

FC SERIES FLOW RATE COMPENSATOR

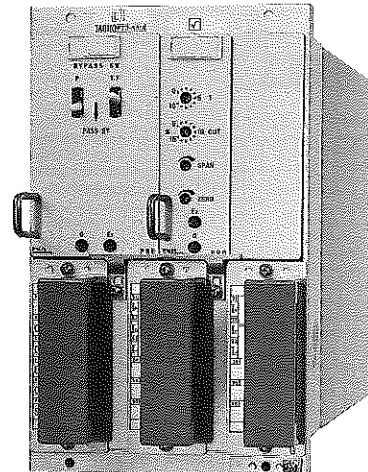
DATA SHEET

PRE

The FC series flow rate compensator is ideally suited for measuring the flow rate of various types of gases and steam. As temperature, pressure and density affect the volume of gas and steam, accurate measurements cannot be guaranteed unless they are converted into standard conditions. The flow rate compensator is a device used for performing the conversion to standard conditions.

SPECIFICATIONS

Input signal: 4 to 20mA DC (250Ω)
1 to 5V DC (1MΩ)
Platinum resistance bulb } Temperature
(Pt100Ω at 0°C) } signal only
Thermocouple
Potentiometer
100-1000-100Ω . . . Density signal only



Input signal combination:

Code	Differential pressure signal	Pressure signal	Temperature signal	Density signal	Remarks
1	4 to 20mA (Built-in transmitter power supply)	4 to 20mA 1 to 5V	4 to 20mA 1 to 5V Direct input	Potentiometer	Power supply: 24V AC 50/60Hz only
3	4 to 20mA (Transmitter power supply not built in)	4 to 20mA 1 to 5V	4 to 20mA 1 to 5V Direct input	Potentiometer	—
5	1 to 5V	1 to 5V	1 to 5V	—	—
7	1 to 5V	1 to 5V	1 to 5V	—	Built-in square root function possible

Note: When both temperature and density compensation are provided, temperature signal can be input from resistance bulb for general use only.

Square root function:

Root extractor (PRD) card may be added in the final stage.
With fixed filter (set at approx. 0.6 sec/90%) 10% cut
With variable filter (0.6 to 9 sec/primary delay time constant) 10% cut

Allowance:

Less than ±0.5% of full span (including square root function)
(When compensation coefficient is 1)

Computational error:

±0.5% of full span for pressure, temperature and density

Reproducibility:

Less than ±0.1% of full span

Output signal:

1 to 5V DC

Output resistance:

Less than 0.5Ω

Response time:

When including square root function
In case of fixed filter;
Approx. 0.6 sec (set time 90%)
In case of variable filter;
0.6 to 9 sec variable (primary delay time constant)

Transmitter power supply:

Output voltage; 25.8V DC
(AC power supply)
Note: In case of Code No. 3, 5 and 7, there is no transmitter power supply.

Power supply:

24V DC (20 to 30V DC) or
24V +13% AC 50/60Hz
-10%

Power consumption:

In case of 20mA DC input
 Approx. 6.5W (24V DC)
 Approx. 16VA (24V AC, built-in transmitter power supply)

Ambient temperature:

0 to 45°C

Ambient humidity:

90%RH (max.)

Enclosure:

Steel case

Dimensions (H × W × D):

PRE 1, 3, 5 247 × 149 × 225mm
 PRE 7 247 × 74 × 225mm

Weight:

Approx. 3.7kg (PRE 7; Approx. 1.3kg)

Finish color:

Case; Silver (melamine baking)
 Cover; Gray (molded synthetic resin)

Mounting method:

Rack mounting

Range of delivery: Flow rate compensator

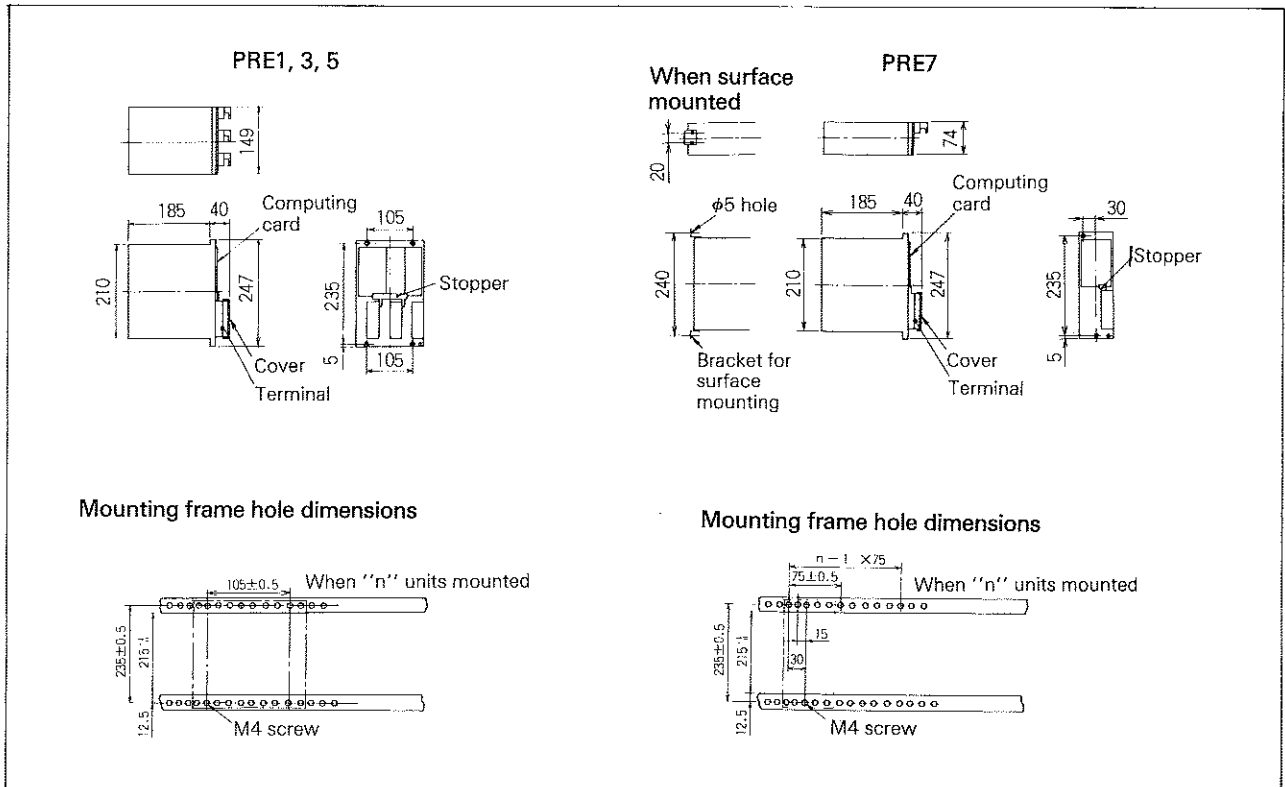
CODE SYMBOLS

1	2	3	4	5	6	7	8	9	10	11	12	13
P	R	E					5	1				

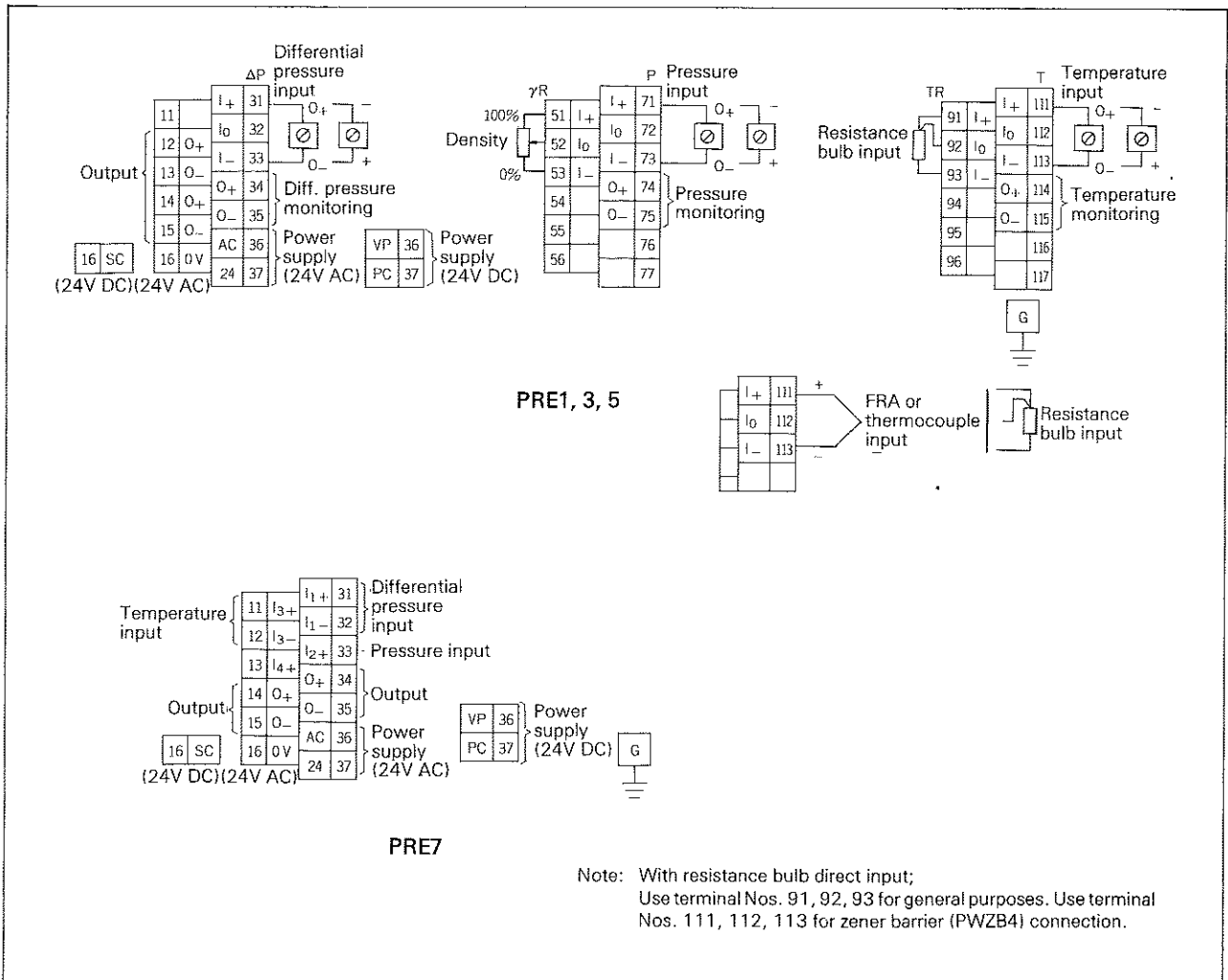
Description	
Input signal:	
Code	Differential pressure signal Pressure signal Temperature signal Density signal Remarks
1	4 to 20mA (Built-in transmitter power supply) 4 to 20mA 1 to 5V 4 to 20mA 1 to 5V Direct input Potentiometer Power supply: 24V AC 50/60Hz only
3	4 to 20mA (Transmitter power supply not built in) 4 to 20mA 1 to 5V 4 to 20mA 1 to 5V Direct input Potentiometer —
5	1 to 5V 1 to 5V 1 to 5V — —
7	1 to 5V 1 to 5V 1 to 5V — Built-in square root function impossible
Pressure element	
A	With pressure compensation (current input 4 to 20mA DC)
B	" (voltage input 1 to 5V DC)
Y	Without pressure compensation
Temperature element	
A	With temperature compensation (current input 4 to 20mA DC)
B	" (voltage input 1 to 5V DC)
C	" (direct input, thermocouple)
D	" (direct input, resistance bulb JPt100)
W	" (direct input, resistance bulb Pt100)
Y	Without temperature compensation
Note: Built-in PRA card (EMF converter card) when 6th digit is C. Computation is carried out directly with Pt100Ω when digit is D, W. When digit is D, W, PRA card is built in for connection with zener barrier (3 in 12th digit).	
Density element	
A	With density compensation (100—1000—100Ω potentiometer)
Y	Without density compensation
Type of gas	
1	Dry gas, superheated steam
2	Wet gas
Square root computation	
1	Built-in root extractor (PRD), (with fixed filter 10% cutoff circuit)
2	" (with variable filter 10% cutoff circuit)
0	No root extractor (PRD), (linear differential pressure)
Note: When 4th digit is 1, 3 or 5, root extractor can be built in. When 4th digit is 7, root extractor cannot be built in.	
Application	
0	General use
3	For zener barrier connection
Note: Specify 3 for connection with zener barrier PWZB3 (4) with C, D or W in the 6th digit.	
Power supply	
1	24V DC
7	24V AC 50/60Hz

Notes: Symbols of resistance bulb is as follows.
 JPt100 . . . Previous JIS
 Pt100 . . . New JIS

OUTLINE DIAGRAM (Unit:mm)



CONNECTION DIAGRAM



ORDERING INFORMATION

1. Product name
2. Code symbols
3. Input specifications
4. Measuring range of flow rate, differential pressure, temperature, pressure
5. Compensation range and standard value in case of pressure or temperature (specification of the diaphragm mechanism if above are not specified)
6. Whether the root extractor is required or not.
7. Other requirements.

Note: • Asterisked (*) items; Nonstandard.

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