

EMT1

RoHS

High-accuracy micro differential pressure transmitter

- Thirty-three variations in the ranges of 10 Pa to 100 kPa and ± 10 Pa to ± 5 kPa
- The displacement sensor employs a high-performance diaphragm and a differential inductance method.
- Frequently delivered to a highly advanced differential pressure control field, this product has achieved a good track record.



EMT1A type
(Indoor drip-proof type)



EMT1B type
(Exposed terminal type)

Product code

EMT1 **A** **0** **FM** **D** **100** (Example)

Pressure range code

(Example)

<Main application fields>

- Nuclear facilities
- Food-related factory management equipment
- Air conditioning control equipment in a high-rise building
- Hospital and medical facilities
- Automotive manufacturing/ semiconductor manufacturing lines
- Control of air discharge pressure from the coffee roaster

<Usage>

- Room pressure measurement in a clean room
- Detection of clogging of air filters
- Measurement of airflow rate/speed of ventilation/exhaust device and others

*(Refer to pages 114 to 117)

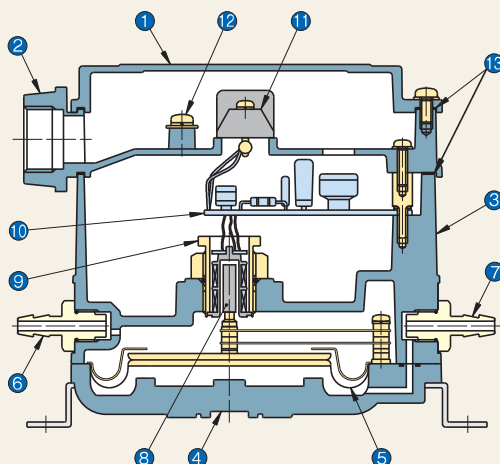
Range	Maximum value (for \pm range, provide " \pm " as well)
Unit	D Pa
	E kPa
Base	FV For vinyl pipe
	FM For metallic pipe
Output	0 Two-wire type 4–20 mA DC
	1 Four-wire type 4–20 mA DC
	2 Four-wire type 0–1 mA DC (non-standard model)
	3 Four-wire type 0–5 V DC (non-standard model)
	4 Four-wire type 1–5 V DC (non-standard model)
External shape	A Indoor drip-proof type
	B Exposed terminal type

◆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.

Fill out the airflow rate/airflow speed specification document preparation sheet on page 15, and inform us of the data.

Overview of structure



Number	Name
1	Cover
2	Terminal box
3	Housing
4	Base
5	Diaphragm
6	High-pressure side base
7	Low-pressure side base
8	Core
9	Coil bobbin
10	Substrate
11	Terminal block
12	Grounding terminal screw
13	Cover packing

List of products

WO81

WO71

FR51A

MS99

MS99S

MS61A-RA

QDP33

EMD8A

EMD7

EMT1

EMTGP1

EMT1H

EMT6

EMP5A

EMRT1

HWS15A

Accessories

Application

Precautions

Maintenance

Specifications

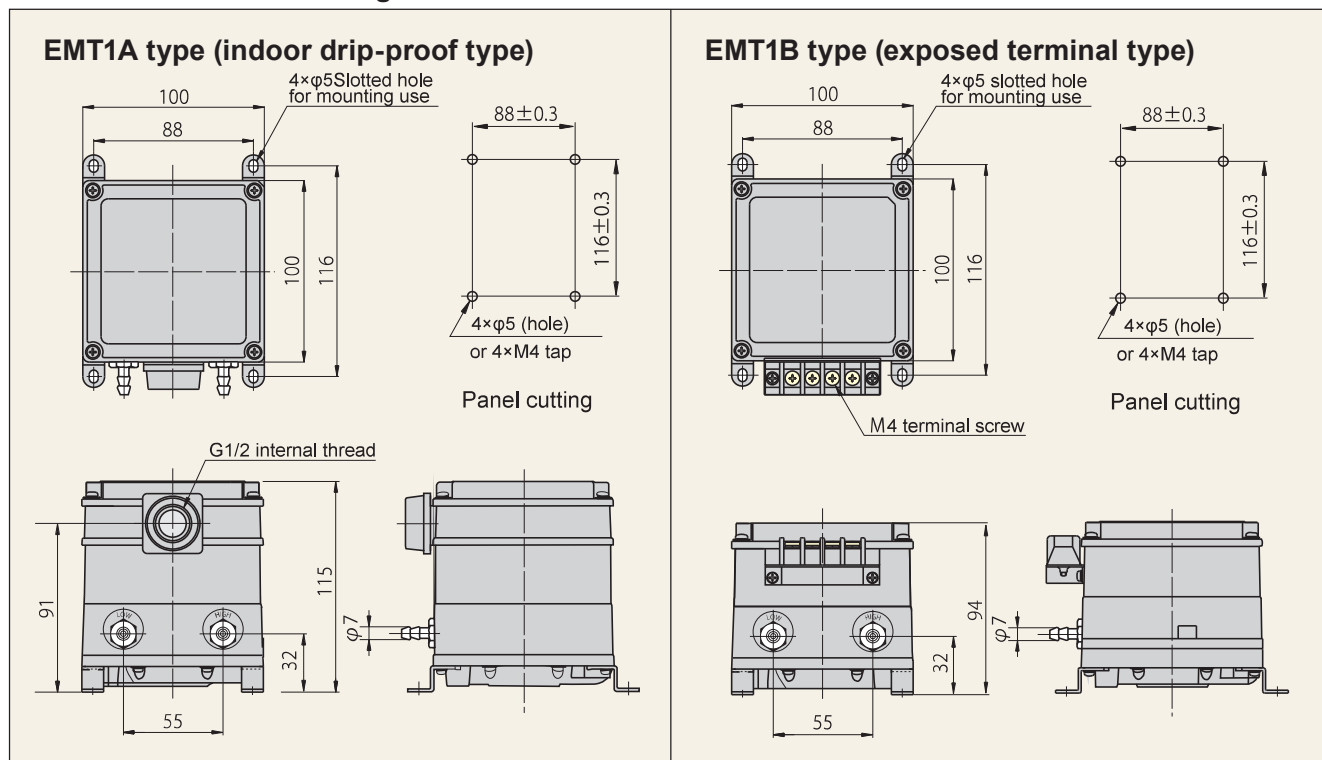
Model	Indoor drip-proof type			Exposed terminal type		
	EMT1A			EMT1B		
Pressure unit	Pa, kPa			Durable vibration	5 to 10 Hz, total amplitude of 10 mm, 10 to 50 Hz, acceleration total amplitude of 39 m/s ² (two hours each for three axial directions)	
Pressure measurement method	Differential pressure method					
Measured gas	Air and noncorrosive gas (liquid cannot be measured)			Durable impact	100 m/s ² (six times each for three axial directions)	
Pressure-receiving element	Diaphragm (silicone rubber)					
Exterior material	Aluminum die casting Painting on exterior (paint color: gray)			Compatible pipe	<ul style="list-style-type: none"> • Vinyl pipe or rubber pipe (inner diameter of 6 mm)Compatible with base for vinyl pipe • Metallic pipe (outer diameter of 6 ± 0.1 mm)Compatible with base for metallic pipe • Hard plastic pipe (outer diameter 6 mm × inner diameter 4 mm)Separately sold inner sleeve set (refer to page 95) is necessary for the base for metallic pipe. 	
Instrument body withstanding pressure	500 kPa (refer to page 118)					
Mounting orientation	Horizontal (inclination angle of within ± 5°)			Mass	EMT1A: approx. 1100 g, EMT1B: approx. 960 g	
Electric signal conversion method	Variable inductance					
Insulation resistance	Between terminal and case: 20 MΩ or higher (500 V DC megger)					
Operating ambient temperature	0°C to 50°C (no freezing allowed)					
Operating ambient humidity	90% RH or below (no condensation allowed)					
Pressure range code	Pressure range	Accuracy (at 20°C)	Temperature characteristics (zero + span) at 0°C to 40°C	Withstanding pressure of pressure-receiving element (Refer to page 118)	Output and transmission method	
D 10	0–10 Pa	±2% FS	±0.2% FS/°C	10 kPa	Two-wire type: Output signal of 4 to 20 mA DC (load resistance of 500 Ω or lower) Power voltage of 24 V DC ± 10% (ripple of 0.2 V P-P or lower)	
D 15	0–15 Pa					
D 20	0–20 Pa					
D 30	0–30 Pa					
D 50	0–50 Pa	±1% FS	±0.1% FS/°C			
D 75	0–75 Pa					
D 100	0–100 Pa					
D 150	0–150 Pa					
D 200	0–200 Pa					
D 300	0–300 Pa					
D 500	0–500 Pa					
D 750	0–750 Pa					
D 1000	0–1000 Pa					
E 2	0–2 kPa	±1% FS	±0.1% FS/°C	40 kPa	Four-wire type: Output signal of 4 to 20 mA DC (load resistance of 500 Ω or lower) Power voltage of 100 V AC ± 10%, 50/60 Hz Approx. 2 VA	
E 3	0–3 kPa					
E 5	0–5 kPa					
E 10	0–10 kPa					
E 20	0–20 kPa					
E 30	0–30 kPa			100 kPa		
E 50	0–50 kPa					
E 100	0–100 kPa					150 kPa
D +- 10	-10 to +10 Pa					
D +- 20	-20 to +20 Pa					
D +- 30	-30 to +30 Pa	±2% FS	±0.2% FS/°C	10 kPa		
D +- 50	-50 to +50 Pa					
D +- 100	-100 to +100 Pa					
D +- 200	-200 to +200 Pa					
D +- 300	-300 to +300 Pa					
D +- 500	-500 to +500 Pa					
D +- 1000	-1000 to +1000 Pa					
E +- 2	-2 to +2 kPa				±1% FS	±0.1% FS/°C
E +- 3	-3 to +3 kPa					
E +- 5	-5 to +5 kPa					

◆ Use of this product in a mounting orientation other than the horizontal orientation is impossible.

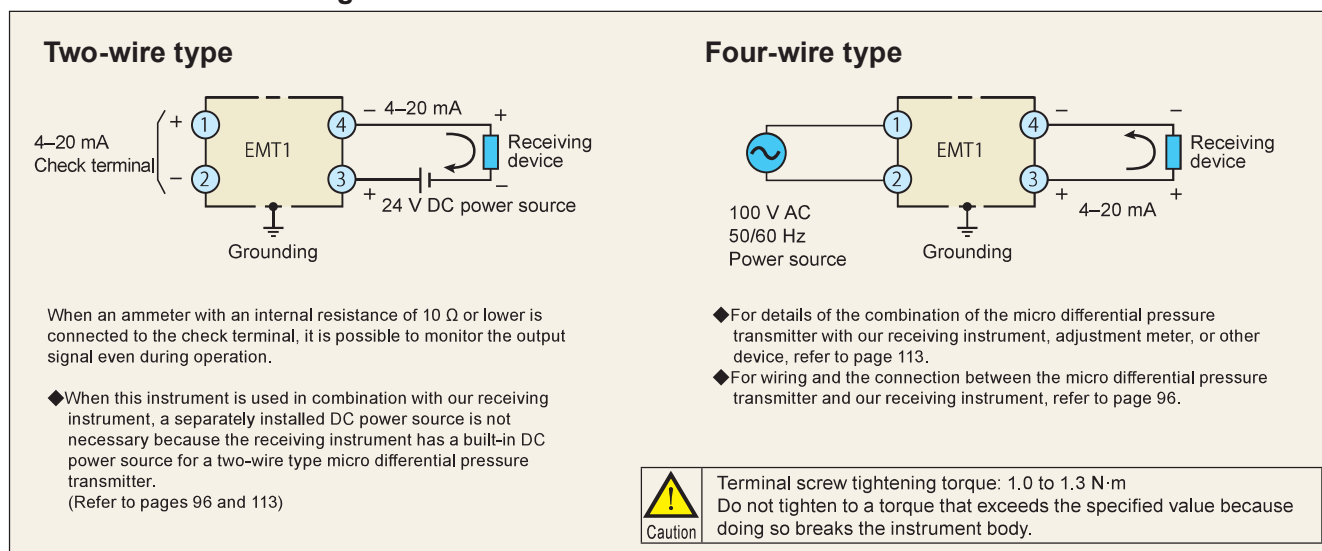
◆ When using this product in a combustible gas atmosphere, use intrinsically safe type EMT1H described on page 85.

◆ For the use environment, refer to page 118.

External dimension drawing

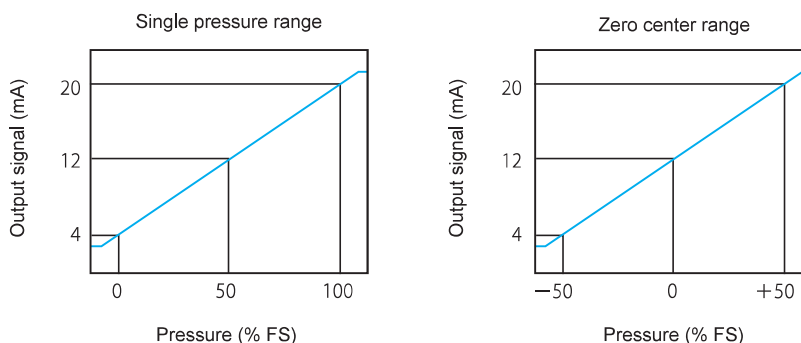


Terminal connection diagram




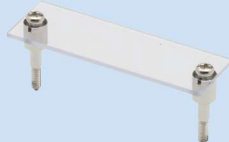




Transmission output diagram (pressure-output signal)

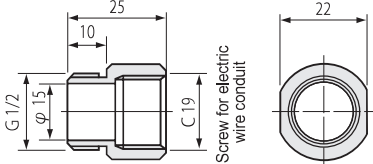

- Output signal of 4 to 20 mA DC


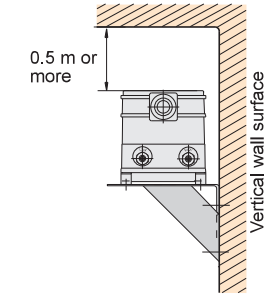
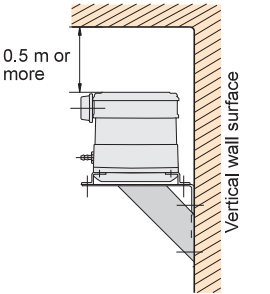
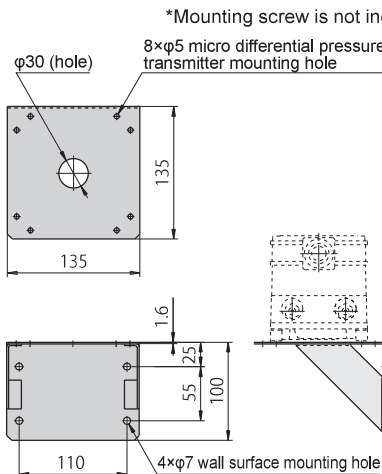


EMT1 accessories RoHS

VT base		MT base		MTW base		Terminal cover set	
(Auxiliary item)		(Auxiliary item)					
							
Item number	Material	Item number	Material	Item number	Material	Item number	Material
KGAT1VT	Brass	KGAT1MT	Brass	KGAT1MTW-S	Stainless steel	TCA-T1	Polycarbonate/brass
<p>A vinyl pipe or rubber pipe with an inner diameter of 6 mm can be connected.</p> <p>This is already installed at the time of purchase of the FV type.</p>		<p>A metallic pipe, such as steel pipe and aluminum pipe, with an outer diameter of 6 ± 0.1 mm can be connected.</p> <p>When connecting with a plastic pipe (outer diameter 6 mm \times inner diameter 4 mm), remove the brass sleeve and use the separately sold resin inner sleeve set (XIN 6 \times 4; refer to page 111).</p> <p>This is already installed at the time of purchase of MT type.</p>		<p>This is used to connect a stainless steel pipe with an outer diameter of 6 ± 0.1 mm.</p>		<p>This is used to protect the terminal screw of EMT1B type (exposed terminal type).</p>	
						<p>Base tightening torque: 1.2 N·m</p> <p>Do not tighten to a torque that exceeds the specified value because doing so breaks the instrument body.</p>	

Plastic gland (Ace Service Co., Ltd.)									
<p>This is used when the wiring of the micro differential pressure transmitter is conducted with instrumentation cables. By paying attention to the finish outer diameter of the cable to be used, select a plastic gland from the table on the right in a size that allows the rubber bushing to retain the cable outer diameter when the cap nut is tightened.</p>	Item number	Material	Color of rubber bushing	Outer diameter of compatible electric wire (mm)					
				Minimum	Maximum				
				AC4-2T	Polyacetal		Black	6.5	9.0
				AC4-3T			Red	8.5	11.0
AC4-4T	Green	10.0	12.5						

Adapter for conduit		
<p>When conducting wiring to the micro differential pressure transmitter by passing the wire through the thin steel electric wire conduit with a nominal size of 19 or a metallic flexible electric wire conduit, because the service entrance of the transmitter has a G1/2 internal thread and a different size, use the adapter for the conduit shown in the figure on the right.</p>	 <p>Screw for electric wire conduit</p>	
	Item number	Material
	ADPA-EMT1	Brass

Bracket for mounting on vertical wall surface					
<p>Be sure to install the micro differential pressure transmitter in a horizontal orientation (at inclination angle of 5° or less). When the mounting surface is vertical, mount the instrument horizontally by using the bracket for mounting on vertical wall surface. For the purpose of adjustment and maintenance, secure a space of 0.5 m at minimum above the micro differential pressure transmitter.</p>	<p>*Mounting screw is not included.</p> 				
<p>When the orientation of the base of the micro differential pressure transmitter is in parallel to the wall surface</p>  <p>0.5 m or more</p> <p>Vertical wall surface</p>	<p>When the orientation of the base of the micro differential pressure transmitter is orthogonal to the wall surface</p>  <p>0.5 m or more</p> <p>Vertical wall surface</p>				
	 <p>φ30 (hole)</p> <p>8×5 micro differential pressure transmitter mounting hole</p> <p>135</p> <p>135</p> <p>1.6</p> <p>25</p> <p>55</p> <p>100</p> <p>110</p> <p>4×φ7 wall surface mounting hole</p>				
	<table border="1"> <tr> <td>Item number</td> <td>Material</td> </tr> <tr> <td>BRKT-T1GP1</td> <td>Steel</td> </tr> </table>	Item number	Material	BRKT-T1GP1	Steel
Item number	Material				
BRKT-T1GP1	Steel				

*For quality improvement or for another reason, part of the specifications may be subject to change without prior notice.

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EMP5A

EMRT1

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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



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Manufacturer



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