

## PENBERTHY PMT™ Series Magnetostrictive Transmitter

MODELS PMT Magnetostrictive Transmitter / In-Tank PMT Magnetostrictive Transmitter



### FEATURES

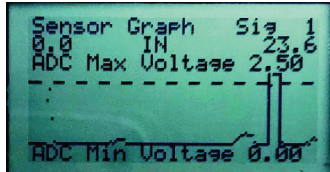
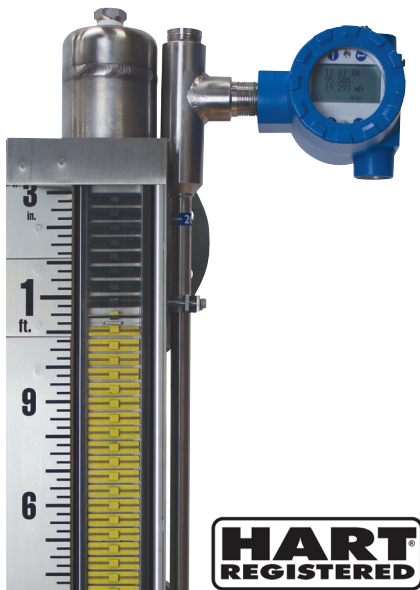
- 4-20 mA loop powered; 12.5 to 36VDC
- HART Protocol Communication NEW! HART 7
- Sensing lengths from 12 inches (305mm) to 360 inches (9 meters)
- Process Temperature -300°F to 700°F (-185°C to 372°C) (Insulation Safeguards Required over 350°F [176°C]) - Gage Mount
- Process Temperature -40°F (-40°C) to 285°F (140°C) - Tank Mount
- Dual Float Functionality (Interface and Total Level)
- ETL approved for USA, Canada, ATEX and IECEx (Explosion/Flame Proof, Intrinsic Safety)
- Dual Compartment NEMA 4X; IP66 Enclosure
  - Epoxy Coated Aluminum Standard
  - 316SS optional
- One-Touch Waveform Graphical Display

### PMT Series Magnetostrictive Transmitter

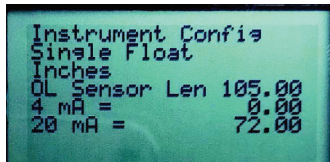
The PMT Series magnetostrictive transmitter represents a significant advancement in level measurement technology. The integration of Penberthy's signal capture technology sets it apart with its superior signal-to-noise ratio, ensuring highly accurate level readings even in challenging environments. The dual-entry enclosure design enhances its functionality by offering both safe and convenient access to the HMI on the front and easy access to power connections in the back. The HMI enhances user interaction by offering instant access to vital information, such as current level readings and device settings, all at the touch of a button. The real-time waveform graph is

an especially useful tool for monitoring and diagnostics, offering a visual representation of the process in action. Compatibility with HART 7 makes the PMT highly versatile and easy to integrate into existing systems, facilitating seamless communication and control. The transmitter is also designed with user-friendliness in mind, from installation to setup, ensuring that it can be quickly and efficiently deployed in various applications. In line with Penberthy's reputation for reliability, the PMT complements our established range of flag indicators, floats, and switches, adding a robust solution for continuous level control.

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- View Full waveform, including trigger level and # of peaks
- LIVE View of signal, noise condition



- Quickly Display Current Device Parameters
- Verify Range, URV, LRV
- Verify SN, Tag#

**Explosion Proof**



**ETL (USA, Canada)**

- Class I, Div. 1 and 2, Groups B, C, D; T6
- Class 1, Zone 1, AEx db IIB+H2 T6  
Ex db IIB+H2 T6 Gb
- $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$   
( $-40^{\circ}\text{F} \leq T_a \leq +140^{\circ}\text{F}$ )



**ATEX**

- II 2 G Ex db IIB+H2 T6 Gb
- $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$   
( $-40^{\circ}\text{F} \leq T_a \leq +140^{\circ}\text{F}$ )



**IECEX**

- Ex db IIB+H2 T6 Gb
- $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$   
( $-40^{\circ}\text{F} \leq T_a \leq +140^{\circ}\text{F}$ )

**Intrinsic Safety**

**ETL (USA, Canada)**

- Class I, Div. 1 and 2, Groups C, D; T4
- Class 1, Zone 1, AEx db IA IIB T4 GB  
Ex db IA IIB T4 Gb
- $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$   
( $-40^{\circ}\text{F} \leq T_a \leq +140^{\circ}\text{F}$ )

**ATEX**

- II 2 G Ex db IA IIB T4 Gb
- $-40^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$   
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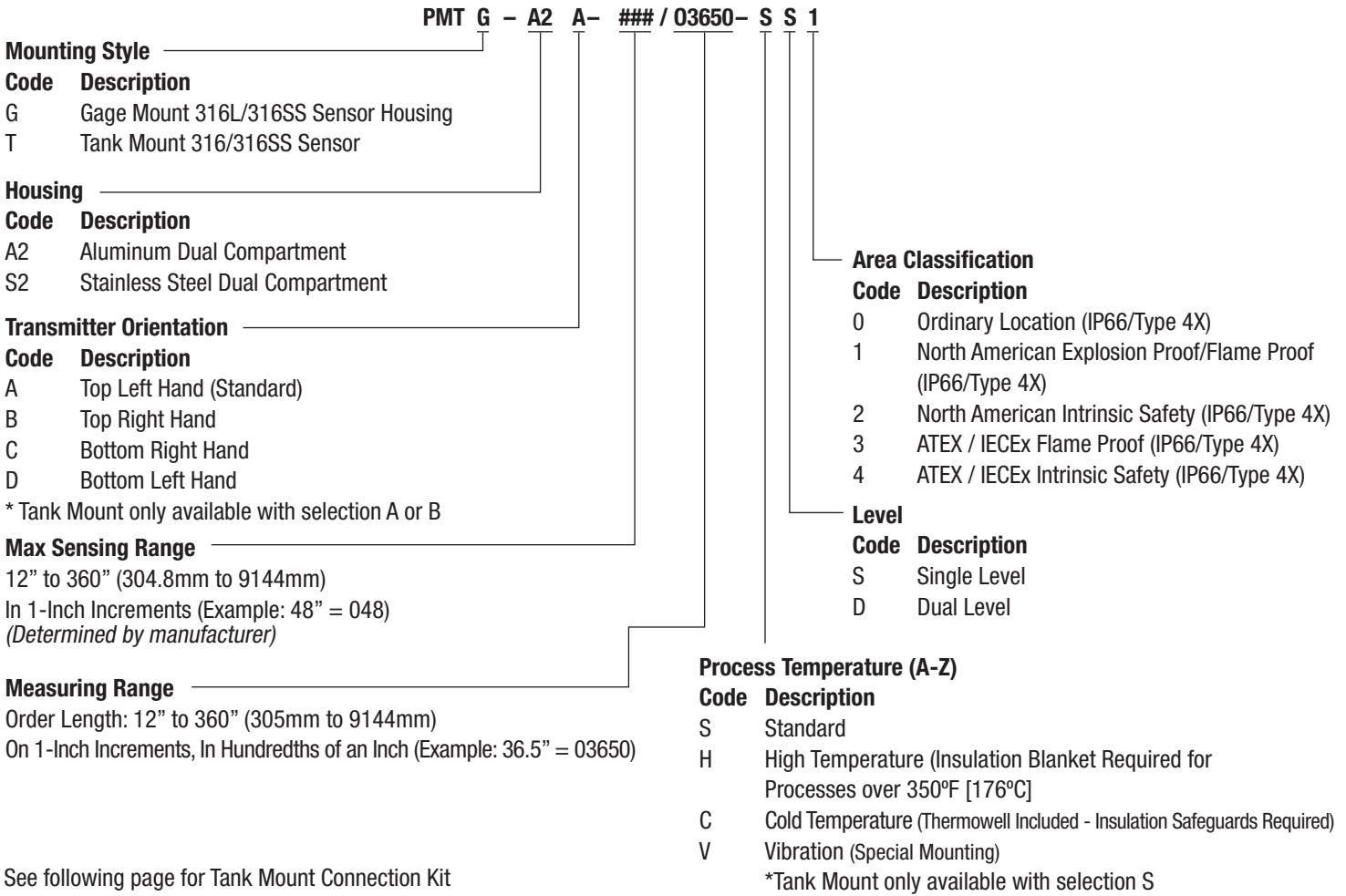
**IECEX**

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**PENBERTHY®**

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**How to Specify PMT Magnetostrictive Transmitter**



**Specifications**

**Electronics**

- Supply Voltage:** 12.5 - 36 Vdc (12.5 V @ 20mA)
- Repeatability:** .005% of full scale or .010", whichever is greater
- Non-Linearity:** .01% of full scale or .030", whichever is greater
- Damping:** 1 to 32 Seconds
- Operating Temp:** -50°C to 85°C (-58°F to 185°F)
- RFI Guide:** SAMA PMC 31.1-5.1  
20 to 1000 Mhz to 30 V/m
- Humidity Guide:** SAMA PMC 31.1-5.2

**Housing**

- Dual compartment explosion proof housing
- 3/4" NPT conduit entry
- Epoxy coated aluminum (Standard); 316SS (Optional)
- Nema 4X; IP66

**Sensor Probe Specification**

- Gage/Tank Mount Materials:** 316L/316SS Standard
- Vibration Guide:** SAMA PMC 31.1-5.3

See Sales Drawing A35152-G-PB-SALES for BOM and Dimensional Information



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**PMT In-Tank Process Connection & Accessory Kit**

**Example Model Code: PMT T-A2A-048/03650-SS1+ TA - 20 - F 1 - 0**

**Float(s) / Application**

- XX 2-Character Float Code for Single (Overall) Level (Table 1)
- XXX 3-Character Code for Single (Interface) Level (Table 2)
- XXXX 4-Character Code for Dual (OAL+IF) Level (Table 3)

Table 1 - Float Code: Single (Overall) Level					
	Mat'l	316SS			
	OD	1.85	2.06	2.05	3.60
	PSIG	400	750	350	300
Min SG	0.73	TA	---	---	---
	0.84	---	TB	---	---
	0.68	---	---	TC	---
	0.49	---	---	---	TD

Table 2 - Float Code: Single (Interface) Level							
Material (Parts In Contact):		316SS					
Float Outside Diameter:		2.05" / 52.1 mm					
Max Operating Pressure:		350 PSIG / 24.1 Bar					
SG Sinks Thru	0.60	0.70	0.80	0.90	1.00	1.10	1.20
SG Floats On	0.70	0.80	0.90	1.00	1.10	1.20	1.30
Float Code	TC1	TC2	TC3	TC4	TC5	TC6	TC7

Table 3 - Float Code: Dual (OAL+IF) Level								
		Float Code, Interface						
		TC1	TC2	TC3	TC4	TC5	TC6	TC7
Float Code, OAL	TA	TAC1	TAC2	TAC3	TAC4	TAC5	TAC6	TAC7
	TB	TBC1	TBC2	TBC3	TBC4	TBC5	TBC6	TBC7
	TC	TCC1	TCC2	TCC3	TCC4	TCC5	TCC6	TCC7
	TD	TDC1	TDC2	TDC3	TDC4	TDC5	TDC6	TDC7

**Options**

- 0 Omitted (None)  
- Stop Collar Only
- C225 Centering Disc 2.25" OD  
(Suitable for Float Codes Starting with TA, TB, & TC)
- C375 Centering Disc 3.75" OD  
(Suitable for Float Codes Starting with TD)
- S<sup>1-4</sup> Stilling Well + Centering Disc  
(Hole Spacing is 60" (Overall Level) or 8" (IF or Dual))

**Process Connection Class**

- 0 Omitted (Threaded)
- 1 150#
- 3 300#
- 6 600#

**Process Connection Style**

- T Threaded, MNPT
- F Flanged
- W Flanged, Seal Welded

**Process Connection Size**

- 05 0.5 (Threaded Only)
- 20 2.0 (Threaded or Flanged)
- 25 2.5 (Flanged Only)
- 30 3.0 (Flanged Only)
- 35 3.5 (Flanged Only)
- 40 4.0 (Flanged Only)
- 50 5.0 (Flanged Only)
- 60 6.0 (Flanged Only)

**Notes:**

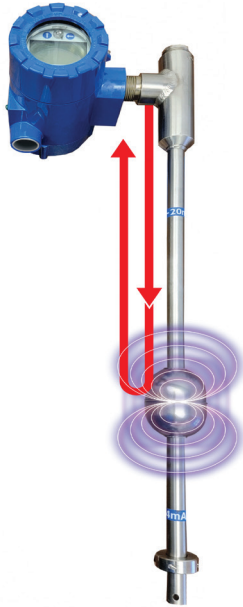
- 1 - Available with Process Connection Style 'F' or 'W', for Process Connection Size '25', or larger.
- 2 - Stilling Well OD is either 2.5" or 4.0" (nominal). Smallest OD, larger than float OD, shall be used.
- 3 - Centering disc OD matched to stilling well.
- 4 - Not Available for float(s) with larger OD's.

Fill out specification form PB200.08 to accommodate for storage vessel geometry (required).



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**PMT Method of Operation**

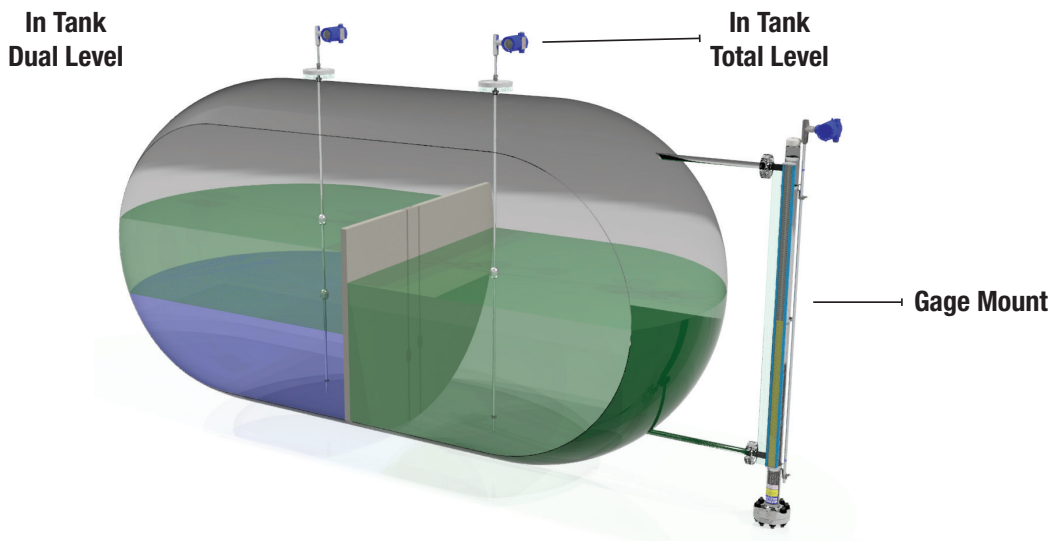
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The on-board electronic module sends a low-power pulse down the sensing wire of the transmitter. The float, which is designed to reside precisely at the fluid level, contains internal magnets outwardly projecting a strong magnetic field. Where the float's magnetic field intersects the sensing wire, a torsional return "pulse" results, and travels back towards the electronics, where it is measured. The "time of flight" is used to determine the position of the float.

**Mounting Styles**

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The PMT Magnetostrictive Transmitter can be mounted via direct Insertion into a storage vessel, or externally to a Magnetic Level Gage with a variety of connection types. When installed to the Penberthy Magnicator, the unique magnetic arrangement allows for almost any chamber combination, including Schedule 160, without sacrificing reliability. A highly reliable and accurate means to add continuous level measurement to almost any application.



**Authorised Distributor:**



**NATIONWIDE  
OIL & GAS**

46, Jalan SS 22/21, Damansara Jaya,  
47400 Petaling Jaya,  
Selangor Darul Ehsan, Malaysia.  
*Email: [nog@nog.com.my](mailto:nog@nog.com.my)*  
*Website: [www.nog.com.my](http://www.nog.com.my)*

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