# Instruction Manual

FX1□-PR (Voltage Input·Soft Variable Type)
FX3□-PR (mV Input·Soft Variable Type)
## Pressure Compensator

JUXTA

### 1. INSPECTION

This instrument has been thoroughly tested at the factory before shipment. When you receive it, visually inspect it for damage and check the accessories.

1.1 Model number and specification check

Check to see the model number and specifications on the nameplate attached to the front cover of the unit are as ordered.

1.2 Contents of the instruction manual

This instruction manual provides instructions on mounting, external wiring and maintenance.

### 2. GENERAL

This soft variable type unit receives 2 voltage or mV signals from transmitter and outputs isolated current or voltage signal after making calculation of pressure compensation.

Accessories:

| | |
|---|---|
| Mounting block | 2 |
| Tag number and range label | 1 each |
| Mounting screw M4 | 2 |

### 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 the unit on 19-inch rack panel. (See Fig. 6)

3.2 Wall mounting

Use panel (FRK-16) to mount the unit as shown in Fig. 2 or directly mount it on the wall (See Figs. 6 and 7 for mounting dimensions)

3.3 DIN rail mounting

Insert DIN rail into the upper of DIN rail groove on the rear of the unit and fix the rail with the slidelock at the lower of the unit as shown in Fig. 3.

3.4 Angle mounting

In case of single unit mounting, refer to Fig. 5 for its mounting.

3.5 Mounting block installation and removal

Insert mounting block into the groove of the unit as shown in Fig. 4 and slide it until it is locked with the stopper. To remove it, lift up the mounting block stopper with screwdriver (-) and slide it along the groove.

### 4. EXTERNAL WIRING

Open the terminal cover of the unit.
Wire should connect to M4 screw terminal.
Flexible twisted wires and durable round crimp-on terminals (JIS C2805) are recommended to be used.

- Signal cable having more than 0.5mm² and power cable having more than 1.25mm² of nominal cross-sectional area of conductor are recommended.

Fig.1 Rack Mounting

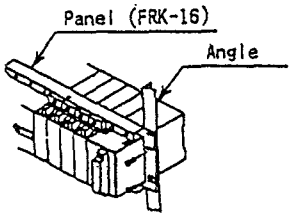



Fig.2 Wall Mounting

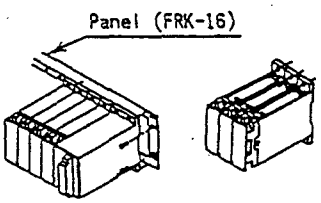



Fig.3 DIN Rail Mounting

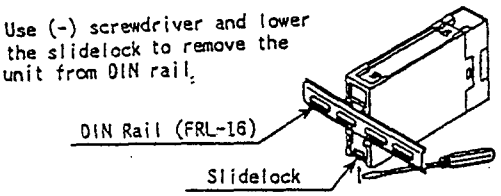



Fig.4 Mounting Block installation and removal

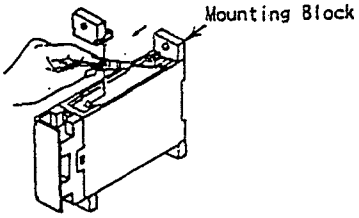



Fig.5 Angle Mounting Dimension

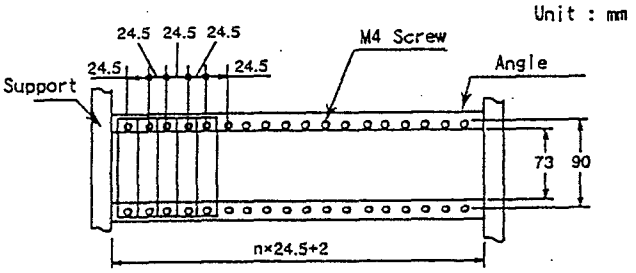



Fig.6 Rack Mounting Dimension

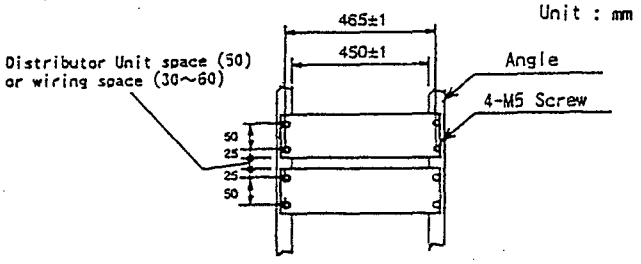
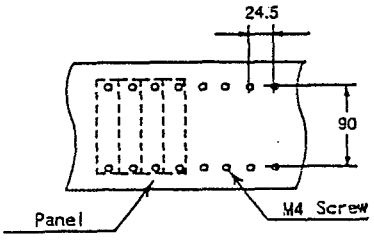



Fig.7 Panel Mounting Dimension



4.1 Wiring

① See Fig. 8 for terminal arrangement.
② Connect Ch1 input voltage signal cable to terminals 2(+), 3(-) and Ch2 input voltage cable to 1(+), 3(-) of the unit.
③ Connect output signal cable of the unit to its terminals 4(+) and 5(-).
④ Connect 24V DC power cable to terminals 6(+) and 7(-). (See Fig. 9)

## 5. ITEMS TO BE CHECKED BEFORE TURNING THE POWER SWITCH ON

① Make sure that 24V DC power cable of the unit is connected to the correct polarities (+), (-).
② Confirm that the external wiring to the terminal board is correct.
③ Check that the mounting, ambient temperature, humidity, dust and vibration are normal.

Confirm the above items before turning the power on. The unit needs 5 minutes warmup to meet its specified accuracy level.

## 6. OPERATION CHECK

〈Caution〉

Carry out the following calibration after warming up the instruments for more than 5 minutes.

6.1 Calibration equipment

·Voltage/Current Generator
(Yokogawa Model 7651 or equivalent) 1
·Voltmeter
(Yokogawa Model 7551A or equivalent) 1

6.2 Check method

① Connect each equipment as shown in Fig.10.
② Input/output characteristic check
Use Voltage/Current Generator and apply input signal equivalent 0, 25, 50, 75 and 100% of input span. Check that corresponding outputs are within specified accuracy rating range for the respective output reference values.

● If output signal is out of tolerance in case of ②, adjust it with Handy Terminal (JHT-100 or JHT200). For adjustment, refer Instruction Manuals of Handy Terminal.
(JHT200 : IM JF81-02E, JHT-100 : IM JF81-01E)

## 7. SET VALUE INPUT THROUGH HANDY TERMINAL

Input range, gain and bias can be changed through Handy Terminal.
This unit calculates pressure compensation (for ideal gas) of diffential flowmeter under the following formula :

$$Y = K1 \cdot \sqrt{X1} \sqrt{K2 \cdot X2 + A2}$$

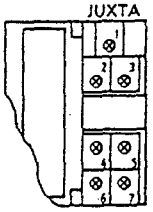
Whereas Y : Compensated flow output signal (%)
X1 : Uncompensated flow input signal (%)
X2 : Temperature input signal (%)
K1 : Gain (No unit)
K2 : Gain (No unit)
A2 : Bias (%)

Setup fixed constant (C14) for square root extraction of uncompensated flow input signal (X1).
To extract : C14=100.0%
Not to extract : C14=0.0%

Set up Gain (K1, K2) through fixed constant (C11, C12), and Bias (A2) through (C13).
K1=±7.990 corresponds C11=±7.990%
K2=±7.990 corresponds C12=±7.990%
A2=±7.990 corresponds C13=±7.990%

Input range is setup by ZERO, SPAN (B10, B11).
Set voltage corresponding 0% input on B10 and span voltage on B11.

Fig.8 Terminal Arrangement




| TML | | |
|---|---|---|
| 1 | | INPUT(ch2) + |
| 2 | INPUT(ch1) + | |
| 3 | INPUT(ch1) - | INPUT(ch2) - |
| 4 | OUTPUT + | |
| 5 | OUTPUT - | |
| 6 | SUPPLY + | |
| 7 | SUPPLY - | |

Fig.9 Wiring Diagram

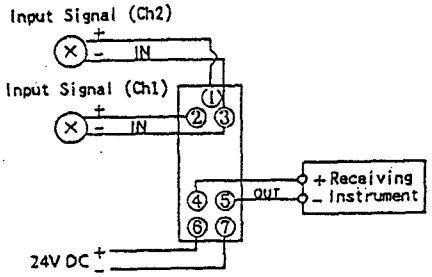



Fig.10 Wiring of Calibration Equipment

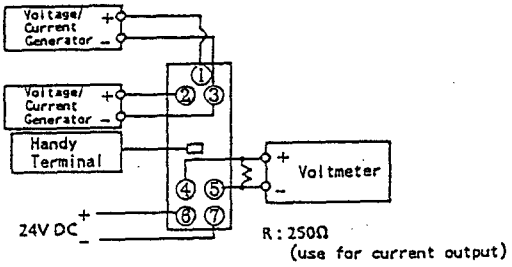
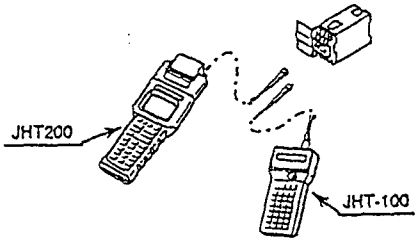



Fig.11 Connection to Handy Terminal



# PARAMETER LIST

| NO. | ITEM | TITLE DISPLAY | DATA DISPLAY |
|---|---|---|---|
| 01 | Model | MODEL | □□□□*□ |
| 02 | Tag No. | TAG NO | 16 Alphanumerics |
| 03 | Self Check | SELF CHK | Good or Error |
| A00 | Display Item | DISPLAY | |
| A01 | Input 1 | INPUT 1 | □□□□.□V/mV |
| A02 | Output | OUTPUT | □□□.□% |
| A03 | Status | STATUS | FF (Hexagonal 2 digits) |
| A04 | Rev No. | REV NO | n.nnn (n : Rev No.) |
| A05 | Load | LOAD | □□□.□% |
| A06 | Input 2 | INPUT 2 | □□□□.□V/mV |
| A07 | Buffer 1 | BUFFER 1 | □□□.□% |
| A08 | Buffer 2 | BUFFER 2 | □□□.□% |
| A09 | Buffer 3 | BUFFER 3 | □□□.□% |
| B00 | Set Item | SET | |
| B01 | Tag No.1 | TAG NO.1 | 8 Alphanumerics (1st half 8 characters of Tag No.) |
| B02 | Tag No.2 | TAG NO.2 | 8 Alphanumerics (2nd half 8 characters of Tag No.) |
| B03 | Comment 1 | COMMENT 1 | 8 Alphanumerics |
| B04 | Comment 2 | COMMENT 2 | 8 Alphanumerics |
| B07 | Input Type *1 | INP TYPE | Select from LL/L/H/HH |
| B10 | Zero Point | ZERO | Numeric Data |
| B11 | Span | SPAN | Numeric Data |
| B12 | Burnout *1 | BURN | Select from OFF/ON |
| B13 | Setup Error | SET ERR | GOOD/ERROR |
| B20 | Program *2 | PROGRAM | [Inter-company Setup Item] |
| B21 | Program *2 | PROGRAM | [Inter-company Setup Item] |
| ≣ | ≣ | ≣ | ≣ |
| B48 | Program *2 | PROGRAM | [Inter-company Setup Item] |
| B49 | Program *2 | PROGRAM | [Inter-company Setup Item] |
| C00 | Adjust Item | ADJUST | |
| C01 | 0% Output Adjust | OUT 0% | Numeric Data (±10.00) |
| C02 | 100% Output Adjust | OUT 100% | Numeric Data (±10.00) |
| C03 | Wiring Resistance Adjust *1 | WIRING R | RESET/EXECUTE |
| C04 | 0% input Adjust *2 | IN 0% | |
| C05 | 100% input Adjust *2 | IN 100% | |
| C11 | Fixed Constant | CONST | Numeric Data |
| C12 | Fixed Constant | CONST | Numeric Data |
| ≣ | ≣ | ≣ | ≣ |
| C40 | Fixed Constant | CONST | Numeric Data |
| C41 | Fixed Constant | CONST | Numeric Data |

*1 Display only FX3□-PR
*2 Display only. Don't use
(Note) C19 is display only.

Subject to change without notice for grade up quality and performance.

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