

FC SERIES EMF TRANSMITTER

DATA SHEET
FRA

This instrument is used for transmitting to an instrument panel the measurement quantity of a resistance bulb, thermocouple, or gas analyzer upon converting the said quantity into a current signal of 4 to 20mA DC. The field mounting type permits free selection as to the site of installation since a long transmission range is available. Further, a reference junction compensation unit, linearizer, and burnout circuit can be contained in the instrument.

SPECIFICATIONS

Input signal: Voltage input;
 3mV DC span up to 500mV DC
 (In the case of thermocouple input, a reference junction compensation unit is additionally provided.)
 Resistance input;
 JPt100 or Pt100, 50°C span or more
 (Difference in, or mean value of, temperatures at two points may be taken as an output.)
 Current input;
 0.1mA span up to 50mA

Suppression range:
 - 100 to + 100%
 (can be extended up to $\pm 1000\%$ when specified)

Input resistance: 1M Ω or more (with voltage input)
 Note: Becomes about 10k Ω during power cutoff, output saturation or output cutoff.

Maximum allowable signal source impedance:
 1k Ω (with voltage input)

Allowance: $\pm 0.5\%$ of full span
 (can be narrowed to $\pm 0.25\%$ in case linearizer is not provided)

Reproducibility: $\pm 0.1\%$ of full span or better

Linearizer: Can be installed when specified.
 (Linearizer always provided for Pt input)

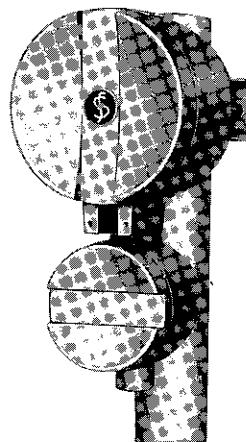
Burnout circuit: Can be installed when specified.
 (in the case of thermocouple input)

Output signal: 4 to 20mA DC

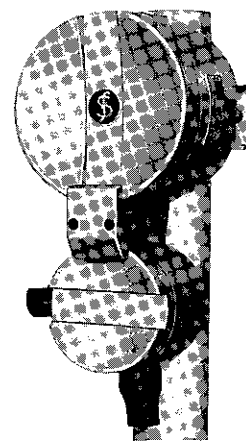
Ripple content: 0.1% RMS or less
 (20% P-P or less at approx. 40kHz)

Response time: 0.3 sec

Allowable load resistance:
 0 to 550 Ω (at 24V DC)
 (Wiring resistance; up to 300 Ω)
 (Distributor PWM input resistance; 250 Ω)



Standard type
FRA 1



Flameproof type
FRA2

Power supply: 13 to 33V DC

Wiring method: 2-wire DC type

Ambient temperature:
 - 30 to 60°C

Ambient humidity:
 Less than 90%RH

Mass [weight]: Approx. 2.5kg

External dimensions (H x W x D):
 274 x 140 x 180mm

Withstand voltage:
 500V AC for 1 min.

Insulation resistance:
 100M Ω or more, measured with 500V DC megger

Conduit connection:
 G1/2 (PF1/2), internal thread

Waterproof structure:
 JIS F8001 water spray class 3

Explosionproof structure:
 Flameproofing
 (JIS C0903 d2G4)
 (Conduit pipe flameproof screw-coupled type)

Finish color: Silver (epoxide paint)
 Acid and alkaliproof treatment is also available

Optional attachments:

Reference junction compensation unit, burnout circuit, linearizer (4-dot, 5-dash line), suppression ($\pm 100\%$ of full span; up to $\pm 1000\%$ possible, on request)

Field indicator:

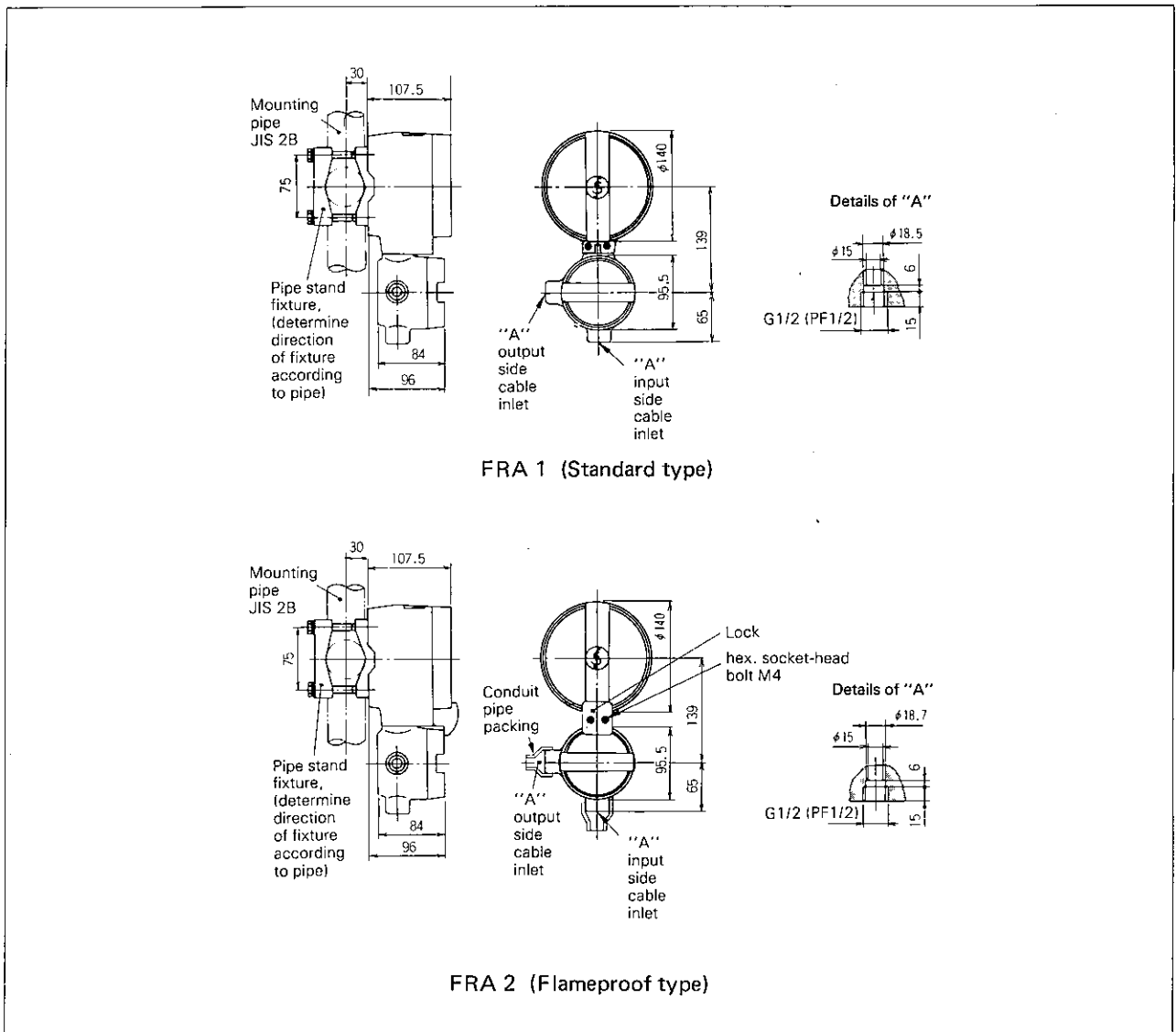
Built in terminal box, on request (cannot be built in flameproof model)
Class 2.0, 0 to 100% linear scale

CODE SYMBOLS

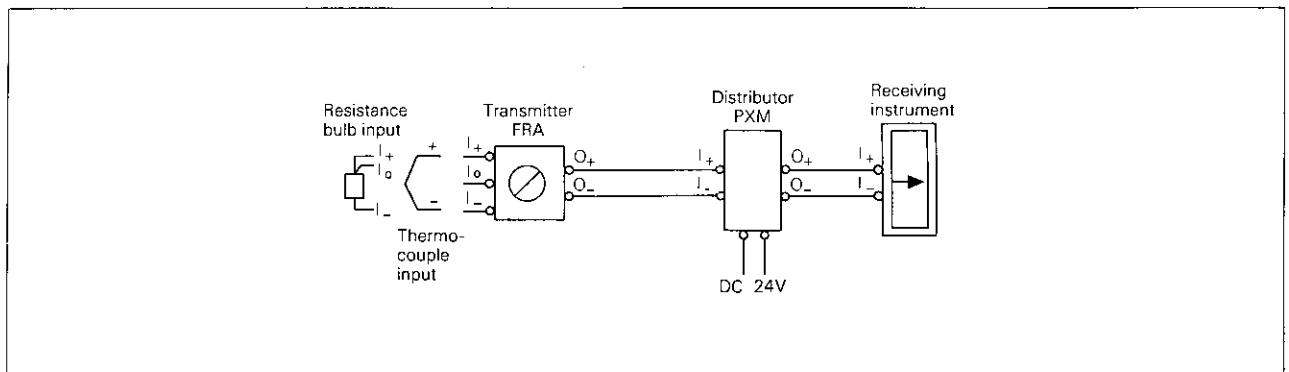
1 2 3 4 5 6 7 8 9 10										Description	
F	R	A									Enclosure
			1								Standard waterproof case (JIS F 8001 water spray class 3)
			2								Flameproof case (JIS C 0903 d2G4) (Conduit pipe flameproof screw-coupled type)
		A									Optional attachment
		B									Reference junction compensation unit
		C									A + burnout circuit (full-scale deflection toward upper limit)
		D									A + burnout circuit (full-scale deflection toward lower limit)
		E									Linearizer (impossible with potentiometer input, always equipped with Pt input)
		F									With A + D
		G									With B + D
		Y									With C + D
											None
											Allowance
			1								$\pm 0.5\%$
			2								$\pm 0.25\%$ (possible only with A, B, C or Y in 5th digit)
			3								1 protected from radio wave disturbance (possible only with 1 in 4th digit)
			4								2 protected from radio wave disturbance (possible only with 1 in 4th digit)
											Output signal
		A									4 to 20mA DC, 2-wire type
		D									A with field indicator (0 to 100% linear scale) (field indicator cannot be equipped to flameproof type 2 in 4th digit)
											Input span
			1								For small input
			2								For large input } see table below
											Kind of input
											9th digit
											1
											2
											mV
											Pt100
											JPt100
											Potentiometer
											R thermocouple
											K thermocouple
											J thermocouple
											E thermocouple
											Current
											Treatment
											Y
											None
											B
											Acid and alkaliproof treatment (U-bolts, nuts, washers; SUS304)

Note: Symbols for resistance bulb are as follows.
JPt100 Previous JIS
Pt100 New JIS

OUTLINE DIAGRAM (Unit:mm)



CONNECTION DIAGRAM



RELATED DEVICES

Distributor

ORDERING INFORMATION

1. Product name
2. Code symbols
3. Input specifications
4. Optional attachment
5. Whether explosionproofing is required
6. Other notes

• Asterisked (*) item: Non-standard.

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