

HEAVY-DUTY ELECTROPNEUMATIC CONVERTERS

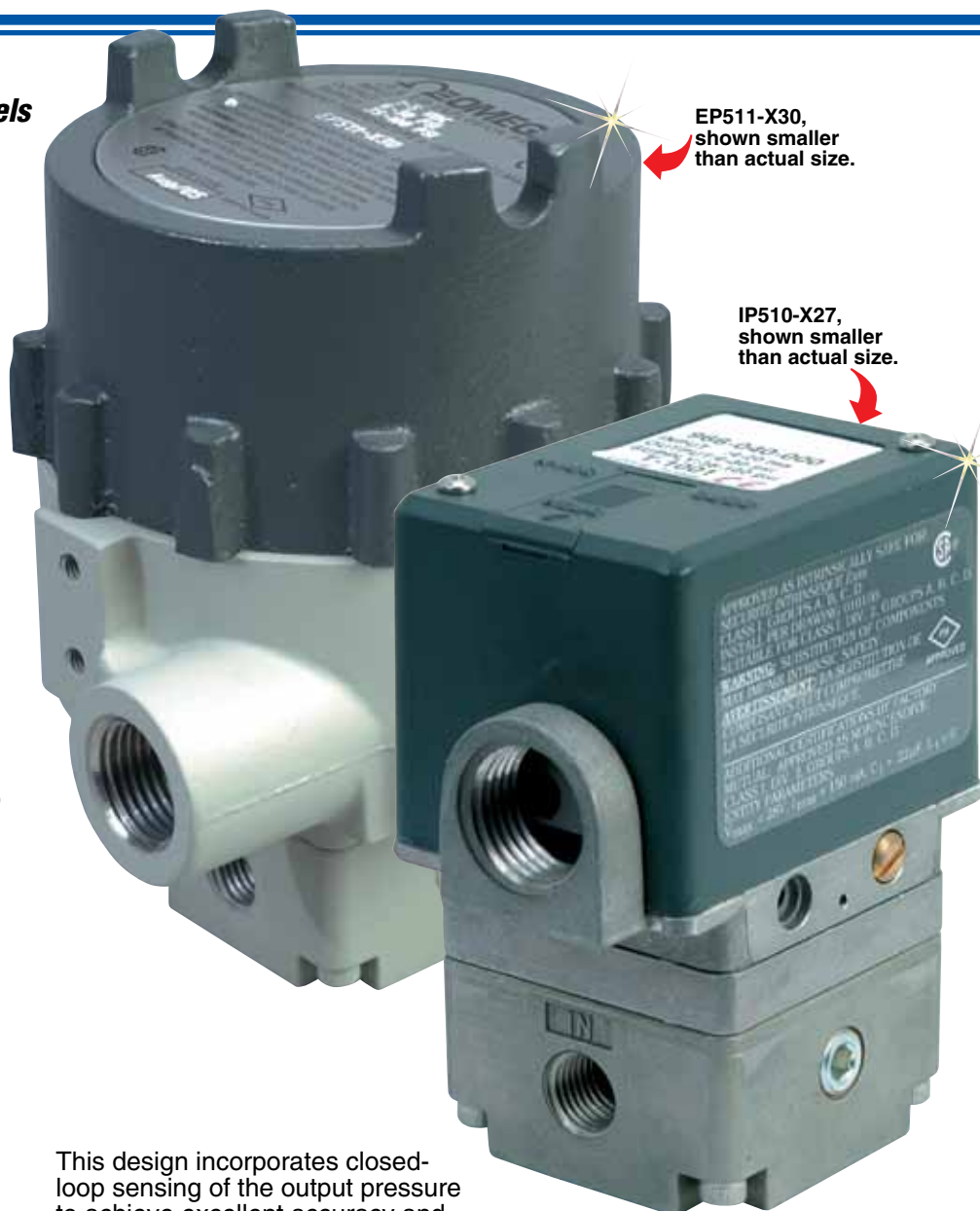
Current to Pressure (I/P) and
Voltage to Pressure (E/P) Models

IP510 Series



- ✓ Hazardous Location and Intrinsically Safe Ratings
- ✓ NEMA 4X (IP66)
- ✓ 0.1% Accuracy Typical
- ✓ Closed-Loop Pressure Feedback Control
- ✓ Built-In Volume Booster Provides Flow Up to 12 SCFM
- ✓ Easy Access to Zero and Span
- ✓ Damping Pot Prevents Overshoot and Hunting
- ✓ Low Air Consumption
- ✓ Mount at Any Angle
- ✓ Compact and Lightweight
- ✓ Virtually No Sensitivity to Supply Pressure Changes
- ✓ Removable Orifice for Easy Maintenance
- ✓ Buna-N Seals Standard
- ✓ Fluorocarbon Seals Optional

The IP510/EP510 Series is a patented family of electro-pneumatic instruments used to reduce a supply pressure to a regulated output pressure that is directly proportional to a 2-wire current or 3-wire voltage input.



This design incorporates closed-loop sensing of the output pressure to achieve excellent accuracy and vibration stability. It also features a unique damping circuit that can be adjusted to prevent overshoot and actuator "hunting." Model selection includes general purpose NEMA 1 (IP00) and watertight/corrosion-resistant NEMA 4X (IP66). All models carry hazardous location and intrinsically safe ratings.

SPECIFICATIONS

Accuracy:
Typical: $\pm 0.1\%$ of output span
Maximum: $\pm 0.25\%$ of output span
Hysteresis:
Typical: $\pm 0.01\%$ of output span
Maximum: $\pm 0.10\%$ of output span
Deadband: No effect

Repeatability:

Typical: $\pm 0.01\%$ of output span
Maximum: $\pm 0.10\%$ of output span

Ambient Temperature Effect:

Typical: $\pm 0.004\%$ of nominal span per $^{\circ}\text{F}$
Maximum: $\pm 0.022\%$ of nominal span per $^{\circ}\text{F}$

Span:

Typical: 0.013% of calibrated span per $^{\circ}\text{F}$
Maximum: 0.022% of calibrated span per $^{\circ}\text{F}$

Temperature Effect:

$\leq 0.02\%/^{\circ}\text{F}$, zero and span effects combined

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Operating Temperature Range:

Buna-N Elastomers:

-29 to 71°C (-20 to 160°F)

Fluorocarbon Elastomers:

-18 to 71°C (0 to 160°F)

Storage Temperature:

Buna-N Elastomers:

-40 to 93°C (-40 to 200°F)

Fluorocarbon Elastomers:

-26 to 93°C (-15 to 200°F)

Vibration Effects: Less than 0.5% of span per 1 g 5 to 2000 Hz, 3 g maximum, 3 axes

Mounting Position Effect:

Not measurable

Loop Load, I/P Transducer:

Less than 10 Vdc drop at 20 mA

Less than 10 Vdc drop at 50 mA

Supply Voltage, E/P Transducer:

Intrinsically Safe/Non-Incendive:

9 to 28 Vdc, less than 20 mA

General Purpose: 9 to 40 Vdc,

less than 20 mA

Supply Voltage Effect:

No effect

Signal Impedance E/P Transducer:

6000 Ω minimum

RFI/EMI Effect NEMA 4X (IP66):

Less than 0.25% of span change in output 10 V/meter, 20 to 1000 MHz (Reference SAMA PML 33.1 to 1978, 2 to abc)

Supply Pressure Sensitivity:

No effect

Effective Air Consumption:

0.07 SCFM (2 LPM) maximum

Supply Pressure:

100 psig (6.9 bar) maximum

Port Sizes:

Pneumatic: ¼ FNPT

Electrical: ½ FNPT

Agency Approvals—All 510 and

511 electropneumatic converters

are approved by FM and CSA as

intrinsically safe Class I, Division

1, Groups A, B, C, D hazardous

locations.

The 511 (NEMA 4X) models are

also approved for FM and CSA

explosion-proof service: Class I,

Division 1 and 2, Groups B, C, D.

Dust ignition-proof service: Class II,

Division 1 and 2, Groups E, F, G.

NEMA 4X units are also suitable for

Class III, Division 1 and 2.

Warning:

These ratings are

valid ONLY WHEN the cover is

fully installed and the electrical

connections conform to required

standards.

ENTITY PARAMETERS

$V_{max} = 30$ Vdc, $I_{max} = 100$ mA,

$C_i = 0$ μF, $L_i = 0$ mH T4 Max.

Ambient 70°C. V_{oc} and I_{sc} of a

barrier shall not exceed V_{max}

and I_{max} of the transducer.

(L_i + wiring) and (C_i + C_{wiring})

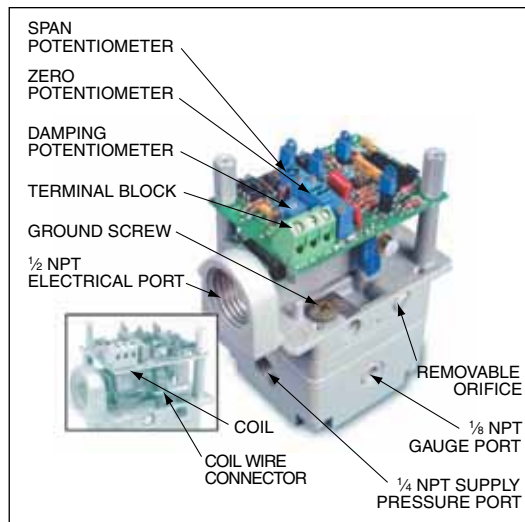
shall not exceed L_a and C_a of

a barrier. A barrier is

not necessary when the

transducer is in any of these

locations.



| To Order | | |
|---------------------------------|-------------|---------------|
| MODEL NO. | INPUT RANGE | OUTPUT RANGE |
| NEMA 1 (IP00) ENCLOSURE | | |
| IP510-X15 | 4 to 20 mA | 3 to 15 psig |
| IP510-X27 | 4 to 20 mA | 3 to 27 psig |
| IP510-X30 | 4 to 20 mA | 6 to 30 psig |
| IP510-060 | 4 to 20 mA | 0 to 60 psig |
| IP510-0120 | 4 to 20 mA | 0 to 120 psig |
| EP510-X15 | 1 to 5 Vdc | 3 to 15 psig |
| EP510-X27 | 1 to 5 Vdc | 3 to 27 psig |
| EP510-X30 | 1 to 5 Vdc | 6 to 30 psig |
| EP510-060 | 1 to 5 Vdc | 0 to 60 psig |
| EP510-0120 | 1 to 5 Vdc | 0 to 120 psig |
| NEMA 4X (IP66) ENCLOSURE | | |
| IP511-X15 | 4 to 20 mA | 3 to 15 psig |
| IP511-X27 | 4 to 20 mA | 3 to 27 psig |
| IP511-X30 | 4 to 20 mA | 6 to 30 psig |
| IP511-060 | 4 to 20 mA | 0 to 60 psig |
| IP511-0120 | 4 to 20 mA | 0 to 120 psig |
| EP511-X15 | 1 to 5 Vdc | 3 to 15 psig |
| EP511-X27 | 1 to 5 Vdc | 3 to 27 psig |
| EP511-X30 | 1 to 5 Vdc | 6 to 30 psig |
| EP511-060 | 1 to 5 Vdc | 0 to 60 psig |
| EP511-0120 | 1 to 5 Vdc | 0 to 120 psig |

ACCESSORY

| MODEL NO. | DESCRIPTION |
|-----------|---------------------------|
| TX4-100 | 4-conductor shielded wire |

Comes complete with operator's manual

Note: To order fluorocarbon seals, add suffix "-F" to model numbers and additional cost to price.

Ordering Example: IP511-X30, electropneumatic converter, 4 to 20 mA input/6 to 30 psi output with NEMA 4X (IP66) enclosure, TX4-100, 4-conductor shielded cable.