

# 11GM Pneumatic Transmitter for Gauge Pressure Measurement

## Product Specifications



PSS 2B-1A3 A-AS  
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*THE AUTOMATION SERVICE™ BRAND MODEL 11GM TRANSMITTER ACCURATELY MEASURES GAUGE PRESSURE AND TRANSMITS A PROPORTIONAL PNEUMATIC OUTPUT SIGNAL TO RECEIVERS WHICH MAY BE SEVERAL HUNDRED YARDS AWAY.*

## WIDE RANGEABILITY

Spans are fully adjustable up to a 10:1 ratio, providing wide rangeability in a single instrument. Fewer stand-by transmitters are required.

## PROVEN DEPENDABILITY

The model 11GM transmitter uses the same topworks as other pneumatic d/p cell transmitters. This mechanism has been the standard for differential pressure measurement for over 50 years. Many thousands of successful, trouble-free installations have demonstrated the exceptional dependability of these outstanding transmitters.

## ON-LINE CALIBRATION

This transmitter is equipped with a vernier range adjustment which allows the operator to select one of several predetermined ranges without removing the transmitter from the process. No other calibration apparatus is required for the predetermined ranges.

## PRECISE MEASUREMENT

Since accuracy is a function of calibrated span, precision is retained even with highly elevated- or suppressed-zero ranges.

## EASE OF MAINTENANCE AND COMMONALITY OF PARTS

The simple design of the topworks and the field-replaceable sensing capsules make servicing these transmitters exceptionally easy and economical. In addition, the topworks

mechanism of these transmitters is virtually identical to that used in other pneumatic transmitters, minimizing spare parts inventories and simplifying maintenance routines.

## OPERATING CONDITIONS

Influence	Reference Operating Conditions	Normal Operating Conditions	Operative Limits
Ambient Temperature	24 ±2°C (75 ±3°F)	-40 to +120°C (-40 to +250°F)	-45 and +140°C (-50 and +280°F)
Process Temperature	24 ±2°C (75 ±3°F)	-40 to +120°C (-40 to +250°F)	-45 and +190°C <sup>(a)</sup> (-50 and +357°F) <sup>(a)</sup>
Supply Pressure	140 ±1.4 kPa, 20 ±0.2 psi, or 1.4 ±0.014 bar	120 to 150 kPa, 18.0 to 22.0 psi, or 1.2 to 1.5 bar	240 kPa, 35 psi, or 2.4 bar

<sup>(a)</sup>Topworks temperature must not exceed 120° (250°F).

## FUNCTIONAL SPECIFICATIONS

Table 1. Span, Range and Overrange Limits

Model	Capsule Code	Span Limits <sup>(a)</sup>		Range Limits <sup>(a) (b)</sup>		Maximum Overrange Pressure Limit	
		MPa	psi	MPa	psi	MPa	psi
11GM	A	0.07 and 0.56	10 and 80	-0.1 and +0.6	-15 and +90	0.7	100
	B	0.14 and 1.4	20 and 200	-0.1 and +2.4	-15 and +350	3.5	500
	C	0.3 and 2.8	40 and 400	-0.1 and +5	-15 and +750	7	1,000
	D	0.7 and 7	100 and 1,000	-0.1 and +10	-15 and +1,500	14	2,000
	E	1.4 and 14	200 and 2,000	-0.1 and +20	-15 and +3,000	28	4,000

<sup>(a)</sup>For values in bar or kg/cm<sup>2</sup>, multiply MPa values by 10.

<sup>(b)</sup>Non-zero based ranges may require the optional zero elevation kit or suppression kit.

See "Elevation and Suppression". Upper and lower range-values must not fall outside the range-limits.

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**FUNCTIONAL SPECIFICATIONS (CONT.)**

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**ELEVATION AND SUPPRESSION****With Optional Kits**

The sum of zero suppression plus calibrated span must not exceed the upper range limits shown in Table 1. Zero may be elevated to provide lower range values down to the lower range limit.

Zero may be suppressed to a maximum of 900% of minimum span (700% for Capsule Code A).

**Typical Range for Zero Suppression**

0.14 to 0.7 MPa, 20 to 100 psi, or 1.4 to 7 bar or kg/cm<sup>2</sup>.

**Typical Range for Zero Elevation**

-0.07 to +0.07 MPa, -10 to +100 psi, -0.7 to +7 bar or kg/cm<sup>2</sup>.

**Without Optional Kits**

Using the zero adjustment, zero may be elevated or suppressed to 10% of span.

**Output Signal**

20 to 100 kPa, 3 to 15 psi, or 0.2 to 1.0 bar or kg/cm<sup>2</sup>, as specified.

**Air Consumption Under Normal Operation**

0.42 m<sup>3</sup>/h (0.25 cfm) at standard conditions.

**Mounting**

Bracket for mounting on a vertical or horizontal nominal 50 mm (2 in) diameter pipe.

**Mounting Position**

This transmitter may be mounted in any position.

**Air Connections**

The supply and output connections are tapped for 1/4 NPT.

**Process Connections**

Refer to "MODEL CODE - 11GM TRANSMITTER"

## PERFORMANCE SPECIFICATIONS

*Under Reference Operating Conditions Unless Otherwise Specified*

### Accuracy

±0.5% of span

### Dead Band

0.15% of span

### Repeatability

0.1% of span with AISI Type 316 stainless steel capsule.

### Hysteresis

0.1% of span with capsule codes A, B, C, and D.  
2% of span with capsule code E.

### Position Effect

Zero shifts caused by tilting these transmitters about the centerline of the process connection may be corrected with the zero adjustment screw.

### Supply Pressure Effect

This transmitter is designed to operate at 140 kPa, 20 psi, or 1.4 bar or kg/cm<sup>2</sup> supply pressure. There is a zero shift of less than 0.2% of span for each 5% change in supply pressure within normal operating limits.

### Ambient Temperature Effect

Zero shift in percent of span per 55°C (100°F) change.

Table 2.

Model	Span Adjustment (Percent of Maximum Span)	Maximum Zero Shift (Percent of Span)
11GM	80 to 100	1.0
	50 to 80	1.5
	20 to 50	2.5
	10 to 20	3.0

## PHYSICAL SPECIFICATIONS

**Table 3. Material of Construction - Wetted Parts**

Item	Wetted Parts Materials for 11GM-S <sup>(a)</sup>
Bourdon Tube	--
Capsule	316 ss
Connection Block	316 ss
Connector Gasket	Silicone Elastomer

<sup>(a)</sup> 11GM-A, -B, -C, -D, or -E

### MATERIAL OF CONSTRUCTION - NONWETTED PARTS

#### Body

Forged 316 ss

#### Cover (Topworks)

Blue, high-impact, glass-filled polycarbonate

#### Bolting

Alloy Steel per ASTM A193 grade B7 or equivalent. See "OPTIONAL FEATURES" section for 17-4 PH stainless steel bolting.

#### Environmental Protection

The transmitter has the dust-resistant and weatherproof rating of IP54 as defined by IEC 60529 and with its constant air purging, provides the environmental protection rating of NEMA 3.

#### Data Plate

3M Adhesive Data Tag applied to topworks, with the exception of model -MTS, which requires stainless steel data tag (See Table 4). Includes space for customer tag data up to a maximum of 67 characters and spaces. For additional space, see Optional Customer Tag in Table 4.

#### Approximate Mass

4.5 kg (10 lb)

When ordering an option, add AS Reference to Model Code.

## OPTIONAL FEATURES

**Table 4. AS References**

Optional Feature	Description	AS Reference
Reverse Output	100 to 20 kPa, 15 to 3 psi, or 1.0 to 0.2 bar or kg/cm <sup>2</sup> as specified.	TR 15-3
Output Signal	Output signal is 3 to 27 psi. Air supply pressure is between 29.5 and 30.5 psi.	TR 3-27
Oxygen Service Preparation	Transmitter is cleaned, assembled, calibrated, and packaged, in a clean room or using other acceptable alternative facilities.	OS-W
Nuclear Service Cleaning	Transmitter is cleaned, assembled, calibrated, and packaged, same as above.	NS-C
Air Supply Sets	A wide selection of air supply sets is available to provide filtered, regulated supply air to the transmitter.	Refer to Automation Service
Test Tee	A T-connector tapped for 1/4 NPT and fitted with a shut-off valve is mounted on the transmitter for monitoring the output signal.	OTT
Pressure Seals	Transmitters are available with a variety of field-replaceable filled pressure seal systems.	Refer to Automation Service
Viton-A Process Wetted Gaskets	Capsule and force bar gaskets of Viton-A for chemical resistance.	DG-6
ptfe Process Wetted Gaskets	Capsule and force bar seal gasket of ptfe for corrosion resistance.	DG-7
Lower Spans	Provides for minimum span of 35 kPa, 5 psi, or 0.35 bar or kg/cm <sup>2</sup> . The standard performance specifications and operating condition effects are degraded by factors of up to three. This option cannot be used with the optional Output Signal feature. (AS Reference TR 3-27).	LD
Stainless Steel Bolting	Type 17-4 PH stainless steel cap screws and nuts for the process connector.	SSB
Stainless Steel Mounting Bracket Bolting	316 ss bolting through the mounting brackets to the transmitter.	SSB-A
Air Regulator	A wide selection of air supply regulators is available, assembled to the transmitter by Automation Service, to provide filtered, regulated supply air to the transmitter. Suffix letters denote the type (fixed or adjustable) and whether or not the range is included. (Refer to Automation Service.)	IAS-XX
Non-Process Wetted Bolting Compliance with Class II or Standard MR-01-75	This option provides non-process wetted bolting in compliance with NACE MR-01-75, Class II.	B7M
Customer Tag	Stainless steel tag wired to transmitter for customer tag data that doesn't fit on data plate. There can be a maximum of 10 lines of data with 40 characters and spaces per line.	MTS
<i>Example: 11GM-BS2-L</i>		

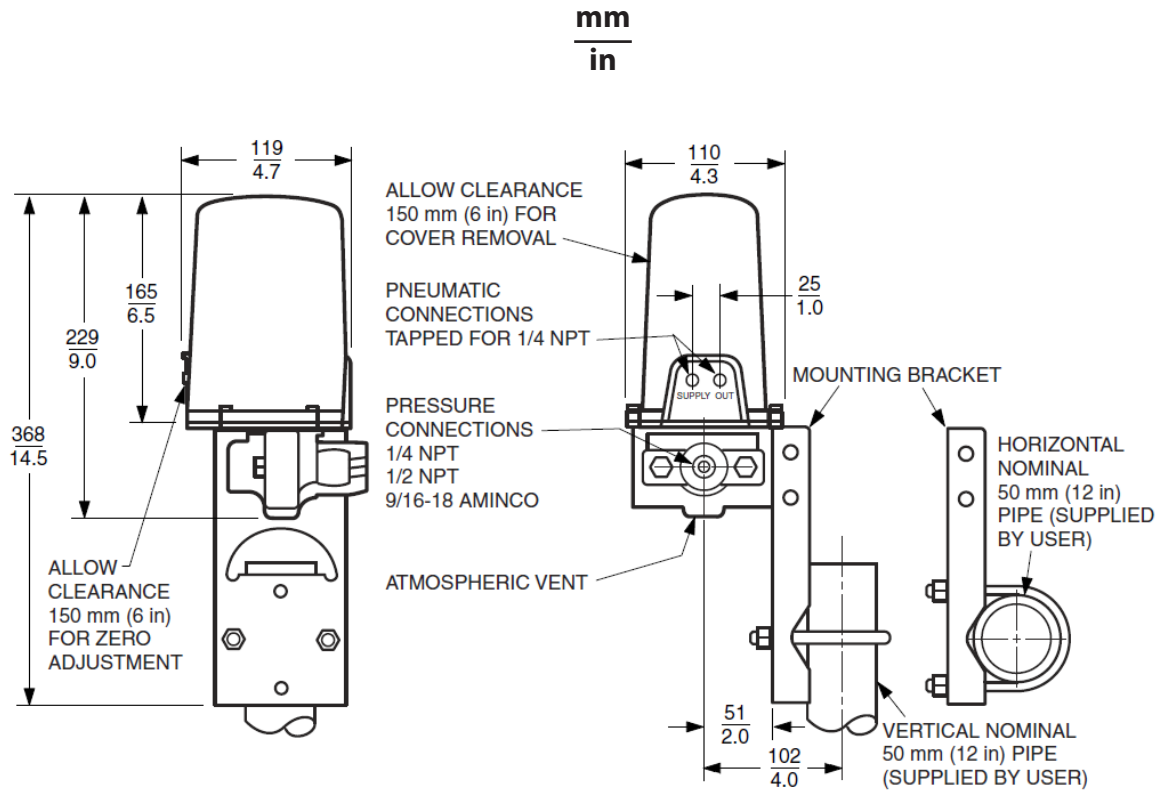
## MODEL CODE

Description	Model
Transmitter	11GM
<b>Span Limits</b>	
0.07 and 0.56 MPa (10 and 80 psi, 0.7 and 5.6 or kg/cm <sup>2</sup> )	-A
0.14 and 1.4 MPa (20 and 200 psi, 1.4 and 14 bar or kg/cm <sup>2</sup> )	-B
0.3 and 2.8 MPa (40 and 400 psi, 3 and 28 bar or kg/cm <sup>2</sup> )	-C
0.7 and 7 MPa (100 and 1,000 psi, 7 and 70 bar or kg/cm <sup>2</sup> )	-D
1.4 and 14 MPa (200 and 2,000 psi, 14 and 140 bar or kg/cm <sup>2</sup> )	-E
<b>Capsule Material</b>	
316 ss	S
<b>Process Connection</b>	
Tapped for 1/4 NPT	1
Tapped for 1/2 NPT	2
Tapped for R 1/4	3
Tapped for R 1/2	4
Machined for 9/16-18 Aminco fitting (Not available with Span Limits Code -A)	5
<b>Optional Selections</b>	
Elevated-Zero Range Kit	-L
Suppressed-Zero Range Kit	-R
<i>Example: 11GM-AS1-L</i>	



# DIMENSIONS-NOMINAL

Figure 1. 11GM Transmitter





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## ORDERING INSTRUCTIONS

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1. Model Number
2. Output Signal
3. Calibrated Pressure Range
4. Optional Selections
5. Tag

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## OTHER AUTOMATION SERVICE PRODUCTS

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Automation Service offers a broad range of new and remanufactured process instrumentation and control valves. To view these products, visit our website at:

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Customer Support:

**1-800-325-4808**

[CSR@AutomationService.com](mailto:CSR@AutomationService.com)

[www.AutomationService.com](http://www.AutomationService.com)

Automation Service

13871 Parks Steed Drive

Earth City, MO 63045 USA