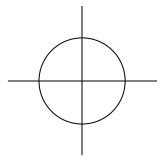


WEB CONTROL PRODUCTS

User Manual



Electro-Pneumatic Transducer EN50

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

Technical Support: 800-843-7445
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DANGER

Read this manual carefully before installation and operation.

Follow Nexen's instructions and integrate this unit into your system with care.

This unit should be installed, operated and maintained by qualified personnel **ONLY**.

Improper installation can damage your system or cause injury or death.

Comply with all applicable codes.

Nexen Group, Inc.
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Vadnais Heights, Minnesota 55127



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INTRODUCTION

The Nexen EN50 Electro-Pneumatic Transducer converts a 4–20 mA DC or 0–10VDC input signal to a pneumatic output pressure. The output pressure is linearly proportional to the input signal.

INSTALLATION

Mount the Nexen EN50 vertically, with electrical connections above pneumatic ports, on a flat surface using the two 10-32 tapped mounting holes located on the Transducer or use the Mounting Plate to mount the Transducer to a flat surface or to a 1 1/2" diameter pipe (See Figure 1). Mounting EN50 on an incline will require re-calibration. (See CALIBRATION AND ADJUSTMENT SECTION).

NOTE: The Breakaway Tabs on the Mounting Plate may be removed when the Mounting Plate is used with pipe clamps (See Figure 1).

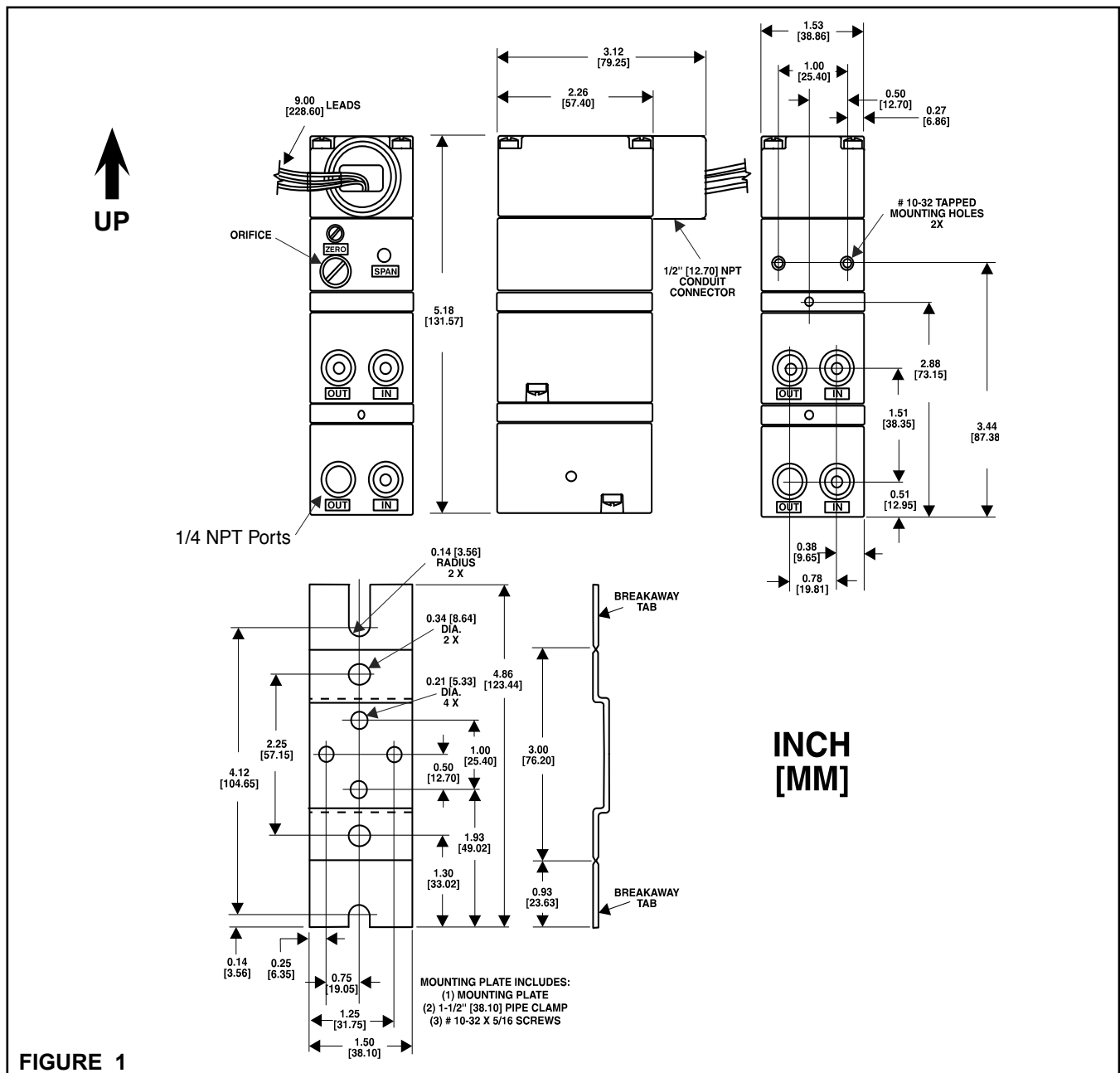


FIGURE 1

PNEUMATIC CONNECTIONS

NOTE: Nexen's EN50 requires clean, pressure regulated air for maximum performance and long life. Your Nexen Distributor carries filters and regulators specifically designed to operate with Nexen products.

A Pre-filter (rated at 5.0 micron or less) removes large particles from the air supply. The Final Filter (rated at 0.1 micron or less) is used to filter the air before it enters the Nexen EN50.

Clean all pipelines to remove dirt and scale before installation. If you use a pipe compound when installing the pipe or tube fittings into the Nexen EN50, use a Teflon dope as a sealant.

1. Apply a minimum amount of pipe sealant compound to the male threads of the fitting only; then, start at the third thread back and work away from the end of the fitting to avoid the possibility of contaminating the Nexen EN50.

NOTE: The inlet and outlet ports are labeled on the side of the EN50. User connections should be made to the inlet and outlet ports located in the bottom of the valve body only (See Figure 2).

2. Install the Nexen EN50 in the air line and securely tighten the connections.
3. Install the plugs supplied with the Nexen EN50 in all unused ports.

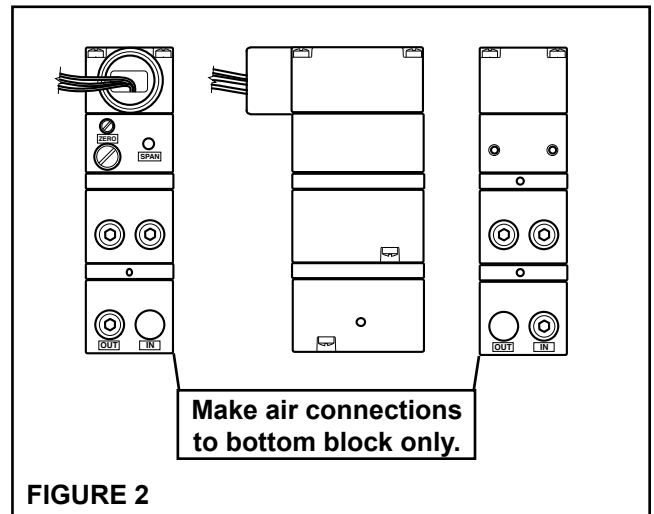


FIGURE 2

ELECTRICAL CONNECTIONS

Refer to Figure 3 for electrical connections.

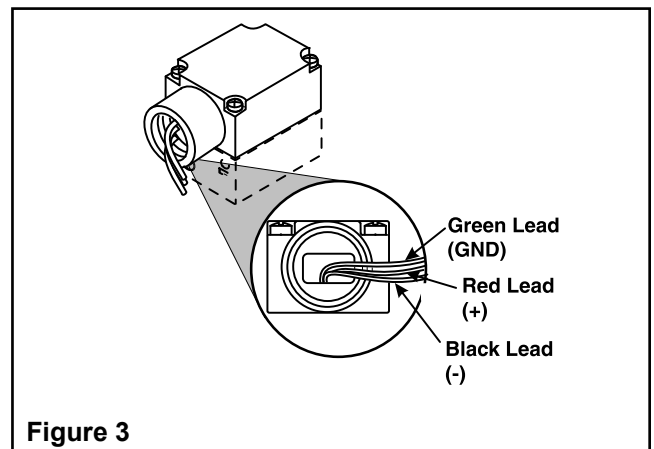


Figure 3



CALIBRATION AND ADJUSTMENT

NOTE: EN50 is calibrated prior to shipping and normally does not require calibration after delivery. If calibration or adjustment is deemed necessary, only do so after EN50 has been mounted in its operating position.

FULL RANGE OPERATION

FORWARD ACTING MODE ADJUSTMENT

1. Turn the Zero Adjustment Screw clockwise to increase pressure and counter-clockwise to decrease pressure, apply the minimum input signal (i.e., 4 mA or 0 V) and adjust the Zero Adjustment Screw for minimum output pressure (i.e., 0 psi).
2. Turn the Span Adjustment Screw clockwise to increase pressure and counter-clockwise to decrease pressure, apply the maximum input signal (i.e., 20 mA or 10 V) and adjust the Span Adjustment Screw for maximum output pressure (See SPECIFICATIONS).
3. Repeat Zero and Span calibration (Steps 1 and 2) until the desired output range is obtained.

REVERSE ACTING MODE ADJUSTMENT

NOTE: The input signal to the red and black leads must be reversed when reversing the action.

1. Turn the Zero Adjustment Screw clockwise to increase pressure and counter-clockwise to decrease pressure, apply the minimum input signal (i.e., 4 mA or 0 V) and adjust the Zero Adjustment Screw for maximum output pressure (See SPECIFICATIONS).
2. Turn the Span Adjustment Screw clockwise to increase pressure and counter-clockwise to decrease pressure, apply the maximum input signal (i.e., 20 mA or 10 V) and adjust the Span Adjustment Screw for minimum output pressure (i.e., 0 psi).
3. Repeat Zero and Span calibration (Steps 1 and 2) until the desired output range is obtained.

SPLIT RANGE OPERATION

All Nexen EN50s have the capability to be split or set for any output in the range as long as the Output Span is equal to or greater than the minimum Span shown in the SPECIFICATIONS.

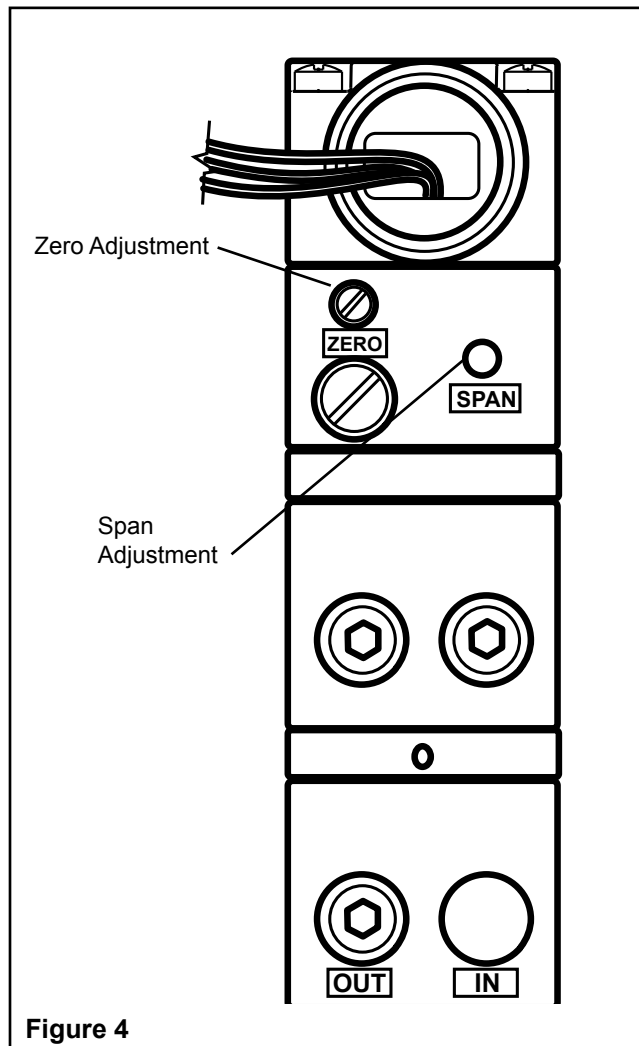


Figure 4

MAINTENANCE

Cleaning the Orifice is the only maintenance required for the Nexen EN50.

NOTE: It is not necessary to remove the Nexen EN50 from the air line.

1. Shut off the valve supplying air to the Nexen EN50.
2. Remove the Orifice from the Nexen EN50 (See Figure 5).
3. Clean the Orifice with alcohol; then, dry the Orifice with compressed air (See Figure 5).

NOTE: The Orifice must be completely dry before reinstalling it into the Nexen EN50.

4. Reinstall the Orifice into the Nexen EN50 (See Figure 5).

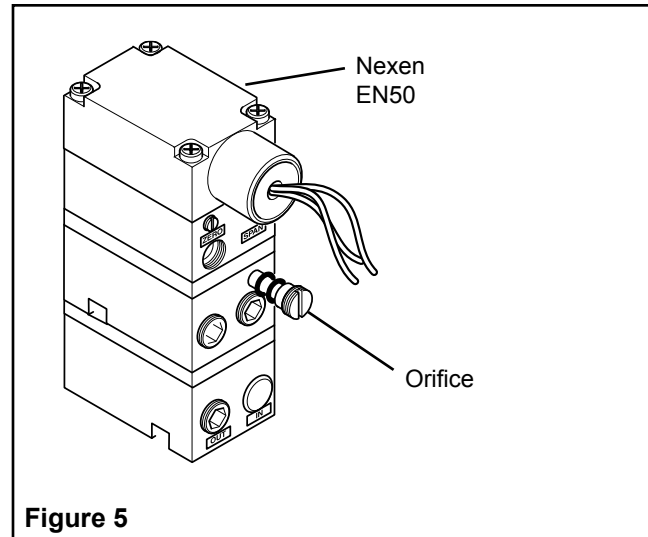


Figure 5

TROUBLESHOOTING

WARNING
 Failure of the Nexen EN50 could result in output pressure increasing to supply pressure, possibly causing personal injury or damage to the equipment.

Symptom	Probable Cause	Solution
No Output	Faulty supply pressure	Verify that supply pressure is correct.
	Clogged orifice	Clean the orifice.
Leakage	Improper air line connections.	Inspect and correct all air line connections.
Low or improper Span Adjustment	Incorrect Zero and Span adjustment	Perform Zero and Span adjustment.
	Low supply pressure	Verify that supply pressure is correct.
	Output leakage	Inspect and correct all air line connections.
Erratic operation	Improper DC signal	Check all electrical connections and verify that DC signal polarity and level is correct.
	Loose wires or electrical connections	Inspect all wires and electrical connections and replace damaged wires or repair faulty electrical connections.
	Liquid in the air supply	Purge liquid from the air supply and use the recommended filter.
	Dirt in the magnet gap	Inspect and clean the magnet gap.



SPECIFICATIONS

FUNCTIONAL SPECIFICATIONS	EN50-15	EN50-60	EN50-85	EN50-85V
Output Range	0-15 psig [0-105 kPa]	0-60 psig [0-420 kPa]	0-85 psig [0-595 kPa]	0-85 psig [0-595 kPa]
Supply Pressure	20-150 psig [140-1050 kPa]	65-150 psig [455-1050 kPa]	90-150 psig [630-1050 kPa]	90-150 psig [630-1050 kPa]
Effects on Output	.5 psig [4 kPa] @ 25 psig [175 kPa]	1.0 psig [7 kPa] @ 25 psig [175 kPa]	1.5 psig [10.5 kPa] @ 25 psig [175 kPa]	1.5 psig [10.5 kPa] @ 25 psig [175 kPa]
Minimum Span	12.5 [84]	25 [175]	50 [350]	50 [350]
Air Consumption (SCFH)	12.0 (0.34 m ³ /Hr)	13.0 (0.36 m ³ /Hr)	6.0 (0.48 m ³ /Hr)	6.0 (0.48 m ³ /Hr)
Flow Rate (SCFM)	11 SCFM (3.19 m ³ /Hr) @ 150 psig [1050 kPa] and 9 psig [63kPa] output			
Impedance/Input Signal	250 Ohms	256 Ohms	270 Ohms	893 Ohms
PERFORMANCE SPECIFICATIONS	EN50-15	EN50-60	EN50-85	EN50-85V
Independent Linearity (%FS)	±0.75	±1.0	±1.0	±1.0
Hysteresis and Repeatability	< 1.0% FS @ 35 psig supply	< 1.0% FS @ 65 psig supply	< 1.0% FS @125 psig supply	< 1.0% FS @125 psig supply
Temperature Range	-20° F to +150° F [-30° C to +65° C]			
Materials of Construction	Body and Housing.....Aluminum Orifice.....Sapphire Trim.....Stainless Steel, Brass, and Zinc Plated Steel			

PRODUCT NUMBERS

EN50

Model Number	Product Number	Air Output	Signal Output
EN50-15	964229	0-15 psi	4-20 mA
EN50-60	964230	0-60 psi	4-20 mA
EN50-85	964231	0-85 psi	4-20 mA
EN50-85V	964232	0-85 psi	0-10 mA

FILTERS

Description	Product Number
3 Micron and .1 Micron Combination Filter	912142



WARRANTY

WARRANTIES

Nexen warrants that the Products will be free from any defects in material or workmanship for a period of 12 months from the date of shipment. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

EXCLUSIVE REMEDY

The exclusive remedy of the Buyer for any breach of the warranties set out above will be, at the sole discretion of Nexen, a repair or replacement with new, serviceably used or reconditioned Product, or issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

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In no event shall Nexen be liable for any consequential, indirect, incidental, or special damages of any nature whatsoever, including without limitation, lost profits arising from the sale or use of the Products.

WARRANTY CLAIM PROCEDURES

To make a claim under this warranty, the claimant must give written notice of the alleged defect to whom the Product was purchased from and deliver the Product to same within one year of the date on which the alleged defect first became apparent.

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