

MEASURING AND MONITORING RELAYS



Slim Models for Monitoring Current and Voltage

realizing



NEW

Measuring and Monitoring Relays
**Measuring and
Monitoring Relays**

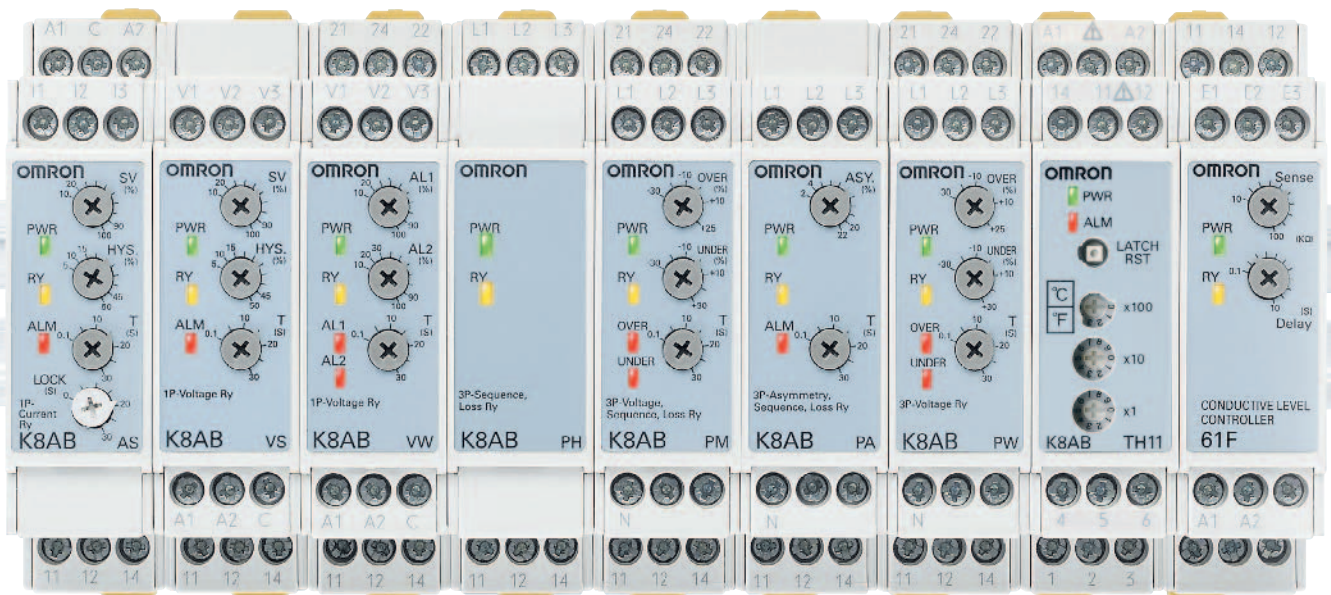
K8AB

Industry First!

Measuring and Monitoring Relays

Two SPDT Outputs Available in New Models DIN Sized at 22.5 mm

Industrial manufacturing facilities and equipment today require more precise risk management and maintenance than ever before. With its field-proven history of highly reliable monitoring devices, OMRON has responded with DIN-sized (22.5 mm) Low-voltage Monitoring and Liquid Level Control Relays. Nine slim models featuring a variety of innovative new functions offer accurate current and voltage monitoring to avert manufacturing line problems.



Measuring and Monitoring Relays

K8AB

Nine New Low-voltage Monitoring Relays DIN-sized at 22.5 mm Provide A More



- Over or under current
- Manual/automatic reset
- Normal ON/normal OFF
- ON delay and operation time

1-Phase Current Relay
K8AB-AS



- Over or under voltage
- Manual/automatic reset
- Normal ON/normal OFF
- ON delay and operation time

1-Phase Voltage Relay
K8AB-VS



- Over and under voltage
- Pre-alarm warning mode
- ON delay and operation time

1-Phase Voltage Relay
K8AB-VW

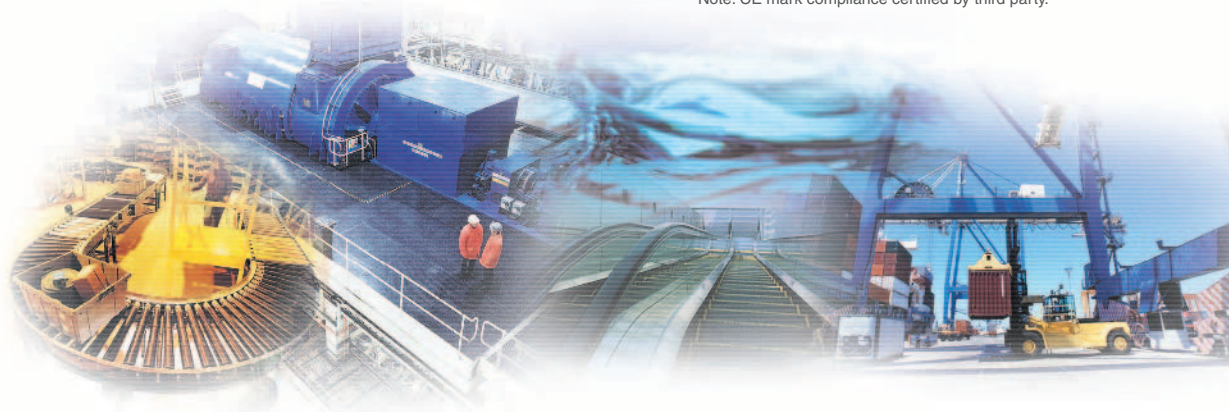


- 200 to 500 VAC with a single K8AB-PH
 - Power supply/output relay status indicators
 - 3-Phase Sequence, Loss Relay
- K8AB-PH**

Selection guide

Model	Functions										Output relays	Operation			Indications	Safety standards					
	1-phase power supply		3-phase power supply																		
			3-phase power supply with 3 wires	3-phase power supply with 3 wires	3-phase power supply with 3 or 4 wires (switchable)	3-phase power supply with 3 or 4 wires (switchable)	3-phase power supply with 3 or 4 wires (switchable)	3-phase power supply with 3 or 4 wires (switchable)													
									Conductive Level Controller												
	Over or under current (switchable)	Over or under voltage (switchable)	Over and under voltage (window comparator)	Phase sequence	Phase loss	Phase sequence	Phase loss	Asymmetry	Over and under voltage (window comparator)	Conduct Level Control	One SPDT relay	Two SPDT relays	Operation level setting	Operation time setting	Individual upper/lower limit settings (individual outputs)	Function selection (DIP switch)	Pre-alarm warning mode	Power indicator/operating status indicator	Trip warning indicator (flashing alarm indicator)	CE (See note.)	UL
K8AB-AS	■										■		■	■		■		■	■	■	■
K8AB-VS		■									■		■	■		■		■	■	■	■
K8AB-VW			■									■	■	■	■	■	■		■	■	■
K8AB-PH				■	■						■		■	■				■		■	■
K8AB-PM				■	■	■	■		■			■	■	■	■	■		■	■	■	■
K8AB-PA				■	■	■	■	■			■		■	■		■		■	■	■	■
K8AB-PW									■			■	■	■	■	■		■	■	■	■
K8AB-TH	Temperature Monitoring Relay (with Selectable Upper-limit Alarm and Lower-limit Alarm)										■		■			■		■		■	■
61F-D21T										■	■		■	■		■		■		■	■

Note: CE mark compliance certified by third party.



Comprehensive Lineup



● 3-/4-wire selection for 3-phase power supply
 ● Input range selection
3-Phase Asymmetry Sequence, Loss Relay
K8AB-PA



● Over and under voltage
 ● All-in-one configuration
 ● 3-/4-wire selection for 3-phase power supply
 ● Input range selection
3-Phase Voltage, Sequence, Loss Relay
K8AB-PM



● Over and under voltage
 ● 3-/4-wire selection for 3-phase power supply
 ● Input range selection
3-Phase Voltage Relay
K8AB-PW



● Prevention of excessive temperature rise and monitoring of abnormal temperatures
 ● Thermocouple/PT100 (multi-input)
 ● SPDT relay output
 ● Output latch function
Temperature Monitoring Relay
K8AB-TH



● Variable operating resistance
 ● Water supply/draining selection
 ● Operation time setting
Conductive Level Controller
61F-D21T

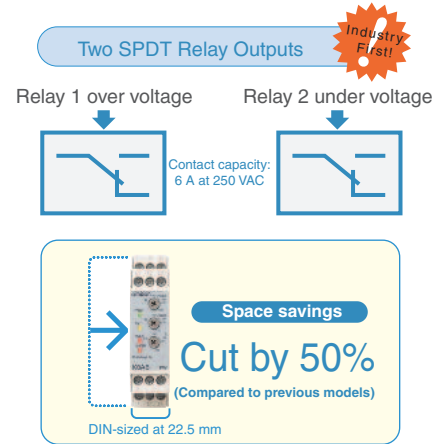
1

Slim 22.5-mm Design Features Two SPDT Relay Outputs (K8AB-VW, K8AB-PM, and K8AB-PW)

Provides individual over voltage and under voltage settings and outputs. **1-/3-phase Power Supply**

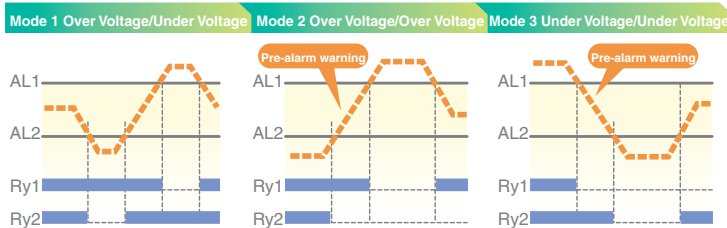
Many customers require the individual upper and lower limit outputs that are normally available only in larger 45-mm relays. For the first time from any manufacturer, OMRON has achieved this and more in a slim-body design measuring just 22.5 mm. These relays not only offer advantages such as 3-phase power supply compatibility and a resistive load contact capacity of 6 A at 250 VAC, but they also reduce panel production cost because they use 50% less space than previous models.

* The relay output capacity for the K8AB-TH is 3 A at 250 VAC (resistive load).



2

Pre-alarm Monitoring Mode Provides Advanced Warning (K8AB-VW Only)



In plants and other sites that operate 365 days a year, unexpected shutdowns must be kept to an absolute minimum. OMRON addresses this problem with the K8AB-VW featuring a pre-alarm monitoring mode that can be set to two levels for two outputs. K8AB-VW makes scheduled maintenance possible because the pre-alarm monitoring mode provides advance warning of impending trip alarms.

3

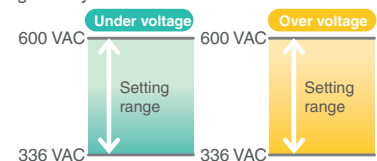
Expanded Setting Range Ensures Over Voltage and Under Voltage Monitoring Flexibility

Over voltage and under voltage can be set for the full span of the allowable input range, so over voltage and under voltage can now be monitored with flexibility.

* The setting range for operation time can be set within -30% to +25% of the range selected using the DIP switch on the Unit.

Example: K8AB-PW 3-phase Voltage Relay

- Rated input voltage
- Three-phase, three-wire Mode
- 480-VAC setting



Usable as a Simple Sensor
Controller Accepts 4 to 20 mA or
0 to 10 V inputs.

Compatible with Commercial CTs

The K8AB-AS 1-Phase Current Relay can be used with commercial CTs for current measurement.

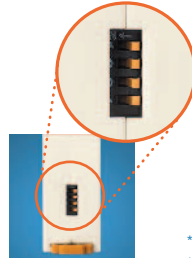
	CT current on secondary side	Applicable model
Commercial CTs	0 to 1 A AC	K8AB-AS2
	0 to 5 A AC	

OMRON-compatible CT: K8AC-CT200L
Only the K8AB-AS3 can be used for AC operation at both 100 and 200 A.

DIP Switch Function Selection

Various relay functions can be selected using a DIP switch. This means that the number of models required can be reduced to 1/8 what it had been simply by installing a relay like the K8AB-AS. An added advantage is that it reduces the inventory of maintenance parts.

Example: K8AB-AS 1-Phase Current Relay



	DIP switch	Function
Resetting method	SW2	OFF: Manual reset
		ON: Automatic reset
Relay drive method	SW3	OFF: Normally open
		ON: Normally closed
Operating mode	SW4	OFF: Over current
		ON: Under current

* The operating time can be set to 0.1 to 30 s.
* SW1 is not used.



4

Single K8AB Monitors 3-phase Power Supply with 3 or 4 Wires (K8AB-PM, K8AB-PA, and K8AB-PW)

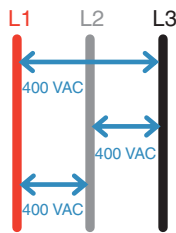
OMRON Low-voltage Monitoring Relays can be used to monitor 3-phase power supplies with 3 or 4 wires simply by changing DIP switch settings.



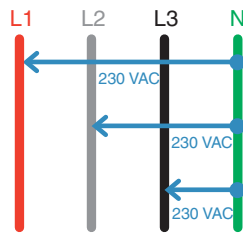
A Single K8AB Can Monitor a 3-phase Power Supply Anywhere in the World

Reduces Maintenance Parts Inventory

∴ Phase to phase voltage (3 wires)



∴ Phase to neutral voltage (4 wires)



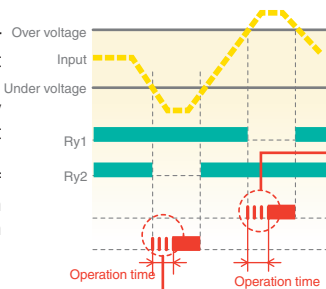
	SW3		ON	ON	OFF	OFF
	SW4		ON	OFF	ON	OFF
K8AB-P□1	SW2	ON	P-P	200 V	220 V	230 V
		OFF	P-N	115 V	127 V	133 V
K8AB-P□2	SW2	ON	P-P	380 V	400 V	415 V
		OFF	P-N	220 V	230 V	240 V

5

Operation Level Indication by Flashing Alarm Indicator

Checking the operating status has never been convenient because of the time it takes to reach the preset operation time. The K8AB eliminates this problem by featuring a flashing alarm indicator that clearly indicates the operating status. This has greatly simplified the task of checking on-site status particularly when operation settings are changed or an error occurs.

* Excluding the K8AB-PH and K8AB-TH.



Notification by Flashing Alarm Indicator

Going to trip soon!



The trip alarm operates when the input reaches the operation range and the preset operation time has elapsed.



Indicates a continuous trip.

∴ DIN Track Mounting

Gang-mounting is also possible.



Wire Connection

2 × 2.5 mm² solid or 2 × 1.5 mm² standard ferrules.

Compliance with International Standards

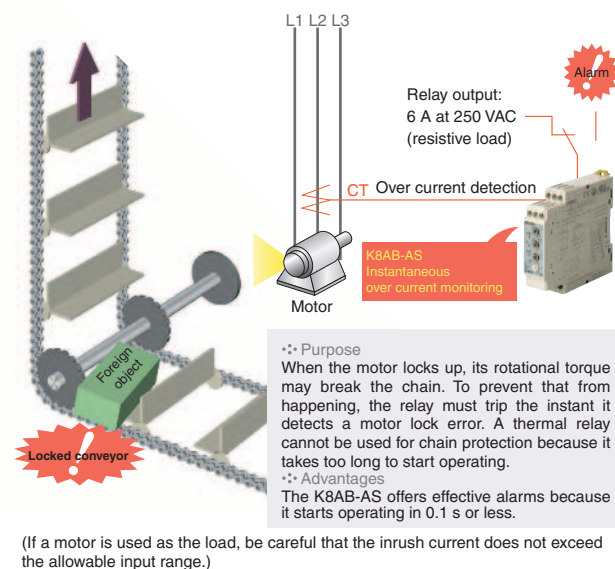
A third party has certified CE mark compliance. This device is in compliance with UL certification requirements.



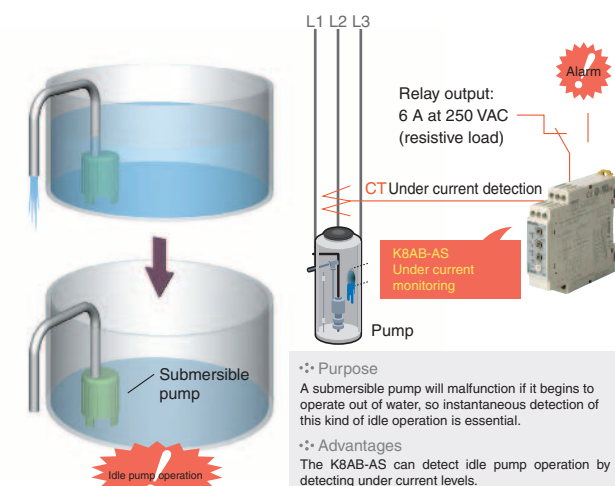
Application Examples

Measuring and Monitoring Relays

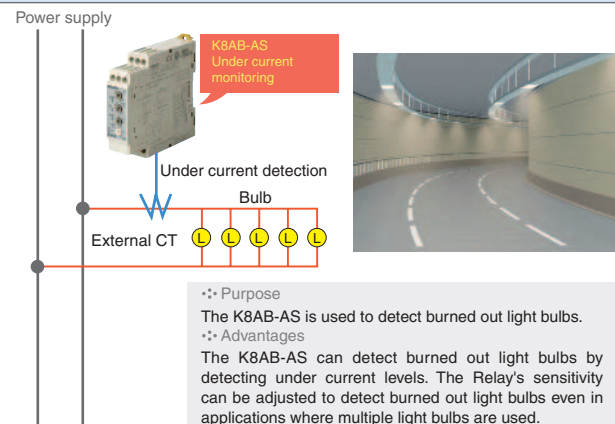
Chain Breakage Protection for Conveyors K8AB-AS



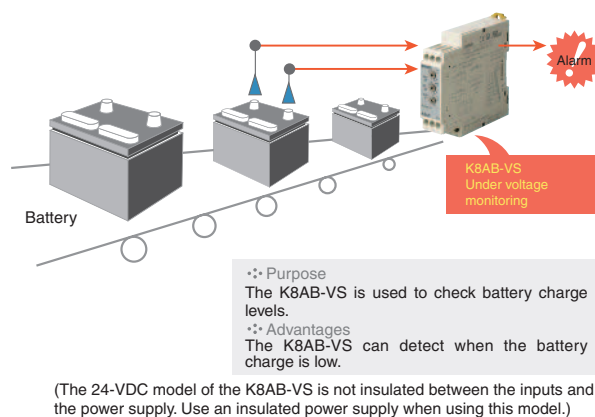
Protection against Idle Running of a Submersible Pump K8AB-AS



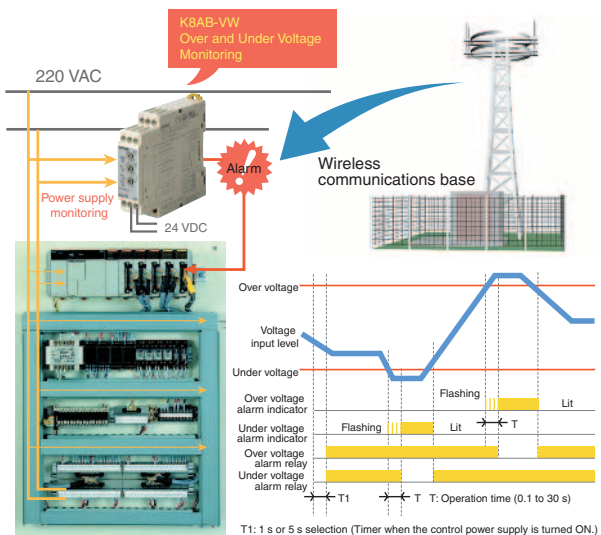
Bulb Burnout Detection K8AB-AS



Battery Voltage Checking K8AB-VS



Monitoring the Control Power Supply at Communication Bases K8AB-VW



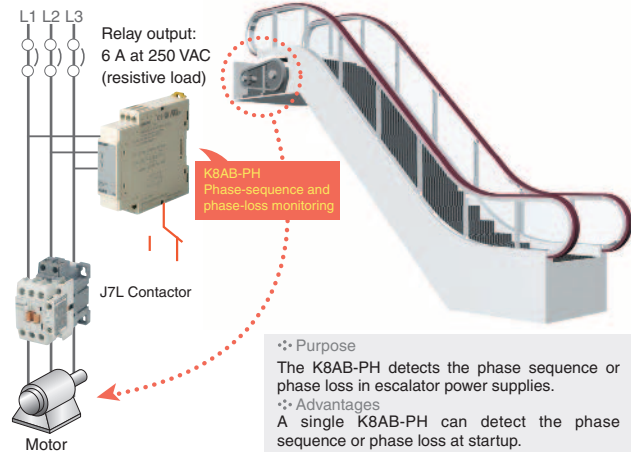
•• Purpose
Communications bases must be carefully monitored because the effects of a power outage or voltage drop would be highly detrimental to communications. This is why the K8AB-VW monitors the control panel power supply for over voltage and under voltage levels.

•• Advantages
It can detect over voltage and under voltage as well as output individual over voltage and under voltage alarms using SPDT relays.

(The 24-VDC model of the K8AB-VW is not insulated between the inputs and the power supply. Use an insulated power supply when using this model.)

Monitoring Phase Sequence/ Phase Loss for Escalators

K8AB-PH



(Phase loss during motor operation cannot be detected.)

Monitoring Compressor Power Supplies K8AB-PM

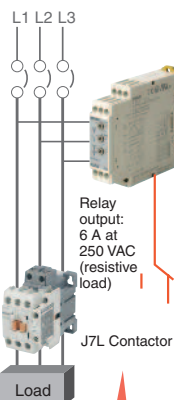


❖ Purpose

Compressors cannot operate correctly under conditions such as under voltage, asymmetry voltage, phase loss, or phase sequence. The K8AB-PM can be used to monitor 3-phase voltage, the phase sequence, and phase loss.

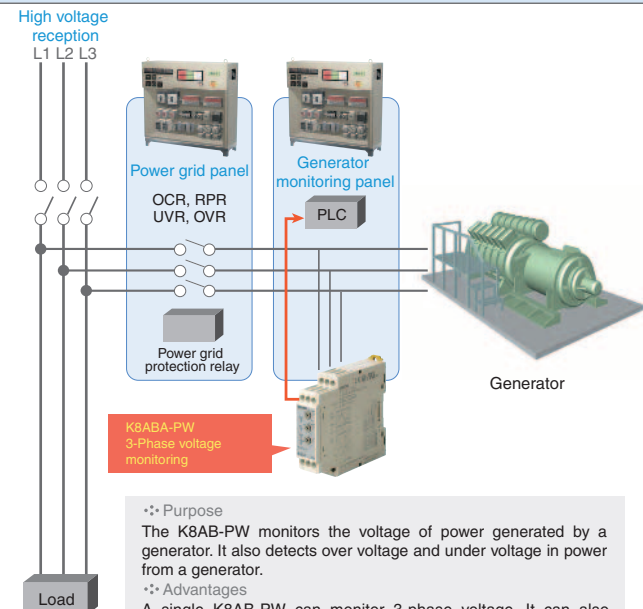
❖ Advantages

A single K8AB-PM can monitor over voltage, under voltage, the phase sequence and phase loss in 3-phase voltage. It can also output individual alarms for over voltage or under voltage using an SPDT relay. The K8AB-PM is able to recognize which alarm has occurred.



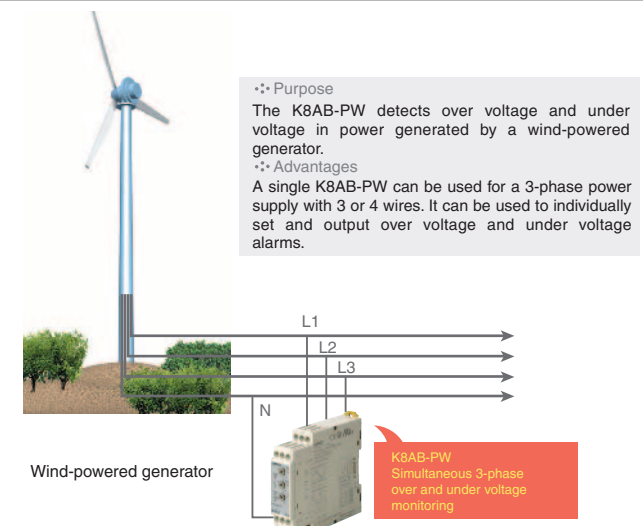
Monitoring Generated Voltage

K8AB-PW

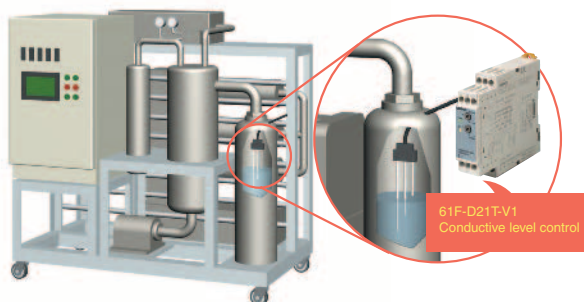


Monitoring Voltage Generated by Wind-powered Generators

K8AB-PW



Controlling the Liquid Level in a Tank 61F-D21T-V1



❖ Purpose

The 61F-D21T-V1 can be used to control the liquid level in a tank.

❖ Advantages

- Because the sensitivity resistance can be adjusted from 10 to 100 kW, there is no need to change models to match different liquid types and concentrations.
- You can also set the operation time in a range of 0.1 to 10 seconds to prevent operating errors due to chattering.
- Water supply and draining control can be changed by DIP switch.

Product name	Model	Nominal input	Supply voltage	Output relays	Housing	
1-Phase Current Relay	K8AB-AS1	I1-COM: 2 to 20 mA AC/DC I2-COM: 10 to 100 mA AC/DC I3-COM: 50 to 500 mA AC/DC	24 VDC	One SPDT relay	DIN 22.5 mm	
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
	K8AB-AS2	I1-COM: 0.1 to 1 A AC/DC I2-COM: 0.5 to 5 A AC/DC I3-COM: 0.8 to 8 A AC/DC	24 VDC			
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
	K8AB-AS3	I2-COM: 10 to 100 A AC I3-COM: 20 to 200 A AC *1	24 VDC			
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
1-Phase Voltage Relay	K8AB-VS1	V1-COM: 6 to 60 mV AC/DC V2-COM: 10 to 100 mV AC/DC V3-COM: 30 to 300 mV AC/DC	24 VDC	One SPDT relay		
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
	K8AB-VS2	V1-COM: 1 to 10 V AC/DC V2-COM: 3 to 30 V AC/DC V3-COM: 15 to 150 V AC/DC	24 VDC			
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
	K8AB-VS3	V1-COM: 20 to 200 V AC/DC V1-COM: 30 to 300 V AC/DC V1-COM: 60 to 600 V AC/DC	24 VDC			
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
1-Phase Voltage Relay	K8AB-VW1	V1-COM: 6 to 60 mV AC/DC V2-COM: 10 to 100 mV AC/DC V3-COM: 30 to 300 mV AC/DC	24 VDC	Two SPDT relays		
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
	K8AB-VW2	V1-COM: 1 to 10 V AC/DC V2-COM: 3 to 30 V AC/DC V3-COM: 15 to 150 V AC/DC	24 VDC			
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
	K8AB-VW3	V1-COM: 20 to 200 V AC/DC V1-COM: 30 to 300 V AC/DC V1-COM: 60 to 600 V AC/DC	24 VDC			
			24 VAC			
			100 to 115 VAC			
			200 to 230 VAC			
Phase-sequence, Phase-loss Relay	K8AB-PH1	200 to 500 VAC	Same as the input voltage.	One SPDT relay		
3-Phase Voltage, Phase-sequence, Phase-loss Relay	K8AB-PM1	200, 220, 230, or 240 VAC		Two SPDT relays		
	K8AB-PM2	380, 400, 415, or 480 VAC				
3-Phase Asymmetry, Phase-sequence, Phase-loss Relay	K8AB-PA1	200, 220, 230, or 240 VAC		One SPDT relay		
3-Phase Voltage Relay	K8AB-PA2	380, 400, 415, or 480 VAC		Two SPDT relays		
	K8AB-PW1	200, 220, 230, or 240 VAC				
	K8AB-PW2	380, 400, 415, or 480 VAC	100 to 240 VAC	One SPDT relay		
Temperature Monitoring Relay	K8AB-TH11S	Thermocouple/Pt100 (0 to 399°C/°F)				
	K8AB-TH12S	Thermocouple (setting unit of 10°C/°F)				
	K8AB-TH11S	Thermocouple/Pt100 (0 to 399°C/°F)				
	K8AB-TH12S	Thermocouple (setting unit of 10°C/°F)				
NEW			24 V AC/DC			
			24 V AC/DC			

*1 The K8AC-CT200L CT is required to use the K8AB-AS3. Use the K8AB-AS to use a commercially available CT.

*2 Insulation is provided for AC power supply, but not for DC power supply.

Product name	Model	Operating resistance	Supply voltage	Output relays	Housing
Conductive Level Controller	61F-D21T-V1	10 to 100 kΩ	24 VAC	One SPDT relay	DIN 22.5 mm
			115 VAC		
			220 to 230 VAC		

- The application examples provided in this catalog are for reference only. Check functions and safety of the equipment before use.
- Never use the products for any application requiring special safety requirements, such as nuclear energy control systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, or other application involving serious risk to life or property, without ensuring that the system as a whole has been designed to address the risks, and that the OMRON products are properly rated and installed for the intended use within the overall equipment or system.

OMRON Corporation

Industrial Automation Company

Control Devices Division H.Q.

Shiokoji Horikawa, Shimogyo-ku,
Kyoto, 600-8530 Japan
Tel: (81)75-344-7109/Fax: (81)75-344-7149

Regional Headquarters

OMRON EUROPE B.V.

Wegalaan 67-69, NL-2132 JD Hoofddorp
The Netherlands
Tel: (31)2356-81-300/Fax: (31)2356-81-388

OMRON ELECTRONICS LLC

1 East Commerce Drive, Schaumburg,
IL 60173 U.S.A.
Tel: (1)847-843-7900/Fax: (1)847-843-8568

OMRON ASIA PACIFIC PTE. LTD.

83 Clemenceau Avenue,
#11-01, UE Square,
239920 Singapore
Tel: (65)6835-3011/Fax: (65)6835-2711

OMRON (CHINA) CO., LTD.

Room 2211, Bank of China Tower,
200 Yin Cheng Road (M),
Shanghai, 200120 China
Tel: (86)21-5037-2222/Fax: (86)21-5037-2200

Authorized Distributor: