Instruction Manual

WH1K Alarm Setter

JUXTA

1. PRECAUTION

Please read thorough this Manual before use the instrument for correct handling. Please keep this Manual carefully after use.
This instrument has been thoroughly tested at the factory before shipment. When you receive it, visually inspect it for damage and check the accessories.

① Model number and specifications check
Check to see model number and specifications on the nameplate attached to the front face of the instrument are as ordered.

② Contents of instruction manual
This instruction manual provides instructions on handling, external wiring and safety use of Alarm Setter.

2. GENERAL

This instrument receives current or voltage signal and outputs alarm signal after comparing it with set value. (In case of current input, set shunt resistor on input circuit).
Alarm output has two relay contacts. Each contact can select and set alarm point, lockup width and action direction (direct and reverse actions).
Capacities of relay contacts used in this instrument are 100V AC 1A, 220V AC 0.5A, 30V DC 1A. (All are resistance load).
Be careful that load more than the contact rating should not be connected.

Accessories:

Mounting block	2
Tag number label	1
Mounting screw M4	4

3. MOUNTING METHOD

JUXTA signal conditioners can be mounted on rack, wall or DIN rail.

3.1 Rack mounting

Use panel (FRK-16) and install it on an angle as shown in Fig.1. This is a convenient method for high density mounting of alarm setter on 19 inch rack panel. (See Fig.7)

3.2 Wall mounting

Use panel (FRK-16) to mount alarm setter as shown in Fig.2 or directly mount single unit on the wall. (See Figs.7 and 8 for mounting dimensions.)

3.3 DIN rail mounting

Insert DIN rail into the upper section of the DIN rail groove on the rear of alarm setter and fix the rail with slide lock at the base of alarm setter as shown in Figs.3 and 4.

3.4 Angle mounting

If alarm setter is mounted without using the panel (FRK-16), refer Fig. 5 for its mounting.

3.5 Mounting block installation and removal

Insert mounting block into the alarm setter groove as shown in Fig.6 and slide it until it is fixed with the stopper. To remove it, lift up mounting block stopper with (-) screwdriver and slide it along the groove.

4. EXTERNAL WIRING

CAUTION Wiring should be done after ensuring power break of each cable.

Wires should be connected to M4 screw terminals after opening terminal cover of alarm setter as shown in Fig.10. For wiring, flexibale twisted wires and good contact of durable round crimp-on terminals are recommended to be used.

FIG.1 RACK MOUNTING

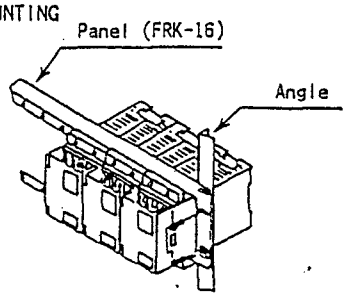


FIG.2 WALL MOUNTING

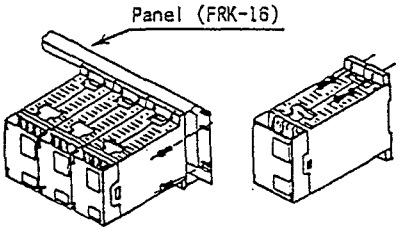


FIG.3 DIN RAIL MOUNTING

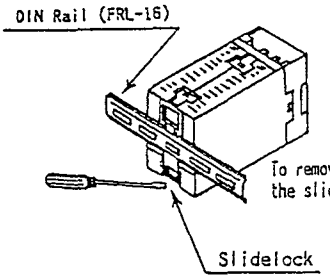


FIG.4 DIN RAIL MOUNTING

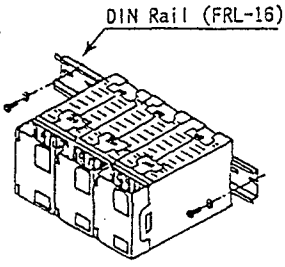
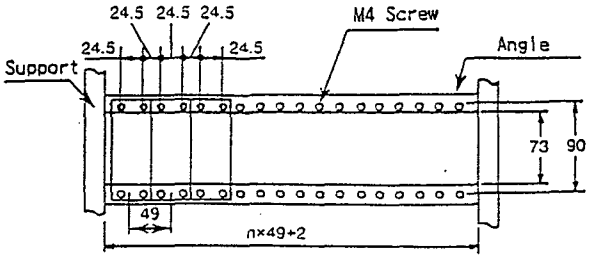


FIG.5 ANGLE MOUNTING DIMENSION

Unit : mm



- Signal cable should has more than 0.5mm² and power cable should has more tahn 1.25mm² of nominal cross-sectional area of conductor.

4.1
① See Fig.9 for terminal arrangement.
② Connect current or voltage input signal cable from generator to alarm setter terminals 7(+), 8(-).
③ Connect Output-1 signal cable of alarm setter to terminals 1(NC), 5(COM) and 6(NO).
④ Connect Output-2 signal cable of alarm setter to terminals 13(NC), 9(COM) and 10(NO).
⑤ Connect 85～264V AC or 24V DC power cable to alarm setter terminal 14(L+), 15(N-) and 16(G).

NOTE : Apart wiring of power and input/output cables from noise source. Otherwise, accuracy may not be warranted.

5. INSTALLATION AND HANDLING

① Avoid installation in such environments as shock, vibration, corrosive gas, dust, water, oil, solvent, direct sunlight, radiation, powerful electric and magnetic fields.
② To protect alarm setter from inducement of thunder surges in power and signal cables, use arrester between alarm setter and equipment installed in the field.

6. SAFETY USE

Following caution for safety should be taken for handling of alarm setter. We are not responsible for damage caused by use contrary to caution.

CAUTION

- Following items should be checked when turning power on. Use of alarm setter ignoring the specifications may cause overheat or burning.
  (a) Voltage of power supply and input signal be applied to alarm setter should meet with required specifications.
  (b) External wiring sould be made to correct terminals as specified.
- Do not use the alarm setter in such dangerous places where exist explosive and inflammable gas or steam.
- In case of AC power supply, high voltage of 85～264V AC would be applied to terminals 14 and 15 during power on as shown in Fig.10. Also, high voltage of maximum 220V AC may be applied to terminals 1,5,6 and 9,10,13. Do not touch terminals.

7. ALARM ACTIONS

7.1 Direct action
Input<Set value Relay is OFF
Input>Set value Relay is ON

7.2 Reverse action
Input<Set value Relay is ON
Input>Set value Relay is OFF

7.3 Relationship between set value and alarm point

(1) Direct action
Relay coil : ON (Excited)
OFF (Non-excited)
Excited alarm (Hi alarm):
Alarm point = Alarm set value··(Point B)

Non-excited alarm (Lo alarm):
Alarm point - Lockup width set value····· (Point A)

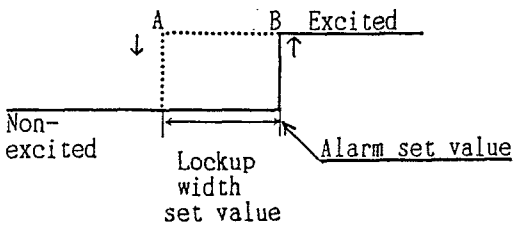


FIG.6 MOUNTING BLOCK INSTALLATION AND REMOVAL

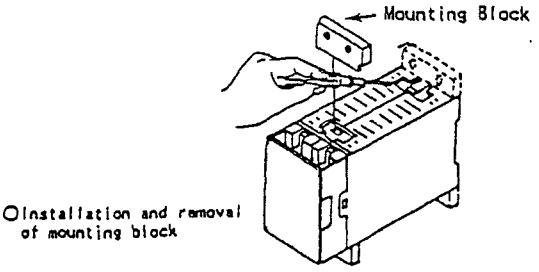


FIG.7 RACK MOUNTING DIMENSION

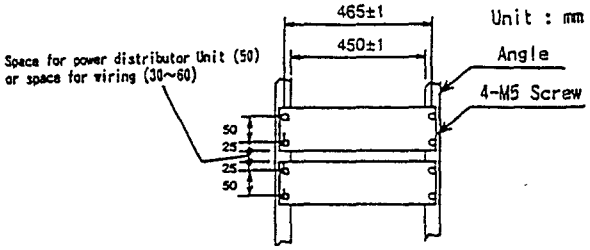


FIG.8 PANEL (WALL) MOUNTING DIMENSION

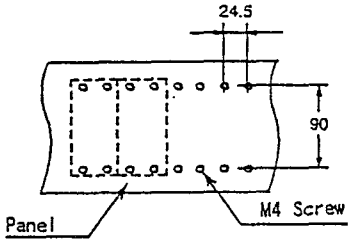
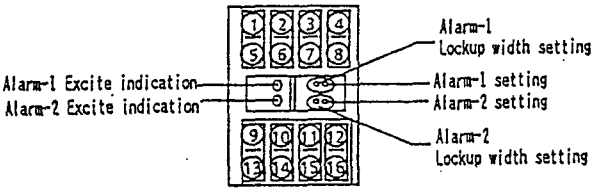
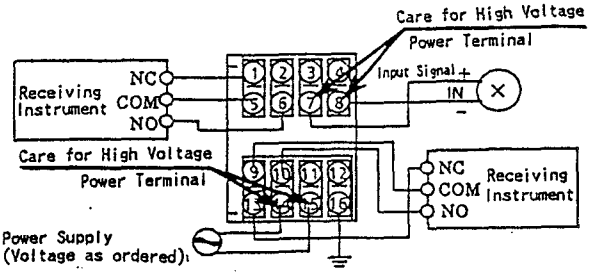


FIG.9 TERMINAL ARRANGEMENT

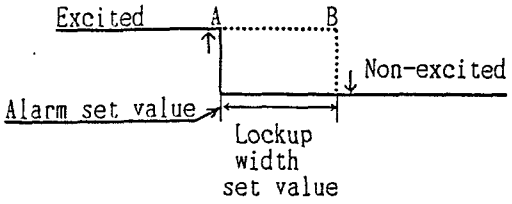


1	Alarm-1 Output	(NC)
2	Alarm-1 Setting Monitor	
3	Alarm-1 Lockup Width Monitor	
4		
5	Alarm-1 Output	(COM)
6	Alarm-1 Output	(NO)
7	Input Signal	(+)
8	Input Signal	(-)
9	Alarm-2 Output	(COM)
10	Alarm-2 Output	(NO)
11	Alarm-2 Setting Monitor	
12	Alarm-2 Lockup Width Monitor	
13	Alarm-2 Output	(NC)
14	SUPPLY	(L+)
15	SUPPLY	(N-)
16	GND	(G)

FIG.10 WIRING DIAGRAM



(2) Reverse action
Relay coil: ON (Excited)
OFF (Non-excited)



Excited alarm (Lo alarm):
Alarm point = Alarm set value··(Point A)

Non-excited alarm (Hi alarm):
Alarm point = Alarm set value
+lockup width set value·····(Point B)

8. SETTING METHOD

Alarm setter has two output relays; one for Alarm-1 and the other for Alarm-2. Each of them allows to set alarm point, lockup width and action direction.

8.1 Alarm direction setting

Use specific pin on the PCB and set direct (DIR) and reverse (RVS) actions. Standard setting is as shown in Fig.11.

8.2 Alarm point setting

Set both Alarm-1 and Alarm-2 alarm points through trimmer on front face of the unit.
Apply desired setting voltage/current (1~5V DC or 4~20mA DC) to input terminals 7(+) and 8(-) through standard voltage/current generator.
Turn setting trimmer to right/left and set trimmer at the point where front face relay action display light changes over.

- For excited alarm, set trimmer to the point where display light changes over from OFF to ON.
- For non-excited alarm, set trimmer to the point where display light changes over from ON to OFF.
- If setting needs to be more accurate than setting through relay ON/OFF action, connect digital voltmeter to voltage setting check terminals 2(+) and terminals 11(+), 8(-). Carry out fine adjustment through setting trimmer.

8.3 Lockup width setting

Lockup width can be set in range of 10% (0~0.4V) of span. Connect digital voltmeter to lockup width monitoring terminal 3(+) and terminals 12(+), 8(-). Carry out fine adjustment through setting trimmer.

8.4 Alarm and lockup width voltage check

To know position (voltage) where alarm point has been set for input signal 1~5V DC, monitoring can be done through terminals.

Alarm-1 setting voltage check	Terminals 2(+) and 8(-)
Alarm-1 lockup width voltage check	Terminals 3(+) and 8(-)
Alarm-2 setting voltage check	Terminals 11(+) and 8(-)
Alarm-2 lockup width voltage check	Terminals 12(+) and 8(-)

Value read by connecting tester or voltmeter between the above terminals is regarded as set value. Setting and check of lockup width voltage is made through LED display light on and off.

FIG.11 ALARM DIRECTION SETTING

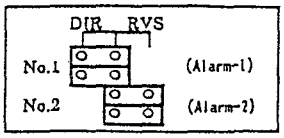


FIG.12 HI LIMIT, HI HI LIMIT ALARM

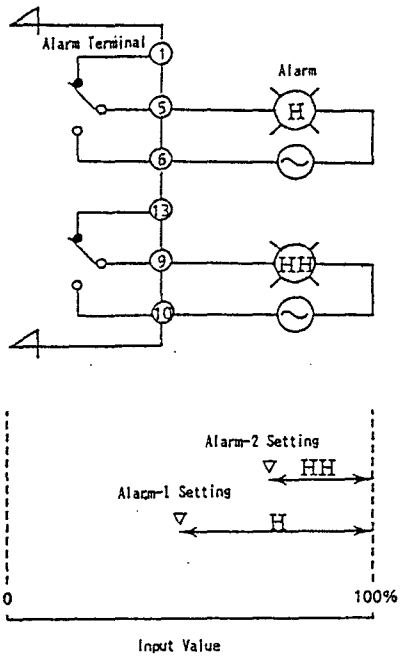


FIG.13 3 POSITIONS ALARM

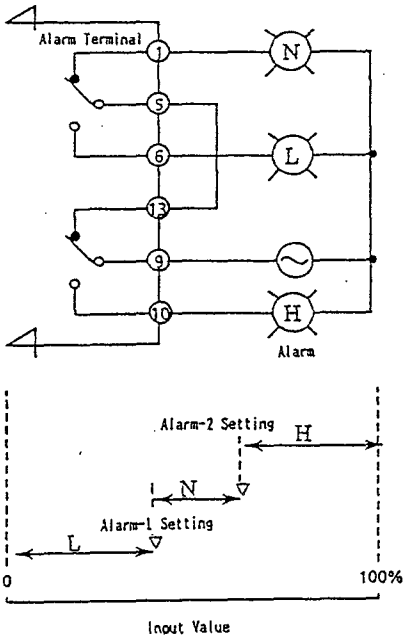
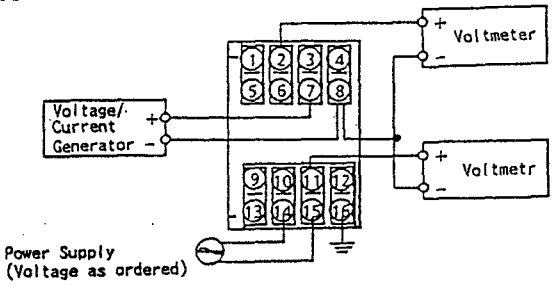


FIG.14 CALIBRATION EQUIPMENT



9. EXAMPLE OF EXTERNAL WIRING

Alarm setter makes various alarm actions according to setting method of alarm action change-over switch (Fig.11) or connecting method of alarm terminals, etc.
The followings are some examples.

9.1 High limit and high high limit alarms

Carry out wiring as shown in Fig.12 by setting change-over switch for both Alarm-1 and Alarm-2 to direct action.

9.2 Three positions alarm

Carry out wiring as shown in Fig.13 by setting change-over switch to reverse action for Alarm-1 and direct action for Alarm-2.

10. CALIBRATION

Carry out the following calibration after warming up the instruments for 10～15 minutes to satisfy its specifications.

10.1 Calibration equipment

- Voltage/current generator
  (Yokogawa Model 2553 or equivalent) 1
- Voltmeter
  (Yokogawa Model 7552 or equivalent) 1

10.2 Calibration

① Connect each equipment as shown in Fig.14.
② Set alarm action change-over switch to direct action.
③ Set setting trimmer position at 0% referring alarm setting monitor value. Change input value and check the instantaneous input value is within 0±5% when front face display lights ON.
④ Set setting trimmer positions at 50 and 100%. Change input value at respective positions and check the instantaneous input values are within 50±5% at 50% position and 100±5% at 100% position when front face display lights ON.
⑤ Use tester to check opening and closing states of output terminals when display lights ON and OFF. Make sure that the states are as shown in Table 1.
⑥ Make same check for Alarm-2 like the same way as ③～⑤.

Table 1 Input & Alarm Output Actions

Movement		When Power is ON				When Power is OFF	
		Alarm-1 Output		Alarm-2 Output		Alarm Output	
	Terminals between	5～6	1～5	9～10	9～13	5～6 9～10	1～5 9～13
Direct	Input<setting	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE
	Input>setting	CLOSE	OPEN	CLOSE	OPEN	OPEN	CLOSE
Reverse	Input<setting	CLOSE	OPEN	CLOSE	OPEN	OPEN	CLOSE
	Input>setting	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE

YOKOGAWA ◆
Yokogawa Electric Corporation

Network Solutions Business Division
2-9-32, Nakacho Musashino-shi, Tokyo, 180-8750 Japan
Phone: (81)-422-52-7179 Fax: (81)-422-52-6793