ST 3000 Smart Transmitter
Electronic Pressure Transmitter
Model JTG860 (for Gauge Pressure)
Measuring Span: 14 to 140kgf/cm²

Introduction

The ST 3000 Pressure Transmitter measures a process 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)	14 to 140kgf/cm²
Setting range	$-1 \leqq URV^{(*1)} \leqq 140$kgf/cm², $-1 \leqq LRV^{(*2)} \leqq 140$kgf/cm²
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. ±0.2% ..... When x is 35 to 140 kgf/cm². ±0.45% ..... When x is 14 to 35kgf/cm². (with damping effected)
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.)
Overpressure limit	210kgf/cm² max.
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 (kgf/cm²) 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 35 to 140kgf/cm². Combined shift (Including zero and span shifts): ±1.0%/55°C....When x is 35 to 140kgf/cm².
Stability against supply voltage change	0.005% FS/V
Dead time	Approx. 0.4 sec.
Damping time constant	Adjustable within a range of 0.2 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
Structure	Water-proof and dust-proof structure: JIS C0920 water-proof, JIS F8001 Class 3 splash-proof, NEMA 3 and 4X, IEC IP67

(*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
Materials	Center body: SUS316 Wetted parts of center body: SUS316 (SUS316L for diaphragm only) Meter body cover (Differential pressure chambers): Carbon steel (SF45A), SUSF316 (Reference pressure side: SUSF304) 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

Optional Specifications

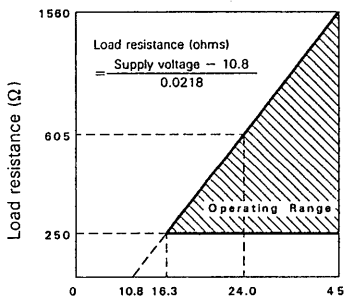
(The items other than the following are identical with those of the Standard Specifications.)

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 side connection meter body cover 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		
JTG860							Measuring span: 14 to 140kgf/cm²		
							Meter body cover	Vent/drain plugs (for top/bottom process connection only)	Wetted parts of center body
	−A						Carbon steel	SUS316	SUS316 (Diaphragm: SUS316L)
	−E						SUSF316	SUS316	SUS316 (Diaphragm: SUS316L)
		1					Regular type (Silicone oil)		
			A				Rc½	Side connection	
			G				½NPT internal thread	Side connection	
			D				Rc¼	Side connection	
			A				¼NPT internal thread	Side connection	
			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	
				−00000			No selection		
					−X		No option		
					−L		Built-in lightning arrester		
					−M		Built-in indicating meter (Standard scale)		
					−W		SUS304 bolts and nuts		
					−F		With steam block		
					−A		Corrosion-resistant finish		
					−B		Corrosion-proof finish		
					−D		Corrosion-resistant finish, silver paint		
					−N		½NPT 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

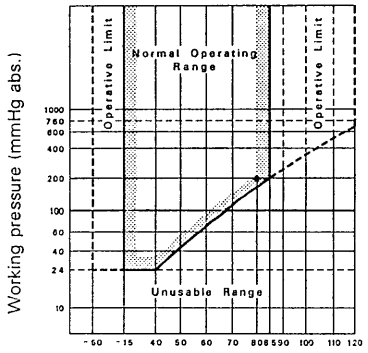


Fig. 2 Working pressure and temperature of wetted parts section

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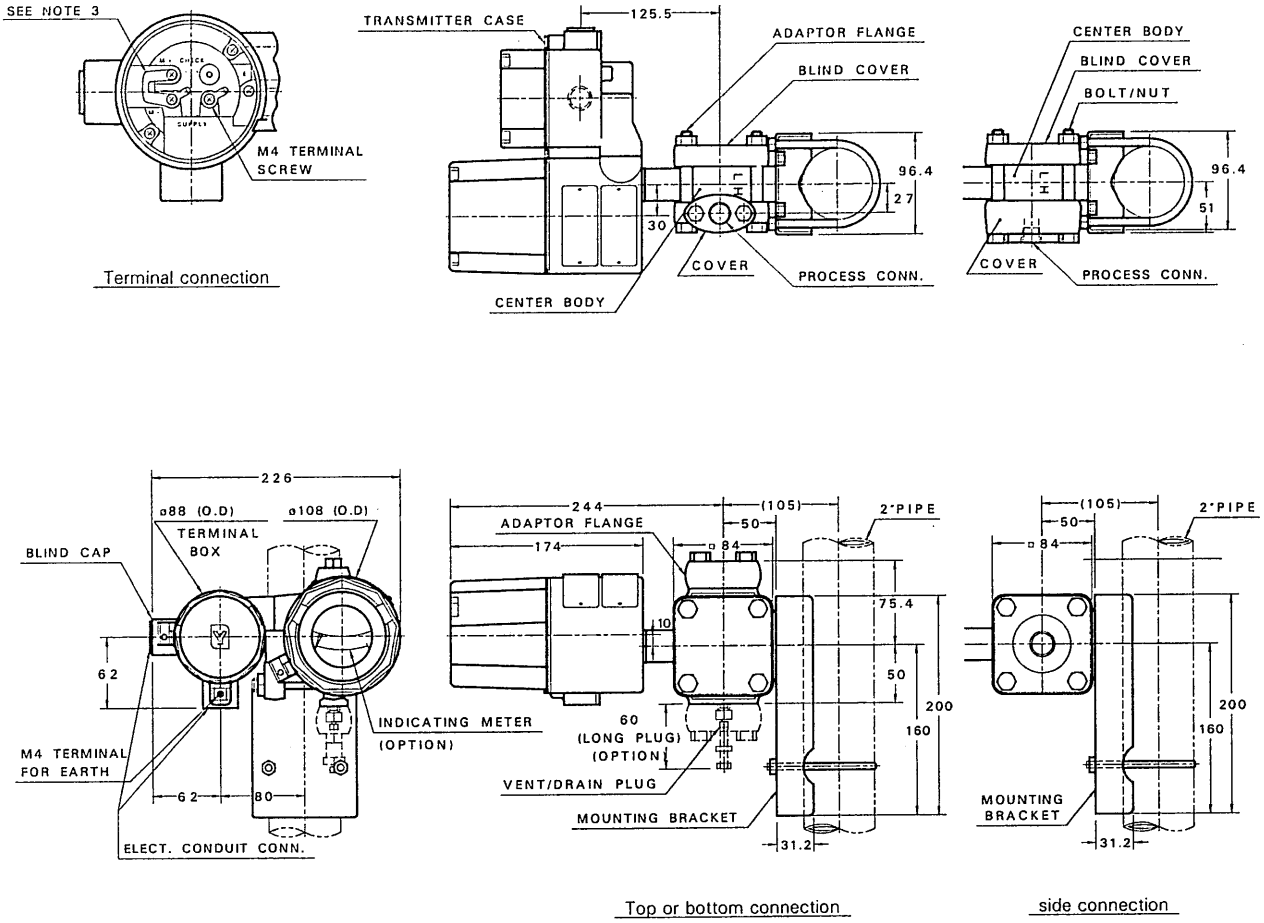

Note: 1) This transmitter can be mounted in various ways by using the holes of the mounting bracket. (The above drawing shows an example of typical mounting.)
2) Mount the transmitter vertically.
3) To use an external indicating meter, disconnect the jumper bar from the M terminals and connect in its place the leadwires of the external indicating meter.
4) The material for blind cover is SUSF304 for cover materials of other than SF45A.

Fig. 3 Dimension Drawing

*Specifications are subject to change without notice.