simple Temperature Settings

Rotary switch settings in 1°C increments from 0 to 999°C.

*For the K8DT-TH1.



Safety Manual Reset Button

The alarm status is held when a fault occurs.



Application Examples: Water Level Control



K8DT-LS

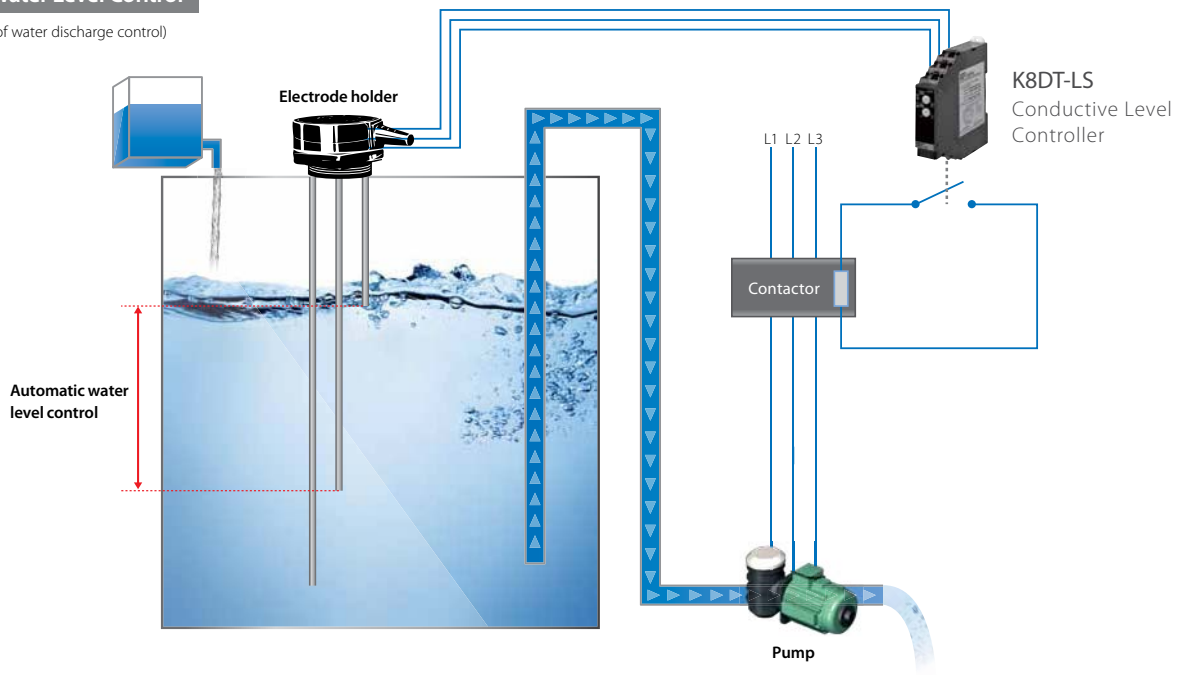
Application Ideal for water level detection and control in tanks (e.g., water processing and circulation equipment).

- Features**
- (1) The slim body helps you downsize control panels.
 - (2) Long-awaited models with long-life transistor outputs.
 - (3) ON-delay timer built in to eliminate contact chattering.

*When Holding Electrodes Are Not Used

Tank Water Level Control

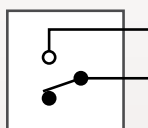
(Example of water discharge control)



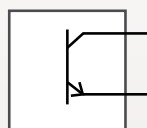
Models with Transistor Outputs Added

Using a Relay with a transistor output eliminates worries about contact wear.

Models with Relay Outputs



Models with Transistor Outputs



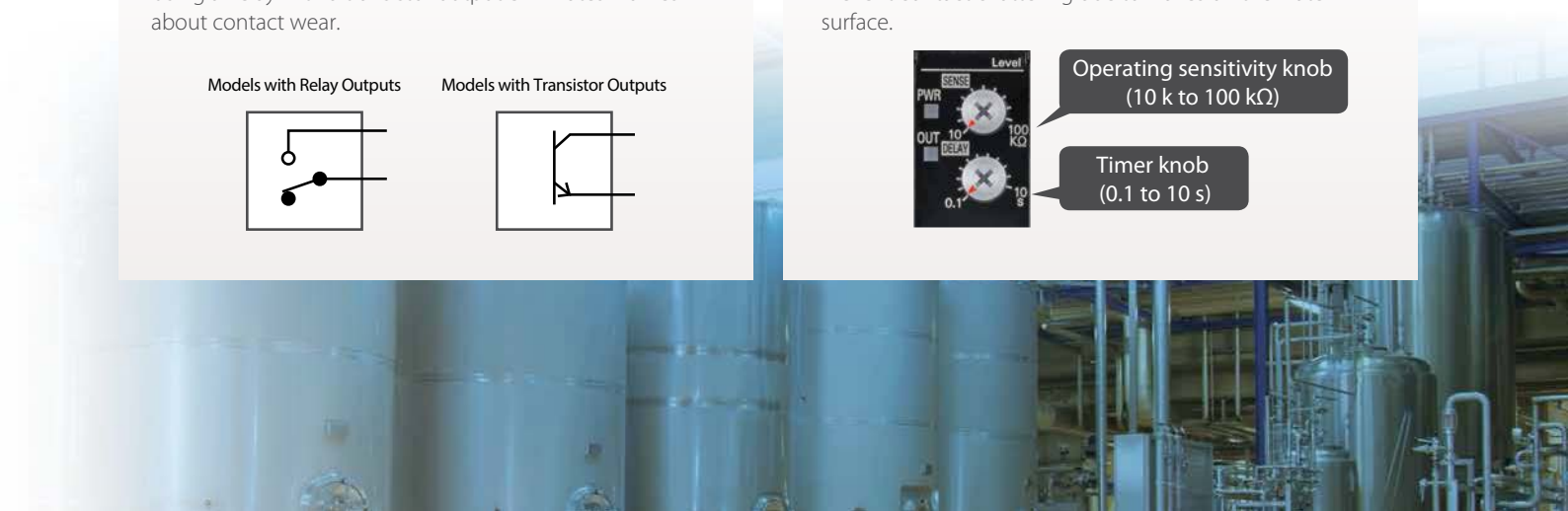
ON-delay Timer

Prevent contact chattering due to waves on the water surface.



Operating sensitivity knob
(10 k to 100 kΩ)

Timer knob
(0.1 to 10 s)



Product Lineup



Slim and Extended

Push-In Plus terminal block
Models with transistor outputs are available.

K8DT

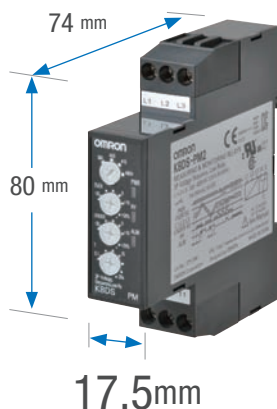


Optional Front Cover for the K8DT (Sold Separately)
Y92A-D1A



Extended
Screw terminals

K8AK



Compact and Simple
Screw terminals

K8DS

● : Model available.










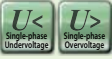







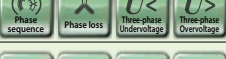
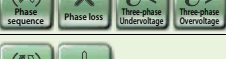



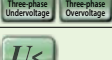

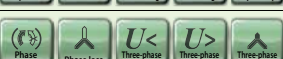


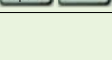







Model	Terminal block	Output	Motor protection							Temperature monitoring	Water level control		
			Single-phase				Three-phase						
			Current monitoring		Voltage monitoring		Phase sequence/phase loss	Voltage asymmetry monitoring	Voltage monitoring			Composite monitoring	Thermistor monitoring
			Overcurrent or undercurrent monitoring	Overcurrent and undercurrent monitoring	Overvoltage or undervoltage monitoring	Overvoltage and undervoltage monitoring							
K8AK	Screws	Relay output	●	●	●	●	●	●	●	●	●		
K8DS			—	—	—	—	●	●	●	—	—		
K8DT	Push-In Plus	Transistor output	●	●	●	●	●	●	●	—	●		
			●	●	●	●	●	●	●	—	●		

Certified for Main Safety Standards for Easy Equipment Exporting



*1. CCC certification does not apply to the K8DT-TH.
*2. LR certification applies only to the K8DT-PI.

Selection Guide

		Input	Alarm operation	Function	Width	Terminal block	Output	Model
Motor protection	Single-phase	Current	Upper or lower limit (switched)		22.5 mm	Screws	One SPDT relay output	K8AK-AS
					17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-AS 
		Voltage	Upper and lower limits (redundant operation)		22.5 mm	Screws	Two SPDT relay outputs	K8AK-AW
					17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-AW 
		Voltage	Upper or lower limit (switched)		22.5 mm	Screws	One SPDT relay output	K8AK-VS
					17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-VS 
	Voltage	Upper and lower limits (redundant operation)		22.5 mm	Screws	Two SPDT relay outputs	K8AK-VW	
				17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-VW 	
	Three-phase	Voltage	Fixed		22.5 mm	Screws	One DPDT relay output	K8AK-PH
					17.5 mm	Screws	One SPDT relay output	K8DS-PH
		Voltage	Fixed		17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-PH 
					22.5 mm	Screws	Two SPDT relay outputs	K8AK-PM
Voltage		Upper and lower limits		17.5 mm	Screws	One SPDT relay output	K8DS-PM	
				17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-PM 	
Voltage		Upper limit		22.5 mm	Screws	One SPDT relay output	K8AK-PA	
				17.5 mm	Screws	One SPDT relay output	K8DS-PA	
Voltage		Upper and lower limits		22.5 mm	Screws	Two SPDT relay outputs	K8AK-PW	
				17.5 mm	Screws	One SPDT relay output	K8DS-PU	
Voltage		Upper and lower limits		17.5 mm	Screws	One SPDT relay output	K8DS-PZ	
				17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-PZ 	
Temperature monitoring		Thermocouple or platinum resistance thermometer	Upper or lower limit (switched)		22.5 mm	Screws	One SPDT relay output	K8AK-PT
					22.5 mm	Screws	One SPDT relay output	K8AK-TS
Water level control	Electrode	Water supply or discharge (switched)		22.5 mm	Screws	One SPDT relay output	K8AK-TH	
				17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-TH 	
Water level control	Electrode	Water supply or discharge (switched)		22.5 mm	Screws	One SPDT relay output	K8AK-LS	
				17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-LS 	

Products That Create New Value in Control Panels



Switch Mode Power Supplies
S8VK-S



Uninterruptible Power Supply (UPS)
S8BA



Power Monitors
KM-N2/KM-N3



Measuring and Monitoring Relays
K8DT



Solid-state Timers
H3DT



Solid-state Timers
H3Y(N)-B



Solid-state Timers
H3RN-B



Liquid Leakage Sensor Amplifiers
K7L-B



Sockets for Relays with Forcibly Guided Contacts (for G7SA)
P7SA-PU



Common Sockets (for MY/H3Y(N)-B)
PYF-PU(-L)



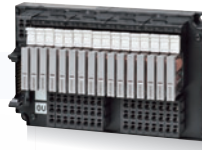
Common Sockets (for G2R-S/H3RN-B/K7L-B)
P2RF-PU



Slim I/O Relays
G2RV-SR



Slim I/O Relays
G3RV-SR



I/O Relay Terminals
G70V



Pushbutton Switches Push-In Plus Terminal Block Series
A22N-P/A30N-P/M22N-P



Solid State Relays for Heaters
G3PJ



DIN Track Terminal Block
XW5T



Digital Temperature Controllers
E5CC-B/E5EC-B

Panel Assist Web

www.ia.omron.com/solution/panel/



Innovation in Control Panel Building
Cat. No. Y218

Refer to the K8DT Measuring and Monitoring Relays Datasheets for details.

Before you place an order, please read and understand "Agreement for Using the Product" available on Omron's latest "Best control devices Omron", "General Brochure" or Omron's website.

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