1. PRECAUTION

Please read thorough this Manaual 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 specification 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 the instrument.

2. GENERAL

This instrument receives contact pulse or voltage pulse from the field and convert it into isolated transistor contact.

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 on 19-inch rack panel.

3.2 Wall mounting
Use panel (FRK-16) to mount the instrument on the wall as shown in Fig.2 or directly mount the single unit on the wall.

3.3 DIN rail mounting
Insert DIN rail into the upper section of the DIN rail groove on the rear of instrument and fix the rail with the slidelock at the base of the instrument as shown in Figs.3 and 4.

3.4 Installation and removal of mounting block
Insert mounting block into instrument groove as shown in Fig.6 and slide it until it is fixed with the stopper. To remove it, lift up the 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 instrument terminal cover as shown in Figs.12~13. For wiring, flexible twisted wires and good contact of durable round crimp-on terminals are recommended to be used.
● Signal wiring cable should has more than 0.5mm² and power cable should has more than 1.25mm² of nominal cross-sectional area of conductor.

4.1 Wiring
① See Fig.9 for terminal arrangement.
② Connect pulse input signal cable from generator to instrument terminals 7(+), 8(-).
③ Connect instrument output signal cable to its terminals 11(+) and 12(-).
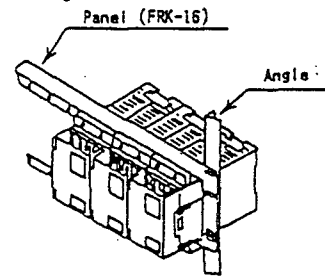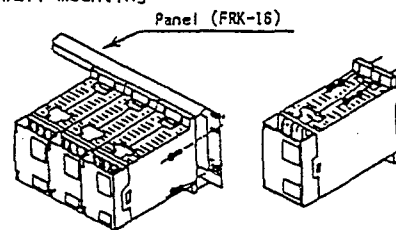

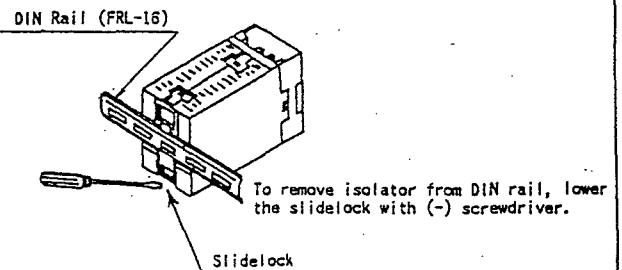Fig.1 Rack Mounting
Panel (FRK-16)
Angle

Fig.2 Wall Mounting
Panel (FRK-16)

Fig.3 DIN Rail Mounting
DIN Rail (FRL-16)
To remove isolator from DIN rail, lower the slidelock with (-) screwdriver.
Slidelock

Fig.4 DIN Rail Mounting
DIN Rail (FRL-16)

Fig.5 Angle Mounting Dimension
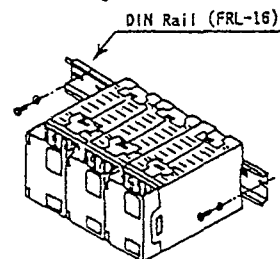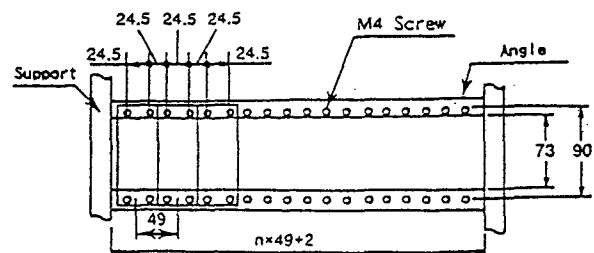Unit : mm
24.5 24.5 24.5
24.5   24.5
Support
M4 Screw
Angle
73 90
49
n×49+2

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④ Connect 85~265V AC or 24V DC power cable
   to instrument terminals 14(L+), 15(N-) and
   16(G). (See Figs. 12, 13)
NOTE : Apart wiring of power and input/output
        cables from noise source. Otherwise,
        accuracy may not be warranted.

5. CALCULATION AND SETTING OF PULSE RATE
5.1 Calculation of Pulse Rate
This instrument converts input pulse $0\sim Fin_{100}$Hz
into pulse rate and gets output pulse $0\sim Fout_{100}$Hz
with ON pulse width 30ms when
   $Fin_{100} \leqq 10kHz$ (Specify Fin_{100} when ordering)
   $Fout_{100} \leqq 16.6Hz$ (Specify $Fout_{100}$ when ordering)
Pulse rate can be obtained by filling Fin_{100} and
$Fout_{100}$ into formula (1) below :

$$\text{Pulse Rate} = \frac{Fout_{100}}{Fin_{100}} \quad \cdots\cdots\cdots\cdots (1)$$

Check to see the obtained pulse rate meets with
the following conditions :

To make duty less than 50% output for pulse
width 30ms, output frequency ($Fout_{100}$) would be
less than 16.6Hz. To fill up this condition,
setting of pulse rate for input frequency (Fin_{100})
is limited as shown in Fig.10.
Change of output ON pulse width would be treated
by special order. However, when change is made
on output ON pulse width, input frequency (Fin_{100})
would also be changed.
5.2 Setting of Pulse Rate
Setup pulse rate obtained through formula (1)
on switch SW51~SW54. (See Fig.11)

6. INSTALLATION AND HANDLING
① Aviod installation in such environments as
   shock, vibration, corrosive gas, dust, water,
   oil, solvent, direct sunlight, radiation,
   powerful electric and magnetic fields.
② In order to protect scaler from inducement
   of thunder surges in power and signal cables,
   use arrester between scaler and equipment
   installed in the field.

7. SAFETY USE
Following caution for safety should be taken for
handling of instrument. We are not responsible
for damage incurred by use contrary to caution.

⌐CAUTION⌐
● Following items should be checked when turing
  power on. Use of instrument by ignoring the
  specifications may cause overheat or burning.
  (a) Voltage of power supply and input value
      be applied to the instrument should meet
      with required specifications.
  (b) External wiring to terminals should be
      connected correctly. (See preceding
      Article 4)
● Do not use the instrument in such dangerous
  places where exist inflammable and explosive
  gas or steam.
● In case of AC power supply, high voltage of
  85~264V AC would be applied to 14 and 15
  terminals during power on as shown in Figs.12
  and 13. Do not touch terminals.
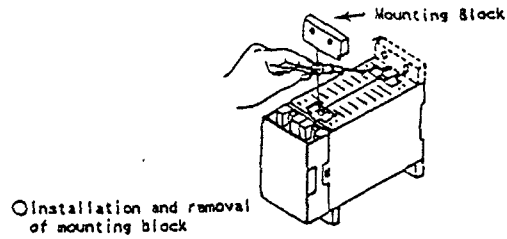
Fig.6 Mounting Block installation and removal

○Installation and removal
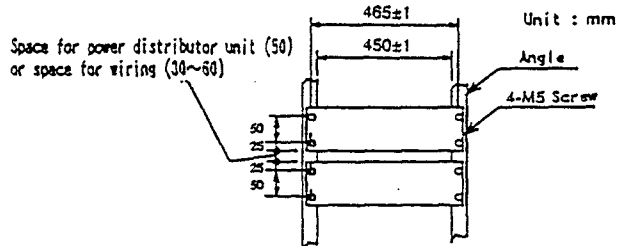 of mounting block

Fig.7 Rack Mounting Dimension

Unit : mm
465±1
450±1
Space for power distributor unit (50)
or space for wiring (30~50)
Angle
4-M5 Screw
50
25
25
50

Fig.8 Panel (Wall) Mounting Dimension

24.5
90
Panel
M4 Screw

Fig.9 Terminal Arrangement

7	INPUT	(+)
8	INPUT	(-)
9		
10		
11	OUTPUT	(+)
12	OUTPUT	(-)
13		
14	SUPPLY	(L+)
15	SUPPLY	(N-)
16	GND	(G)
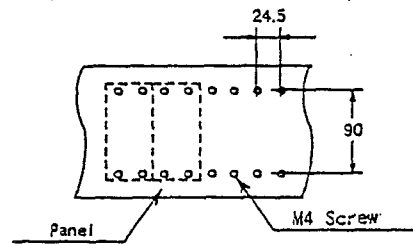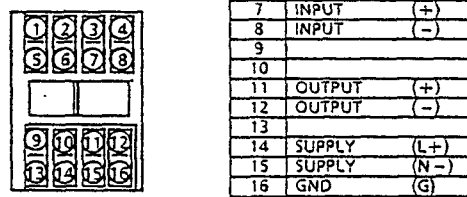
Fig.10

Input Frequency (Fin_{100})	Pulse Rate
0 ~ 16.6Hz	No limit
16.7 ~ 33.3Hz	0.4000 以下
33.4 ~ 83.3Hz	0.2000 以下
83.4 ~ 166Hz	0.1000 以下
167 ~ 333Hz	0.0400 以下
334 ~ 833Hz	0.0200 以下
0.834 ~ 1.66kHz	0.0100 以下
1.67 ~ 3.33kHz	0.0040 以下
3.34 ~ 8.33kHz	0.0020 以下
8.34 ~ 10.0kHz	0.0010 以下

Fig.11

[Example] Pulse Rate = 0.1234
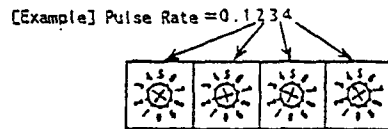
8. CALIBRATION

Carry out the following calibration after warming up the instruments for more than 10~15 minutes.

8.1 Calibration equipment

- Pulse Generator   1
  (Hewlett-Packard Model 8116A or equuvalent)
- Counter or Osilloscope   1
  (Hewlett-Packard Model 5334B or equivalent)
- Resistor & Dry Cell   1 each
  (Resistor 25Ω, J,2W or more and dry cell 6V)

8.2 Calibration

Signal transmission characteristics check
Connect pulse generator, counter and resistor as shown in Fig.14.
Generate rectangular pulse at optional frequency within standard specifications through Pulse Generator and measure its value through Counter (Oscilloscope). Then connect Counter to terminals 11 and 12. Check that pulse of frequency corresponding input is output.
In case use of oscilloscope, check also can be done on output pulse wave form is trimmed.
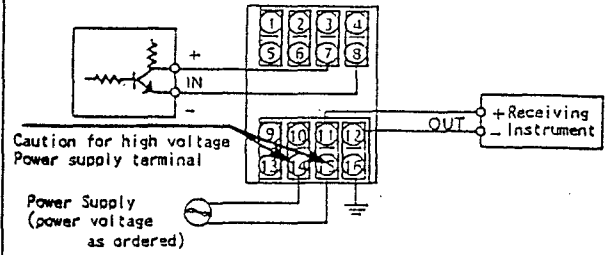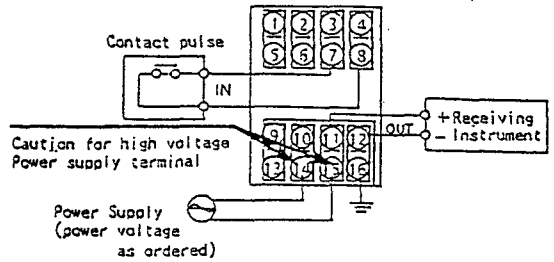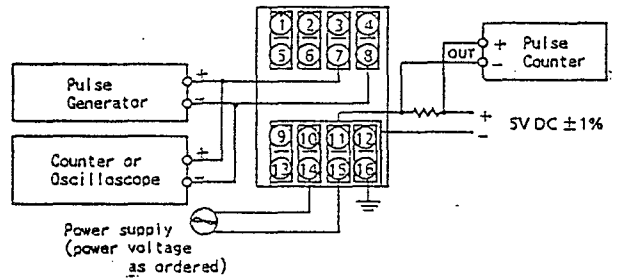

Fig.12 Wiring Diagram

Fig.13 Wiring Diagram

Fig.14 Wiring of Calibration Equipment

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