OPTICAL MULTI-POINT TEMPERATURE CONVERTER

DATA SHEET FRL···2

This multi-point temperature converter receives up to 16 inputs from thermocouples or resistance bulb temperature sensors and converts them into optical digital output signals.
This articles are ϕ6mm optical fiber cable connection type.

FEATURES

1. The temperature measuring data for up to 16 points can be transmitted to a host system via a single optical-fiber cable.
2. Zero point and span setting can be executed from the host system.
3. Diagnosis functions for temperature sensor disconnection, measured value abnormality and the like are built in and such data can be transmitted to the host system.

SPECIFICATIONS

Functional specifications

Input signal: Thermocouple (J. E. K types) or resistance bulb Pt100Ω (at 0°C) with 3-wire

No. of input points:
8 or 16 (according to specification)
Temperature sensors should be of the same type and have the same span.

Measuring range, span setting range:

Input signal	Code	Measuring range	Span setting range
J thermocouple	A	–200 to 500°C	100 to 500°C span
	B	–200 to 100°C	200 to 1000°C span
E thermocouple	C	–200 to 500°C	100 to 500°C span
	D	–200 to 1000°C	200 to 1000°C span
K thermocouple	E	–200 to 600°C	120 to 600°C span
	F	–200 to 1200°C	240 to 1200°C span
Resistance bulb (JPt 100)	G	–200 to 300°C	60 to 300°C span
	H	–200 to 600°C	120 to 600°C span
Resistance bulb (Pt 100)	J	–200 to 300°C	60 to 300°C span
	K	–200 to 600°C	120 to 600°C span

Zero point shift: Within a range of –200 °C to +80% of maximum span
Measuring range should not be exceeded.

Output signal: Optical digital output

Power supply: 24V DC (20 to 30V DC)
100/115/220V AC ±10% 50/60Hz

Power consumption:
Approx. 2W(24V DC) or approx. 10VA (100V AC)

Remote setting: By hand-held communicator or master station.
Zero point, span. memory read/write

Self-diagnosis: Results are sent to master station.
Measured value abnormality, battery voltage drop, temperature sensor disconnection, internal temperature.

Explosion-proofing:
JIS i3aG4, i2G4 intrinsically safe explosion-proofing
Possible only for 8-point inputs with 24V DC power supply. A safety barrier (PWXBA001) for 24V DC should be prepared separately.

Ambient temperature:
–30 to +60°C

Storage temperature:
–30 to +70°C

Ambient humidity:
90% RH or less

Transmission: Half-duplex bidirectional transmission via single optical-fiber cable.
Transmission distance: 1.2 km maximum

Performance specifications

Accuracy rating: Within ±0.3% of maximum span
Scan speed: 1.6 sec
Allowable signal source resistance:
100Ω max. with thermocouple: 2Ω max. per wire with resistance bulb (resistance value of each wire should be balanced at ±0.1Ω)
Insulation: Between input and output. and between output and power supply via optical interface: Complete isolated
Between input and power supply:
Dielectric strength: 1500V AC for 1 minute (at 100V AC rated voltage)
Insulation resistance:
100MΩ or more at 500V DC

Structure and material

Enclosure: Dust-proof case made of steel plate (indoor type)
Finish color: Munsell 10Y 8.5/1
Outer dimensions (H x W x D):
299 x 480 x 100 mm
Mass{weight}: Approx. 8.8 kg
Mounting method:
Mounted on 19 inch rack (using screws)
Input/power supply terminals:
Screw (M4) terminals
Optical-fiber cable:
Optical-fiber cable specified by Fuji (should be prepared separately).
Connection should be made by optical connector.

CODE SYMBOLS

1	2	3	4	5	6	7	8	9	Description	
F	R	L					2	- 6		
			1						No. of input points 8 points	
			2						16 points (intrinsically safe explosion-proofing : impossible)	
				A					Input signal, measuring range J thermocouple	–200 to500°C
				B					J thermocouple	–200 to1000°C
				C					E thermocouple	–200 to500°C
				D					E thermocouple	–200 to1000°C
				E					K thermocouple	–200 to600°C
				F					K thermocouple	–200 to1200°C
				G					Resistance bulb (JPt 100)	–200 to300°C
				H					Resistance bulb (JPt 100)	–200 to600°C
				J					Resistance bulb (Pt 100)	–200 to300°C
				K					Resistance bulb (Pt 100)	–200 to600°C
					Y				Explosion-proofing specifications None	
					A				Intrinsically safe explosion-proofing (JIS i3aG4)	
					B				Intrinsically safe explosion-proofing (JIS i2G4) Note: safety barrier; differ from FRL 1 type	
						1			Power supply 24V DC	
						2			100V AC 50/60Hz } (explosion-proofing	
						3			115V AC 50/60Hz } specification: imposible)	
						4			220V AC 50/60Hz }	
								6	Optical connector FC connector (φ6mm connector)	
									Note: For φ9mm connector: non-standard item, on request	

Note: Resistance bulb symbol is as follows;
JPt...JIS C 1604-1981
Pt100...IEC Pub751-1983

SCOPE OF DELIVERY

Temperature converter (excluding optical fiber cable and optical connector)

RELATED DEVICES

- Hand-held communicatior (Data sheet No. EDS8-44)
- Master station (Data sheet No. EDS11-86)
- Optical star coupler (Data sheet No. EDS8-48)

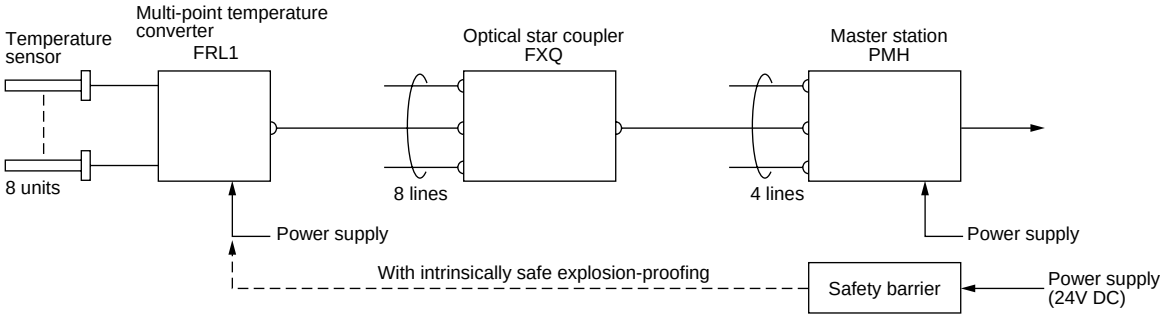
ORDERING INFORMATION

1. Product name
2. Code symbols
3. No. of input points
4. Type of temperature sensor
5. Measuring span
6. Power supply specification
7. With/without explosion-proofing

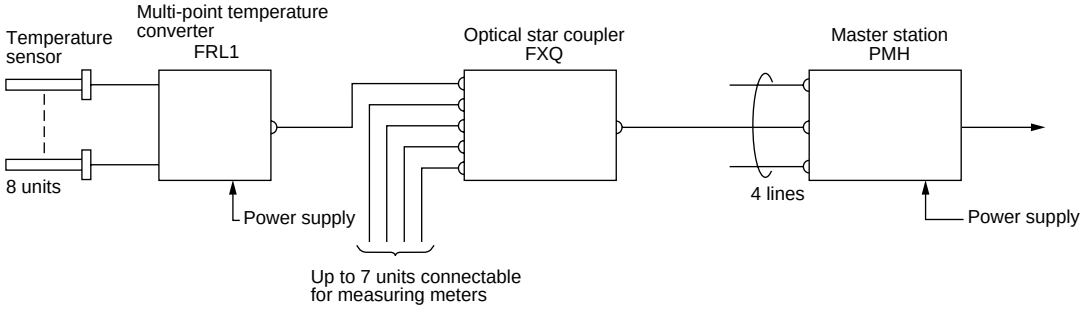
SYSTEM CONFIGURATION DIAGRAMS

1. With 8-point input

(1) With temperature measuring system (up to 256 points of temperature measurable)

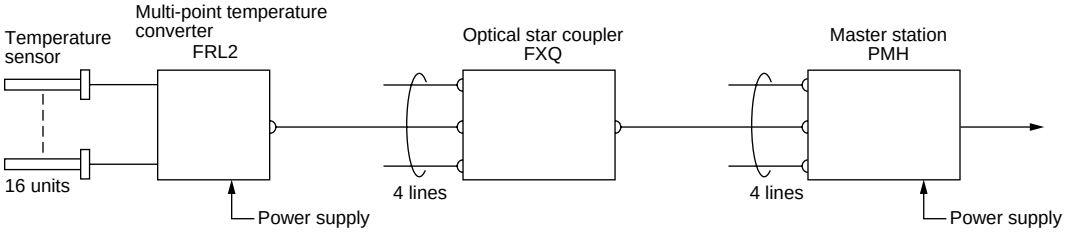


(2) With combined measuring system for temperature, pressure or flow rate

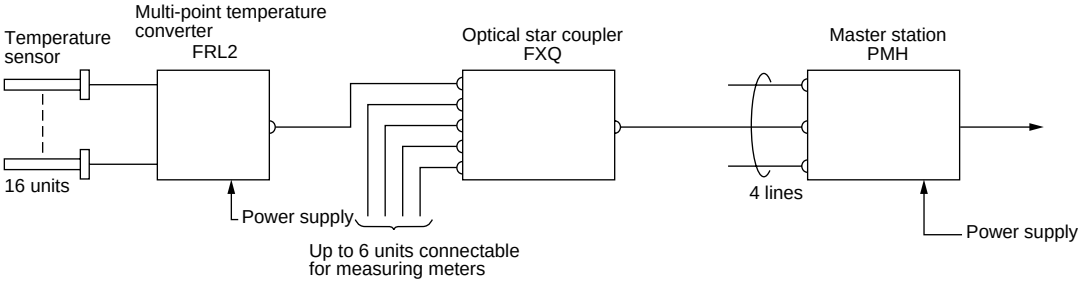


2. With 16-point input (Note)

(1) With temperature measuring system (up to 256 points of temperature measurable)



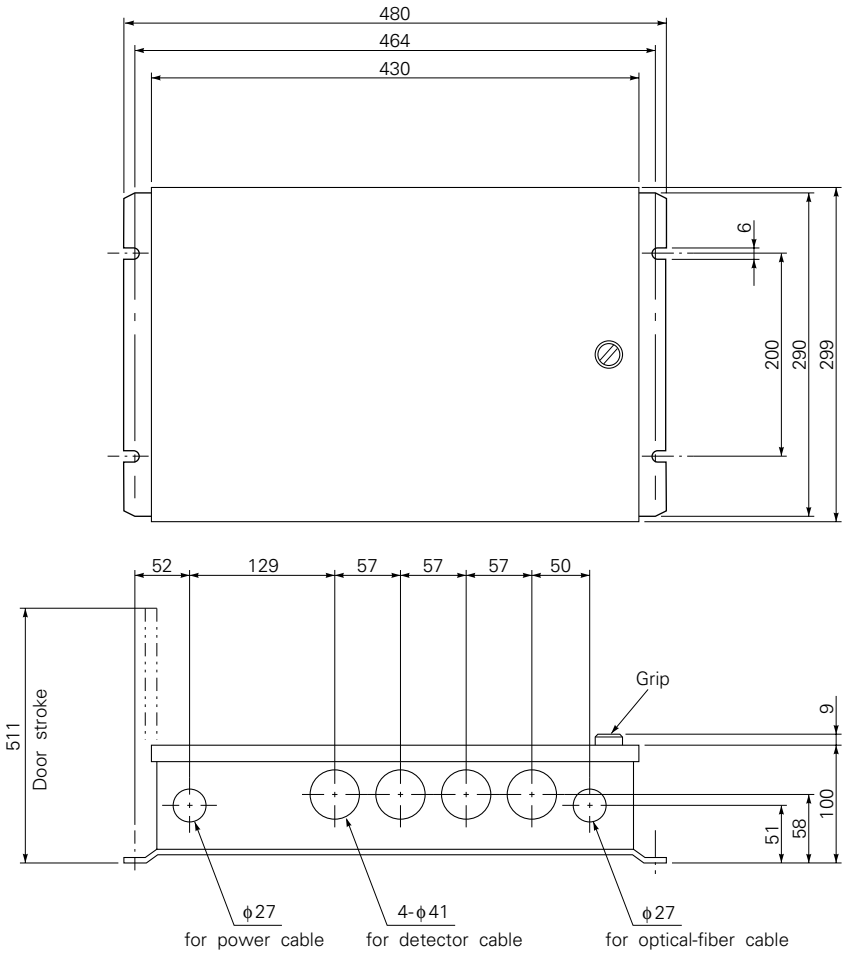
(2) With combined measuring system for temperature, pressure or flow rate



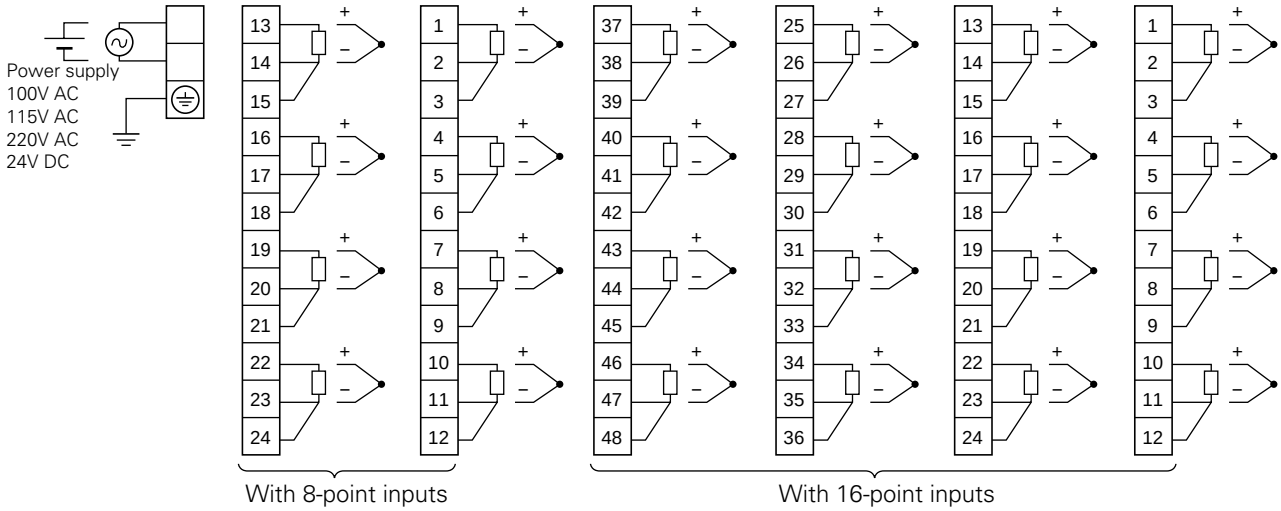
(Note) No.of units combined with 16-point input system

Multi-point temperature converter	Pressure,flow rate meters	Optical star couplers connected
1 unit	6 units	7 units
2 units	4 units	6 units
3 units	2 units	5 units
4 units	0 unit	4 units

OUTLINE DIAGRAM (Unit:mm)



EXTERNAL CONNECTION DIAGRAM



⚠ Caution on Safety

*Before using this product, be sure to read its instruction manual in advance.

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