New Value For Control Panels

Measuring and Monitoring Relays

K8DT

- 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.

Value Design for Panel

*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.

Innovation for panel building **Process**

Further Evolution for **Panels**

New Value For Control Panels

Simple & Easy for panel business **People**

Process

Conceptual design → Detailed design → Assembly/ Wiring → Shipment

Conceptual design → Detailed design → Assembly/ Wiring → Shipment

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
(Current detection, voltage detection, reverse operation detection, etc.)

Temperature Monitoring Relays

Water Level Control Relays

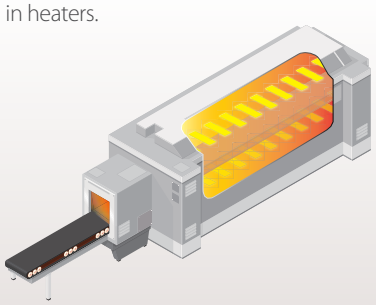
Motor Protection Relays

Detect abnormalities in motors and other equipment.

Press etc.

Temperature Monitoring Relays

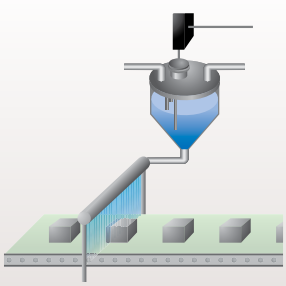
Detect excessive temperature increases in heaters.



Industrial furnaces etc.

Water Level Control Relays

Detect abnormal water levels.



Washing equipment etc.

What Are K8DT Measuring and Monitoring Relays?

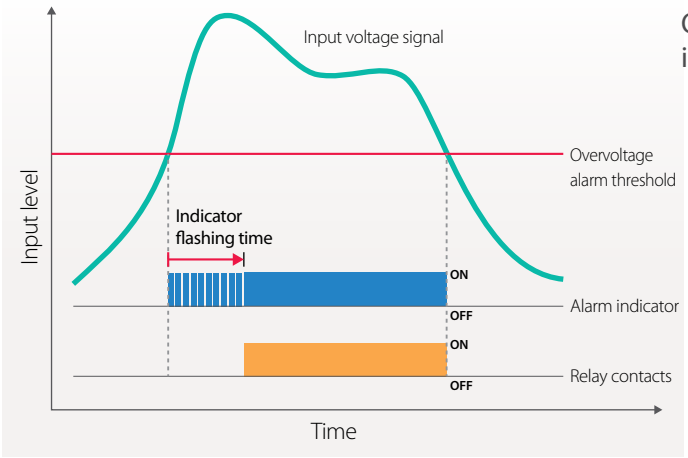
These Relays function as alarms for which you can set a threshold value

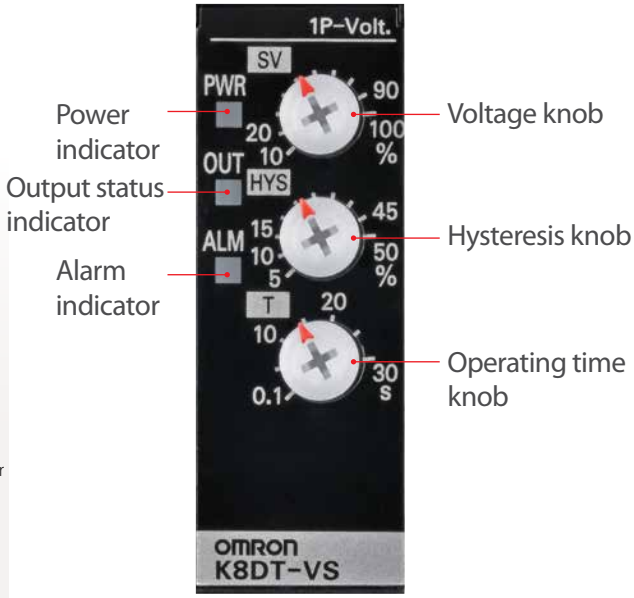
Input signal* A voltage, current, temperature (thermocouple or platinum resistance thermometer), or water level (electrode) can be input.

Alarm output You can select a relay or transistor output.

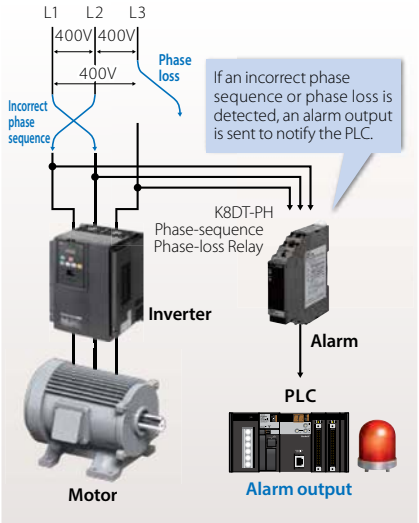
*There are different models for different inputs.

K8DT-VS Relay for voltage monitoring
Operation Timing Chart

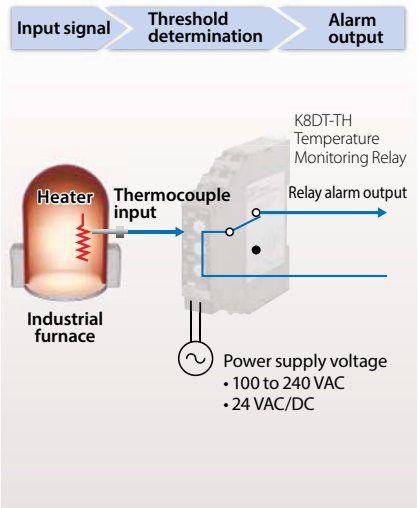




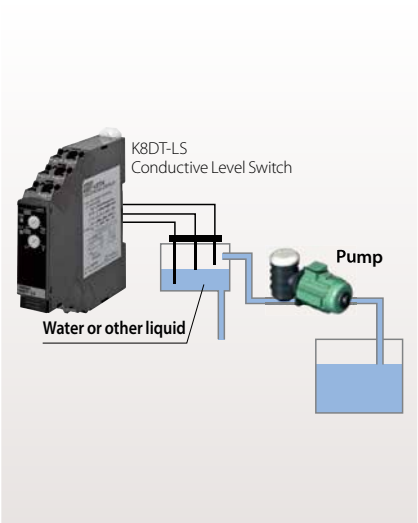
Motor Protection Relays



Temperature Monitoring Relays



Water Level Control Relays



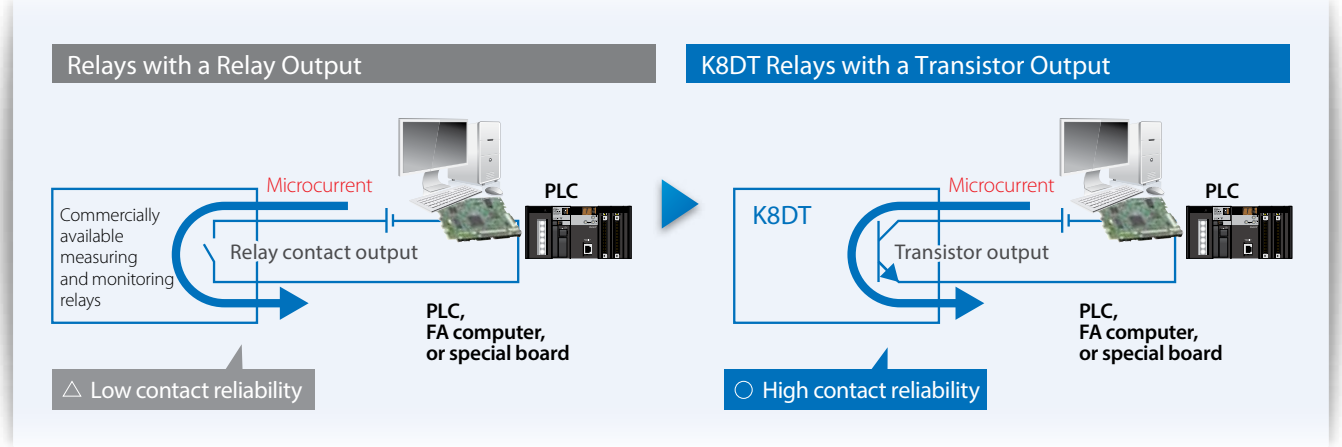
Long-term Contact Reliability Contributes to Visualization of Fault Status

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

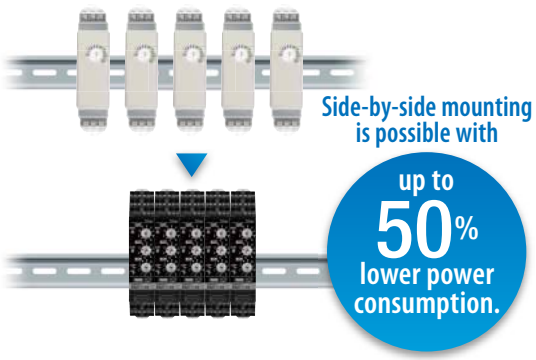
Visualization of fault status can be achieved by inputting it to a PLC or other host devices.
In turn, visualization of fault status contributes to rapid recovery from equipment faults.
The use of transistor outputs enables stable input of fault signals to a PLC or other host devices, helping to create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

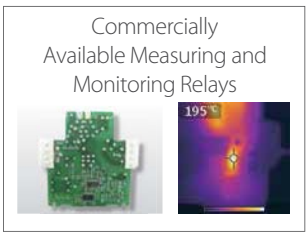
A lower power consumption means that internal heat generation is suppressed, which enables side-by-side mounting.

Commercially Available Measuring and Monitoring Relays

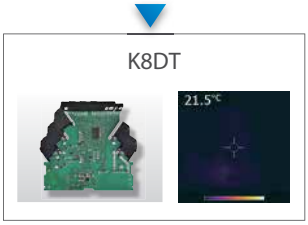


Reliability Even in Poor Noise Environments

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

Life Size

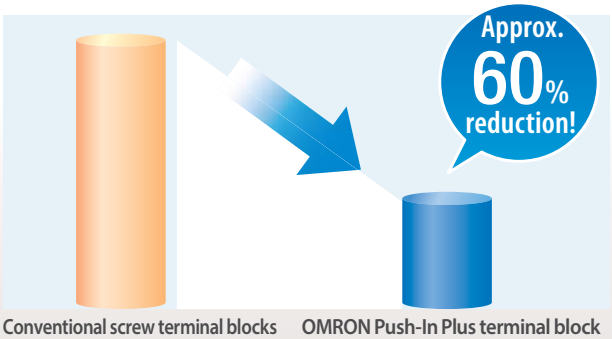
A Slim 17.5 mm

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

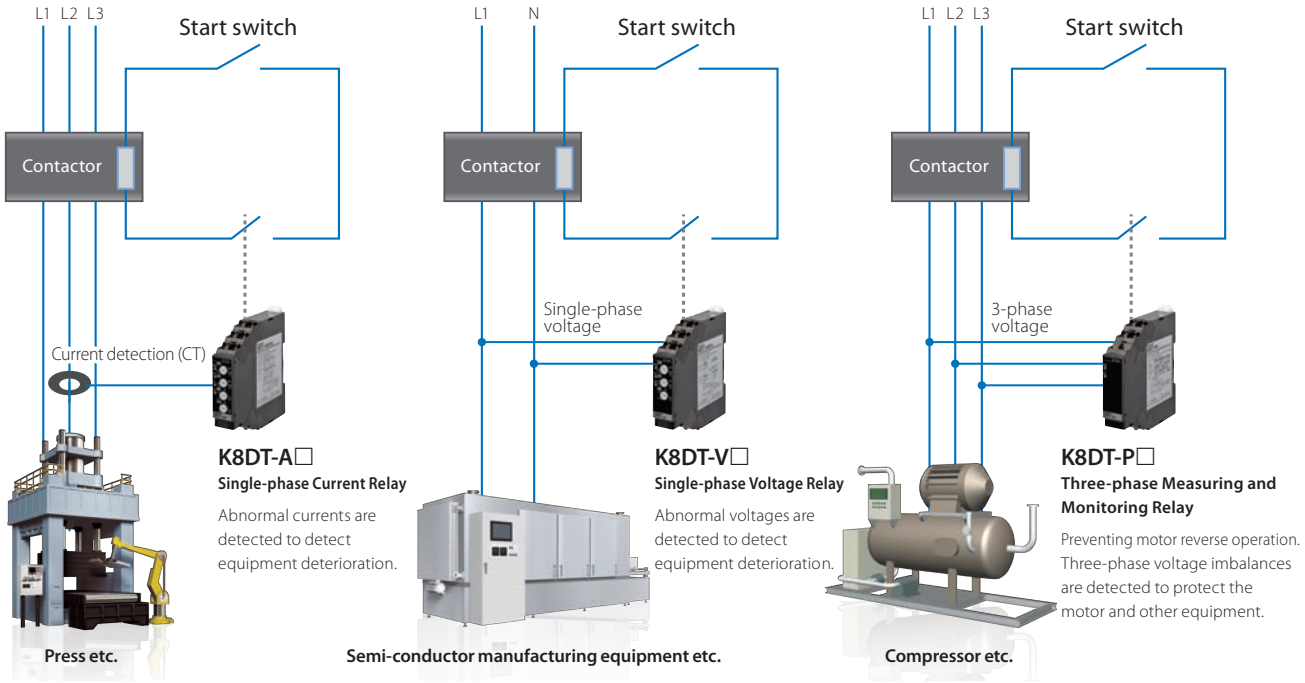
* LR certification applies only to the K8DT-P□.

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.

Press etc.

K8DT-V□
Single-phase Voltage Relay
Abnormal voltages are detected to detect equipment deterioration.

Semi-conductor manufacturing equipment etc.

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.

Compressor etc.

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).

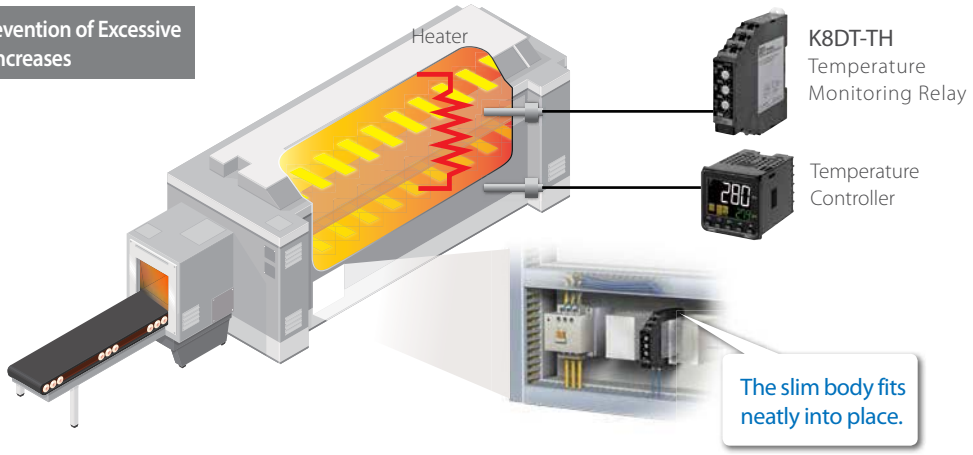
Features

(1) Slim design enables addition to narrow spaces.

(2) Rotary switches simplify setting procedure.

(3) Safety considerations with a manual reset button.

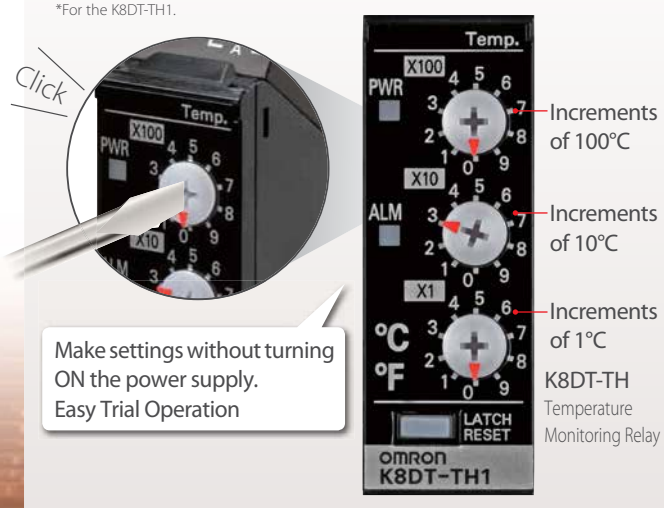
Redundant Prevention of Excessive Temperature Increases



Simple Temperature Settings

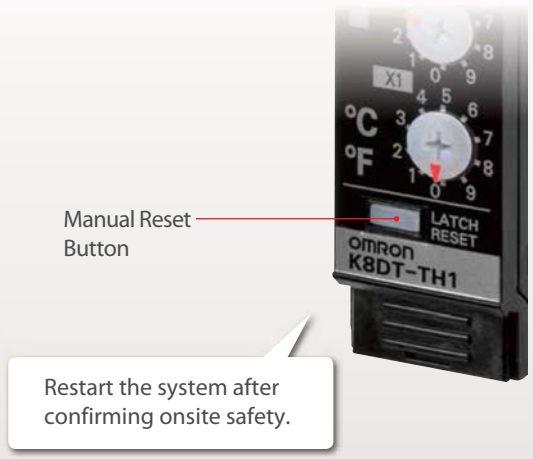
Rotary switch settings in 1°C increments from 0 to 999°C.

*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.

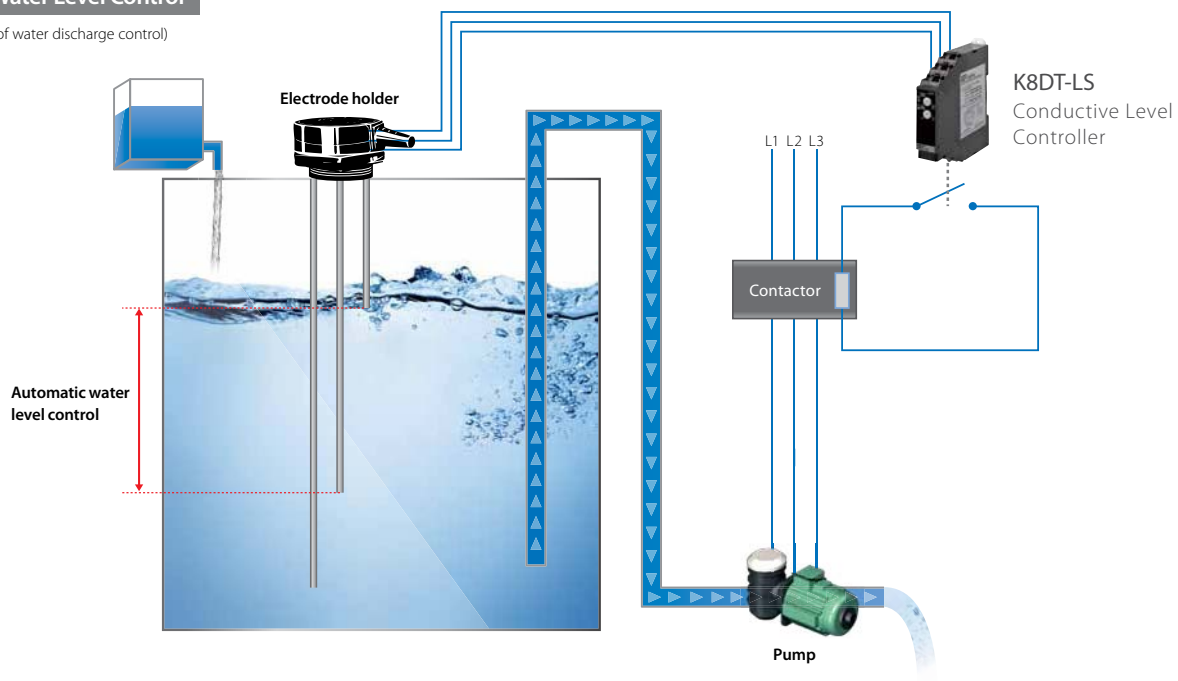
(2) Long-awaited models with long-life transistor outputs.

(3) ON-delay timer built in to eliminate contact chattering.

*When Holding Electrodes Are Not Used

Tank Water Level Control

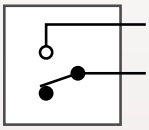
(Example of water discharge control)



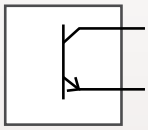
Models with Transistor Outputs Added

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

Models with Relay Outputs

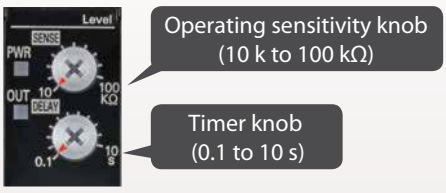


Models with Transistor Outputs



ON-delay Timer

Prevent contact chattering due to waves on the water surface.



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-P□.

Selection Guide

		Input	Alarm operation	Function	Width	Terminal block	Output	Model
Motor protection	Single-phase	Current	Upper or lower limit (switched)	I< Single-phase Undercurrent or I> Single-phase Overcurrent	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 Panel
			Upper and lower limits (redundant operation)	I< Single-phase Undercurrent I> Single-phase Overcurrent	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 Panel
		Voltage	Upper or lower limit (switched)	U< Single-phase Undervoltage or U> Single-phase Overvoltage	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 Panel
			Upper and lower limits (redundant operation)	U< Single-phase Undervoltage U> Single-phase Overvoltage	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 Panel
	Three-phase	Voltage	Fixed	Phase sequence Phase loss	22.5 mm	Screws	One DPDT relay output	K8AK-PH
			Fixed	Phase sequence Phase loss	17.5 mm	Screws	One SPDT relay output	K8DS-PH
			Fixed	Phase sequence Phase loss	17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-PH Panel
			Upper and lower limits	Phase sequence Phase loss U< Three-phase Undervoltage U> Three-phase Overvoltage	22.5 mm	Screws	Two SPDT relay outputs	K8AK-PM
			Upper and lower limits	Phase sequence Phase loss U< Three-phase Undervoltage U> Three-phase Overvoltage	17.5 mm	Screws	One SPDT relay output	K8DS-PM
			Upper and lower limits	Phase sequence Phase loss U< Three-phase Undervoltage U> Three-phase Overvoltage	17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-PM Panel
			Upper limit	Phase sequence Phase loss Three-phase Asymmetry	22.5 mm	Screws	One SPDT relay output	K8AK-PA
			Upper limit	Phase sequence Phase loss Three-phase Asymmetry	17.5 mm	Screws	One SPDT relay output	K8DS-PA
			Upper and lower limits	U< Three-phase Undervoltage U> Three-phase Overvoltage	22.5 mm	Screws	Two SPDT relay outputs	K8AK-PW
			Lower limit alarm	Phase sequence Phase loss U< Three-phase Undervoltage	17.5 mm	Screws	One SPDT relay output	K8DS-PU
			Upper and lower limits	Phase sequence Phase loss U< Three-phase Undervoltage U> Three-phase Overvoltage Three-phase Asymmetry	17.5 mm	Screws	One SPDT relay output	K8DS-PZ
			Upper and lower limits	Phase sequence Phase loss U< Three-phase Undervoltage U> Three-phase Overvoltage Three-phase Asymmetry	17.5 mm	Push-In Plus	One SPDT relay output or one transistor output	K8DT-PZ Panel
			Fixed	Phase sequence Phase loss Thermistor	22.5 mm	Screws	One SPDT relay output	K8AK-PT
			Fixed	Thermistor	22.5 mm	Screws	One SPDT relay output	K8AK-TS
Temperature monitoring		Thermocouple or platinum resistance thermometer	Upper or lower limit (switched)	Temperature Monitoring	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 Panel
Water level control		Electrode	Water supply or discharge (switched)	Water level control	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 Panel

Products That Create New Value in Control Panels

Value Design for Panel

Switch Mode Power Supplies
S8VK-S

Uninterruptible Power Supply (UPS)
S8BA

Power Monitors
KM-N2

Digital Temperature Controllers
E5CC-B/E5EC-B

Measuring and Monitoring Relays
K8DT

Solid-state Timers
H3DT

Solid-state Timers
H3Y-☐-B/H3YN-B

Solid-state Timers
H3RN-☐-B

Liquid Leakage Sensor Amplifiers
K7L-☐☐B

Sockets for MY series, H3Y-☐-B and H3YN-B
PYF-PU-☐

Sockets for G2R-S, H3RN-☐-B and K7L-☐☐B
P2RF-PU

Slim I/O Relays
G2RV-SR

Slim I/O Relays
G3RV-SR

I/O Relay Terminals
G70V

Solid State Relays for Heaters
G3PJ

DIN Track Terminal Blocks
XW5T

Panel Assist Web

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

Proposal for Innovation of 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.

OMRON Corporation **Industrial Automation Company**
Kyoto, JAPAN

Contact: www.ia.omron.com

Regional Headquarters

OMRON EUROPE B.V.
Wegalaan 67-69, 2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON ELECTRONICS LLC
2895 Greenspoint Parkway, Suite 200
Hoffman Estates, IL 60169 U.S.A.
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

OMRON ASIA PACIFIC PTE. LTD.
No. 438A Alexandra Road # 05-05/08 (Lobby 2),
Alexandra Technopark,
Singapore 119967
Tel: (65) 6835-3011/Fax: (65) 6835-2711

OMRON (CHINA) CO., LTD.
Room 2211, Bank of China Tower,
200 Yin Cheng Zhong Road,
PuDong New Area, Shanghai, 200120, China
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

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