Measuring and Monitoring Relays

K8AB Series

CSM_K8AB_series_Outline_DS_E_3_3

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

Eight slim models featuring a variety of innovative new functions.

- Single-phase power monitoring:
  - Current relay
  - Voltage relay
  - Upper-/lower-limit voltage relays
- Three-phase power monitoring:
  - Phase-sequence phase-loss relay (Detected at startup.)
  - Voltage phase-sequence phase-loss relay *
  - Asymmetry phase-sequence phase-loss relay *
  - Voltage relay
- Temperature monitoring:
  - Temperature alarm device

* Refer to the Q&A section for information on phase loss during operation.

Features

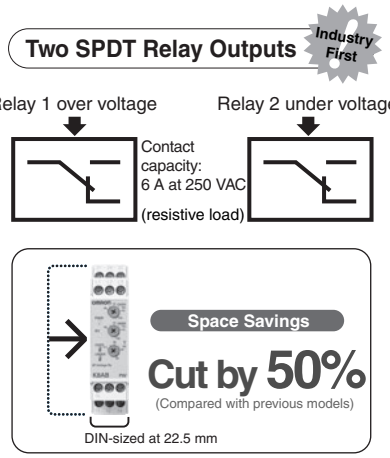
Slim 22.5-mm Design Features Two SPDT Relay Outputs (K8AB-VW, K8AB-PM, and K8AB-PW)

Provides individual over voltage and under voltage settings and outputs.

1-/3-phase Power Supply

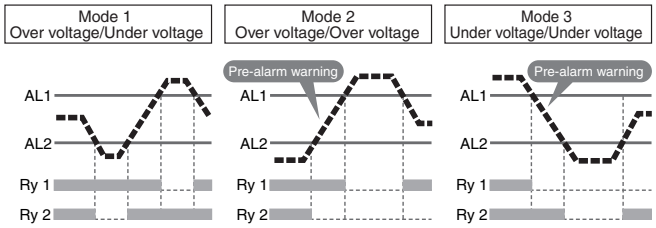
Many customers require the individual upper and lower limit outputs that are normally available only in larger 45-mm relays. For the first time from any manufacturer, OMRON has achieved this and more in a slim-body design measuring just 22.5 mm. These relays not only offer advantages such as 3-phase 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.

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



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.

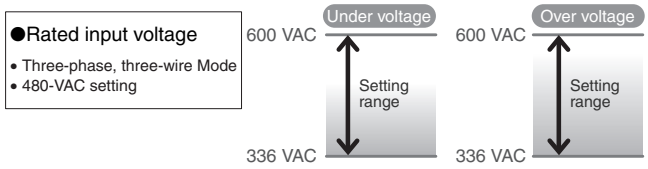


Expanded Setting Range Ensures Over Voltage and Under Voltage Monitoring Flexibility

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.

Note: 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



Usable as a Simple Sensor Controller

Accepts inputs of 4 to 20 mA or 0 to 10 V.

Compatible with Commercial CTs

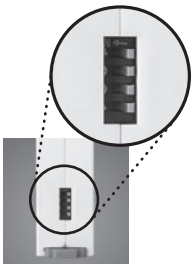
The K8AB-AS 1-Phase Current Relay can be used with commercial CTs for current measurement.

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

Note: 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.



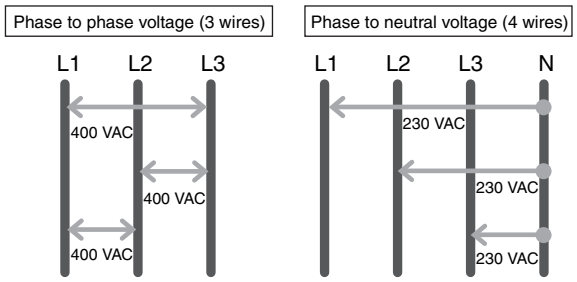
Example: K8AB-AS 1-Phase Current Relay

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

Note: 1. The operating time can be set to 0.1 to 30 s.
2. SW1 of K8AB-AS is not used.

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.



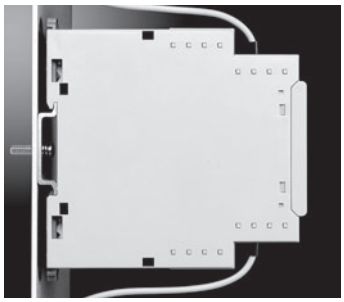
A Single K8AB Can Monitor a 3-phase Power Supply Anywhere in the World

Reduces Maintenance Parts Inventory

	SW3			ON	ON	OFF	OFF
	SW4			ON	OFF	ON	OFF
K8AB-P□1	SW2	ON	P-N	138 V	133 V	127 V	115 V
		OFF	P-P	240 V	230 V	220 V	200 V
K8AB-P□2	SW2	ON	P-N	277 V	240 V	230 V	220 V
		OFF	P-P	480 V	415 V	400 V	380 V

DIN Track Mounting

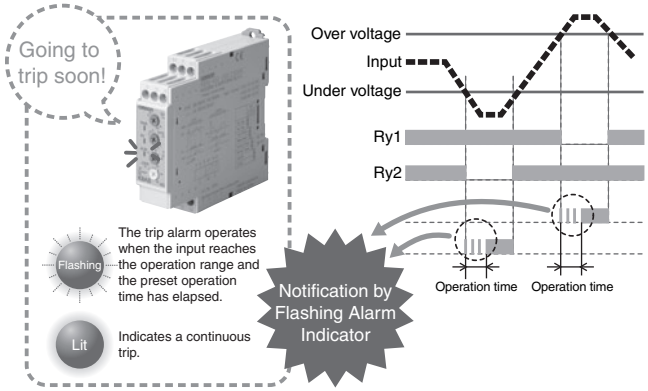
Gang-mounting is also possible.



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.

Note: Excluding the K8AB-PH and K8AB-TH.



Ideal for Monitoring Current or Voltage

Current Monitoring Applications (Single Phase)

K8AB-AS2 can use standardized CT!!

Application	Measured current	Applicable models	Operating value setting range
Simple Sensor Controller	4 to 20 mA DC	K8AB-AS1	2 to 20 mA AC/DC
			10 to 100 mA AC/DC
			50 to 500 mA AC/DC
Process control signal monitoring (using a standardized CT)	0 to 1 A AC 0 to 5 A AC	K8AB-AS2	0.1 to 1 A AC/DC
			0.5 to 5 A AC/DC
			0.8 to 8 A AC/DC
Current monitoring for motors and heaters (using a special CT)	0 to 200 A AC	K8AB-AS3 (See note.)	---
			10 to 100 A AC
			20 to 200 A AC

Note: Special CT model: OMRON K8AC-CT200L

Voltage Monitoring Applications (Single Phase)

Application	Measured voltage	Applicable models	Operating value setting range
Direct current monitoring (monitoring the output voltage of a shunt)	0 to 60 mV DC 0 to 100 mV DC 0 to 150 mV DC	K8AB-VS1 K8AB-VW1	6 to 60 mV AC/DC
			10 to 100 mV AC/DC
			30 to 300 mV AC/DC
Power supply line monitoring	12 VDC 24 VDC 100 VAC 115 VAC	K8AB-VS2 K8AB-VW2	1 to 10 V AC/DC
			3 to 30 V AC/DC
			15 to 150 V AC/DC
	200 VAC 230 VAC 400 VAC 480 VAC	K8AB-VS3 K8AB-VW3	20 to 200 V AC/DC
			30 to 300 V AC/DC
			60 to 600 V AC/DC

Wire Connection

2×2.5 mm^2 solid or 2×1.5 mm^2 standard ferrules.

Compliance with International Standards

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

Selection Guide

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

*1 K8AB-AS2 can use standardized CT.
*2 The K8AC-CT200L CT is required to use with K8AB-AS3.
*3 K8AB-PH can detect the phase-loss during motor operation.

Model Number Structure

K8AB-□□
1 2 3

1. Basic Model

Notation	Meaning
K8AB	Measuring and Monitoring Relays

2. Functions

Notation	Meaning	Operation	Datasheet available
AS	Single-phase Current Relay	One-sided operation	Yes
VS	Single-phase Voltage Relay	One-sided operation	Yes
VW	Single-phase Upper-/lower-limit Voltage Relay	Simultaneous upper and lower limit monitoring	Yes
PH	Phase-sequence Phase-loss Relay	---	Yes
PM	Three-phase Voltage Phase-sequence Phase-loss Relay	Simultaneous upper and lower limit monitoring	Yes
PA	Three-phase Asymmetry Phase-sequence Phase-loss Relay	---	Yes
PW	Three-phase Voltage Relay	Simultaneous upper and lower limit monitoring	Yes

3. Rated Operating Power

Note: For details, refer to the relevant Ordering Information.

K8AB-TH1□□
2 3 4

2. Functions

Notation	Meaning	Operation
TH1	Temperature Alarm Device	One-sided operation

3. Setting range

Notation	Meaning
1	Low temperature range (0 to 399°C set in increments of 1°C)
2	High temperature range (0 to 1700°C set in increments of 10°C)

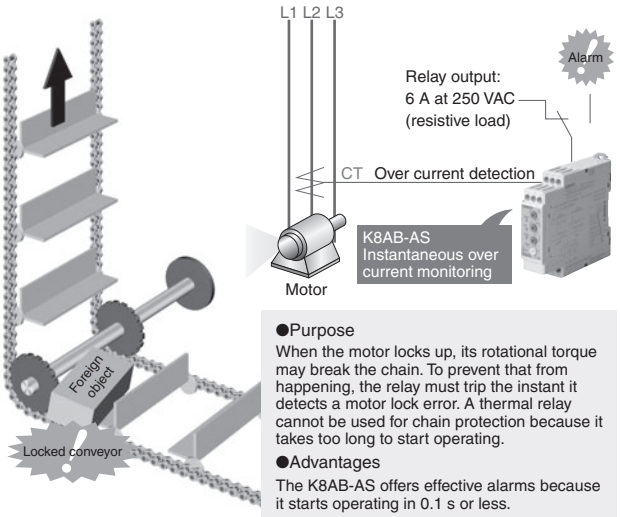
4. Output form

Notation	Meaning
S	One SPDT relay output

Application Examples

Chain Breakage Protection for Conveyors K8AB-AS

K8AB-AS2 can use standardized CT!!



●Purpose

When the motor locks up, its rotational torque may break the chain. To prevent that from happening, the relay must trip the instant it detects a motor lock error. A thermal relay cannot be used for chain protection because it takes too long to start operating.

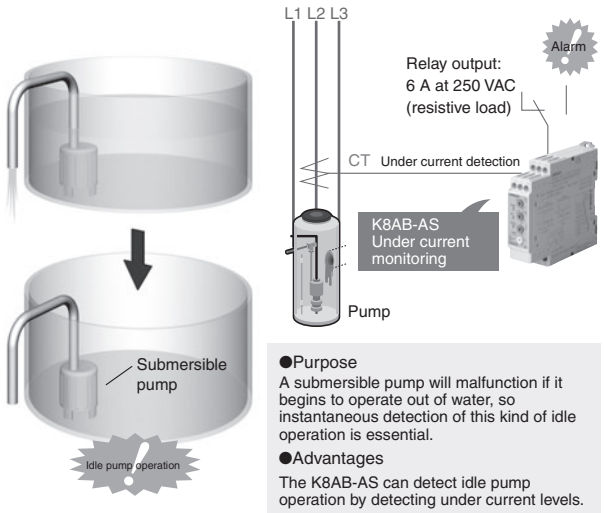
●Advantages

The K8AB-AS offers effective alarms because it starts operating in 0.1 s or less.

(If a motor is used as the load, be careful that the inrush current does not exceed the allowable input range.)

Protection against Idle Running of a Submersible Pump K8AB-AS

K8AB-AS2 can use standardized CT!!



●Purpose

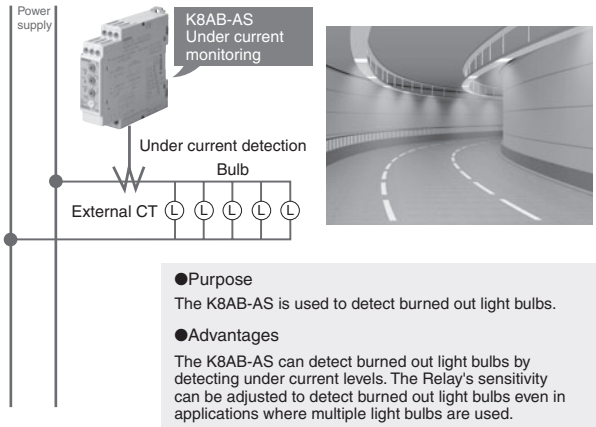
A submersible pump will malfunction if it begins to operate out of water, so instantaneous detection of this kind of idle operation is essential.

●Advantages

The K8AB-AS can detect idle pump operation by detecting under current levels.

Bulb Burnout Detection K8AB-AS

K8AB-AS2 can use standardized CT!!



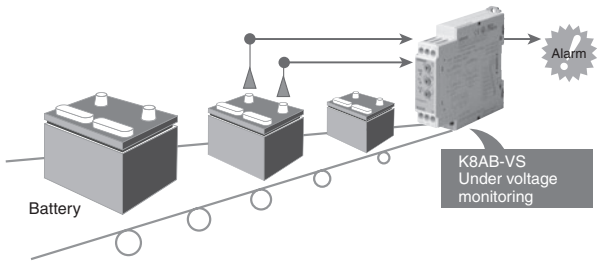
●Purpose

The K8AB-AS is used to detect burned out light bulbs.

●Advantages

The K8AB-AS can detect burned out light bulbs by detecting under current levels. The Relay's sensitivity can be adjusted to detect burned out light bulbs even in applications where multiple light bulbs are used.

Battery Voltage Checking K8AB-VS



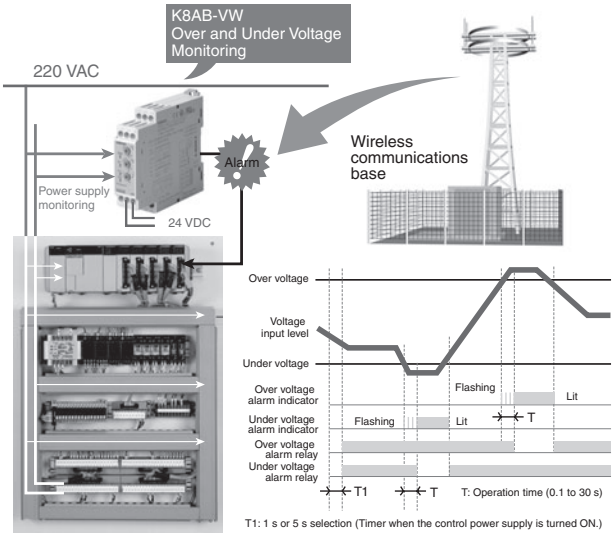
●Purpose

The K8AB-VS is used to check battery charge levels.

●Advantages

The K8AB-VS can detect when the battery charge is low.

Monitoring the Control Power Supply at Communication Bases K8AB-VW



T1: 1 s or 5 s selection (Timer when the control power supply is turned ON.)

●Purpose

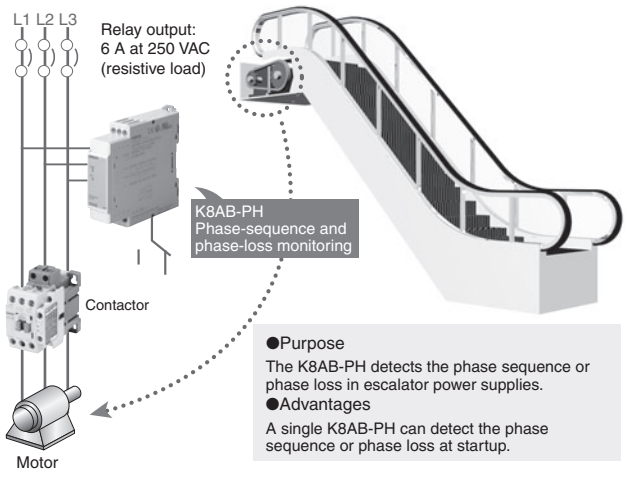
Communications bases must be carefully monitored because the effects of a power outage or voltage drop would be highly detrimental to communications. This is why the K8AB-VW monitors the control panel power supply for over voltage and under voltage levels.

●Advantages

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

Monitoring Phase Sequence/ Phase Loss for Escalators — K8AB-PH

Can detect the phase-loss during motor operation!!



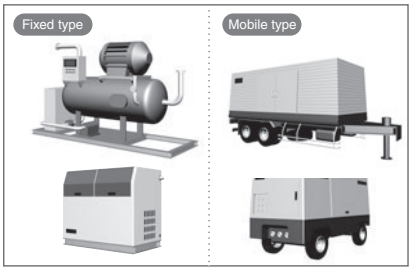
●Purpose

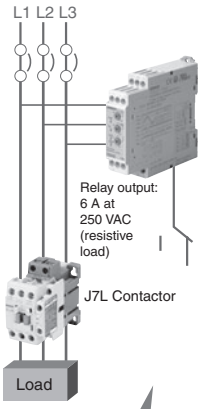
The K8AB-PH detects the phase sequence or phase loss in escalator power supplies.

●Advantages

A single K8AB-PH can detect the phase sequence or phase loss at startup.

Monitoring Compressor Power Supplies — K8AB-PM





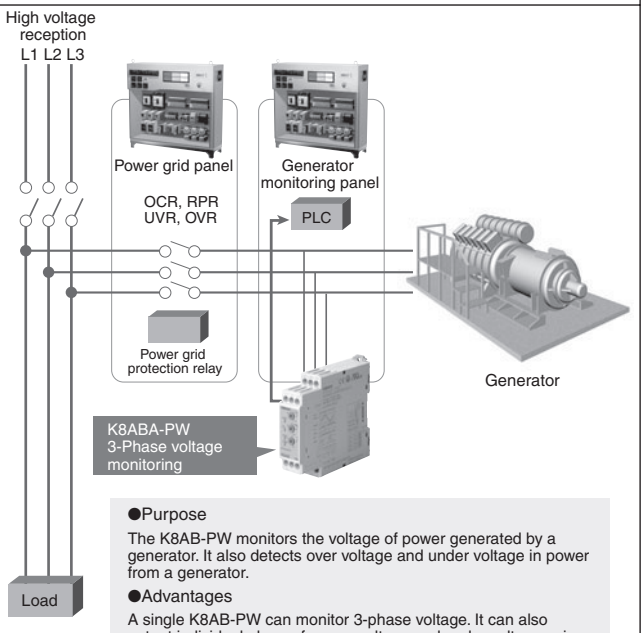
●Purpose

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



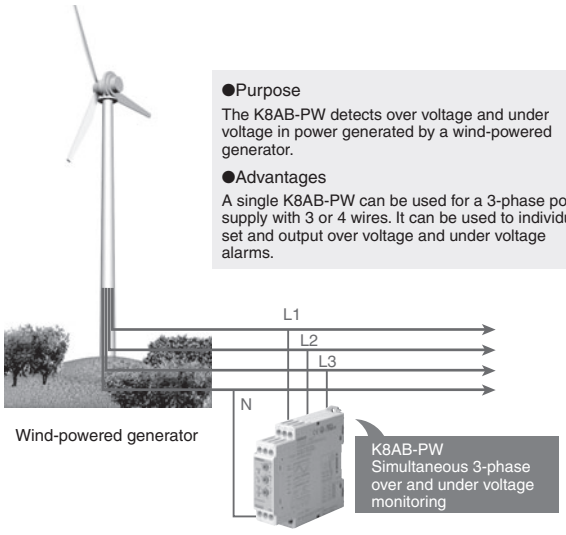
●Purpose

The K8AB-PW monitors the voltage of power generated by a generator. It also detects over voltage and under voltage in power from a generator.

●Advantages

A single K8AB-PW can monitor 3-phase voltage. It can also output individual alarms for over voltage and under voltage using SPDT relays because it features two outputs with SPDT relays. The voltage measurement range can be switched from 200 to 480 VAC and the K8AB-PW can be switched to monitor phase voltage or line voltage.

Monitoring Voltage Generated by Wind-powered Generators — K8AB-PW



●Purpose

The K8AB-PW detects over voltage and under voltage in power generated by a wind-powered generator.

●Advantages

A single K8AB-PW can be used for a 3-phase power supply with 3 or 4 wires. It can be used to individually set and output over voltage and under voltage alarms.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

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