

## SMART PRESSURE TRANSMITTER

### Range and Sensor Limits

Refer to Table 1

### Zero and Span Adjustment Limits

- Zero and span values can be set anywhere within the range limits stated in Table 1.
- Span must be greater than or equal to the minimum span stated in Table 1

### Output (Analog Current and Digital Data)

- Two wire 4~20mA user-configurable for linear output, digital process value superimposed on 4~20mA signal, available to any host that conforms to the HART protocol

### Power Supply & Load Requirement •

- **External power supply required**  
Transmitters operate on 11.9 to 45 V dc.  
\* 250 ohm load-- 17.4 Vdc  
\* Up to a 550 ohm load -- 24 Vdc  
Max. Loop Resistance =  $(E - 11.9)/0.022$   
(E = Power Supply Voltage)
- **Supply Voltage**  
11.9 ~ 45 Vdc -- operation  
17.4 ~ 45 Vdc -- HART Communications  
11.9 ~ 42 Vdc -- CSA Approval
- **Loop Load**  
0 ~ 1500 ohm -- Operation  
250 ~ 550 ohm -- HART Communications

### EMC Conformity Standards

- EMI (Emission) – EN50081-2:1993
- EMS (Immunity) – EN50082-2:1995

### Update Time and Turn-On Time

- Update Time : 0.12 seconds
- Turn-On Time : 3 seconds

### Failure Mode

- Fail High : Current  $\geq 21.1$  mA
- Fail Low : Current  $\leq 3.78$  mA

### Storage Temperature

- $-40^{\circ}$  C to  $85^{\circ}$  C (without condensing)

### Process Temperature Limits

(Range codes and approval codes may affect limits)

- $-40^{\circ}$  C to  $120^{\circ}$  C (  $-40$  to  $248^{\circ}$  F )

### Isolation

- Input/output isolated to 500Vrms (707 Vdc)

### Overpressure Limits (silicone oil)

Overpressure Limits (silicone oil)

Model G	-100 ~ 400 KPa	----- # 3
	-100 ~ 4000 KPa	----- # 4
	0 ~ 14,000 KPa	----- # 5
	0 ~ 70,000 KPa	----- # 6
	0 ~ 80,000 KPa	----- # 7
Model A	0 ~ 700 KPa	----- # 4
	0 ~ 4000 KPa	----- # 5
	0 ~ 7000 KPa	----- # 6

### Physical Specifications

#### Wetted Materials

- Isolating Diaphragms ----316L SST, Monel, Tantalum, HAST-C

#### Non-wetted materials

- Fill Fluid -----Silicone oil
- Electronics Housing ---Aluminum, Flameproof and Waterproof (IP67)
- Cover O-ring -----Buna-N
- Paint -----Epoxy-Polyester or Polyurethane
- Mounting Bracket -----2-inch Pipe, 304 SST, Painted Carbon Steel  
with  
304 SST U-bolt
- Nameplate -----304 SST

#### Electrical connections

- 1/2-14 NPT conduit with M4 Screw Terminals

#### Process Connections

- 1/2-14 NPT Female
- 1/4-18 NPT (option)

#### Weight

- 1.7 kg (excluding options)

## SMART PRESSURE TRANSMITTER

### Hazardous Location Certifications (option)

**KOSHA Approvals** (KOSHA: Korea Occupational Safety & Health Agency)

**K1 Code:**

Flameproof for Class I, Zone 1: Ex d IIC T6, IP67  
Ambient Temperature: -20 to 60 °C  
Max. Process Temperature: 80 °C  
Power Supply: Max. 45 Vdc  
Output: 4 to 20 mA + HART, Max. 22 mA

**KTL Certification** (KTL: Korea Testing Laboratory)

**K2 Code:**

Intrinsic Safety: Ex ia IIC T5  
Ambient Temperature: -20 to 60 °C  
Max. Process Temperature: Max. 100 °C  
Entity Parameter: Umax=40Vdc, Imax=165mA,  
Pmax = 0.9W

**CSA** (Canadian Standards Association) Approvals

**C1 Code:**

“SEAL NOT REQUIRED”

Explosion proof for Class I, Division 1,  
Groups A, B, C & D

Dust-ignition proof for Class II, Division 1,  
Groups E, F & G; Class III

Flameproof for Class I, Zone 1: Ex d IIC

“T6, See Instruction for temperature code if  
process temperature above 85 °C”

Class I, Division 2, Groups A, B, C, D;

Class II, Division 2, Groups E, F, G;

Class III T4

Non sparking Equipment for Class I Zone 2:

Ex nA IIC T4

Enclosure: Type 4x, IP66

Power Supply: 11.9 to 42 Vdc Max.

Output Signal: 4 to 20 mA + HART

**FM** (Factory Mutual explosion proof) Approvals

**F1 Code:**

Explosion proof for Class I, Division 1  
Groups A, B, C and D

Dust-ignition proof for Class II, Division 1,  
Groups E, F and G

Dust-ignition proof for Class II, Division 1

“T6, see instruction for temperature code if  
Process temperature above 85°C”

Ambient Temperature: -20 to 60°C

Enclosure: indoors and outdoors, NEMA Type 4X

Conduit seal required within 18” for Group A only.  
Nonincendive for Class I, Division 2, Groups A, B,

C & D

Class II, Division 2, Groups E, F & G; and Class  
III, Division 1,

Temperature Code T4

Ambient Temperature: -20 to 60°C

Enclosure: indoors and outdoors, NEMA Type 4X

**ATEX Approvals**

**E1 Code:**

ATEX Certificate number: KEMA07ATEX0103

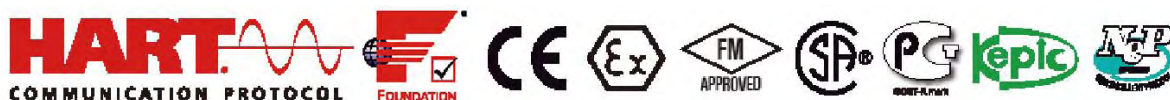
CE0344 Ex II 2 G

Ex d IIC T6 or T5

Operating Temperature: -20°C ≤ Tamb ≤ +60°C

T6 for process < 85°C; T5 for process < 100°C

*\* If you need to order the model with the certificate of CSA, FM and ATEX, Please contact the manufacturer before order.*



## SMART PRESSURE TRANSMITTER

### General Specifications

#### 1) APT3200 –G/A Pressure Sensor Range (Rangeability = 100 : 1)

Table 1

	APT3200 – G		APT3200 - A	
	Range (KPa)	Calibrated Span (KPa)	Range (KPa)	Calibrated Span (KPa)
3	-100 ~ 150	1.5 ~ 150	NA	NA
4	-100 ~ 1,500	15 ~ 1,500	0 ~ 250	2.5 ~ 250
5	0 ~ 5,000	50 ~ 5,000	0 ~ 1,500	15 ~ 1,500
6	0 ~ 25,000	250 ~ 25,000	0 ~ 2,500	25 ~ 2,500
7	0 ~ 60,000	600 ~ 60,000	NA	NA

#### 2)Electrical Specifications

Power Supply	11.9 ~ 45 Vdc	Output Signal	4 ~ 20 mA dc/HART
HART loop resistance	250 ~ 550 ohm	Isolation	500 Vrms (707 Vdc)

#### 3)Performance Specifications

Reference Accuracy	$APT3200 - G/APT 3200 - A$ $\pm 0.075\% \text{ of Span } (0.1URL \leq \text{Span} \leq URL)$ $\pm [0.025 + 0.005 \times (URL/Span)]\% \text{ of Span}$ $(0.01URL \leq \text{Span} < 0.1URL)$	Ambient Temperature	-40°C ~ +85°C
		LCD Meter Ambient Temp.	-30°C ~ +80 °C
		Humidity Limits	5% ~ 98% RH
Ambient Temperature Effect	$APT3200 - G/APT 3200 - A$ $\pm [0.019\%URL + 0.125\% \text{ Span}] / 28^\circ\text{C}$	Process Temperature Limits	-30°C ~ +100°C
		Power Supply Effects	$\pm 0.005\% \text{ of Span per Volt}$
		Stability	$APT3200-G/APT3200 - A$ $\pm 0.125\%URL \text{ for 12 months}$

#### 4)Physical Specifications

Isolating Diaphragm	316L SST	Process Connection Size	1/2 – 14 NPT Female
Electronic Housing	Aluminum(Option: SST)	Electrical Connections	1/2 – 14 NPT with M4
Housing Class	Waterproof (IP67)	2" Pipe Stanchion Type bracket	Angle or Flat type
		Weight (excluding Option Items)	1.7 Kg

#### 5)Hazardous Location Certifications (option)

Available Approval
Flameproof Approval : Ex d IIC T6 (KOSHA) Intrinsic Safety Approval : Ex ia IIC T5 (KTL) CSA (Canadian Standards Association) FM Explosion proof approval ATEX Flame proof Approval

## SMART PRESSURE TRANSMITTER

### APT 3200 Configuration Sheet

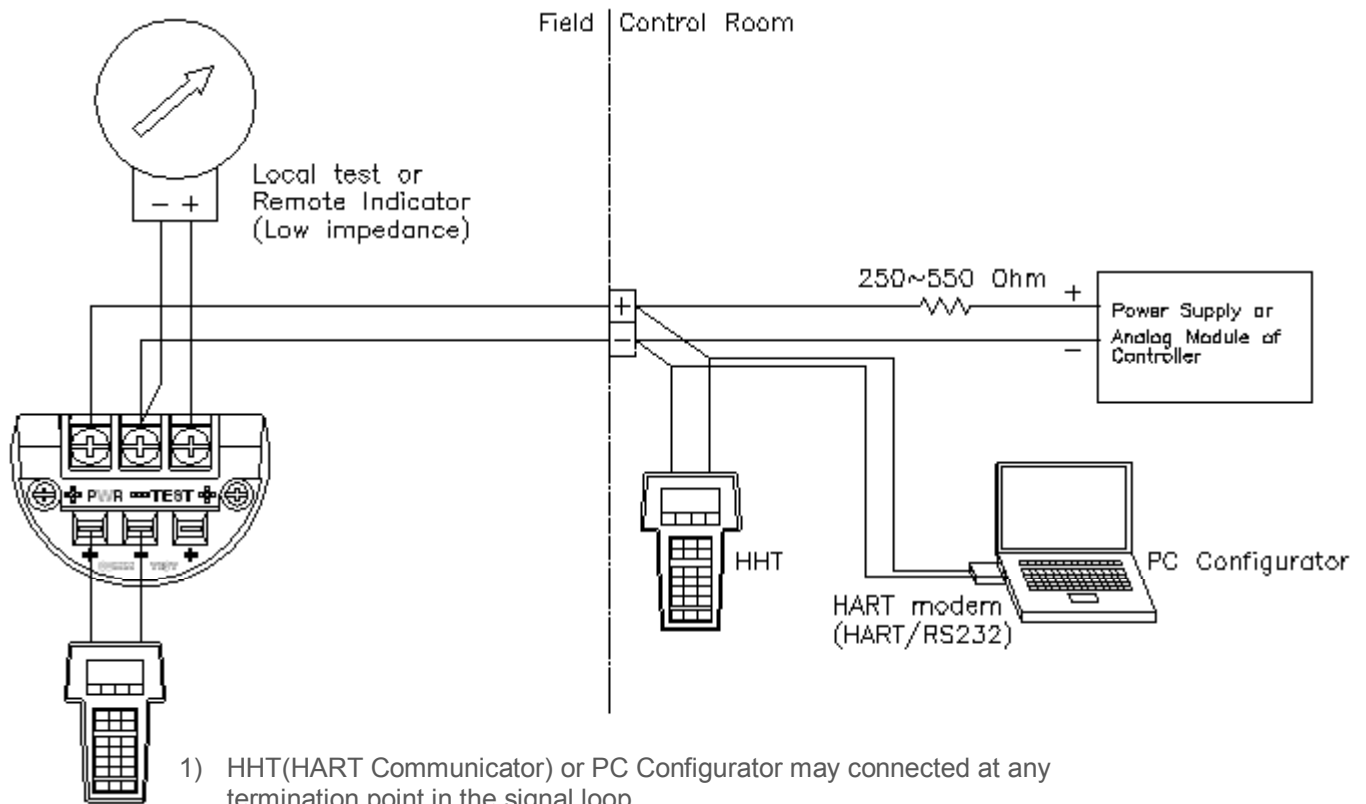
Model	Code	Description					
APT3200	-G	Gauge Pressure Transmitter (reference accuracy : 0.075 % of span )					
	-A	Absolute Pressure Transmitter (reference accuracy : 0.075 % of span )					
Range		G			A		
		Range(KPa)	Min. Span (KPa)	Range (Kpa)	Min. Span (KPa)		
	3	-100 ~ 150	1.5	NA	NA		
	4	-100 ~ 1,500	15	0 ~ 250	2.5		
	5	0 ~ 5,000	50	0 ~ 1,500	15		
	6	0 ~ 25,000	250	0 ~ 2,500	25		
	7	0 ~ 60,000	600	NA	NA		
X	Special						
Mounting Flange Size Material		DIAPHRAGM			OTHER		
	M11	316 SST			316 SST		
	M12	HAST-C			316 SST		
	M13	Tantulam			316 SST		
	M21	HAST-C			HAST-C		
Hazardous Location Certificates	K0	Maker Standard (Waterproof : IP67 )	*E1	ATEX(KEMA) Flameproof			
	K1	KOSHA Flameproof Approval : Ex d IIC T6	*E2	ATEX(KEMA) Intrinsic Safety			
	K2	KTL Intrinsic Safety Approval : Ex ia IIC T5	F1	FM/FMC Explosion proof (for USA & Canada)			
	*F2	FM Intrinsic Safety					
Fill Fluid	1	Silicone					
	*2	Inert fill Fluid (Halocarbon Oil)					
Process Connection	S	1/2 – 1/4 NPT Female (Standard)	O	1/4 - 18 NPT Female Adapter)	X	Special	
Electrical Connection	1	1/2-14NPT	*2	G1/2	X	Special	
Option	M1	LCD Indicator(5digit)					
	LP	Lighting Protector (Internal Type)					
	K	Oil Free Finish					
	2W	2 Way Manifold Flange Type (Add Remark "Remote Type")					
	BA	Stainless Steel Bracket (Angle type) with SST Bolts					
	BF	Stainless Steel Bracket (Flat type) with SST Bolts					
	ST	Stainless Steel (SUS 316) Housing					

**Example: APT3200-G5-M11-K0-1-S-1-M1**

Note 1: Request manufacturer for Draft Range, Absolute (small pressure and vacuum) and Items marked "\*" before order.

## SMART PRESSURE TRANSMITTER

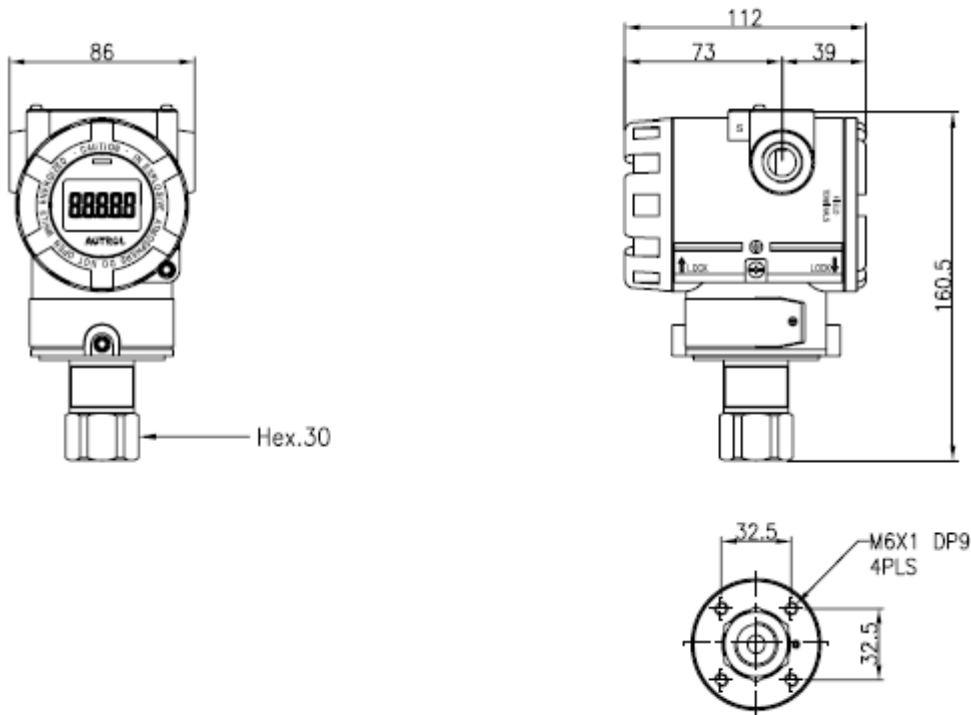
### Connection Diagram of Signal, Power, HHT for Transmitter



- 1) HHT(HART Communicator) or PC Configurator may connected at any termination point in the signal loop
- 2) HART Communication requires a loop resistance between 250 and 550 ohm @ 24 Vdc
- 3) Transmitter operates on 11.9 to 45.0 Vdc transmitter terminal voltage.  
 [Applied Power]
  - \* 11.9 ~ 45.0 Vdc for General Operation
  - \* 17.4 ~ 45.0 Vdc for HART Communication
  - \* 17.4 ~ 42.0 Vdc for CSA Approval (Power supply must not exceed 42.0 Vdc)

## SMART PRESSURE TRANSMITTER

### Dimensions of Transmitter (mm)



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