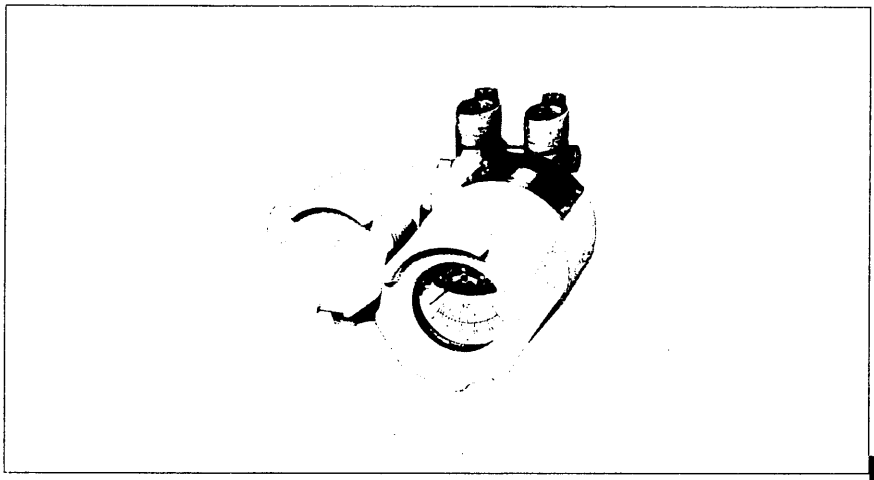
Yamatake-Honeywell **Specification**

ST 3000 Smart Transmitter
Electronic Differential Pressure Transmitter
JTD820 (Standard Type for Low and Medium Differential Pressure)
Measuring Span: 500 to 10000mmH_2O

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 settings (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 Communicator).



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Standard Specifications

Item	Specifications
Measuring span (Continuously adjustable)	500 to 10000mmH_2O
Setting range	$-10000 \leqq$ URV(*1) $\leqq 10000$mmH_2O, $-10000 \leqq$ LRV(*2) $\leqq 10000$mmH_2O
Output	Analog output (4 to 20mA DC) / Digital output
Accuracy(*3)	Percentage with respect to x (mmH_2O) that represents the URV or LRV of the calibrated range, or the span – whichever is greatest. Linear output: ±0.2% ..... When x is 1250 to 10000mmH_2O. ±0.35% ..... When x is 500 to 1250mmH_2O. (with damping effected) Square-root output: When output is 50 to 100% ..... Same as that of linear output. When output is 10 to 50% ..... Value of linear output × $\frac{50}{\text{Square-root output \%}}$ When output is less than 10% ..... Dropout
Supply voltage and load resistance	10.8 to 45V DC (See Figure 1.)
Working pressure rating	140kgf/cm² max. (For vacuum pressure, see Figure 2.)
Operating temperature range	Ambient temperature: Normal operating conditions; −15 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; −15 to + 85°C Operative limits (for short period); −50 to +120°C
Operating humidity range	Normal operating conditions: 10 to 90% RH
Temperature effect(*3) (Shift with respect to setting range)	Percentage with respect to x (mmH_2O) that represents the URV or LRV of the setting range, or the span – whichever is greatest. Zero shift: ±0.5%/55°C ..... When x is 1250 to 10000mmH_2O. Combined shift (Including zero and span shifts): ±1.0%/55°C ..... When x is 1250 to 10000mmH_2O.
Stability against supply voltage change	0.005% FS/V
Dead time	Approx. 0.4 sec. max.
Damping time constant	Adjustable within a range of 0.4 to 32 sec. by 10 steps. (at 25°C)
Process connection	Rc½, ½NPT internal thread, Rc¼, ¼NPT internal thread
Electrical conduit connection	G½ internal thread

(*1): URV denotes the value for 100% (20mA DC) output. (*3): Within a range of URV≧0 and LRV≧0.
(*2): LRV denotes the value for 0% (4mA DC) output.

Item	Specifications
Structure	Water-proof and dust-proof structure JIS C0920 water-tight, JIS F8001 Class 2 water-tight, NEMA 3 and 4X, IEC IP67
Materials	Center body: SUS316 Wetted parts of center body: SUS316 (SUS316L for diaphragm only) 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 4Y 7.2/1.3)
Burnout feature	Lower limit of output value at abnormal condition
Installation	Can be installed on a 2-inch horizontal or vertical pipe. (Can be directly mounted on a process pipe.)
Weight	Approx. 7.5kg

Selectable Standard Specification

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

Item		Specification
Process connection	Rear connection	Pressure rating: 100kgf/cm² max.

Optional Specifications

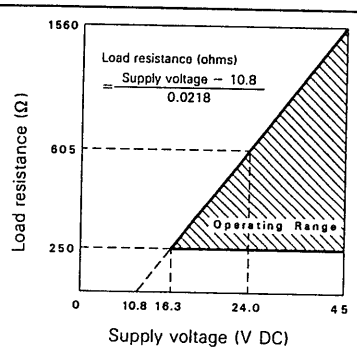
(The items other than the following are identical with those of the Standard Specifications.)

Item	Specifications
Built-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/cm² max.
Steam block	Pressure rating: 50kgf/cm² max. Operable temperature: 250°C max. (110°C max. for meter body (Process fluid temperature)) (Not available when meter body cover is made of PVC or 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.
Cable adaptor with flame-proof packing	Used for low-voltage electric cable installation at JIS Class 1 location for special flame-proof structure (ds2G4).
Explosion-proof structure	JIS C0903 ds2G4 special flame-proof structure Ambient temperature: −10 to +70°C Meterbody (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 Meterbody (Process fluid) temperature: −10 to +100°C
No oil finish	Excluding meter body cover of carbon steel

Model Number Table

Basic Model Number	Selection I: Material	Selection I: Fill Fluid	Selection I: Process Connection	Selection II	Options I	Options II	Description
JTD 820							Measuring span: 500 to 10000 mmH_2O
	−A						Meter body cover: SF45A; Vent/drain plugs: SUS316; Wetted parts of center body: SUS316 (Diaphragm:SUS316L)
	−E						Meter body cover: SUSF316; Vent/drain plugs: SUS316; Wetted parts of center body: SUS316 (Diaphragm:SUS316L)
		1					Regular type (Silicone Oil)
			Q				Rc½ Top or bottom connection
			R				½NPT internal thread Top or bottom connection
			S				Rc¼ Top or bottom connection
			T				¼NPT internal thread Top or bottom connection
			L				Rc½ Rear conneciton
			G				½NPT internal thread Rear conneciton
			D				Rc¼ Rear conneciton
			A				¼NPT internal thread Rear conneciton
				−00000			No selection
					−X		No option
					−L		Built-in lightning arrester
					−M		Built-in indicating meter (0 to 100% linear and 0 to 10 $\sqrt{}$ double scales)
					−W		SUS304 bolts and nuts material
					−F		With steam block
					−A		Corrosion-resistant finish
					−B		Corrosion-proof finish
					−D		Corrosion-resistant finish, silver paint
					−N		½ 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
					−J		Long vent/drain plugs
					−1		JIS special flame-proof structure
					−2		JIS intrinsic-safety explosion-proof structure
						−XX	No options
						−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.



Note: For communication with SFC, a load resistance of 250 ohms or more is needed.

Fig. 1 Supply voltage vs load resistance characteristics

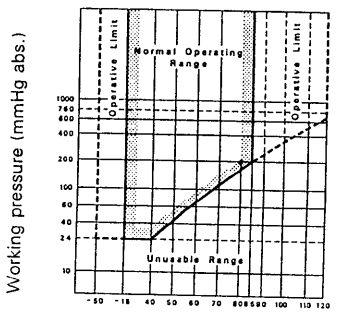


Fig. 2 Working pressure and temperature of wetted parts section

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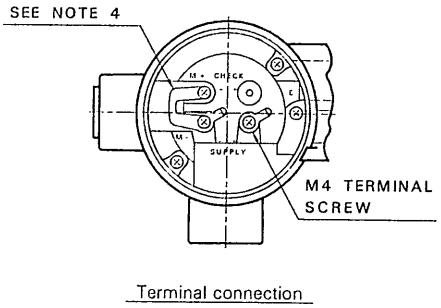
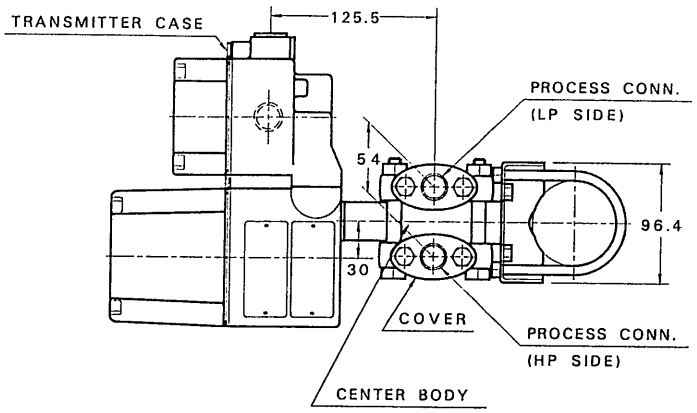
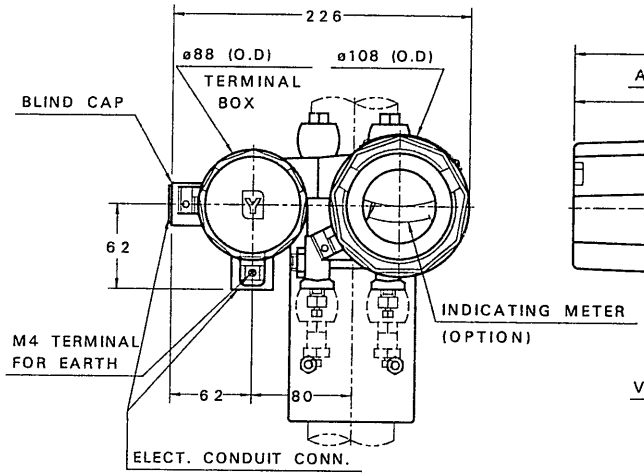
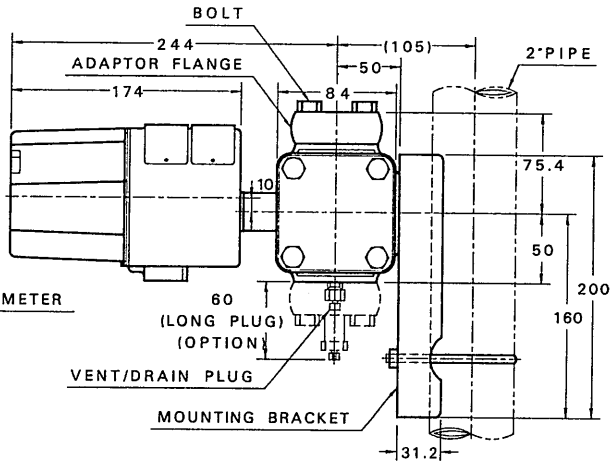
(Unit: mm)



Terminal connection







Notes: 1) The process connection can be made in any of two positions of top and 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: Suppression amount $> \frac{\text{Adjustable span}}{2}$.
Be sure to check the locations of the H and L marks before installation.

Fig. 3 Dimension drawing

*Specifications are subject to change without notice.