

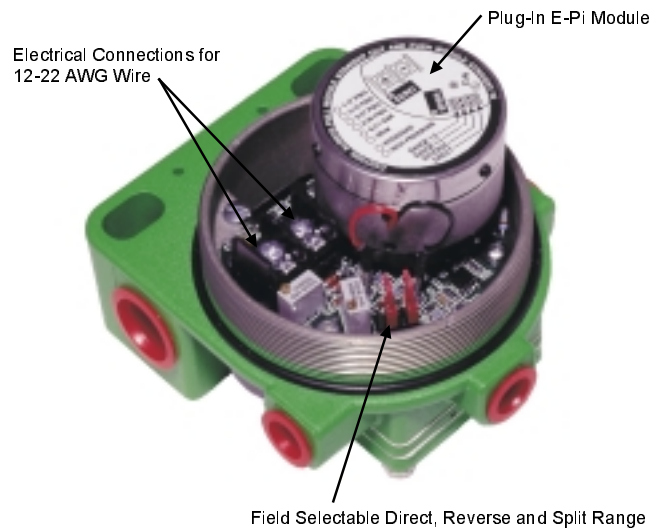


## **STD5000 and STD6000 Series Current To Pressure Transducers**

# STD5000 & STD6000 Series I/P Transducers

Brandt Instruments' Plant Standard STD5000 and STD6000 Series of Current to Pressure (I/P) Transducers represent the highest standard in I/P Technology. The rugged NEMA 4X housing, compact size and revolutionary "Plug-In E-Pi" Module coupled with Brandt's field proven technology and affordable price, make them the most accurate, reliable and simplest I/P's to install, operate and maintain in the industry.

- Accuracies of  $\pm 0.15\%$  to  $\pm 0.25\%$  of Span.
- Field Proven "E-Pi" Technology is unaffected by Vibration, Shock or Mounting Position.
- Supply Pressure Ranges of 35 to 100 PSI available with select output ranges.
- Air consumption of 0.04 SCFM.
- Output capacity of 4.0 SCFM.
- Factory Mutual, CSA & CENELEC approved for Intrinsically Safe and Explosion Proof installations.
- Operating Temperature Range  $-40^{\circ}\text{F}$  to  $150^{\circ}\text{F}$ .
- Rugged NEMA 4X & IP/65 Enclosure.
- Field selectable Direct, Reverse and Split Range.



STD6000 Explosion Proof I/P Transducer



## Model Number

SERIES NUMBER	
STD5:	STD5000, NEMA 4X / IP65
STD6:	STD6000, Explosion Proof, NEMA 4X, IP65. FM, CSA and CENELEC approved. See back cover for listing of Approvals.
INPUT	
1:	4-20 mA Intrinsically Safe, FM, CSA and CENELEC Approved. See back cover for listing of Approvals.
2:	10-50 mA
3:	Special Input. Consult Factory for availability.
OUTPUT	
1:	6-30 PSIG. Split Range Not Available
2:	3-27 PSIG. Split Range Not Available
3:	3-15 PSIG (Standard or High Pressure Supply)
4:	1-17 PSIG
5:	Special Output. Consult factory for availability.
6:	0.2-1.0 Bar (Standard or High Pressure Supply)
CASE STYLE	
1:	Standard.
H:	High Pressure Supply. 3-15 PSIG & 0.2-1.0 Bar output ranges only. Supply range is 35 to 100 psig (2.4 to 6.9 Bar). Other output ranges with high pressure supply may be possible. Consult Factory.
OPTIONS	
-1:	Pipe Mount. Carbon Steel, Zinc Coated Hardware for mounting the STD5000 or STD6000 to a 2.5" Pipe.
-3:	Direct Only. Operational mode of Reverse has been disabled.
-4X:	Mounted Filter Regulator. X = Mounted (L)eft or (R)ight handed. FAS2022 Filter Regulator factory mounted to the STD5000 or STD6000. See FAS2022 Specification Sheet. Not required on High Pressure Supply.
-5:	Valve Mount Kit. 304SS Hardware for mounting the STD5000 or 6000 to the yoke of a valve.
-6X:	Mounted Output Gauge. X = Mounted (L)eft or (R)ight handed. 0-30 or 0-60 PSIG standard (Dependent on Pneumatic Output Selected). Other scales possible. Consult factory for availability.
All models are supplied with the appropriate combination of FM, CSA and CENELEC approvals.	
<b>STD6</b>	<b>1 3 1 -1-4R</b>

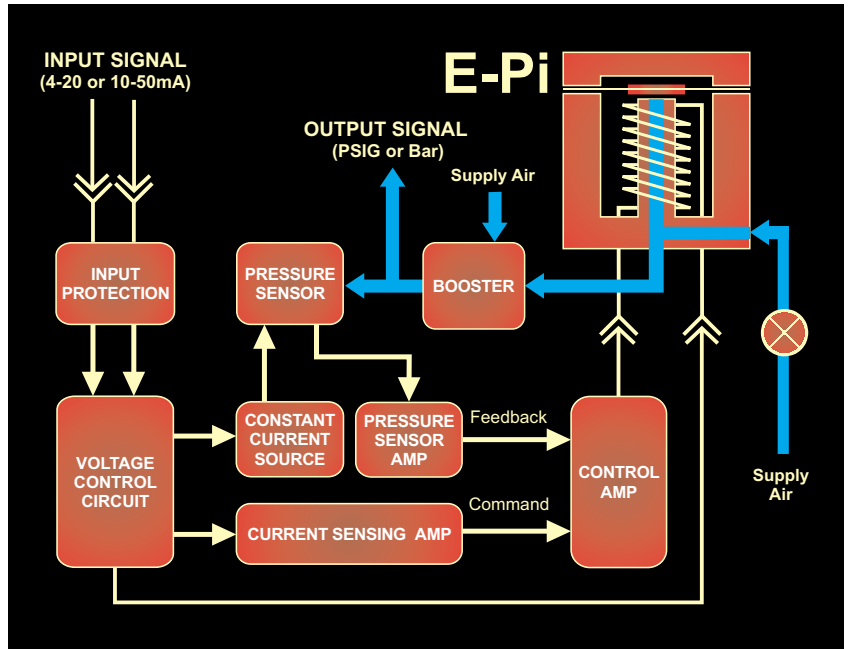
Typical Model Number

# Brandt's "E-Pi" Transducer Technology

The STD5000 and STD6000 Series of I/P's utilize Brandt's patented, field proven, "E-Pi" transducer technology. This revolutionary breakthrough provided the industry with its first "Solid State" I/P Transducer.

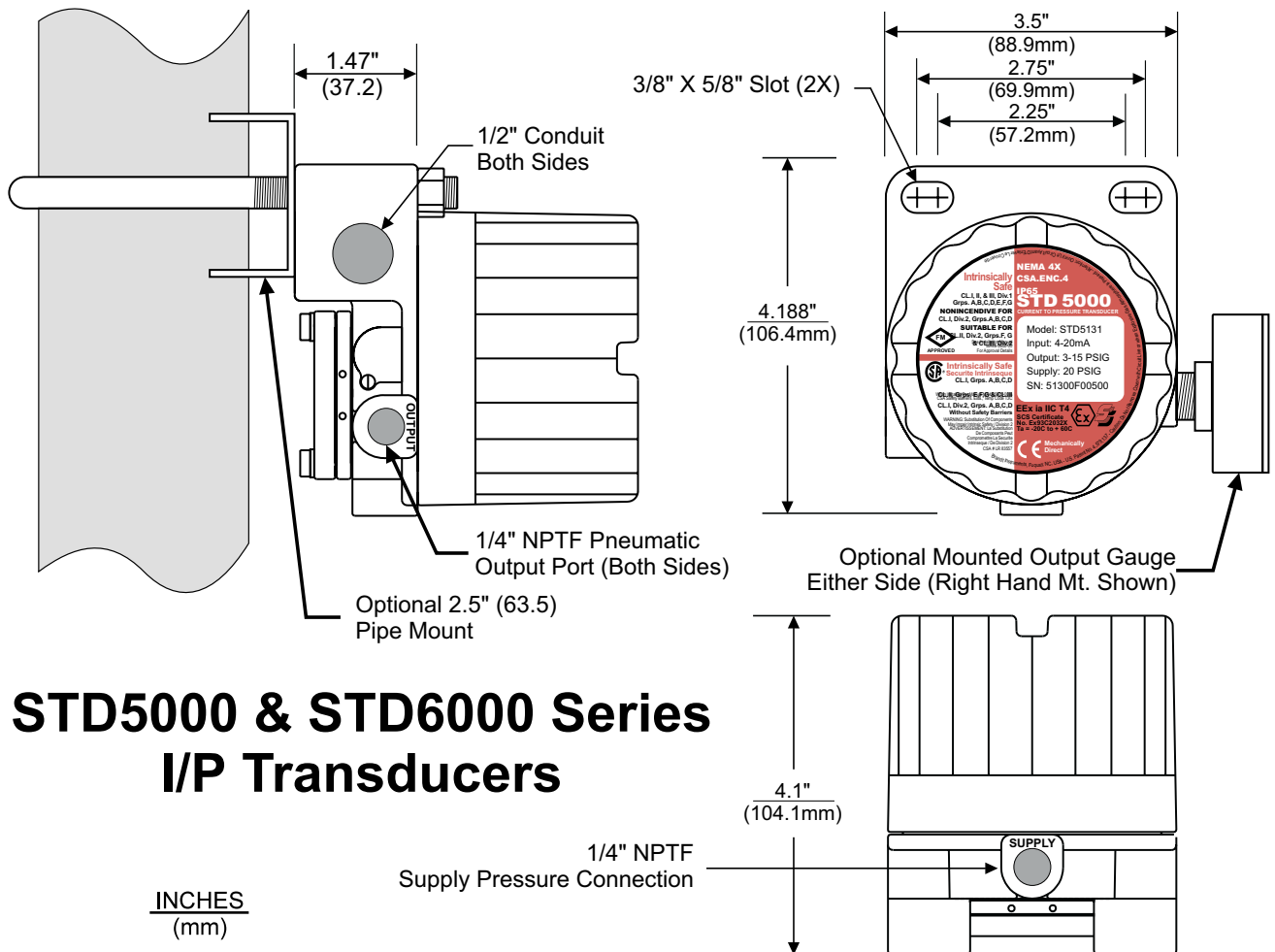
Brandt's "State of the Art" E-Pi Technology uses minimal electrical energy and air consumption to convert an electronic input signal (4-20mA or 10-50mA) to a proportional pneumatic output signal (3-15 PSIG, 0.2-1 Bar, etc.).

The E-Pi Transducer utilizes "a virtually weightless membrane" that is electromagnetically positioned over a nozzle to precisely modulate the pneumatic (backpressure) output. The low mass membrane is held in a continuously balanced position, providing an output that is unaffected by shock, vibration or mounting position. The output of the E-Pi is then fed into an integral volume booster to deliver a pneumatic output signal with an output capacity of 4.0 SCFM.



The overall performance, accuracy and repeatability are further enhanced by employing an internal feedback network whose speed and resolution allow the I/P to quickly respond to input changes. The balanced supply and exhaust dynamics enhance control stability, while delivering accuracies of  $\pm 0.15\%$  to  $\pm 0.25\%$  of Span.

## Dimensions



## STD5000 & STD6000 Series I/P Transducers

INCHES  
(mm)

1/4" NPTF  
Supply Pressure Connection

# STD5000 & STD6000 Series I/P Transducers

## PERFORMANCE SPECIFICATIONS

<b>Accuracy:</b>	±0.15% of Span (3-15 & 1-17 PSI Output). ±0.25% of Span (3-27 & 6-30 PSI Output).
<b>Repeatability:</b>	0.05% of Span.
<b>Deadband:</b>	0.02% of Span.
<b>Stability / Reproducibility:</b>	0.5% of Span / 6 Months.
<b>Output Capacity:</b>	<i>Standard:</i> 4.0 SCFM (Supply and Exhaust characteristics are balanced to within +/-10%). <i>High Pressure:</i> 4-8 SCFM possible (dependent on air supply and tubing size).
<b>Air Consumption:</b>	0.04 SCFM Steady State Average (0.06 SCFM Maximum).

## FUNCTIONAL SPECIFICATIONS

<b>Position Effect:</b>	Not Measurable
<b>Vibration Effect:</b>	< 0.25% from 1-200 Hz/1g
<b>Frequency Response:</b>	-3db at 5 Hz (per ISA-S26.4.3.1 Configuration A)
<b>Loop Load:</b>	3.8Vdc + 5 ohm (195 ohm load at 20mA)
<b>Operating Current:</b>	3.7mA min., 200mA max. continuous at 120°F half cycle 70 amp 1/120 second at 68°F
<b>Supply Pressure:</b>	<i>Standard:</i> Minimum of 3 psig and maximum of 10 psig above the maximum calibrated output. <i>High Pressure:</i> For Outputs of 3-15 PSIG & 0.2 to 1.0 Bar supply range is 35 to 100 psig or 2.4 to 6.9 Bar. Pressures below 35 may affect the output of the unit. Other output ranges may be possible. Consult Factory.
<b>Air Supply</b>	Clean, dry and oil free instrument air.
<b>Operating Temperature:</b>	-40° to 150°F (-40° to 66°C)
<b>Temperature Effect:</b>	Range 0° to 150°F: ±0.02% / °F of Span. Range -40° to 150°F: ±0.04% / °F of Span
<b>EMI / RFI:</b>	Less than ±1% effect on Zero / Span (26-1000 mHz @ 30V/m) when installed per Installation guidelines. Refer to CE Conformity (this page) for Test Standards.
<b>Operational Modes:</b>	Field Selectable Direct, Reverse and/or Split Range. See notes in Model Number Description.
<b>Failure Mode:</b>	Mechanically Direct. i.e. if input current drops below 3.7mA dc the output will drop to 1 to 2 psig regardless of direct or reverse mode selection.

## PHYSICAL SPECIFICATIONS

<b>Enclosure:</b>	Internally purged NEMA 4X / IP65. Cast/Machined Aluminum with powder coat epoxy.
<b>Connections:</b>	Supply Port: 1/4" NPTF (1X) Pneumatic Output Port: 1/4" NPTF (2X) Electrical: 1/2" NPTF conduit (2X). Terminals 12-22 AWG Wire.
<b>Weight:</b>	2.5 pounds

## APPROVALS

### Factory Mutual Research Corporation

#### Intrinsically Safe: STD5000 & 6000 I/P, 4-20mA Models Only

- Intrinsically safe operation for Class I, II, and III, Div. 1, applicable Groups A, B, C, D, E, F, G.
- Nonincendive for Class I, Division 2, Groups A, B, C, D. Suitable for Class II, Div. 2 Groups F, G.
- Suitable for Class III, Division 2. Hazardous Locations Outdoors, NEMA 4X when installed per Brandt I.S. Installation Drawing (See Installation Manual MA45-5600-00).



#### Explosion Proof: STD6000 I/P, All Models

- Explosion Proof for Class I, Div. 1 & 2, Applicable Groups B, C, D Hazardous Locations Outdoors, NEMA 4X.
- Dust Ignitionproof for Class II, Div. 1 & 2, Applicable Groups E, F, G Hazardous Locations Outdoors, NEMA 4X.

### Canadian Standard Association

#### Intrinsically Safe: STD5000 & 6000 I/P, 4-20mA Models Only

- Intrinsically Safe / Securite Intrinseque: Class I, Groups A, B and Class II, Groups E, F, G and Class III. Temp Code T3C, Intrinsically Safe when connected to CSA certified safety barriers rated 31.5 V max., 463 ohms min. CSA.ENC.4 outdoors
- Intrinsically Safe / Securite Intrinseque: Class I, Groups C, D and Class II, Groups E, F, G, and Class III. Temp Code T3C, Intrinsically Safe when connected to CSA certified safety barriers rated 28V max., 120 ohms min. CSA.ENC.4 outdoors
- Class I, Division 2, Groups A, B, C, D. without safety barriers CSA.ENC.4 Outdoors



#### Explosion Proof: STD6000 I/P, All Models

- Explosion Proof for Class I, Groups B, C, D; Class II, Groups E, F, G; Class III and Class I, Div. 2, Groups A, B, C, D Hazardous locations Outdoors, CSA.ENC.4

### CENELEC & Sira

#### Intrinsically Safe: STD5000 & 6000 I/P, 4-20mA Models Only

- CENELEC/Sira Approved for Intrinsically Safe Operation and complies with the harmonized European Standards EN50 014 (1977) & EN50 020 (1977)
- Category: EEx ia IIC T4 Tamb = 60°C
- Certificate No: Ex 93C2032X
- Umax = 30Vdc, Imax = 100mA, Ceq = 0.94nF, Leq = 7.0 uH, Pmax = 0.75W



#### Flame Proof: STD6000 I/P, All Models

- CENELEC/Sira approved for Flame Proof installations under harmonized European Standards BS EN50 014:1992 and BS EN 50 018:1994.
- Category: EEx d IIC T6
- Certificate No. Ex98E1121X
- Pi 0.7W

### European Community "CE" Conformity

- The STD5000 and STD6000 Series I/P's have been tested and found to comply with BS EN50081-2: 1993 Generic Emissions, Residential, Commercial and Light Industrial and BS EN50082-2: 1995 Generic Immunity, Residential, Commercial and Light Industrial.



*IMPORTANT: Before installation refer to Brandt Installation & instruction manual MA45-5600-00. All wiring and installations must be made in accordance with all local and national codes appropriate to the area in which the instrument is to be installed.*



A subsidiary of ONIX Systems Inc., A Thermo Electron company.

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