



TECHNICAL GUIDANCE

For Contact Amplification of Level Switch, Loading and Unloading Controls

RD-1000

RELAY DRIVER

GENERAL

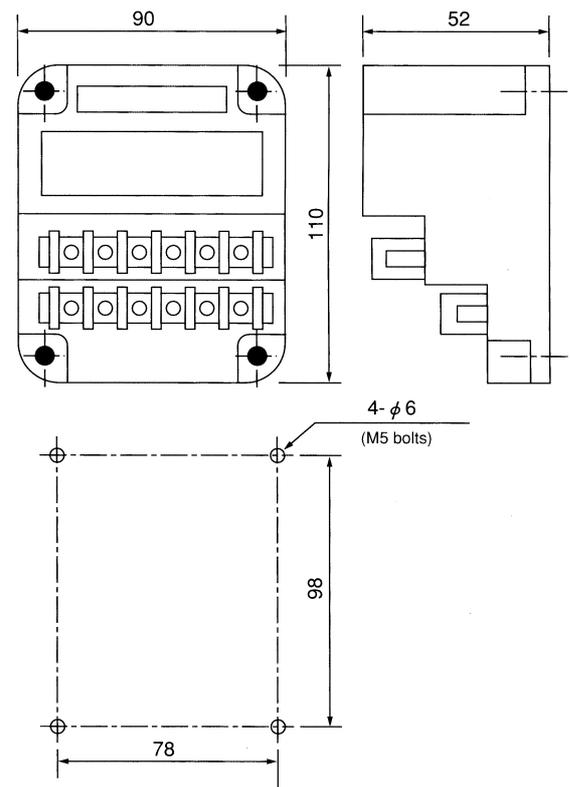
RD-1000 RELAY is a relay unit to increase electric contact capacity of level switches and other contacts. Contacts in field are driven by low voltage and small current for safety of operation. Pumps, solenoid valves, actuators, buzzer lamps and other devices can directly be controlled by Relay Output contact of RD-1000. Also, integrated sequence control function allows loading or unloading controls by using two points of High and Low level switches. (Caution: RD-1000 RELAY is not a safety relay for intrinsically safe circuit.)



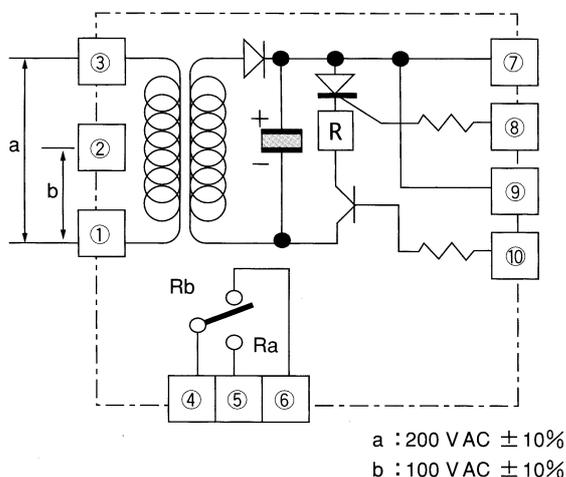
STANDARD SPECIFICATION

- Power supply : 100 V AC or 200 V AC $\pm 10\%$, 50/60 Hz
(Acceptable 110 V AC or 220 V AC $\pm 10\%$, 50/60 Hz as special order. Contact Tokyo Keiso for other voltages.)
- Ambient temp. : -10 to 50°C
- Max supply voltage to field contact : 12 V DC, Terminal ⑦ ~ ⑧ and ⑨ ~ ⑩
- Max supply current to field contact : 3 mA DC, Terminal ⑦ ~ ⑧ and ⑨ ~ ⑩
- Max supply voltage of output contact : 250 V AC, 125 V DC, Terminal ④ ~ ⑤ and ④ ~ ⑥
- Max supply current of output contact : 5 A Terminal ④ ~ ⑤ and ④ ~ ⑥
- Max capacity of output contact : 1100 VA AC (Resistance load)
120 W DC (Resistance load)
- Insulation resistance : 100 M Ω by 500 V DC Meggar
- Withstand voltage : 1500 V AC for 1 min.
- Power consumption : Less than 2 VA

DIMENSION



BLOCK DIAGRAM

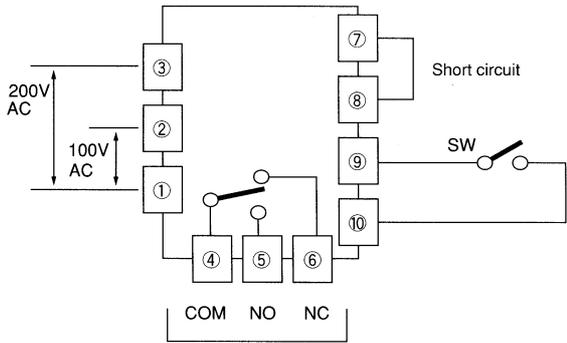


RECOMMENDATION FOR INSTALLATION

1) CONTACT AMPLIFICATION

It is possible to amplify a contact point by a set of this RD-1000. Refer to the following figure.

- Connect suitable AC power. (100 V AC to terminal ①~② and 200 V AC to terminal ①~③)
- Terminal ⑦ and ⑧ are to be short circuited by a jumping wire.
- The field contact is to be connected to terminal ⑨~⑩



d. The action of output contact is shown below. Select the necessary action for wire connection.

Field Switch Action Terminal ⑨~⑩	Output Relay Action	
	NO ④~⑤	NC ④~⑥
ON	ON	OFF
OFF	OFF	ON

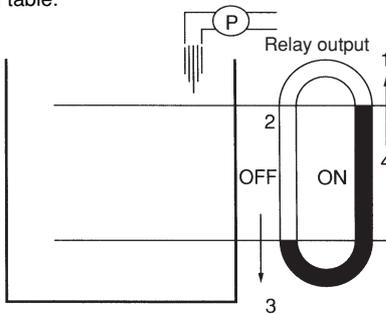
2) LOADING AND UNLOADING CONTROLS

It is possible to control a pump by connecting 2 contacts with RD-1000. Refer to the following table about the state of output contacts of RD-1000 by the change of liquid and the action of contacts.

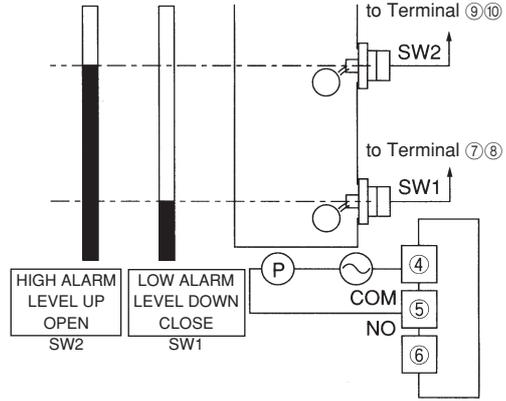
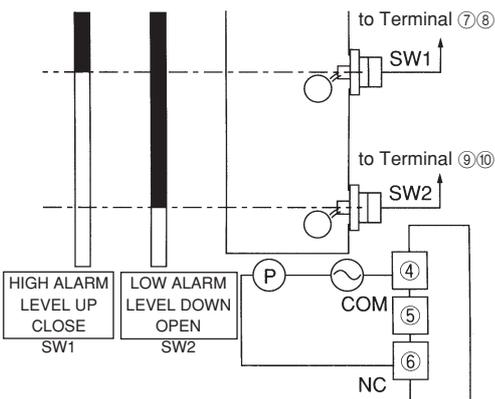
Change of liquid level	State of each switch		State of output contact (at RD-1000 side)	
	SW1 ⑦~⑧	SW2 ⑨~⑩	NO side ④~⑤	NC side ④~⑥
1	OFF	OFF	OFF	ON
2	OFF	ON	OFF	ON
3	ON	ON	ON	OFF
4	OFF	ON	ON	OFF

A) LOADING CONTROLS

Pump control is required for the feed-water control as shown in the following table.

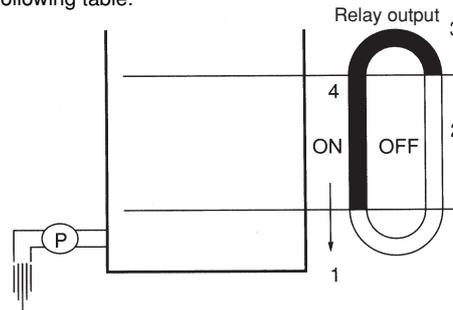


- a. Connect suitable AC power. (100 V AC to terminal ①~② and 200 V AC to terminal ① ~ ③)
- b. Connect field contacts of High and Low referring to the following figures.
- c. Do not use Common line for High level alarm switch and Low level alarm switch. Two cables from each switch are to be separated.

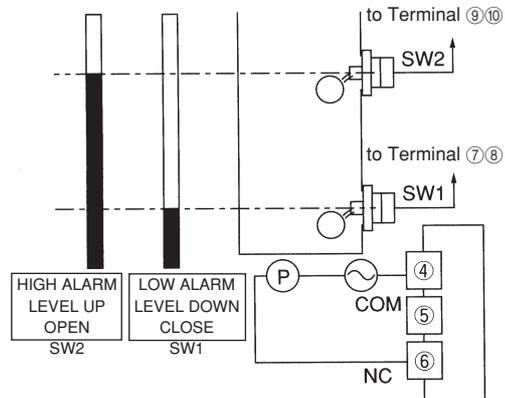
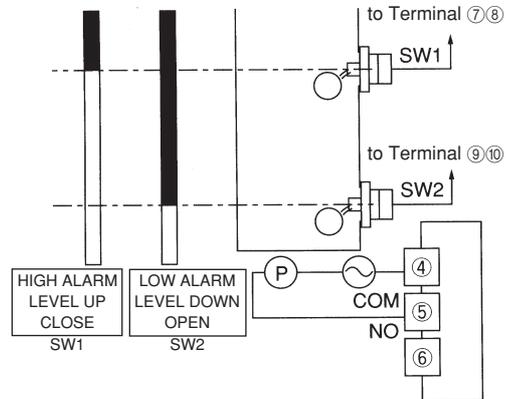


B) UNLOADING CONTROLS

Pump control is required for the feed-water control as shown in the following table.



- a. Connect suitable AC power. (100 V AC to terminal ①~② and 200 V AC to terminal ① ~ ③)
- b. Connect field contacts of High and Low referring to the following figures.
- c. Do not use Common line for High level alarm switch and Low level alarm switch. Two cables from each switch are to be separated.

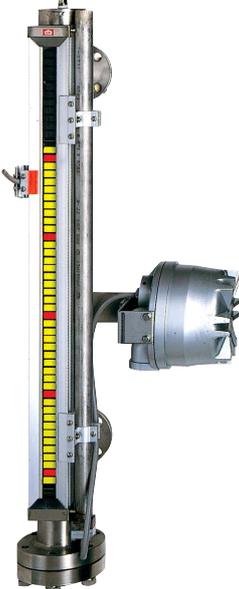


CAUTIONS FOR INSTALLATION

- RD-1000 is designed for indoor use. Install at the location in clean environment free from humidity, dust etc.
- Fix RD-1000 properly on control panel or other suitable location by using M5 bolts.
- Use compression terminal tips for firm connection of wiring.

Level Switches

Various level switches are available for level detection.

	
<p>FB-7000 1-point, installed at side, with microswitch</p>	<p>FB-5000 1-point, installed at side, with reed switch</p>
	
<p>FP-4000 Multipoint, installed at top, with reed switch</p>	<p>FM Mag Gauge Metal tube level gauge, with reed switch</p>

*The Technical Guidance is available for each model. Contact us for details.

* Specification is subject to change without notice.

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