

Model A4 Intrinsically Safe and Non-Incendive Pressure Transmitter



APPLICATIONS:

Oil field equipment, upstream oil and gas production, natural gas compression and transfer control, alternative energy projects

FEATURES:

- FM and CSA listings
- Choice of 0.25, 0.50 or 1.0% accuracy
- Pressure ranges from 5 psi through 10,000 psi
- CE mark
- 316L SS wetted materials, 17-4 PH optional
- 304 SS case in standard, welded or explosion proof construction
- Optional absolute pressure ranges available
- Zero and span access (Basic Enclosure)

The Ashcroft® A4 pressure transmitter is ideal for a broad spectrum of pressure sensing requirements where Intrinsically Safe or Non-Incendive hazardous location ratings are required.

The Ashcroft® A4 is designed and manufactured to provide the user with accurate, reliable, and stable output data. This is accomplished through the use of an on board microprocessor, that is programmed during a unique digital compensation process, to provide extremely linear and precise performance over the entire specified pressure and temperature range.

PERFORMANCE SPECIFICATIONS

Reference temperature 70°F (21°C)

Accuracy, Three Classes (% Span): ±.25 ±.05 ±1.0

Includes non-linearity (Terminal Point Method), hysteresis, non-repeatability, zero offset and span setting errors
Best Fit Straight Line* (BFSL): ±.20 ±.40 ±.50

Includes non-linearity hysteresis, non-repeatability errors

*Add ±.05% for ranges above 5000 psi

Stability:

≤ ±0.25% Span/year @ reference conditions

Durability: Greater than 10 million cycles

ENVIRONMENTAL SPECIFICATIONS

Temperature Limits:

Storage:	-40 to +125°C	(-40 to 257°F)
Process:	-40 to +125°C	(-40 to 257°F)
Operating:	-40 to +125°C	(-40 to 257°F)
Compensated*:	-20 to +85°C	(-4 to 185°F)

*Consult factory for other options

Temperature Effects: -20 to +85°C (-4 to 185°F)

• 1.0% of Span for .25% Accuracy Class

• 2.0% of Span for .50% and 1.0% Accuracy Classes

Humidity Effects: No performance effects from

0 to 95% relative humidity, non-condensing,

0-100% RH with "W" enclosure.

*Consult factory

FUNCTIONAL SPECIFICATIONS

Response Time: <2ms

Pressure Ranges: Vacuum, gauge, compound and absolute pressure from 0-5 psi through 0-10,000. Equivalent ranges in bar available. See order guide section (reverse).

Vibration Effect:

Shock: 100g Peak, 11ms

Random: 10g RMS, 20-2000Hz

Sweep: 50-2000Hz, 5g peak

Position Effect: ±0.02% Typical

CE Mark (standard): EN 61326:1997 + A1: 1998 Annex A

Heavy Industrial Immunity (Annex A, Table A.1)

Light Industrial/Residential Emission (Table 4)

Overpressure (F.S.):*

	Proof	Burst
0#vac. to 300 psi	1.5 x F.S.	min. 2 x F.S.
500-10,000 psi	1.2 x F.S.	1.5 x F.S.

*For higher overpressure ratings use XK8 option.

See page 2 for additional option.

ELECTRICAL SPECIFICATIONS

Output Signal: **Supply Voltage: (unregulated)**

	Minimum	Maximum
4-20mA* (2 Wire)	12Vdc	30Vdc

*For Intrinsically Safe see entity parameters for supply voltage and load limits. Refer to Ashcroft A4 Installation & Maintenance document "I&M011-10166-A4."

Power Requirements:

See load chart page 2

Electrical Terminations: See To Order section (reverse.)

for options

Circuit Protection: Reverse polarity and mis-wire protected

Insulation Resistance (Circuit to Case): 100Mohm @ 30Vdc

PHYSICAL SPECIFICATIONS

Case: Material 304SS

Wetted Materials: 316L SS diaphragm and pressure port, optional 17-4PH SS diaphragm and 316L SS pressure port (see How to Order Section).

Ingress Protection Rating:

Enclosure	Code	Rating
Basic	(S)	IP65, NEMA 4X
All Welded (w/o Z/S)	(W)	IP67, NEMA 6

HAZARDOUS AREA CERTIFICATIONS

Intrinsically Safe - FM/CSA:

Intrinsic Safety: Class I, II and III Div.1 and 2, Groups A, B, C, D, F and G per entity requirements see Ashcroft drawing # 825A022

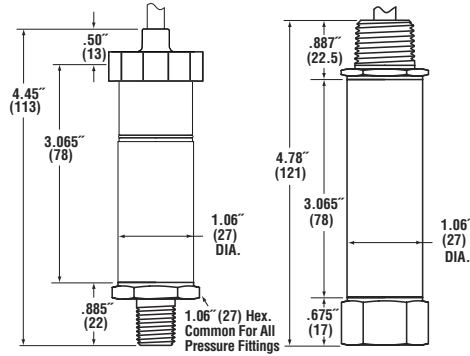
Non-Incendive: Class I, II and III Div.2, Groups A, B, C, D, F and G, no barriers needed

NOTE:

Refer to Ashcroft Model A2 for Heavy Industrial, non-hazardous rated configurations and Ashcroft Model A2X for Explosion/Flame Proof applications.

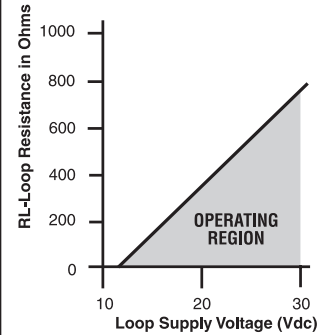
Model A4 Intrinsically Safe and Non-Incendive Rated Pressure Transmitter

DIMENSIONS dimensions in () are mm



INTRINSICALLY SAFE (ENCLOSURE S, W)

Load Limitations 4-20mA Output Only



$$V_{dcMIN} = 12V + (0.022A \times X(RL))$$

$R_L = R_S + R_W$
 R_L = Loop Resistance (ohms)
 R_S = Sense Resistance (ohms)
 R_W = Wiring Resistance (ohms)
 * (Includes a 10% safety factor)

XK8 OVERPRESSURE (F.S.)

	Proof	Burst
0 to 2000 psi	200%	800%
3000 to 5000 psi	150%	300%
7500 to 10,000 psi	120%	150%

NOTE:

Refer to Ashcroft Model A2 for Heavy Industrial, non-hazardous rated configurations and Ashcroft Model A2X for Explosion / Flame Proof applications.

How To Order

A 4								X
Type Configuration (A4)	Accuracy / Temp. EffectS (A) 0.25%/±1.0% (-20°C to +85°C) (B) 0.50%/±2.0% (-20°C to +85°C) (C) 1.00%/±2.0% (-20°C to +85°C)		Output Signal (42) 4-20mA	Electrical Termination Integral Cable (Pigtail) (F2) 3 shielded cable ⁽¹⁾ (P1) (specify length) ⁽¹⁾ Hirschmann Style Form A DIN 43650-A (DN) w/o mating conn. ⁽¹⁾ (D0) with mate, no cable ⁽¹⁾ (D2) with mate, 3 cable ⁽¹⁾ (D1) with mate, (specify length) ⁽¹⁾ 4-Pin Bendix Style (B4) w/o mating conn. ⁽²⁾ (H1) with mate, no cable ⁽²⁾ (L1) with mate, 3 cable ⁽²⁾ (P2) with mate, (specify length) ⁽²⁾ ½ NPT-M Conduit (C1) 3 shielded cable ⁽³⁾ (P7) (specify length) ⁽³⁾ ½ NPT-M Conduit (C2) 3 flying leads ⁽³⁾ (C4) 15 flying leads ⁽³⁾ M12 Threaded (EW) w/o mating conn. ⁽¹⁾ (E0) with mate, no cable ⁽¹⁾ (E2) with mate, 3 cable ⁽¹⁾ (E1) with mate, (specify length) ⁽¹⁾	Pressure Range (1.5#) 1.5 psi ^{(5),(6)} (750#) 750 psi (5#) 5 psi ^{(5),(6)} (1000#) 1000 psi (10#) 10 psi ^{(5),(6)} (1500#) 1500 psi (15#) 15 psi ⁽⁵⁾ (2000#) 2000 psi (30#) 30 psi ⁽⁵⁾ (3000#) 3000 psi (50#) 50 psi (5000#) 5000 psi (60#) 60 psi (7500#) 7500 psi (75#) 75 psi (10,000#) 10,000 psi ⁽⁴⁾ (100#) 100 psi (0# & vac.) 0 psi/vac. ^{(5),(6)} (150#) 150 psi (15# & vac.) Vac./15 psi ^{(5),(6)} (200#) 200 psi (30# & vac.) Vac./30 psi ^{(5),(6)} (300#) 300 psi (45# & vac.) Vac./45 psi ⁽⁵⁾ (500#) 500 psi (60# & vac.) Vac./60 psi ⁽⁵⁾	Measurement Type (G) Gauge Pressure Sensor (A) Absolute Pressure Sensor	Optional X-Variations (XCL) Non-standard ⁽⁷⁾ calibration (XK8) 17-4PH SS Sensor Material (X6B) Cleaned For Oxygen Service	
Enclosure (S) Basic (W) Welded w/out Zero & Span Access (See electrical termination coding for available selections)	Pressure Connection (M01) ½ NPT-M (F04) ½ NPT-F (M02) ¼ NPT-M (MG4) G ½ M (F02) ¼ NPT-F (VM2) VCR inlet fitting (MEK) ¼"-20 SAE-M ¼" VCR gland with ¾"-18 male nut (F09) ¾"-18 (¼)-F (VF2) VCR inlet fitting (Aminco) ¼" VCR gland with ¾"-18 female nut (M04) ½ NPT-M (others available upon request)							

⁽¹⁾ Available with enclosure code (S)
⁽²⁾ Available with enclosure code (S, W)
⁽³⁾ Available with enclosure code (W)
⁽⁴⁾ 17-4PH SS Sensor Required
⁽⁵⁾ 17-4PH SS Sensor Not Available
⁽⁶⁾ Gauge pressure only
⁽⁷⁾ Minimum 10 pieces for non-standard pressure ranges

NOTE: All A4 pressure transmitters include a 9 pt. NIST traceable calibration certificate