

Type K1 Thin Film Pressure Transmitter

- **Superior long-term stability and repeatability**
- **Stainless steel NEMA 4X enclosure**
- **Current/voltage output**
- **Wide range of pressure and electrical connections available**
- **Intrinsically safe model available**

The Ashcroft® K1 transmitter introduces the benefits of polysilicon thin film performance at affordable prices. Modern low-pressure chemical vapor deposition methods provide simple, stable molecular bonds between a proven metal diaphragm and a polysilicon strain gage bridge.

There are no epoxies or bonding agents to contribute to signal instability or drift.

The polysilicon strain resistors combine very low noise levels with very high signal output. There are no semiconductor (p-n) junctions to change with temperature, time or use. The integral metal diaphragm and polysilicon bridge are virtually unaffected by shock, vibration or mounting position.

These transmitters are offered in many standard pressure ranges with either current or voltage output signals. Transmitter performance is directly traceable to the National Institute of Standards, and Tech-



nology and specifications are conservatively stated. A calibration test certificate is available with each transmitter.

PERFORMANCE SPECIFICATIONS

Standard Ranges (psi)			
0/15*	0/300	0/5000	Vac/60*
0/30*	0/500	0/7500	Vac/45*
0/60*	0/750	0/10,000*	Vac/30*
0/100	0/1000	0/15,000*	Vac/15*
0/150	0/2000	0/20,000*	Vac/0*
0/200	0/3000		

*1% accuracy ranges only.

Consult factory for nonstandard ranges.

Accuracy Class (F.S.): 0.5% 1%

Nonlinearity

Terminal point*	±0.4	±0.7
Best straight line	±0.25	±0.4
Hysteresis	±0.15	±0.2
Nonrepeatability	±0.05	±0.07

*Including hysteresis

Durability:

10⁸ cycles 20/80%F.S. with negligible performance change

ENVIRONMENTAL CHARACTERISTICS

Humidity:

No performance effect at 95% relative humidity-noncondensing

Position Effect: Less than 0.01% F.S.

Temperature Limits:

Storage: -65 to +250°F

Operating: -20 to +180°F

Compensated Range: -20 to +160°F

Thermal Coefficients: (68°F ref.) %F.S./°F

Standard:

	0.5%	1%
ZERO	±0.025%	±0.04%
SPAN	±0.025%	±0.04%

Optional:

ZERO	±0.025%	±0.04%
SPAN	±0.025%	±0.04%

Multiply thermal zero coefficients by 1.5 on 0/30 psi, vac/15 range and by 3 on 0/15 and vac/0 ranges

Vibration Sweep:

Less than ±0.1%F.S. effect for 0-2000 Hz at 20 g's in any axis

Shock:

Less than ±0.05% F.S. effect for 100 g's, 20ms shock in any axis

FUNCTIONAL CHARACTERISTICS

Overpressure Limits (F.S.):

	0/15-	0/3000-	0/7500-
Proof	200%	150%	120%
Burst	800%	300%	150%

Response Time: Less than 5 ms

ELECTRICAL SPECIFICATIONS

Output Signal:

4-20mA (2 wire)

1-5 Vdc (3 wire)

1-6 Vdc (3 wire)

1-11 Vdc (3 wire)

Power Requirements:

10-36 Vdc unregulated

Reverse Polarity Protected

Supply Current: <6mA for voltage output

PHYSICAL CHARACTERISTICS

Enclosure: NEMA 4X (NEMA 1 only if <500 psig and electrical termination is Bendix® or Hirschman®)

Weight: 4.5 oz

MATERIALS:

Case: 300 series stainless steel

Cable: No. 24 AWG, 36" PVC, shielded, vented, UL approved

Diaphragm: 17-4 PH stainless steel

Standard Process Connections:

(316 stainless steel)

1/8 NPT male or female

1/4 NPT male or female

1/4 SAE-J-514 (male)

1/4 AMINCO (female) required for pressures over 10,000 psi. Other connections available

HAZARDOUS LOCATION CERTIFICATIONS

(Available optional on 0.5% model only)

Factory Mutual approvals

Intrinsically Safe for use in:

Class I, II, III, Div. 1, Groups A, B, C, D, F, G

when used with safety barriers connected in accordance with Dresser drawing 71B212 Sht (1-3).

Nonincendive for:

Class I, Div. 2, Groups A, B, C, D

Special Protection for:

Class II, III, Div. 2, Group G

TO ORDER THIS TYPE K1 TRANSMITTER:

Select:

1. Type Configuration (K1)	<u> K1 </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
2. Accuracy/TC	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
(3) 0.50%, ±0.014%/°F (5) 0.50%, ±0.028%/°F (7) 1.0%, ±0.040%/°F									
3. Pressure Connection	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
(M01) 1/8 NPT-M (F01) 1/8 NPT-F (M02) 1/4 NPT-M (F02) 1/4 NPT-F									
4. Output Signal	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
(42) 4-20mA (15) 1-5 Vdc (16) 1-6 Vdc (11) 1-11 Vdc									
5. Electrical Termination	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
(F2) 36" cable, shielded, PVC sheathing (B4) Bendix 4-pin # PT02A-8-4P* (B6) Bendix 6-pin # PT02A-10-6P* (B8) WP Bendix 4-pin # PT02H-8-4P* (B9) WP Bendix 6-pin # PT02H-10-6P* (C1) 1/2 NPT-M Conduit (HM) Hirschmann miniature									
6. Pressure Range	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
(100) 100 psi (20,000) 20,000 psi									

*Mating connector available as necessary