

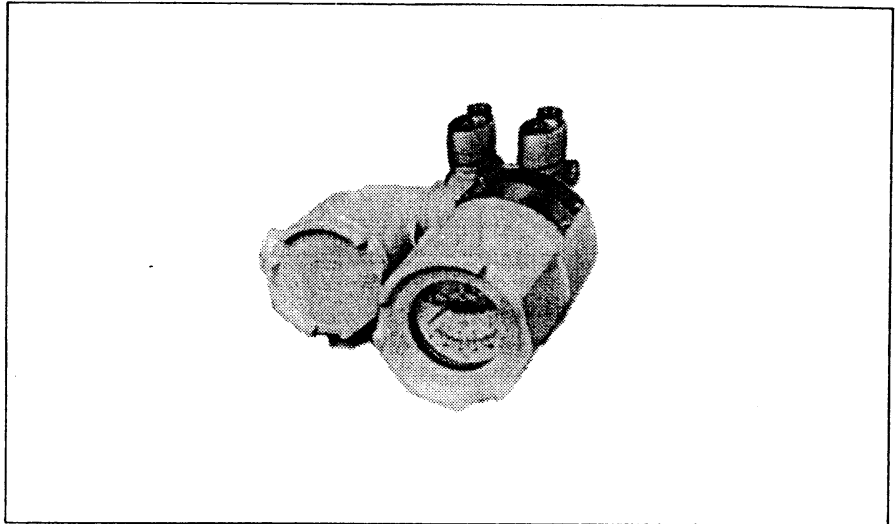
ST 3000 Smart Transmitter Electronic Differential Pressure Transmitter

Model JTD260 (Standard Type for Superhigh Differential Pressure)

Measuring Span: 7 to 140kgf/cm²

Introduction

The ST 3000 Differential Pressure Transmitter measures a differential pressure and transmits an analog 4 to 20mA DC output or digital output proportional to the measured variable. The transmitter is a microprocessor-based instrument, whose parameters and setting (range, damping time constant, linear or square-root output, constant-current output, and others) can be remote-controlled from the instrument room via the SFC (Smart-Field Communicator).



Standard Specifications

| Item | Specifications |
|--|---|
| Measuring Span (Continuously adjustable) | 7 to 140kgf/cm ² |
| Setting Range | $-1 \leq URV^{*1} \leq 140\text{kgf/cm}^2$, $-1 \leq LRV^{*2} \leq 140\text{kgf/cm}^2$ |
| Output | Analog output (4 to 20mA DC)/Digital out put |
| Accuracy^(*3) | Percentage with respect to x (mmH ₂ O) that represents the URV or LRV of the calibrated range, or the span—whichever is greatest. Linear output: ±0.15% When x is 3.5kgf/cm ² or greater ± $[0.1 + 0.05 \times \frac{35}{x}]$ % When x is less than 35 kgf/cm ² (With damping effected) Square-root output: When output is 50 to 100% Same as that of linear output. When output is 7.1 to 50% Value of linear output $\times \frac{50}{\text{Linear output \%}}$ When output is less than 7.1% Dropout |
| Supply Voltage and Load Resistance | DC10.8 to 45V (See Figure 1). |
| Working Pressure Rating | 140kgf/cm ² (For vacuum pressures, see Figure 2). |
| Operating Temperature Range | Ambient temperature: Normal operating conditions: -40 to +85°C Operative limits (for short period): -50 to +93°C Transportation and storage conditions: -50 to +85°C Meter body (process fluid) temperature: Normal operating conditions: -40 to +110°C Operative limits (for short period): -50 to +125°C |
| Operating Humidity Range | Normal operating conditions: 10 ~ 90% RH |
| Temperature Effect^(*3,4) (Shift with respect to setting range) | Percentage with respect to x (mmH ₂ O) that represents the URV or LRV of the setting range, or the span—whichever is greatest. Zero shift: ± $[0.25 + (0.1 \times \frac{35}{x})]$ %/55°C change Combined shift (Including zero and span shifts): ±0.5%/55°C change When x is 35kgf/cm ² or greater. ± $[0.35 + (0.15 \times \frac{35}{x})]$ %/55°C change When x is less than 35kgf/cm ² . |

(*1): URV denotes the value for 100% (20mA DC) output.
(*2): LRV denotes the value for 0% (4mA DC) output.
(*3): Within a range of URV≥0 and LRV≥0.
(*4): Refer to the temperature effect diagram (Figure 3).

(*5): Refer to the static pressure effect diagram (Figure 4).
(*6): For the performance and external dimensions of corrosion-resistant type, refer to the specification sheet for corrosion-resistant application.

| Item | Specifications |
|---|--|
| Static Pressure Effect^(*3,5) (at 25°C) (Shift with respect to setting range) | Percentage with respect to x (mmH ₂ O) that represents the URV or LRV of the setting range, or the span—whichever is greatest. (P: Static pressure value) Zero shift: $\pm[0.03 + (0.07 \times \frac{P}{70}) \times \frac{70}{x}]%$ Combined shift (Including zero and span shifts): $\pm[0.03 + (0.2 \times \frac{P}{70})]%$ When x is 70 kgf/cm ² or greater. $\pm[0.03 + (0.2 \times \frac{P}{70}) \times \frac{70}{x}]%$ When x is less than 70kgf/cm ² . |
| Stability Against Supply Voltage Change | 0.005%FS/V |
| Dead Time | Approx. 0.4 sec. |
| Damping Time Constant | Adjustable within a range of 0.4 to 32 sec. by 10 steps. (at 25°C) |
| Process Connection | Rc1/4, 1/4NPT internal thread |
| Electric Conduit Connection | G1/2 internal thread |
| Structure | Waterproof and dustproof structure: JIS C0920 Watertight, JIS F8001 Class 2 Watertight, NEMA 3 and 4X, IEC IP67 |
| Materials | Center body: SUS316 Wetted parts of center body: SUS316 (Diaphragm: SUS316L) Meter body cover (Differential pressure chambers): Carbon steel (SF45A), SUSF316 Bolts: SNB7 Nuts: S45C Gasket: Teflon Transmitter case: Aluminium alloy |
| Finish | Baked acryl paint, light beige (Munsell 4Y7.2/1.3) |
| Installation | Can be installed on a 2-inch horizontal or vertical pipe. (Can be directly mounted on a process pipe.) |
| Weight | Approx. 7.5 kg |

Selectable Standard Specifications

(The items other than the following are identical with those of the Standard Specifications.)

| Item | Specifications |
|--|--|
| Fill Fluid (Meter body cover: Other than carbon steel. Wetted parts section of center body for chlorine service: Tantalum Including no oil finish of wetted parts) | Ambient temperature: Normal operating conditions; -10 to +75°C Operative limits (For short period); -40 to +80°C Transportation and storage conditions; -50 to +85°C Meter body (Process fluid) temperature: Normal operating conditions; -10 to +75°C Operative limits (For short period); -40 to +80°C (Note) For use on vacuum pressures, please consult us. |
| Process Connection Rear connection | Pressure rating: 100kgf/cm ² max. |

Optional Specifications

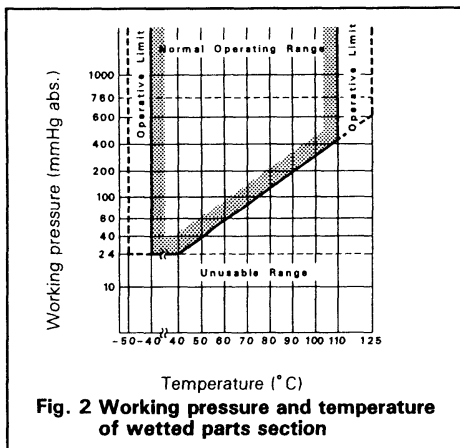
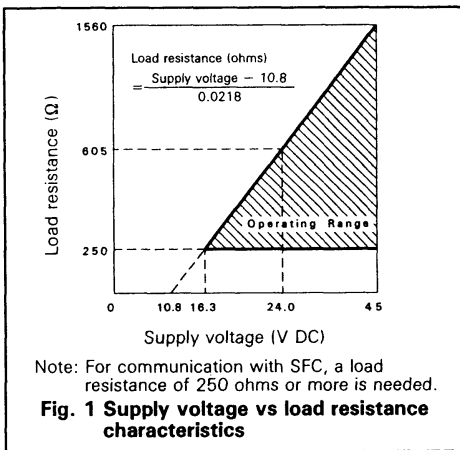
(The items other than the following are identical with those of the Standard Specifications.)

| Item | Specifications |
|---|---|
| Lead-in Indicating Meter Class 2.5) | Ambient temperature: Normal operating conditions; -10 to +60°C Operative limits (For short period) and Transportation and storage conditions; -40 to +85°C |
| SUS304 Bolts and Nuts | Pressure rating: 70kgf/cm ² max. |
| Steam Block | Pressure rating: 50 kgf/cm ² max. Operable temperature: 250°C max. for meter body (process fluid) temperature (Not available when rear connection is specified.) |
| Corrosion-resistant Finish | Corrosion-resistant paint (Baked acryl paint), fungus-proof finish. (Silver paint when meter body cover, adaptor flanges, bolts, nuts, and manifold valves are made of carbon steel) |
| Corrosion-proof Finish | Corrosion-proof paint (Baked epoxy paint), fungus-proof finish. (Silver paint when meter body cover, adaptor flanges, bolts, nuts, and manifold valves are made of carbon steel) |
| Corrosion-resistant Finish (Silver Paint) | Transmitter case is silver-painted in addition to the above corrosion-resistant finish. |
| Flameproof-packing-type Cable Connecting Adaptor | For electrical connection by the leading-in method of flame-proof proofpacking type for special flame-proof structure. |
| Explosion-proof structure | JIS C0903 ds2G4 special flame-proof structure (Ambient temperature: -10 to +70°C, Meter body (process fluid) temperature: -10 to +100°C) JIS C0903 i3aG4 intrinsic-safety explosion-proof structure, using Zener barrier 8907/51 -24/45 (Approval No. 29911) (Ambient temperature: -10 to +60°C, Meter body (process fluid) temperature: -10 to +100°C) FM flame-proof structure Explosion-proof Class I (Gas, steam), Division 1, Group B, C, D Dust-ignition Class II (Inflammable dust), Division 1, Group E, F, G Suitable Class III (Inflammable fiber), Division 1 FM intrinsic-safety explosion-proof structure intrinsically safe Class I, II, III, Division 1, Group A, B, C, D, E, F, G Nonincendive (for Class 2 location) Class I, Division 2, Group A, B, C, D |
| Adaptor flange for Corrosion-resistant Application | For matching installation dimension (82mm) of corrosion-resistant pressure conduit with that (54mm) of ordinary pressure conduit. |

Model Number Table

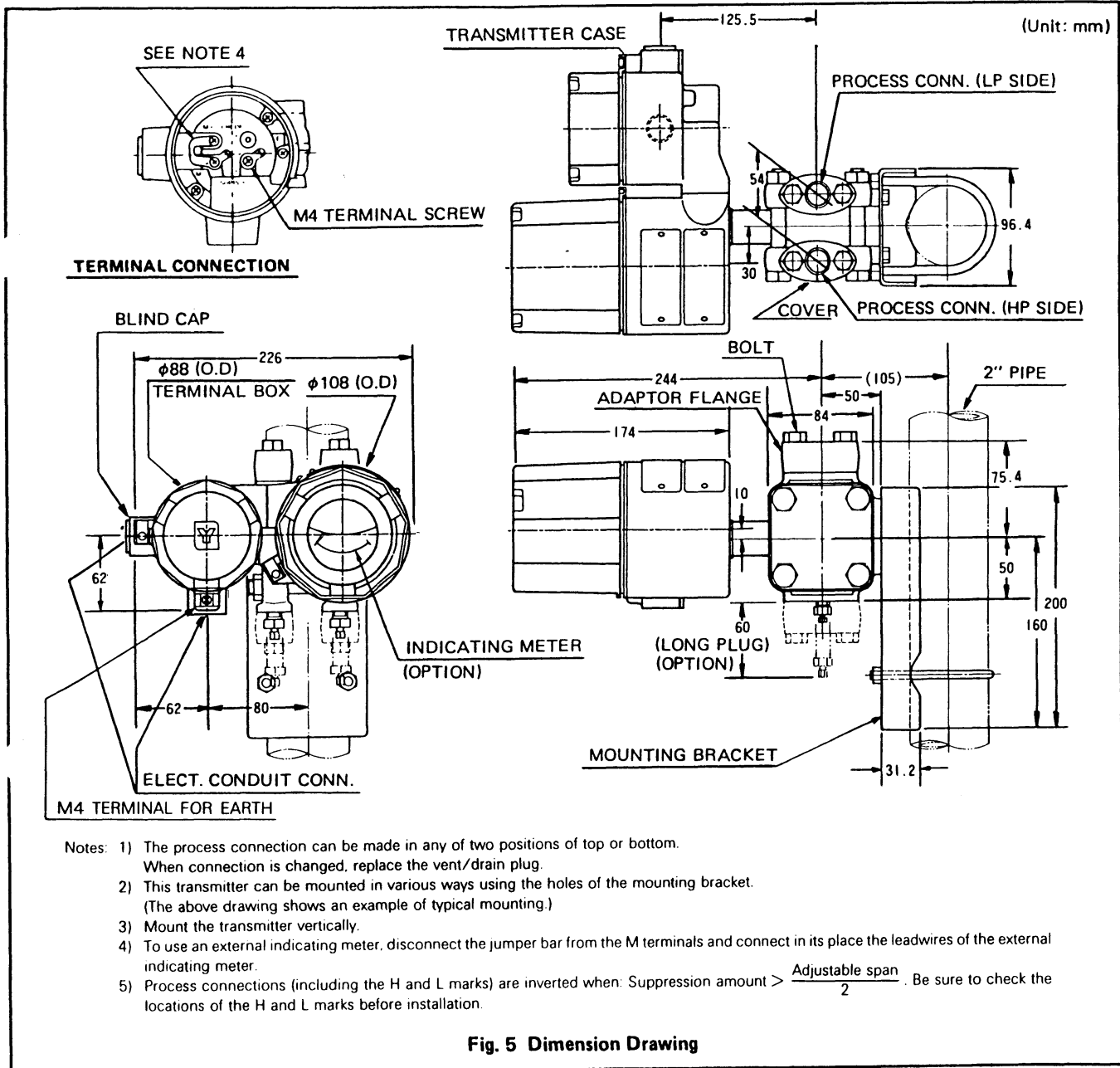
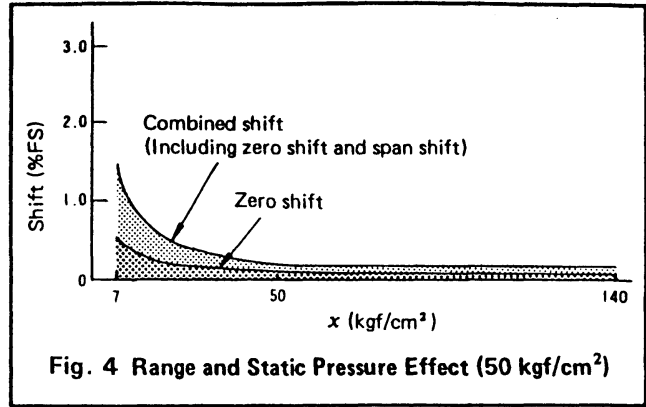
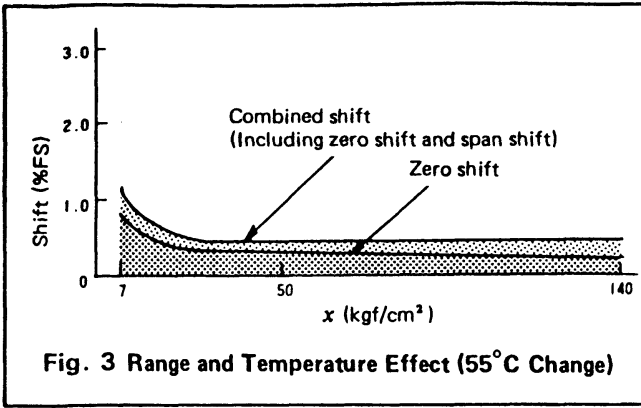
| Basic Model Number | Selection I | | | Selection II | Options I | Options II | Description |
|--------------------|-------------|------------|--------------------|--------------|-----------|------------|---|
| | Material | Fill Fluid | Process Connection | | | | |
| JTD260 | | | | | | | Measuring span: 7 to 140 kgf/cm ² |
| | -A | | | | | | Meter body cover Carbon steel Vent/Drain plugs SUS316 Wetted parts of center body SUS316 (Diaphragm: SUS316L) |
| | -B | | | | | | Carbon steel SUS316 Hastelloy C |
| | -D | | | | | | Carbon steel SUS316 Tantalum |
| | -E | | | | | | SUSF316 SUS316 SUS316 (Diaphragm: SUS316L) |
| | -F | | | | | | SUSF316 SUS316 Hastelloy C |
| | -H | | | | | | SUSF316 SUS316 Tantalum |
| | | 1 | | | | | Regular type (Silicone oil) |
| | | 2 | | | | | For oxygen (Fluorine oil) service |
| | | 5 | | | | | For chlorine (Fluorine oil) Service |
| | | | Q | | | | Rc 1/2 Top or bottom connection |
| | | | R | | | | 1/2 NPT internal thread Top or bottom connection |
| | | | S | | | | Rc 1/4 Top or bottom connection |
| | | | T | | | | 1/4 NPT internal thread Top or bottom connection |
| | | | L | | | | Rc 1/2 Rear connection |
| | | | G | | | | 1/2 NPT internal thread Rear connection |
| | | | D | | | | Rc 1/4 Rear connection |
| | | | A | | | | 1/4 NPT internal thread Rear connection |
| | | | | -00000 | | | No selection |
| | | | | -X | | | No option |
| | | | | -L | | | Built-in lightning arrester |
| | | | | -M | | | Built-in indicating meter (0 to 100% linear, 0 to 10 $\sqrt{\quad}$ double scales) |
| | | | | -W | | | SUS304 bolts and nuts |
| | | | | -F | | | With steam block |
| | | | | -A | | | Corrosion-resistant finish |
| | | | | -B | | | Corrosion-proof finish |
| | | | | -D | | | Corrosion-resistant finish, silver paint |
| | | | | -N | | | 1/2 NPT internal-thread electrical conduit connection |
| | | | | -K | | | No oil finish |
| | | | | -P | | | One cable adaptor with flame-proof packing |
| | | | | -Q | | | Two cable adaptors with flame-proof packing |
| | | | | -R | | | Specifications for power plant application |
| | | | | -J | | | Long vent/drain plugs |
| | | | | -1 | | | JIS special flame-proof structure |
| | | | | -2 | | | JIS intrinsic-safety explosion-proof structure |
| | | | | -3 | | | FM flame-proof structure |
| | | | | -4 | | | FM intrinsic-safety explosion-proof structure |
| | | | | -8 | | | Horizontal pressure-conduit connection type (Process connection is only for the front. Combination with indicating meter is not possible. When corrosion-resistant type is required, consult us.) |
| | | | | -9 | | | Vertical pressure-conduit connection, right-side electrical conduit connection type. |
| | | | | -G | -XX | | No options |
| | | | | | -A1 | | Adaptor flange for corrosion-resistant application |
| | | | | | -A2 | | With external zero adjustment (Unavailable combination with FM explosion-proof structure) |
| | | | | | -A5 | | Burnout feature (Upper limit of output value at abnormal condition) |
| | | | | | -D1 | | With DE meter |

Note: The items enclosed in the bold-line boxes are for Standard Specifications.



Built in analog meter with Eng. Unit scale

(英字SS#357)



- Notes:
- 1) The process connection can be made in any of two positions of top or bottom. When connection is changed, replace the vent/drain plug.
 - 2) This transmitter can be mounted in various ways using the holes of the mounting bracket. (The above drawing shows an example of typical mounting.)
 - 3) Mount the transmitter vertically.
 - 4) To use an external indicating meter, disconnect the jumper bar from the M terminals and connect in its place the leadwires of the external indicating meter.
 - 5) Process connections (including the H and L marks) are inverted when: $\text{Suppression amount} > \frac{\text{Adjustable span}}{2}$. Be sure to check the locations of the H and L marks before installation.

Specifications are subject to change without notice.

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