

Digital Panel Meters

Digital thermometers/FDT-216

FDT-216 digital thermometers

■ Features

- Compact, 48(W) × 24(H) × 88(D) mm
- Conforms to NEMA4 and IEC (IP66) dustproof and waterproof requirements.
- Isolated analog output between 4 and 20mA with scaling
- Easily set comparison relay or photocoupler output
- Multi-range K, J, T, or R thermocouple input
- Pt100 RTD resistance thermometer is available.
- Detachable terminal block



FDT-216

■ Thermocouple input

Type	Temperature range code	Input sensor	Measurement range	Resolution	Accuracy	23°C ±5°C 35 to 85% RH
FDT-216-TC	A	K	-50.0 to 199.9°C	0.1°C	±0.5% FS	
	B	K	-50 to 1200°C	1°C	±0.2% FS	
	J	J	-50 to 1000°C	1°C	±0.2% FS	
	T	T	-50 to 400°C	1°C	±0.6% FS	
	R	R	-10 to 1700°C	1°C	±0.4% FS	

Note: The accuracy of cold junction compensation is ±1°C (10 to 40°C).

Thermocouple input is calibrated with mV thermal electromotive force according to JIS C 1602.

■ RTD resistance thermometer input

Type	Temperature range code	Input sensor	Measurement range	Resolution	Accuracy	23°C ±5°C 35 to 85% RH
FDT-216-PT	PA	Pt-100Ω	-100.0 to 199.9°C	0.1°C	±0.15% FS	
	PB	Pt-100Ω	-100 to 600°C	1°C	±0.3% FS	

Note: Each model is calibrated according to JIS C 1604.

■ Basic specifications

Input circuit	Single-ended type
Operation method	Double integral method
Sampling speed	0.625 times/s (thermocouple type) or 1.25 times/s (resistance thermometer type)
Noise reduction ratio	NMR 40dB min.
Display	8mm-high, 7-segment red LED
Polarity display	Negative symbol (–) automatically displayed for negative operation values
Over-range alarm	If the input signal is not within the display range, "o. FL" or "– o. FL" is displayed.
Zero display	Reading zero suppress
Sensor correction	±99 digits

• Thermocouple (TC) type

Input sensor	K, J, T, R
Sensor internal resistance	50Ω max.
Linearization method	Digital linearizer
Burnout alarm	The display will blink "----".
Temperature drift	±200ppm/°C of FS (at 0 to 50°C)

• Resistance thermometer (PT)

Input sensor	Pt 100Ω
Resistance thermometer current	1mA (Typical)
External resistance	10Ω max. per lead wire
Linearization method	Digital linearizer
Burnout alarm	If input terminal A or B is burnout, the display "o. FL" will blink. If input terminal is burnout, "----" will blink.
Temperature drift	±200ppm/°C of FS (at 0 to 50°C)

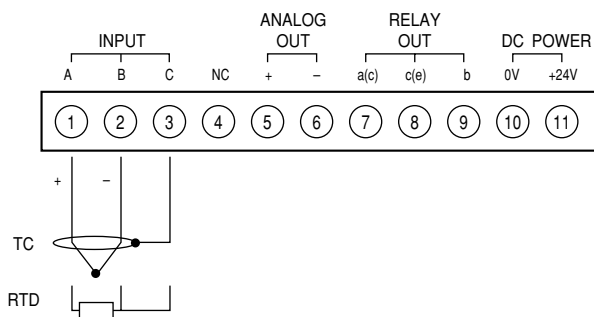
• Comparison section

Control method	Microcomputer operation
Setting range	Single-step setting between -1999 to +9999
Comparison operation	Depends on sampling speed
Comparison conditions	Present value > Set value: The alarm indicator (type A) will turn ON Present value < Set value: The alarm indicator (type B) will turn ON
Relay output	Contact rating of 0.5A at 125V AC or 1A at 30V DC (res. load)
Photocoupler output	NPN voltage output of 30V max. and current output of 50mA max. Output saturated voltage of 1.2V max. at 50mA
Hysteresis	1 to 199 digits for each comparison setting item

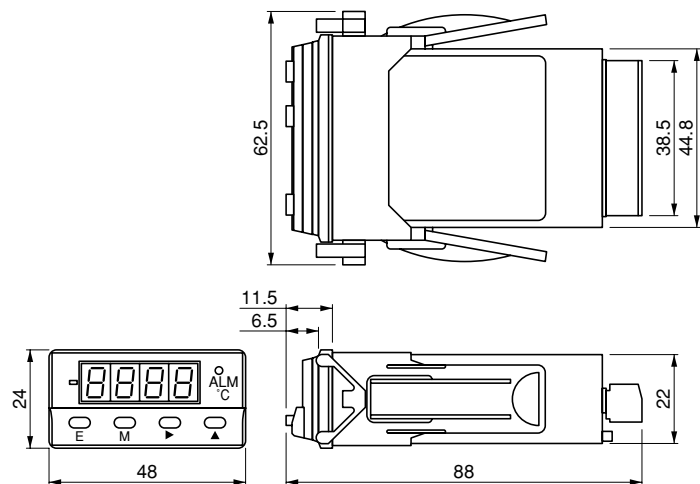
General specifications

Memory backup	EEPROM storing set data for 10 years (100,000 write operations)
Operating ambient temperature and humidity	0 to 50°C 35% to 85% RH (no condensation)
Power supply	24V DC \pm 20%
Current consumption	40mA (Typical)
Mass	Approx. 100g
Dielectric strength	500V DC, 1 minute between input, comparison output and analog (-) output terminals 500V DC, 1 minute between power supply (0V), input, comparison output, analog (-) terminals and case 1,500V AC, 1 minute between input terminals and case
Insulation resistance	100M Ω min. at 500V DC megger between above terminals

External connection



Dimensions, mm



Output specifications

Analog output (isolated from input terminals)

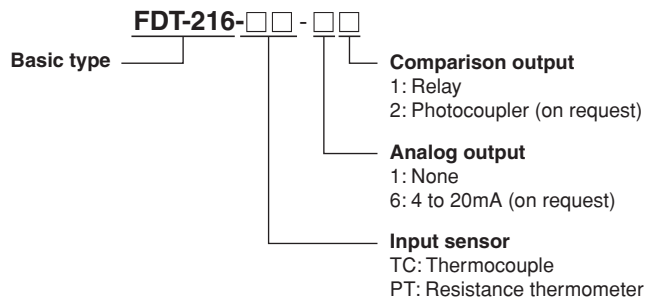
Output	Load resistance	Accuracy (at 23°C \pm 5°C)	Ripple
4 to 20 mA	0 to 300 Ω	\pm 0.5% FS	25mV (p-p) max.

Note: The above accuracy is specified on condition that the humidity is between 35% to 85%RH. The maximum ripple is specified on condition that the load resistance is 250 Ω with a current of 20mA.

Enclosure

The front panel is of dustproof and waterproof construction meeting IEC (IP66) and NEMA4 (IP66) for indoor use.

Type number nomenclature

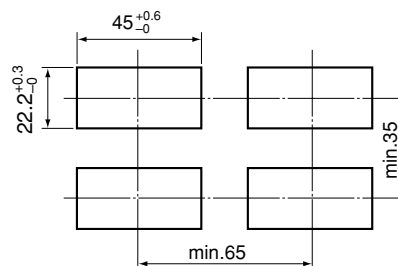


Ordering information

Specify the following:

1. Type number

Panel cutting



Panel thickness 0.8 to 5.0mm