

Model K8AB-AS

Measuring & Monitoring Relay

English Instructions Manual

Thank you for purchasing an OMRON product. In this Instructions Manual, you will find information about this product's features, capabilities, and operating instructions. Please observe the following when using this product.

- This product is designed for use by qualified electrical engineer.
- Read and understand this Instructions Manual thoroughly, and make proper use of this product.
- Keep this Instructions Manual for future reference.

OMRON Corporation

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Precautions for Safe Use

Make sure to follow the instructions below to ensure safety.

- Do not use or keep this product in the following environments.
 - Outdoors, or places subject to direct sunlight or wearing weather.
 - Places where dust, iron powder, or corrosive gases (in particular, sulfuric or ammonia gas) exist.
 - Places subject to static electricity or inductive noise.
 - Places where water or oil come in contact with the product.
- Make sure to install this product in the correct direction.
- There is a remote risk of electric shock. Do not touch terminals while electricity is being supplied.
- Make sure to thoroughly understand all instructions in the Instructions Manual before handling this product.
- Make sure to confirm terminal makings and polarity for correct wiring.
- Ensure that terminal screws have been tightened firmly. Recommended torque : 0.49 N · m Assured torque : 0.59 N · m
- Operating ambient temperature and humidity for this product must be within the indicated rating when using this product.
- There is a remote risk of explosion. Do not use this product where flammable or explosive gas exists.
- Make sure that no weight rests on the product after installation.
- To enable an operator to turn off this product easily, install switches or circuit breakers that conform to relevant requirements of IEC60947-1 and IEC60947-3, and label them appropriately.
- Do not turn a setting volume beyond the scope of movement.

Precautions for Correct Use

- For Proper Use**
 - Do not use the product in the following locations.
 - Places subject to radiant heat from heat generating devices.
 - Places subject to vibrations or physical shocks.
 - Make sure to use setting values appropriate for the controlled object. Failure to do so can cause unintended operation, and may result in accident or corruption of the product.
 - Do not use thinner or similar solvent for cleaning. Use commercial alcohol.
 - When discarding, properly dispose of the product as industrial waste.
 - Only use this product within a board whose structure allows no possibility for fire to escape.
 - This is a class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.
- About Installation**
 - When wiring, use only recommended crimp terminals.
 - Do not block areas around the product for proper dissipation of heat. (If you do not secure space for heat dissipation, life cycle of the product will be compromised.)
 - To avoid electrical shocks, make sure that power is not supplied to the product while wiring.
 - To avoid electrical shocks, make sure that power is not supplied to the product when performing DIP switch settings.
- Noise Countermeasures**
 - Do not install the product near devices generating strong high frequency waves or surges.
 - When using a noise filter, check the voltage and current and install it as close to the product as possible.
 - In order to prevent inductive noise, wire the lines connected to the product separately from power lines carrying high voltages or currents. Do not wire in parallel with or on the same cable as power lines. Other measures for reducing noise include running lines along separate ducts and using shield lines.
- To avoid faulty operations, malfunctions, or failure, observe the following operating instructions.**
 - When turning on the power, make sure to realize rated voltage within 1 second from the time of first supply of electricity.
 - Make sure to use power supply for operations, inputs, and transformer with the appropriate capacity and rated burden.
 - Maintenance and handling of this product may only be performed by qualified personnel.
 - Distortion ratio of input wave forms must be 30% or less. Use of this product with circuits that have large distortion in wave forms may result in unwanted operations.
 - Using this product for thyristor controls or inverters will result in errors.
 - When setting the volume, adjust the control from the minimum side to the maximum side.

Applicable Standards

| | | |
|---|---|---|
| Installation environment | Installation Category III, Pollution Degree 2 | |
| Application Standard | EN60255-5-6 | |
| Safety Standard | EN60664-1 UL508, CAN/CSA C22.2 No.14 (Auxiliary Devices, Current Monitoring Relay) | |
| EMC | (EMI) EN61326 Industrial applications | |
| | Terminal interference wave voltage CISPR11 Group1, ClassA : CISPR16-1/-2 Electromagnetic interference wave CISPR11 Group1, ClassA : CISPR16-1/-2 | |
| | (EMS) EN61326 Industrial applications | |
| | Electrostatic discharge | EN61000-4-2 : 4kV(Contact) 8kV(In air) |
| | Radiating radio-frequency electromagnetic field | EN61000-4-3 : 10V/m 1kHz Sine Wave Amplitude Modulation (80MHz to 1GHz) |
| | Burst | EN61000-4-4 : 2kV(Power Line) 1kV(I/O Signal line) |
| | Surge | EN61000-4-5 : 1kV with line (Power Line) 2kV with ground (Power Line) |
| | Conducted RF | EN61000-4-6 : 3V(0.15 to 80MHz) |
| Power frequency magnetic field immunity | EN61000-4-8 : 30A/m | |
| Voltage dip/Short interruptions | EN61000-4-11 : 0.5 Cycle, 0.180" each polarity 100% (Rated Voltage) | |

Overview

This product is an electric controller, which outputs an alarm, featuring current monitoring function.

Specifications

Rating

| | | |
|-----------------------------------|---|---|
| Operating power | 24 VAC/DC, 100/115 VAC, 200/230 VAC | |
| Power consumption | 24 VAC/DC : 5VA/1W max. 100/115 VAC : 4 VA max. 200/230 VAC : 5 VA max. | |
| Rated input | K8AB-AS1 AC/DC2-20mA/10-100mA/50-500mA | |
| | K8AB-AS2 AC/DC0.1-1A/0.5-5A/0.8-8A | |
| | K8AB-AS3 AC10-100A/20-200A (See note 1) | |
| Input impedance | K8AB-AS1 5 Ω max. | |
| | K8AB-AS2 0.2 Ω max. | |
| | K8AB-AS3 Use in combination with the omron K8AC-CT200L Current Transformer. | |
| Operating value setting range(SV) | 10% to 100% of maximum rated input value. | |
| Hysteresis(HYS) | 5% to 50% of operating value. | |
| Operating time(T) | 0.1 to 30 s | |
| Operating power ON lock(LOCK) | 0 to 30 s | |
| Output relays | One SPDT relay | |
| Output relays | Resistive load | 6 A at 250 VAC 6 A at 30 VDC |
| | Maximum switching capacity | 1,500 VA |
| | Minimum load | 10 mA at 5 VDC |
| | Electrical life | Make : 50,000 times, Break : 30,000 times |
| Ambient operating temperature | -20 to 60°C (with no condensation or icing) | |
| Ambient operating humidity | 25% to 85% (with no condensation) | |

Note 1 . The primary current value of Current Transformer, K8AC-CT200L.

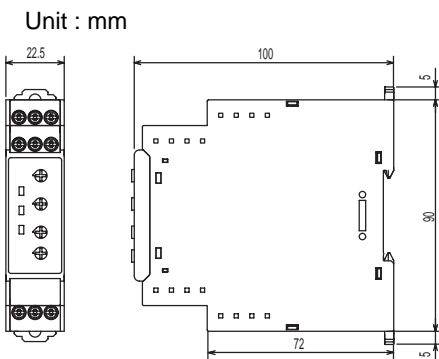
Output Rating

| | |
|------------------------------|---|
| Operating voltage range | 85% to 110% of rated operating voltage |
| Rated power supply frequency | 50/60 Hz ± 5 Hz |
| Input frequency | K8AB-AS1/AS2 DC or AC input (45 to 65 Hz) |
| | K8AB-AS3 AC input (45 to 65 Hz) |
| Overload resistance | K8AB-AS1/AS2 Continuous input : 120% of maximum input, 1s : 150% of maximum input. |
| | K8AB-AS3 Continuous input : 120% of maximum input, 30s : 200%, 1s : 600%, of maximum input. |
| Repeat error | Operating value ± 2% of operating value |
| | Operating time ± 50 ms (See note) |

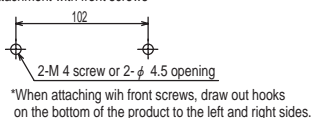
Note : Over current : Measured when the input rapidly changes from 0% to 120% of setting.
Undercurrent : Measured when the input rapidly changes from 120% to 0% of setting.

Installation

Diagram of Outside Dimensions

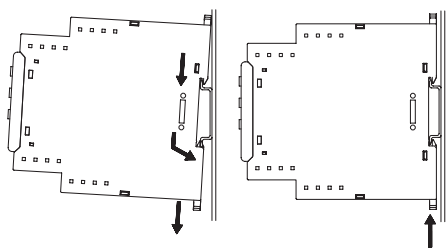


*Installation Procedure : Attaching to the DIN rail or attaching with front screws
*Measurements for attachment with front screws



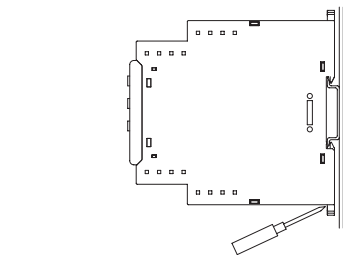
Installation Procedure

- Pull down the hook, and then fasten the upper tab onto the rail, fitting in the unit until the hook locks into place.



Uninstallation Procedure

- Using a flathead screwdriver or a similar tool, pull out the hook downward and lift the unit from the bottom.



Fixing Bracket

- Attach the type K8AB to the DIN rail.
 - DIN Rail Type PFP-100N (1,000mm) Type PFP-50N (500mm)

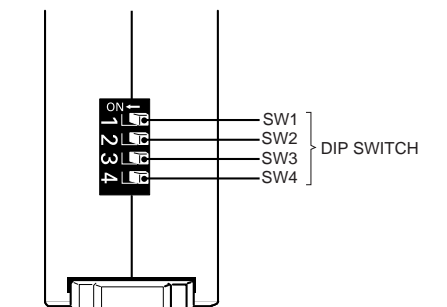
Recommended Crimp Terminal

| Recommended Crimp Terminal | Recommended Cable Diameter |
|---------------------------------------|----------------------------|
| Al 1,5-8BK (Phoenix Contact product) | AWG#16 |
| Al 1-8RD (Phoenix Contact product) | AWG#18 |
| Al 0,75-8GY (Phoenix Contact product) | AWG#18 |

Exclusive CT

K8AC-CT200L (Omron product)

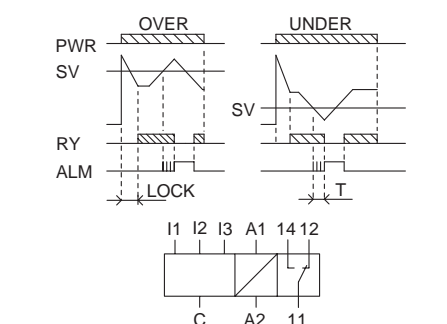
DIP Switch



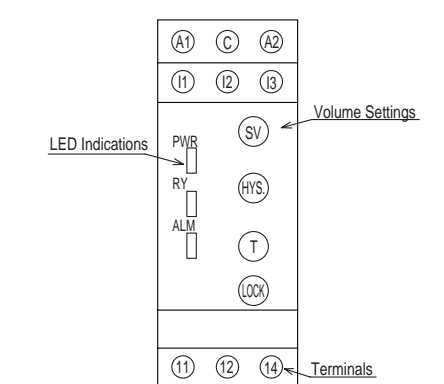
Switchable with NO/NC Dip switch

| SWITCH | ON ● ↑ | OFF ↓ | 4 ON OFF | 3 | 2 | 1 | NO USE |
|--------------------|-----------------|-------|----------|---|---|---|--------|
| Resetting method | Automatic reset | — | — | — | — | — | |
| Relay drive method | Normally closed | — | — | ● | — | — | — |
| | Normally open | — | — | ○ | — | — | — |
| Operating mode | Undercurrent | ● | — | — | — | — | — |
| | Overcurrent | ○ | — | — | — | — | — |

Time Chart

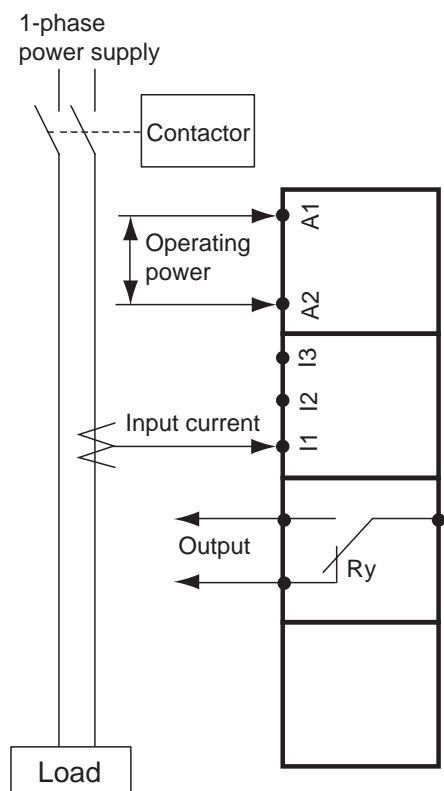


Terminal Connections



| Name | Terminal Name | Description |
|-----------------|---------------|---|
| Terminals | 11, 12, 13 | Current input terminals |
| | C | Common for voltage input terminals |
| | A1, A2 | Operative power supply |
| | 11 | Common for terminals |
| Volume Settings | 12 | b-contact output |
| | 14 | a-contact output |
| | SV | Operate value setting (10 to 100%) |
| | HYS. | Hysteresis setting (5 to 50%) |
| LED Indications | T | Operate time setting (0.1 to 30s) |
| | LOCK | Startup lock time setting (0 to 30s) |
| | PWR | Power indication : Green |
| LED Indications | RY | Relay output status : Yellow Light-on 11-14 conduction |
| | ALM | Alarm operation status : Red Light-on = Alarm output status |

Wiring Diagram



Suitability for use

OMRON shall not be responsible conformity with any standards, codes, or regulations that apply to the combination of the products in the customer's application or use of the product. Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used. Know and observe all prohibitions of use applicable to this product. NEVER USE THE PRODUCTS FOR AN 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 PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM. See also Product catalog for Warranty and Limitation of Liability.

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