

K8AB-TH OMRON

Temperature Monitoring Relay

EN Instruction Manual

Thank you for purchasing the OMRON Product. To ensure the safe application of the Product, only a professional with an understanding of electricity and electric devices must handle it. Read this manual carefully before using the Product and always keep it close at hand when the Product is in use.

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Rev.B

Safety Precautions

Key to Warning Symbols

CAUTION Indicates a potentially hazardous situation which, if not avoided, is likely to result in minor or moderate injury or property damage. Read this manual carefully before using the product.

Warning Symbols

CAUTION

Do not touch the terminals while power is being applied. Doing so may occasionally result in minor injury due to electric shock.

Do not allow pieces of metal, wire clippings, or fine metallic shavings or filings from installation to enter the product. Doing so may occasionally result in electric shock, fire, or malfunction.

Do not use the product where subject to flammable or explosive gas. Otherwise, minor injury from explosion may occasionally occur.

Never disassemble, modify, or repair the product or touch any of the internal parts. Minor electric shock, fire, or malfunction may occasionally occur.

Tighten the terminal screws to between 0.49 and 0.59 N·m. Loose screws may occasionally result in fire.

Set the parameters of the product so that they are suitable for the system being controlled. If they are not suitable, unexpected operation may occasionally result in property damage or accidents.

Change the position of side SW while power is NOT being supplied.

A malfunction in the product may occasionally make control operations impossible or prevent alarm outputs, resulting in property damage to connected equipment and machinery. Periodically check the product's operation. To maintain safety in the event of malfunction of the product, take appropriate safety measures, such as installing a monitoring device on a separate line.

If the output relay are used past their life expectancy, contact fusing or burning may occasionally occur. Always consider the application conditions and use the output relays within their rated load and electrical life expectancy. The life expectancy of output relay varies considerably with the output load and switching conditions.

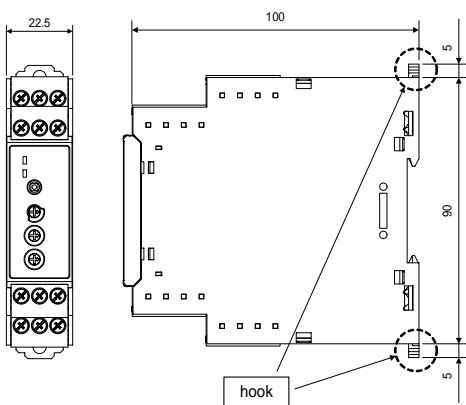
Precautions for Safe Use

- The product is designed for indoor use only. Do not use the product outdoors or in any of the following locations.
 - Places directly subject to heat radiated from heating equipment.
 - Places subject to splashing liquid or oil atmosphere.
 - Places subject to direct sunlight. Places subject to icing and condensation.
 - Places subject to dust or corrosive gas (in particular, sulfide gas and ammonia gas).
 - Places subject to intense temperature change.
 - Places subject to vibration and large shocks.
- Use/store within the rated temperature and humidity ranges. Provide forced cooling if required.
- Install K8AB in a correct direction.
- Be sure to wire properly with correct polarity of terminals.
- Wire the input and output terminals correctly.
- Use this product within the rated load and power supply.
- Be sure that the temperature sensor type and the input type set on K8AB are the same.
- When extending the lead wires on a thermocouple, be sure to use compensating conductors suitable for the thermocouple type.
- When extending the lead wires on a platinum resistance thermometer, use lead wires with a low resistance (5 max. per line) and be sure that the resistance is the same for all three lead wires.
- Use the recommended solderless terminals.
- Do not wire the terminals which are not used.
- Make sure that the rated voltage is attained within 1 seconds
- Design system (control panel, etc) considering the 1 second of delay that K8AB's output to be determined after power ON.
- Make sure that K8AB has 30 minutes or more to warm up after power ON. Turning ON the power before starting monitor to the correct temperature.
- Separate the high-voltage or large-current power lines from other lines, and avoid parallel or common wiring with the power lines when you are wiring to the terminals.
- Allow as much space as possible between K8AB and devices that generate powerful high frequencies or surge.
- Do not use a microwave receiver near K8AB. Microwave interference may affect K8AB.
- A switch or circuit breaker should be provided close to this unit. The switch or circuit breaker should be within easy reach of the operator, and must be marked as a disconnecting means for this unit.
- Do not use paint thinner or similar chemical to clean with. Use standard grade alcohol.
- Use tools when dismantling parts for disposal.
- Install the K8AB inside a cabinet.
- This is a class A product. In residential area, it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.

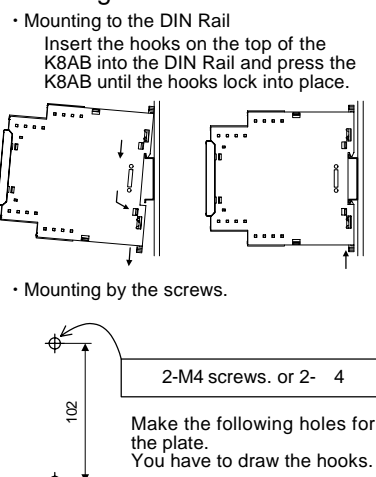
Specifications

Power supply voltage	AC100-240V type AC/DC24V type
Operating frequency	50-60Hz
Operating voltage range	85 to 110% of the rated voltage
Operating frequency range	95 to 105% of the rated frequency
Power consumption	5VA max.(AC100-240V) 4VA max.(AC24V) 2W max.(DC24V)
Inrush current	15A max.(AC100-240V) 10A max.(AC/DC24V)
Accuracy	±2%FS
Relay output	3A,250VAC/30VDC(resistive load) 1A,250VAC/30VDC(inductive load)
Ambient temperature	1c contact -10 to 55 (Avoid freezing or condensation)
Ambient humidity	RH 25 to 85%
Storage temperature	-25 to 65
Storage humidity	RH 25 to 85%
Weight	Approx.130g
Degree of protection	IP20
Altitude	Max 2,000m
Installation environment	Setup category 2, pollution Degree 2(as per EN61010-1)
External input	Output current: approx.10mA
Output current	Contact input ON :1k max., OFF:100k min.
Output voltage	No-contact input ON :residual voltage (NPN) 1.5V max., OFF:leakage current 0.1mA min.
Memory protection	EEPROM(non-volatile memory) (endurance:200,000 erase/write cycles)

Wiring Dimensions (mm)

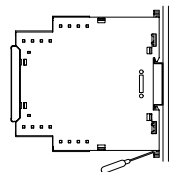


Mounting



Dismounting

Pull down on the hooks with a flat-blade screwdriver and lift up on the K8AB.

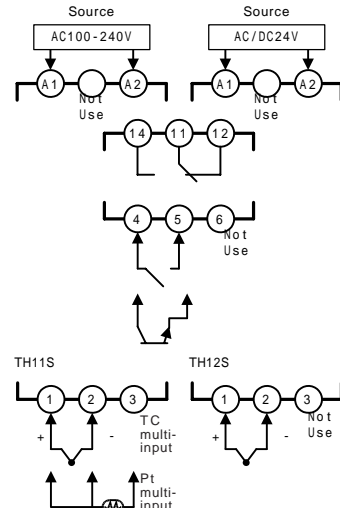


Applicable DIN Rail
PFP-100N (100 cm)
PFP-50N (50 cm)

Durability

For vibration	Acceleration :50m/s ² frequency :10 ~ 55Hz (In each direction(x,y,z),5min x 10cycles)
For shock	Acceleration :150m/s ² (100m/s ² for the internal relay) (In each direction(x,y,z),3times.)

Connections



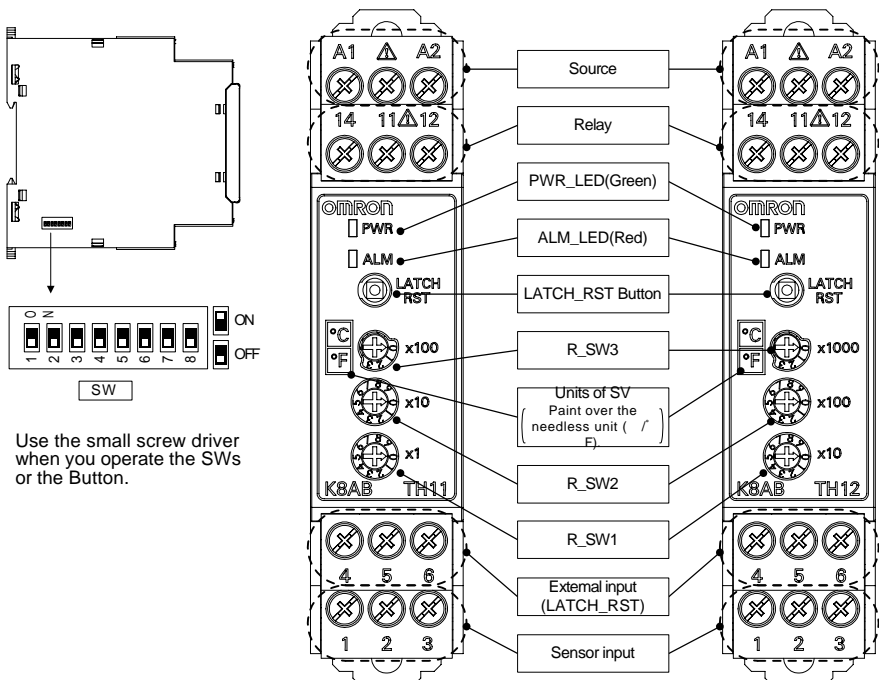
Solderless terminals (Recommendation)

Types	Diameter of wires
A11, 5-8BK (PHOENIX CONTACT)	AWG#16
A11-8RD (PHOENIX CONTACT)	AWG#18
A10, 75-8GY (PHOENIX CONTACT)	AWG#18

Tool(Recommendation)
Cross-head screwdriver(5mm)

Function

Names of parts



Switch Operation

TH11S

R_SW3	100 (°F) (0-3) 4-9:Setting range over.
R_SW2	10 (°F) (0-9)
R_SW1	1 (°F) (0-9)
Default	: 0

SW 8 : Not Use

Upper Limit	Lower Limit	Latch	Non-Latch	Non-Fail Safe	Fail Safe	Input Type
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 : Not Use
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	K
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	J
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	T
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pt100
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pt100
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pt100

Default : ALL OFF

TH12S

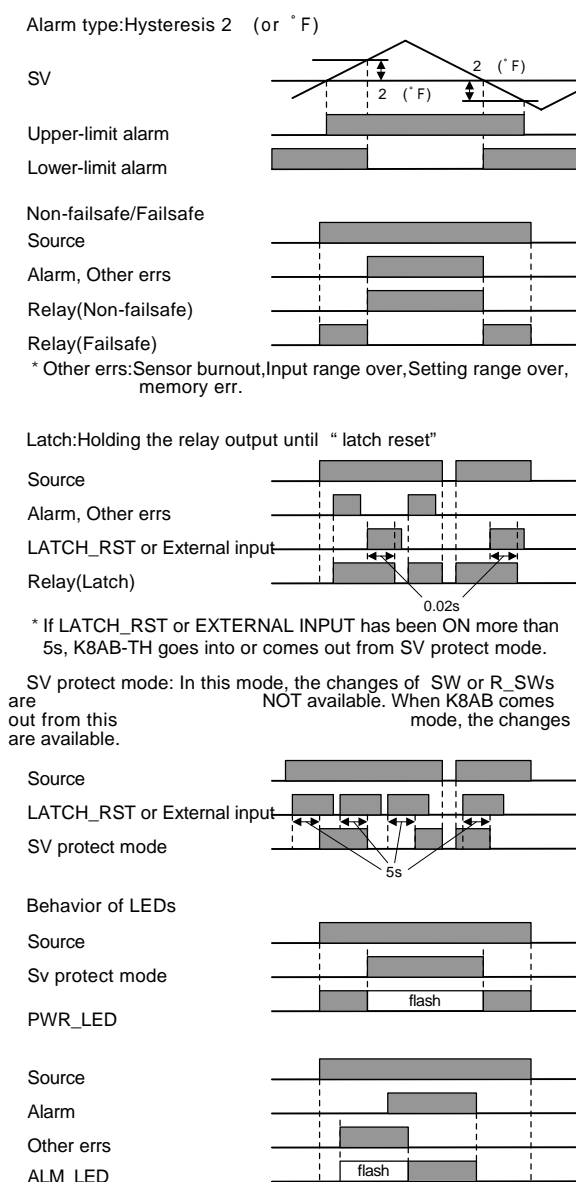
R_SW3	1000 (°F) (0-3) 4-9:Setting range over.
R_SW2	100 (°F) (0-9)
R_SW1	10 (°F) (0-9)
Default	: 0

SW 8 : Not Use

Upper Limit	Lower Limit	Latch	Non-Latch	Non-Fail Safe	Fail Safe	Input Type
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 : Not Use
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	K
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	J
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	T
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	B
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	R
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	S
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PL

Default : ALL OFF

Time Chart



Setting range

TH11S	0-399			
Input Type	Lower	Upper	Lower	Upper
K	0	399	0	399
J	0	399	0	399
T	0	399	0	399
E	0	399	0	399
Pt100	0	399	0	399
Pt100	0	399	0	399
Pt100	0	399	0	399

TH12S	0-3990			
Input Type	Lower	Upper	Lower	Upper
K	0	1300	0	2300
J	0	850	0	1500
T	0	400	0	700
E	0	600	0	1100
B	100	1800	300	3200
R	0	1700	0	3000
S	0	1700	0	3000
PL	0	1300	0	2300

Sensor input range

TH11S	°F			
Input Type	Lower	Upper	Lower	Upper
K	-20	419	-40	439
J	-20	419	-40	439
T	-20	419	-40	439
E	-20	419	-40	439
Pt100	-20	419	-40	439
Pt100	-20	419	-40	439
Pt100	-20	419	-40	439

TH12S	°F			
Input Type	Lower	Upper	Lower	Upper
K	-20	1320	-40	2340
J	-20	870	-40	1540
T	-20	420	-40	740
E	-20	620	-40	1140
B	0	1820	0	3240
R	-20	1720	-40	3040
S	-20	1720	-40	3040
PL	-20	1320	-40	2340

Applicable Standards	EN61010-1
Safety Standards	EN60664-1
EMC	EMI EN61326+A1
	EMS EN61326+A1

Errors(ALM_LED:flash)

- Following (1) ~ (3) may occur.
(1)Sensor burn out or Sensor input range over.
(2)Setting range over.
(3)Inner error(devices,memories,etc.).

Trouble shooting

Comes out of SV protect mode.
Reset the latch.
Confirm the wiring and parameter settings.
Reset the SOURCE.
If K8AB return to normal state, the cause may be the noise.
If not, there is need to replace it.
The state of latched output and the state of SV protect mode are backed up by EEPROM.
The frequent operation will damage EEPROM.

Suitability for Use

OMRON shall not be responsible for 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.

OMRON ELECTRONICS LLC.
One Commerce Drive Schaumburg, IL 60173-5302 U.S.A.
Phone 1-847-843-7900
FAX 1-847-843-7787
OMRON CANADA INC.
885 Milner Avenue Scarborough, Ontario M1B 5V8, Canada
Phone 1-416-296-6465
Fax 1-416-296-6648
OMRON EUROPE B.V.
Wegalaan 67-69 2132 JD Hoofddorp The Netherlands
Phone 31-23-56-81-300
FAX 31-23-56-81-388
OMRON ELECTRONICS PTY. LTD.
71 Epping Road, North Ryde, Sydney, N.S.W 2113, Australia
Phone 61-2-9878-6377
Fax 61-2-9878-6981
OMRON ASIA PACIFIC PTE. LTD.
No.438A Alexandra Road #05-05/08(Lobby 2), Alexandra Technopark, Singapore 119967
Phone 65-6335-3011
FAX 65-6335-2711
OMRON CORPORATION
Shiokoji Horikawa, Shimogyo-ku, KYOTO, 600-8530 Japan
Phone 81-75-344-7109
FAX 81-75-344-7149