

## EMP5A

RoHS

### Receiving instrument

When this instrument is used in combination with a fine differential pressure transmitter, it is possible to measure pressure, airflow rate, and airflow speed.

- Incorporated with a DC power source for two-wire type fine differential pressure transmitter.
- Equipped with two alarm outputs for which the action can be selected in accordance with the usage.
- Incorporated with a square root calculation function (for airflow rate/airflow speed receiving instrument only).
- Front panel with IP66 structure



EMP5A

### Product code

EMP5A **D 2 1 1 D 300** (Example)

Range	Maximum value (for ± range, provide "±" as well)	
Unit	<b>D</b>	Pressure Pa
	<b>E</b>	Pressure kPa
	<b>F</b>	Airflow rate m <sup>3</sup> /min
		Airflow rate m <sup>3</sup> /h (nor)
	Airflow rate m <sup>3</sup> /h (nor)	
	Airflow speed m/s	
Output signal	<b>1</b>	4–20 mA DC
Input signal	<b>3</b>	0–5 V DC (non-standard model)
Alarm output	<b>2</b>	Two circuits (2 × 1a contact)
Display	<b>D</b>	Digital indication

#### <Main application fields>

- General factory management equipment
- Negative pressure for dust collector/differential pressure of air conditioner
- Filter pressure loss management
- Precision machine manufacturing line
- Building air conditioning control equipment

#### <Usage>

- Detection of clogging of air filter
- Room pressure measurement in a clean room
- Measurement of clogging of bug filter
- Measurement of dynamic pressure at ventilation/exhaust device

- ◆ When making an inquiry or placing an order, specify the above product code.
- ◆ When you use this product for airflow rate/airflow speed measurements, we need to obtain the specifications of the pressure detection side.
- ◆ This product has been adjusted to measure pressure, airflow rate, and airflow speed by combining the digital indicator JIR-301-M, BK, P24 T2917 manufactured by Shinko Technos Co., Ltd. with a fine differential pressure transmitter.
- ◆ Some constituting parts of this instrument contain polyvinyl chloride.

\*(Refer to pages 114 to 117)

## Specifications

Model	EMP5A		
<b>Display</b>	Digital 4-1/2 digits (-2000 to 10000) ± 0.2% FS ± 1 digit	PV (current value) red SV (setting value) green	Character dimensions 16 × 7.2 mm (height × width) Character dimensions 10 × 4.8 mm (height × width)
<b>Sampling frequency</b>	0.125 seconds		
<b>Input signal</b>	4 to 20 mA DC (with built-in 50 Ω input resistor) On the airflow rate/speed meter, the maximum value varies depending on the range.		
<b>Output signal</b>	4 to 20 mA (load resistance of 550 Ω or lower) 0 to 5 V DC (load resistance of 500 kΩ or higher) Output signals from the airflow rate/speed meter are those obtained through square root calculation of input signals.		
<b>Output signal accuracy</b>	± 0.3% FS		
<b>Power supply to two-wire type transmitter</b>	24 V DC ± 10% (load current of 4 to 20 mA) Ripple voltage of 200 mV, maximum load current of 30 mA DC		
<b>Alarm output</b>	Output type Relay contact of 1a × 2 Contact capacity (resistance load)	Electric service life 100,000 times MAX. 3 A 250 V AC, 3 A 30 V DC MIN. 100 mA 5 V DC (reference value)	
<b>Power voltage</b>	100 to 240 V AC, 50/60 Hz (tolerable variation range: 85 to 264 V AC)		
<b>Power consumption</b>	Approx. 8 VA		
<b>Insulation resistance</b>	10 MΩ or higher (500 V DC) Each section between terminals (power terminal, grounding terminal, input terminal, and output terminal)		
<b>Withstand voltage</b>	1.5 kV AC for one minute Each section between terminals (power terminal, grounding terminal, input terminal, and output terminal) However, section between input terminal and output terminal is excluded.		
<b>Operating ambient temperature</b>	0°C to 50°C (no freezing allowed)		
<b>Operating ambient humidity</b>	35% to 85% RH (no condensation allowed)		
<b>Exterior material</b>	Fire-retardant resin (colors: panel in dark gray, case in black)		
<b>Mass</b>	Approx. 300 g		
<b>Protection level</b>	IP66 (front panel unit)		
<b>Accessories</b>	One set of screw-type mounting fittings, one piece of short-circuiting wire for two-wire type transmitter		
Pressure range code	Pressure range	LED display	Output signal
D 10	0–10 Pa	0.00–10.00	4 to 20 mA DC (load resistance of 550 Ω or lower) 0 to 5 V DC (load resistance: 500 kΩ or higher) Output signals from the airflow rate/speed meter are those obtained through square root calculation of input signals.
D 15	0–15 Pa	0.00–15.00	
D 20	0–20 Pa	0.00–20.00	
D 30	0–30 Pa	0.00–30.00	
D 50	0–50 Pa	0.00–50.00	
D 75	0–75 Pa	0.00–75.00	
D 100	0–100 Pa	0.0–100.0	
D 150	0–150 Pa	0.0–150.0	
D 200	0–200 Pa	0.0–200.0	
D 300	0–300 Pa	0.0–300.0	
D 500	0–500 Pa	0.0–500.0	
D 750	0–750 Pa	0.0–750.0	
D 1000	0–1000 Pa	0–1000	
E 2	0–2 kPa	0.000–2.000	
E 3	0–3 kPa	0.000–3.000	
E 5	0–5 kPa	0.000–5.000	
E 10	0–10 kPa	0.00–10.00	
E 20	0–20 kPa	0.00–20.00	
E 30	0–30 kPa	0.00–30.00	
E 50	0–50 kPa	0.00–50.00	
E 100	0–100 kPa	0.0–100.0	
D +- 10	-10 to +10 Pa	-10.00 to 0.00 to 10.00	
D +- 20	-20 to +20 Pa	-20.0 to 0.0 to 20.0	
D +- 30	-30 to +30 Pa	-30.0 to 0.0 to 30.0	
D +- 50	-50 to +50 Pa	-50.0 to 0.0 to 50.0	
D +- 100	-100 to +100 Pa	-100.0 to 0.0 to 100.0	
D +- 200	-200 to +200 Pa	-200 to 0 to 200	
D +- 300	-300 to +300 Pa	-300 to 0 to 300	
D +- 500	-500 to +500 Pa	-500 to 0 to 500	
D +- 1000	-1000 to +1000 Pa	-1000 to 0 to 1000	
E +- 2	-2 to +2 kPa	-2.00 to 0.00 to 2.00	
E +- 3	-3 to +3 kPa	-3.00 to 0.00 to 3.00	
E +- 5	-5 to +5 kPa	-5.00 to 0.00 to 5.00	
<b>Airflow rate/airflow speed range code</b>	<b>Airflow rate/airflow speed range (Note 1)</b>		
-	0 to <input type="text" value="Value"/> <input type="text" value="Magnification"/> <input type="text" value="Units"/>	-	

(Note 1) : arbitrary (to be rounded), : ×10, ×100, ×1000, ×10000, : m<sup>3</sup>/h, m<sup>3</sup>/min, m<sup>3</sup>/h (nor), m<sup>3</sup>/min (nor), m/s  
For the purpose of manufacturing of airflow rate/airflow speed meter, fill out the airflow rate/airflow speed specification document preparation sheet on page 15, and inform us of the data.

◆For use environment, refer to page 118.

## EMP5A

List of products

WO81

WO71

FR51A

MS99

MS99S

MS61A-RA

QDP33

EMD8A

EMD7

EMT1

EMTGP1

EMT1H

EMT6

EMP5A

EMRT1

HWS15A

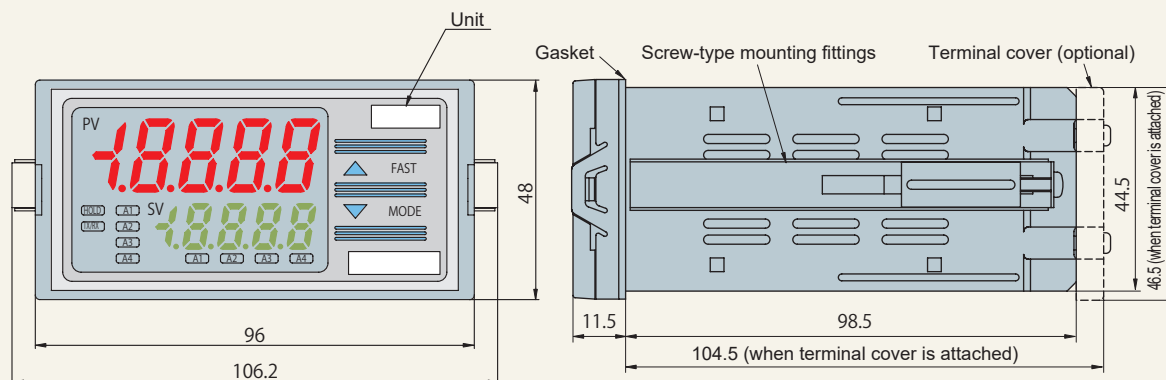
Accessories

Application

Precautions

Maintenance

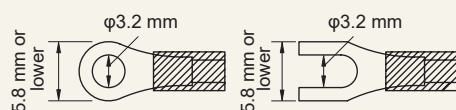
### External dimension drawing



### Notes on lead wire crimping terminal

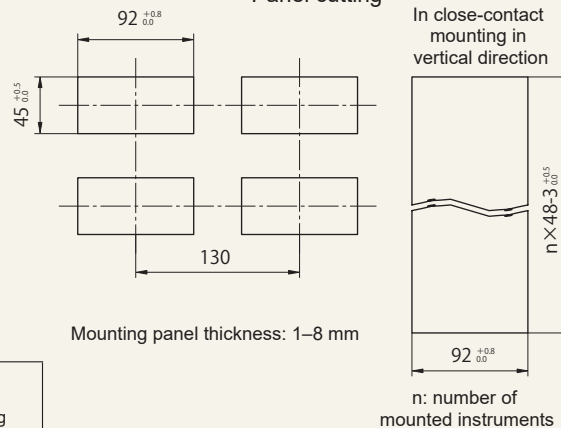
Use a crimping terminal with insulation sleeve that is compatible with M3 screw as shown below.

Crimping terminal	Manufacturer	Model name
Y-shape type	NICHIFU Co., Ltd.	TMEV1.25Y-3
	J.S.T. Mfg. Co., Ltd.	VD1.25-B3A
Round type	NICHIFU Co., Ltd.	TMEV1.25-3
	J.S.T. Mfg. Co., Ltd.	V1.25-3

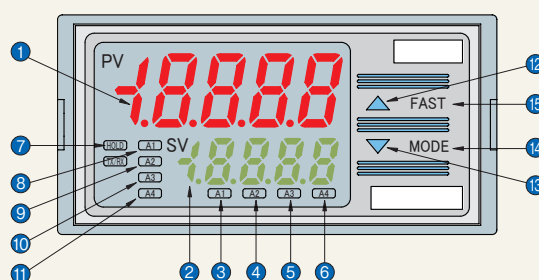


Terminal screw tightening torque: 0.6 to 1.0 N·m  
Recommended mounting screw tightening torque: approx. 0.12 N·m  
Do not tighten to a torque that exceeds the specified value because doing so breaks the instrument body.

### Panel cutting

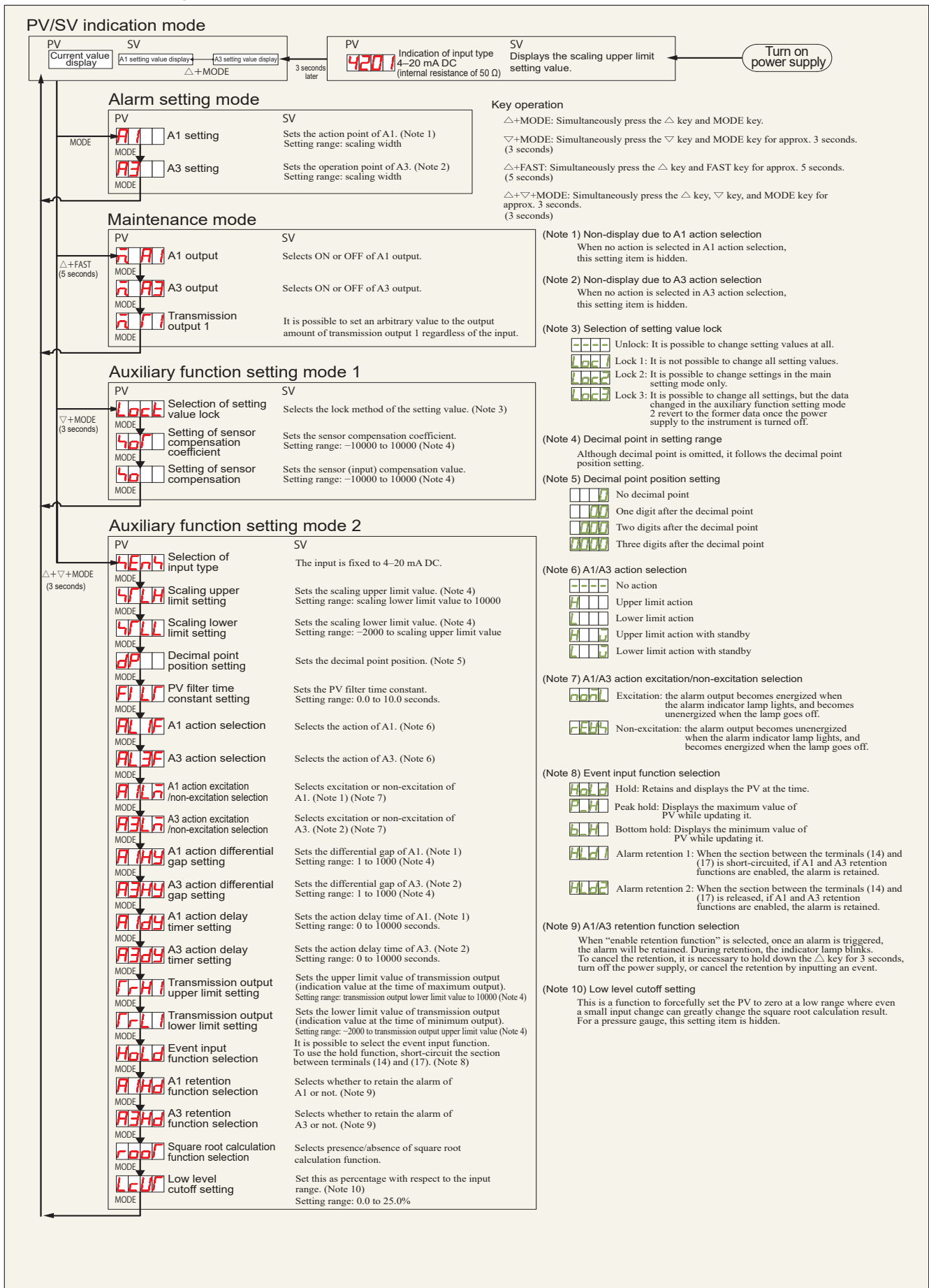


### Operation panel



- ① PV display : Displays the input value in the red display.
- ② SV display : Displays the A1 setting value, A2 setting value, and A3 setting value in the green display.
- ③ A1 indication lamp : The red indicator lamp is lit when the A1 output is turned on.
- ④ A2 indication lamp : The red indicator lamp is lit when the A2 output is turned on. (This is not used in EMP5A.)
- ⑤ A3 indication lamp : The red indicator lamp is lit when the A3 output is turned on.
- ⑥ A4 indication lamp : The red indicator lamp is lit when the A4 output is turned on. (This is not used in EMP5A.)
- ⑦ HOLD indicator lamp : The yellow indicator lamp is lit when the PV hold (hold, peak hold, bottom hold) output is turned on.
- ⑧ A1 setting indicator lamp : The green indicator lamp is lit when the A1 setting is displayed.
- ⑨ A2 setting indicator lamp : The green indicator lamp is lit when the A2 setting is displayed. (This is not used in EMP5A.)
- ⑩ A3 setting indicator lamp : The green indicator lamp is lit when the A3 setting is displayed.
- ⑪ A4 setting indicator lamp : The green indicator lamp is lit when the A4 setting is displayed. (This is not used in EMP5A.)
- ⑫ Up key : Increases the setting value.
- ⑬ Down key : Decreases the setting value.
- ⑭ Mode key : Switches the setting mode, and registers the setting value.  
(To register setting value and selected value, press the Mode key.)
- ⑮ Fast key : Simultaneously pressing the Up key or Down key and the Fast key increases the speed of setting value increase/decrease.

### Operation flow diagram



## EMP5A

List of products

WO81

### Input-output relationship diagrams

WO71

FR51A

MS99

MS99S

MS61A-RA

QDP33

EMD8A

EMD7

EMT1

EMTGP1

EMT1H

EMT6

EMP5A

EMRT1

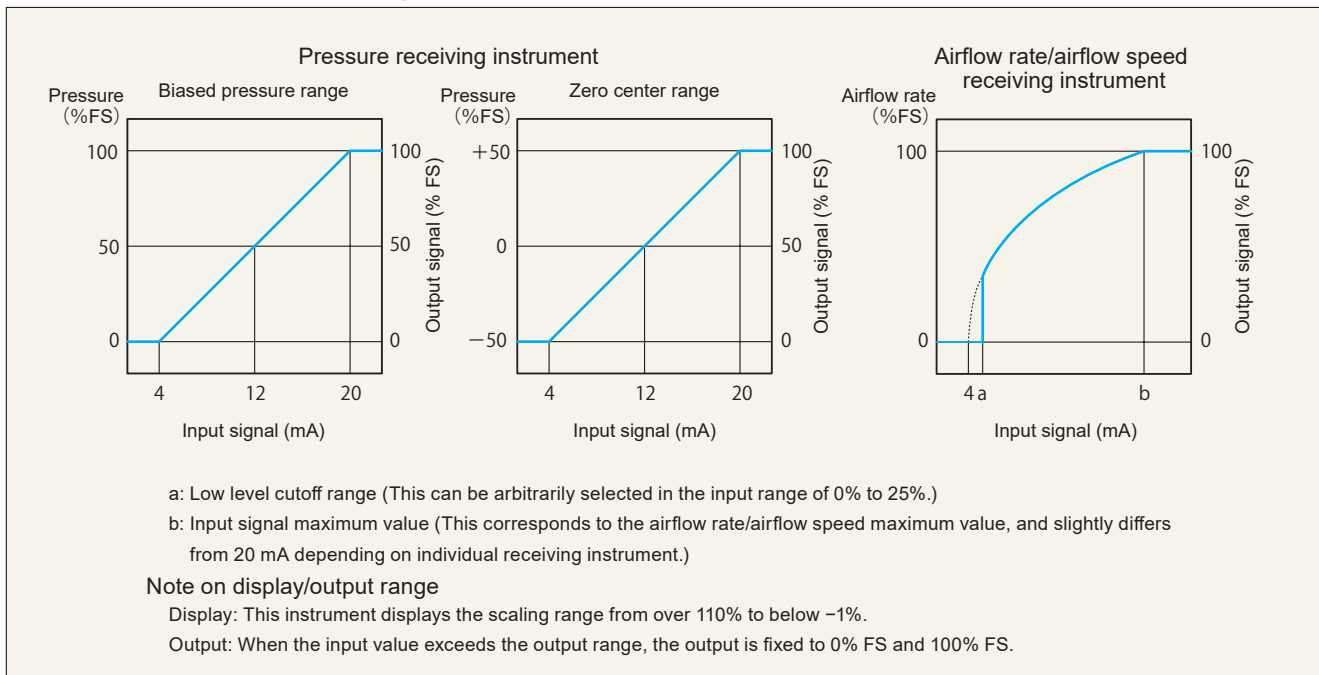
HWS15A

Accessories

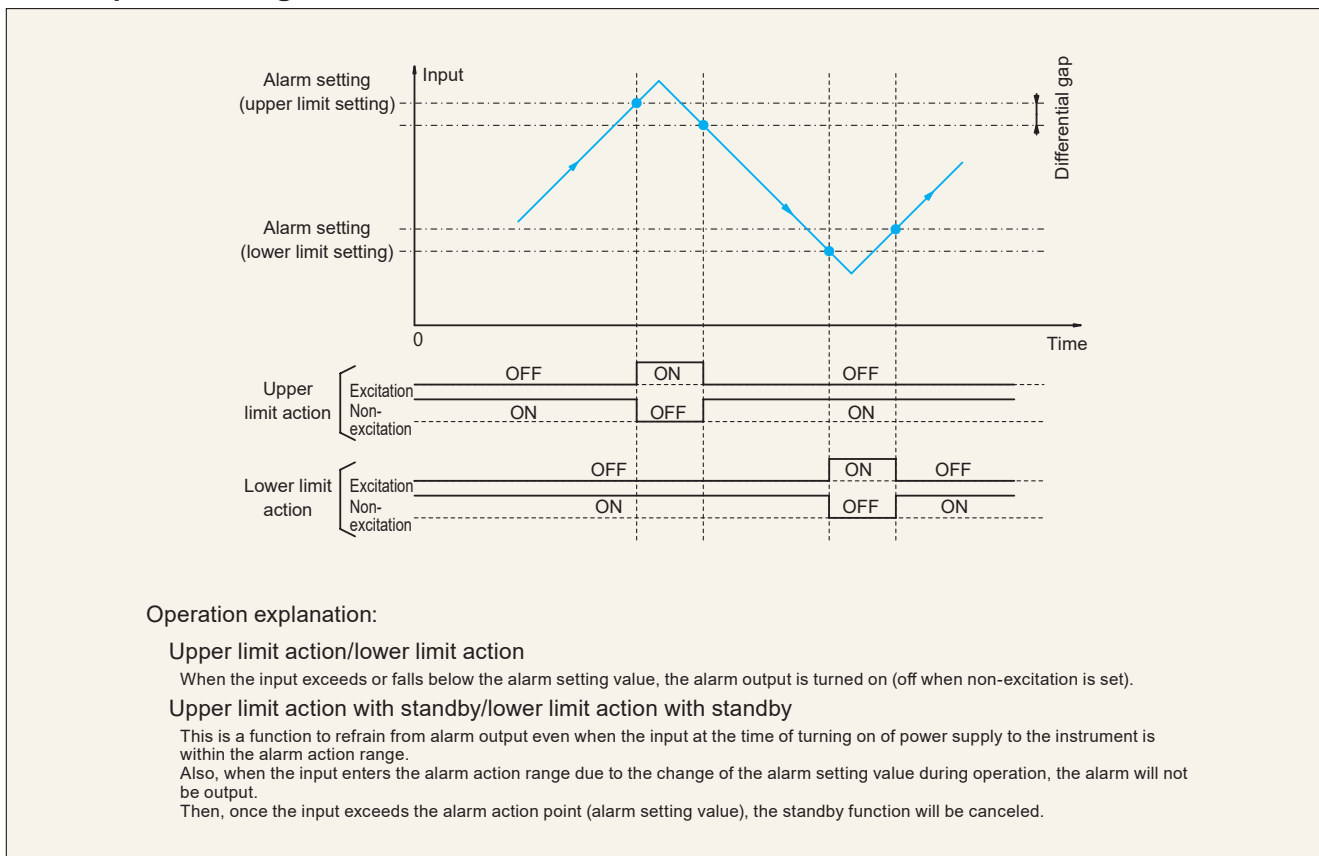
Application

Precautions

Maintenance

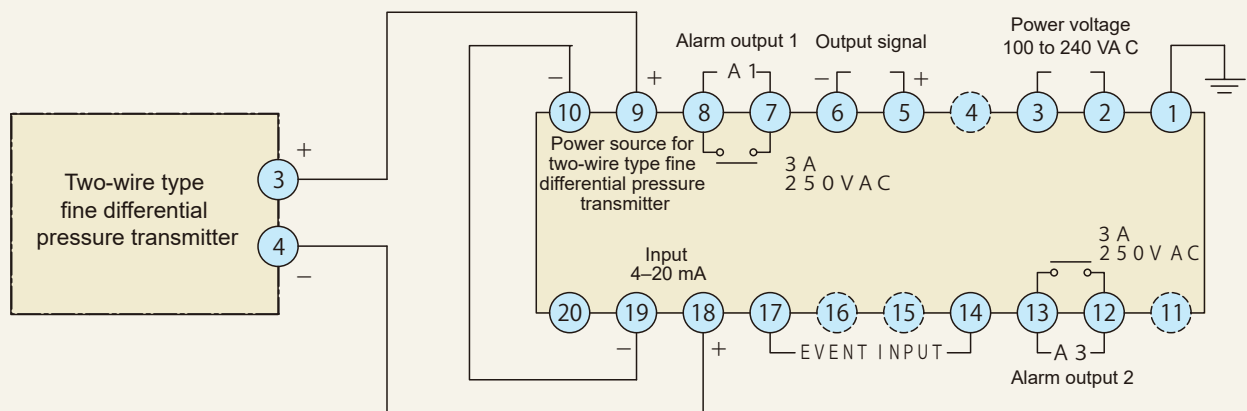


### Alarm operation diagram



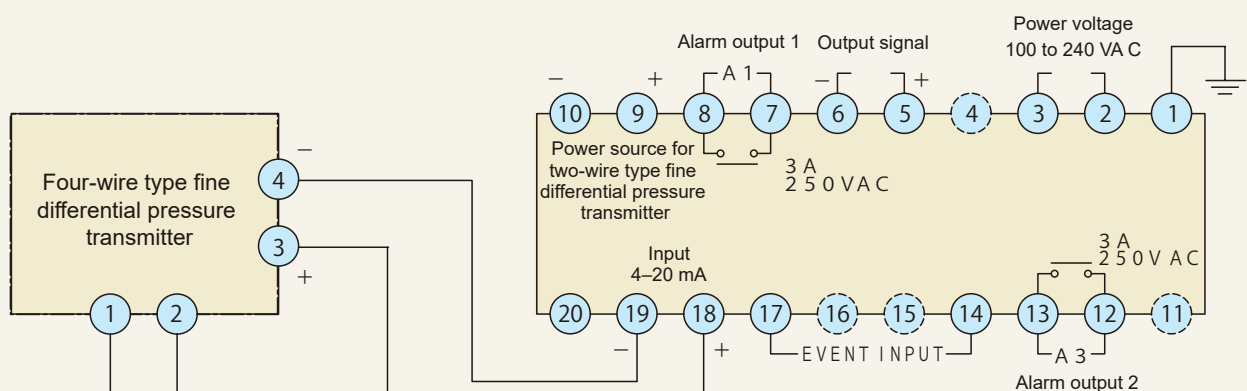
### Wiring

#### When connected with our two-wire type fine differential pressure transmitter



The terminals indicated with the dotted line are unmounted. In combination with our two-wire type fine differential pressure transmitter, short-circuit the terminals (10) and (19) with the supplied short-circuiting wire. In this case, a separately installed DC power source is not necessary because our receiving instrument has a built-in DC power source for two-wire type fine differential pressure transmitter.

#### When connected with our four-wire type fine differential pressure transmitter

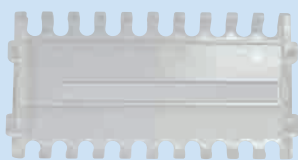


The terminals indicated with the dotted line are unmounted.

The DC power source for two-wire type fine differential pressure transmitter incorporated in our receiving instrument is not used.

### Accessories dedicated to EMP5A RoHS

#### Terminal cover



Item number	Material
TCA-P5A3	Polycarbonate

## Warranty

### Warranty period

The warranty period for our product is one (1) year from delivery to the location specified by the orderer who makes a direct transaction with us.

### Scope of warranty

If any failure or defect attributable to us becomes clear during the above warranty period, we will repair the product or supply a substitute product free of charge. However, even during the warranty period, we will exclude the product from the scope of the warranty if the failure or defect corresponds to any of the following:

- (1) The failure or defect was caused by an unreasonable condition, environment, handling, or usage not mentioned in the instruction manual, specifications, and our product catalog.
- (2) The failure or defect was caused by a factor other than our product.
- (3) The failure or defect was caused by a modification or repair conducted by a party other than us.
- (4) The failure or defect was caused by an event that could not be foreseen at the scientific and technical levels at the time of product shipment from us.
- (5) The failure or defect was caused by an external factor not attributable to us, such as acts of God and disasters.

Please note that the warranty mentioned here means the warranty for our individual product, and damage provoked by a failure or defect of the product is excluded from the scope of the warranty.

\*This warranty is valid only in Japan.

## Application and usage

Our products are designed and manufactured as general-purpose instruments for general industries.

Therefore, our products are not intended for the following uses, and our products used in such a manner are outside the scope of application.

- (1) Equipment that is anticipated to greatly affect lives and properties, such as nuclear power generation, aviation, railways, marine vessels, vehicles, and medical devices
- (2) Utilities that include electricity, gas, and service water
- (3) Use in outdoor locations and under similar conditions or environments other than those stipulated in the instruction manual
- (4) Usage to which considerable safety consideration and attention equivalent to (1) and (2) above need to be given

## Service

### Scope of service

Because the product price does not include service expenses, such as the dispatch of engineers, we will separately charge for the expenses in the following cases:

- (1) Instruction for installation and adjustment and a witnessed test run
- (2) Maintenance inspection, adjustments, and repairs
- (3) Technical guidance and technical education
- (4) Witnessed inspections of products at our factory

<<Note>> The product specifications and information in this catalog are subject to change without prior notice for product improvement or other reasons.

● For order placement, contact

General agent  **Manostar Shop Co., Ltd.**

1-2-3 Nishishiriike-cho, Nagata-ku, Kobe City, Hyogo 653-0031  
TEL. +81-78-621-7000 FAX. +81-78-621-7788

Manufacturer  **Yamamoto Electric Works Co., Ltd.**

1-2-3 Nishishiriike-cho, Nagata-ku, Kobe City, Hyogo 653-0031  
TEL. +81-78-631-6000 FAX. +81-78-631-6020