MOORE INDUSTRIES WORLDWIDE

Demand Moore Reliability

No. 123-701-00C
December 2017

Pressure-to-Current Transmitter

PIX

User's Manual

MOORE INDUSTRIES WORLDWIDE

Demand Moore Reliability

Customer Support

Moore Industries is recognized as the industry leader in delivering top quality to its customers in products and services. We perform a sequence of stringent quality assurance checks on every unit we ship. If any Moore Industries product fails to perform up to rated specifications, call us for help. Our highly skilled staff of trained technicians and engineers pride themselves on their ability to provide timely, accurate, and practical answers to your process instrumentation questions. Our headquarters and other facilities phone numbers are listed below.

There are several pieces of information that can be gathered before you call the factory that will help our staff get the answers you need in the shortest time possible. For fastest service, gather the complete model and serial number(s) of the problem unit(s) and the job number of the original sale.

Locations

World Headquarters

16650 Schoenborn Street
North Hills, California
91343-6196, **U.S.A.**
Tel: (818) 894-7111
Fax: (818) 891-2816
E-mail: info@miinet.com
TOLL FREE: 1-800-999-2900

www.miinet.com

China

Room 102, No. 101,
Lane 1058, Xinzhen Street,
Xinqiao Town, Songjiang District,
Shanghai, 201612, P. R. China
Tel: 86-21 62491499
Fax: 86-21 62490635
E-mail: sales@mooreind.sh.cn
www.miinet.com/cn

Europe

1 Lloyds Court, Manor Royal, Crawley
W. Sussex RH10-9QU
United Kingdom
Tel: 01293 514488
Fax: 01293 536852
FREE PHONE: 0800 525107
sales@mooreind.com
www.miinet.com/uk

Guido Gezellestraat 106
BE-2630 Aartselaar
Belgium
Tel: 03/448.10.18
Fax: 03/440.17.97
info@mooreind.be
Dutch: www.miinet.com/dbe
French: www.miinet.com/fbe

Burg Meslaan 98
4003 CD Tiel
The Netherlands
Tel: (0)344-617971
Fax: (0)344-615920
sales@mooreind.nl
www.miinet.com/nl

Australia

Sydney, NSW
3/1 Resolution Drive
Caringbah, New South Wales 2229
Australia
Tel: (02) 8536-7200
Fax: (02) 9525-7296
sales@mooreind.com.au
www.miinet.com/au

Perth, WA
6/46 Angove Street
North Perth, Western Australia 6006
Australia
Tel: (08) 9228-4435
Fax: (08) 9228-4436
sales@mooreind.com.au
www.miinet.com/au

www.miinet.com

Warranty Disclaimer

Moore Industries ("The Company") makes no express, implied or statutory warranties (including any warranty of merchantability or of fitness for a particular purpose) with respect to any goods or services sold by the company. The company disclaims all warranties arising from any course of dealing or trade usage, and any buyer of goods or services from the company acknowledges that there are no warranties implied by custom or usage in the trade of the buyer and of the company, and that any prior dealings of the buyer with the company do not imply that the company warrants the goods or services in any way.

Any buyer of goods or services from the company agrees with the company that the sole and exclusive remedies for breach of any warranty concerning the goods or services shall be for the company, at its option, to repair or replace the goods or services or refund the purchase price. The company shall in no event be liable for any consequential or incidental damages even if the company fails in any attempt to remedy defects in the goods or services , but in such case the buyer shall be entitled to no more than a refund of all monies paid to the company by the buyer for purchase of the goods or services.

Any cause of action for breach of any warranty by the company shall be barred unless the company receives from the buyer a written notice of the alleged defect or breach within ten days from the earliest date on which the buyer could reasonably have discovered the alleged defect or breach, and no action for the breach of any warranty shall be commenced by the buyer any later than twelve months from the earliest date on which the buyer could reasonably have discovered the alleged defect or breach.

Return Policy

For a period of thirty-six (36) months from the date of shipment, and under normal conditions of use and service, Moore Industries ("The Company") will at its option replace, repair or refund the purchase price for any of its manufactured products found, upon return to the Company (transportation charges prepaid and otherwise in accordance with the return procedures established by The Company), to be defective in material or workmanship. This policy extends to the original Buyer only and not to Buyer's customers or the users of Buyer's products, unless Buyer is an engineering contractor in which case the policy shall extend to Buyer's immediate customer only. This policy shall not apply if the product has been subject to alteration, misuse, accident, neglect or improper application, installation, or operation. THE COMPANY SHALL IN NO EVENT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

To return equipment to Moore Industries for repair, follow these four steps:

1. Call Moore Industries and request a Returned Material Authorization (RMA) number.

   Warranty Repair –
   If you are unsure if your unit is still under warranty, we can use the unit's serial number to verify the warranty status for you over the phone. Be sure to include the RMA number on all documentation.

   Non-Warranty Repair –
   If your unit is out of warranty, be prepared to give us a Purchase Order number when you call. In most cases, we will be able to quote you the repair costs at that time. The repair price you are quoted will be a "Not To Exceed" price, which means that the actual repair costs may be less than the quote. Be sure to include the RMA number on all documentation.

2. Provide us with the following documentation:

   a) A note listing the symptoms that indicate the unit needs repair

   b) Complete shipping information for return of the equipment after repair

   c) The name and phone number of the person to contact if questions arise at the factory

3. Use sufficient packing material and carefully pack the equipment in a sturdy shipping container.

4. Ship the equipment to the Moore Industries location nearest you.

The returned equipment will be inspected and tested at the factory. A Moore Industries representative will contact the person designated on your documentation if more information is needed. The repaired equipment, or its replacement, will be returned to you in accordance with the shipping instructions furnished in your documentation.

MOORE INDUSTRIES

United States • info@miinet.com
Tel: (818) 894-7111 • FAX: (818) 891-2816

Australia • sales@mooreind.com.au
Tel: (02) 8536-7200 • FAX: (02) 9525-7296

Belgium • info@mooreind.be
Tel: 03/448.10.18 • FAX: 03/440.17.97

The Netherlands • sales@mooreind.nl
Tel: (0)344-617971 • FAX: (0)344-615920

China • dho@mooreind.sh.cn
Tel: 86-21-62491499 • FAX: 86-21-62490635

United Kingdom • sales@mooreind.com
Tel: 01293 514488 • FAX: 01293 536852

Safety Messages

Please read this manual in its entirety. It should answer most of your questions. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing, using, or maintaining this product. Should you still have questions please visit our web site at www.miinet.com or contact any of our sales/ support offices nearest you.

Your safety and the safety of others is very important. We have provided many important safety messages in this manual. Please read these messages carefully. These safety messages alert you to potential hazards that could hurt you or others or render damage to units.

All Moore Industries instrumentation should only be used for the purpose and in the manner described in this manual. If you use this product in a manner other than that for which it was intended, unpredictable behavior could ensue with possible hazardous consequences.

Each safety message is associated with a safety alert symbol. These symbols are found in the throughout the manual. The definition of these symbols is described below:

Pay particular attention wherever you see the following symbols:

Note – Information that is helpful for a procedure, condition or operation of the unit.

Caution – Hazardous procedure or condition that could damage or destroy the unit.

Warning – Hazardous procedure or condition that could injure the operator.

Qualified Personnel

The Moore Industries' product/systems described in this manual may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these Moore Industries' products/systems.

Proper use of Moore Industries products

Moore Industries' products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Moore Industries' . Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

We have reviewed the contents of this publication to ensure consistency with the hardware and/or software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions. Specifications and information are subject to change without notice.

Contents

Introduction

The version of Moore Industries' Pressure-to-Current Transmitter packaged in the Hockey-puck (HP) or explosionproof (EXI) housing style is called the PIX. The PIX is used to effect proportional changes in the current of a 4-20 mA process instrumentation loop, based on changes in pneumatic input.

This manual contains all of the information needed to calibrate, operate, and maintain the PIX. It also includes a brief description of the unit and its capabilities and options, a listing of unit specifications, and an overview of Moore Industries' unit data tracking system and labeling.

An appendix at the end of the manual provides the information required for installing the PIX in hazardous environments. Such installations require one of the available Intrinsic Safety (IS) options, described later.

Where they appear in text or figures, "NOTES" are used to draw attention to practices that could other-wise result in inconveniences to the user. "CAUTIONS" call out information that, if ignored, could result in damage to the unit, and "WARNINGS" point out aspects of installation or operation that require special attention. Unheeded warnings could result in personal injury.

Description

The PIX is a two-wire (loop-powered) transmitter that accepts variable, instrument-quality, pneumatic input and converts it proportionally to current output in the 4-20 mA range. As input pressure increases, output increases proportionally toward 20 mA. Inversely, as pressure decreases, output drops.

The unit is configured at the factory, according to customer specification, to accept pneumatic input in any one of several ranges. It can function in a single-instrument loop or together with several PIX's inter-connected in a pneumatic system.

The available housing styles for the PIX, which include several versions of both the HP and EXI type, afford the user with a wide variety of mounting options. Contact your Moore Industries' Sales Representative for more information on available mounting hardware and options.

The HP-style PIX. This unit is intended to function as a modular replacement in applications where conduit and enclosures may already be in place, when a special enclosure is not required or in applications where the EXI PIX is not otherwise appropriate.

Typically, this style of PIX is mounted in a separate, domed, explosionproof enclosure. It is secured inside this enclosure with two spring clips; no drilling or tapping is required. Other versions of the HP-style PIX include hardware for surface mount or relay track installations. With an available adapter, the unit can also be snapped on to G-type DIN rail (DIN EN50035).

Pneumatic input connections for the HP-style PIX are female, 1/4-18 NPT. The electrical conduit connection hubs for the unit when used with Moore Industries' explosionproof enclosure are 1/2-14 NPT.

The EXI-style PIX. This housing is designed to meet the requirements of several independent certifying agencies in applications calling for intrinsically safe equipment. It provides the unit with excellent protection from even the most arduous of industrial environments.

With the EXI-style PIX, the electronics and the housing are integrated into an extruded aluminum, explosionproof unit. The EXI is available with or without pipe mounting hardware, and the electrical conduit connection port can be ordered in either a 1/2-14 NPT configuration, or with an M20 x 1.5 (metric) port opening. As with the HP-style unit, pneumatic input connections are female, 1/4-18 NPT.

Table 1 contains the PIX performance and operational specifications.

Table 1. PIX Operational and Performance Specifications

Characteristic	Specifications
Input (See Note 1)	Factory-configured. Instrument-quality air input only. 0-15 psig: 3-27 psig 0-30 psig: 6-30 psig 0-100 psig: 20-100 kPa (0.2-1 bar, 0.2-1 kgcm 3-15 psig: 20-186 kPA Input Pressure Maximum: 150% of rated full-scale input without damage.
Output	4-20 mA Output Limit: 130% of rated output span.
Power	Loop-powered. 12-42 Vdc: standard 12-24 Vdc: (see NOTE 2) 12-28 Vdc: (see NOTE 2)
Controls	Zero: Multiturn pot electronically provides offsets of ±10% of span. Span: Multiturn pot electronically provides full adjustability to 100% of span. Zero and Span pots are non-interactive.
Performance	Accuracy: Error less than ±0.2% of unit span, including the effects of independent linearity, as defined per SAMA standard PMC 20.1-1973. Repeatability: ±0.1% of input span. Resolution: ±0.05% of input span. Response Time: 10 milliseconds to reach 98% of output for each step change on input. Load Capability: 600 at 24 Vdc nominal. Load Effect: ±0.01% of rated span from zero to maximum rated load. Output Ripple: Negligible. Power Supply Line Voltage Effect: Less than ±0.01% of rated span per volt of change in line voltage at power input terminals. RFI/EMI Effect: Less than 0.1% of rated span in field strengths of 10 V/m at typical walkie-talkie frequencies. Vibration Effect: Negligible. Unit has no internal moving parts. Effect of Ambient Temperature: Less than ±2% of full-scale input over the specified ambient temperature operating range.
Environmental Ratings	Ambient Temperature Operating Range: –1 to 54 °C (30 to 130 °F).
Weight	EXI-style Housing: Approximately 1.25 kg (2 lb, 13 oz) without options. 1.4 kg (3 lb, 2 oz) including mounting flange, option block, gage, and test jack options. HP-style Housing: Approximately 227 g (8 oz) with standard flange mount hardware and pneumatic input connection fitting. 1.4 kg (3 lb 2 oz) in explosion proof enclosure.
Notes:	1. Not all listed specifications are standard. Consult your Moore Industries' Sales Representative for information on pricing and availability. 2. Required for some types of IS applications (Consult your Moore Industries' Sales Representative for details). 3. Refer to the Installation Section for PIX outline dimensions.

Controls and Indicators

Controls and Indicators

There are two, multiturn potentiometers (pots) used to adjust PIX zero and span. Each pot is equipped with a slip clutch mechanism to prevent damage in the event it is turned beyond its wiper stop.

The pots are located on the front panel of HP units. They can be found on the top panel of EXI PIX's, which is accessed by unscrewing the top end-cap of the unit housing.

Options

The following list provides an overview of some of the PIX options. Complete information on mounting hardware and functional options, or currently avail-able certifications and approvals is available from your Moore Industries Sales Representative. Users may also contact the factory directly at 1-800-999-2900 in the U.S.A.

IS(x) Option(s) – Instrinsic Safety. Units can be configured to comply with the requirements of several, independent IS certifications. Contact the factory, or your local Moore Industries' Sales Repre-sentative for information on the specific approvals available. The appendix of this manual provides information on the installation of some IS-equipped PIX's in applications calling for IS.

RO Option – Reverse Output. As input air pressure increases, current output decreases toward 4 mA.

PTJ Option – Pneumatic Test Jack. Fitting for connection of test equipment to monitor input pressure (test equipment not included). Available with the EXI housing only.

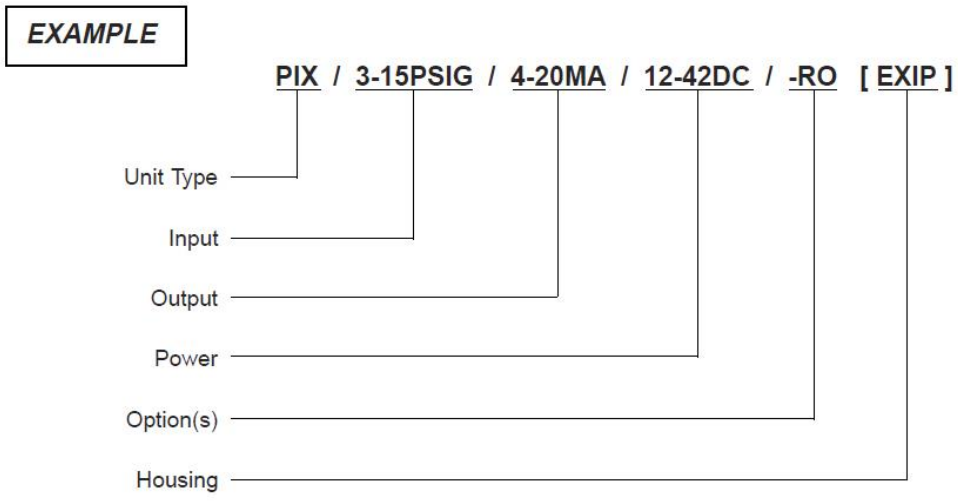
GA1 Option – Input Gage. Scaled in psi and bars. Available with the EXI housing only.

Unit Data Tracking – Model/Serial Number. Moore Industries keeps a record of product information on every unit sold or serviced. This record is keyed to the unit model and serial numbers.

On the HP-style PIX, look for the model and serial numbers on a label affixed to the back panel. The tag on EXI-style units is on the bottom cover (end-cap).

The following example shows a typical PIX model number, breaking out its data fields for illustration purposes. Refer to the example in deciphering the model number on your RBX.

If service assistance is ever required, make a note of the unit model number before contacting the factory. For fastest assistance, also note the unit serial number, job number, and the purchase order number under which it was shipped. This information assists the factory representative in providing you with the answers you need as efficiently as possible.



Calibration

Prior to shipment, every PIX is fully tested to ensure compliance with Moore Industries' strict quality control guidelines. Before installation, however, your PIX(s) should be bench checked in order to set and verify the desired operating levels.

This procedure should be conducted in an environment considered appropriate for general testing of electronic and pneumatic equipment. It is recommended that the procedures in this section not be carried out in the field. Use a technician's bench or in a similar lab-type setup, so that any unit damage that may have occurred during shipment can be discovered safely, i.e., separated from the intended process or application.

Calibration Setup

Table 2 lists the equipment required to calibrate the PIX. This equipment is not supplied by Moore Industries, but should be available in most labs or maintenance areas.

The terminals for connection of the calibration equipment are located on the unit front panel. Both types of housing style use the same type of 6-terminal block. Each terminal is numbered, but only terminals 1 and 3 are active in the PIX.

Terminals are labeled "+I" (terminal 1) for connection of the positive lead, and "–I" (terminal 3) for connection of negative.

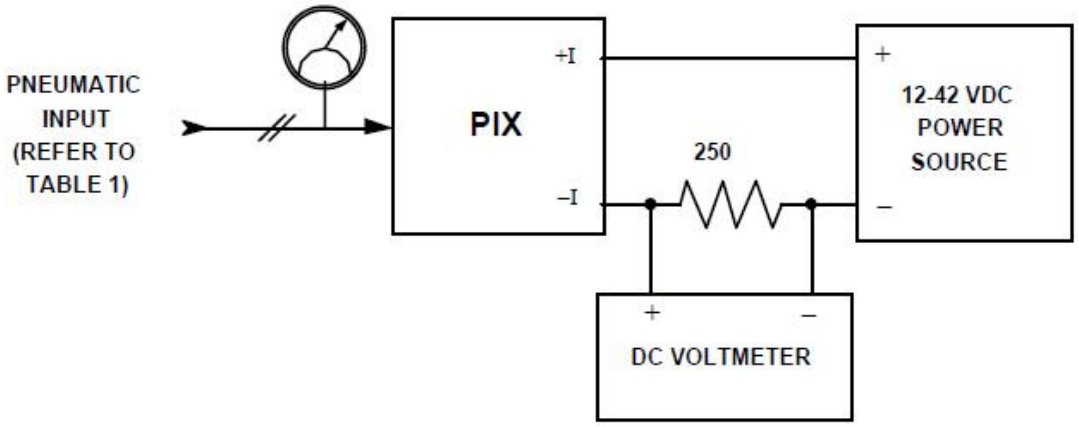
Figure 1 illustrates the generic hookup required to perform the bench check and pot adjustments of the PIX. Connect the equipment listed in table 2 as shown in figure 1.

NOTE: If the unit being checked is equipped with the Test Jack or Gage Option (EXI housing only), the input pressure may be monitored during calibration. Note that connecting the appropriate measurement instrument to the PIX test jack fitting has no effect on pneumatic load.

Table 2. PIX Calibration Equipment

Equipment	Characteristics
Air Supply	Calibrated, adjustable, regulated, instrument-quality. Must be capable of discrete output levels within the appropriate, rated range of the unit under test. Refer to table 1 for appropriate maximum/minimum specifications.
Air Pressure Gage	Calibrated. Accuracy of ±0.05%, scaled as appropriate for the specified input of the unit being calibrated.
Power Source	Calibrated. 12-42 Vdc, capable of 4-20 mA output.
DC Voltmeter	Calibrated. Accuracy of ±0.005%, minimum.
Precision Resistor	250 , ±0.01%
Screwdriver	Slotted-tip. Head width of 2.54 mm (0.1 in), maximum.

Figure 1. PIX Calibration Setup



When the setup is complete, apply appropriate input pressure and dc power (refer to table 1 and unit model number for specifications). Allow approximately 5 minutes for setup stabilization.

Calibration Procedure

The calibration of the PIX consists of the measurement of the voltage drop across a precision resistor when the input pressure in the setup is varied within the unit's rated span.

In both the HP and EXI housing style, the zero and span adjustment pots are located on the PIX front panel. The words "ZERO" and "SPAN" are used as labels for the pots on the HP unit front panel. In the case of the EXI PIX, they are represented symbolically with the following:

The Zero pot provides for offsets as great as ±10% of rated span. The Span pot adjusts unit full-scale to 100-percent at maximum input pressure.

The adjustment pots are not interactive. Neither setting is effected during the adjustment of the other.

To calibrate the PIX, make sure that the setup has been completed as described in the preceding section. Turn both adjustment pots fully counter-clockwise (approximately 15 turns), then 7.5 turns clockwise. This approximates the mid-scale setting.

1. Set adjustable instrument air supply to 0% of input range specified for unit (refer to unit model number and specifications in table 1).
2. Using voltmeter with specified load resistor to monitor output, adjust Zero pot until voltmeter reads 1 volt.

 **CAUTION:** Use of a screwdriver larger than that specified may damage the PIX.

3. Set adjustable instrument air supply to 100% of input range as specified for unit (refer to unit model number and specifications in table 1).
4. Using voltmeter with specified load resistor to monitor output, adjust Span pot until voltmeter reads 5 volts.
5. Verify proper settings by varying input pressure between maximum and minimum specified levels while monitoring voltage drop across resistor. As input is varied between zero and full-scale, output voltage drop varies proportionally be-tween 1 volt (for zero) and 5 volts (for full-scale),±0.2% of rated unit span.

As input is varied between zero and full-scale, output voltage drop varies proportionally between 1 volt (for zero) and 5 volts (for full-scale), ±0.2% of rated unit span.

 **NOTE:** If checking unit equipped with RO Option, observed voltage will vary inversely with respect to pressure. That is, 0% pressure input will produce full-scale voltage output, 5 volts. Full-scale pressure input produces 0% output, or 1 volt.

Installation

Installation of the PIX is presented in this manual in three phases. The first phase is the physical mounting of the unit. Next is the pneumatic connections phase. Finally, electrical connections can be made. It is suggested that the installation of the PIX be carried out in this order. Information on multiple-unit hookups is included.

Before PIX installation, it is strongly recommended that each unit be bench checked. Refer to the instructions for this procedure in the Calibration Section, earlier in this manual.

Also, any requirements for intrinsic safety in the intended application must be considered.

CE Conformity

Installation of any Moore Industries products that carry the CE certification (Conformité Européenne) must adhere to guidelines set forth in applicable EMC (Electromagnetic Compatibility) directive (2014/30/EU - EN 61326). Consult the factory for the most current information on products that have been CE certified**.**

Specific Conditions of Use

The following instructions must be adhered to when the PIT [HP] is used in hazardous locations and potentially explosive atmospheres.

CSA Installations

The PIX[HP] is certified as a component for installation in other equipment where the suitability of the combination is to be determined by the Canadian Standards Association and the Inspection Authority have jurisdiction.

Intrinsic Safety Considerations

WARNING: If installing the PIX in a hazardous environment application, i.e., one that may require certified intrinsically safe systems hookup, make sure that the unit being installed is equipped with the proper IS certification option.

Several of the available housing and enclosure options in which the PIX are available have been certified Intrinsically Safe by third party certifying agencies. Consult your Sales Representative for information on the specifics of each approval and with which configurations each is available.

Physical Mounting of the PIX

The housing styles available for the PIX present a number of mounting options. The HP PIX in the explosionproof enclosure and the EXI unit can be mounted on virtually any flat surface or, with optional pipe-mount hardware, on any 2-inch pipe.

The symmetrical orientation of the mounting holes used in the EXI unit makes it possible to effect mounting in virtually any orientation, horizontal or vertical. It is important, however, that the unit positioning and orientation allow for access to the pneumatic port and the electrical conduit opening.

Typically, the HP unit is equipped with spring clips. This provides for installing the unit in the explosionproof enclosure without any drilling or tapping. HP units equipped with flanges can be used in applications calling for either relay track or surface mount use (FL and FLD housing options, respectively). An adapter, available as a housing option, makes the HP PIX compatible with standard, G-type DIN rails (DN).

Figure 2 shows the mounting dimensions for the PIX with the flange mount (FL) configuration. Figure 3 shows the EXI PIX.

For more information on these options and pipe mounting hardware, or for information on options or enclosures not shown, contact your Moore Industries Sales Representative.

NOTE: The orientation of the unit (horizontal, vertical, etc.) has no effect on PIX performance or operation.

Figure 2. HP PIX with Flange Mount Hardware

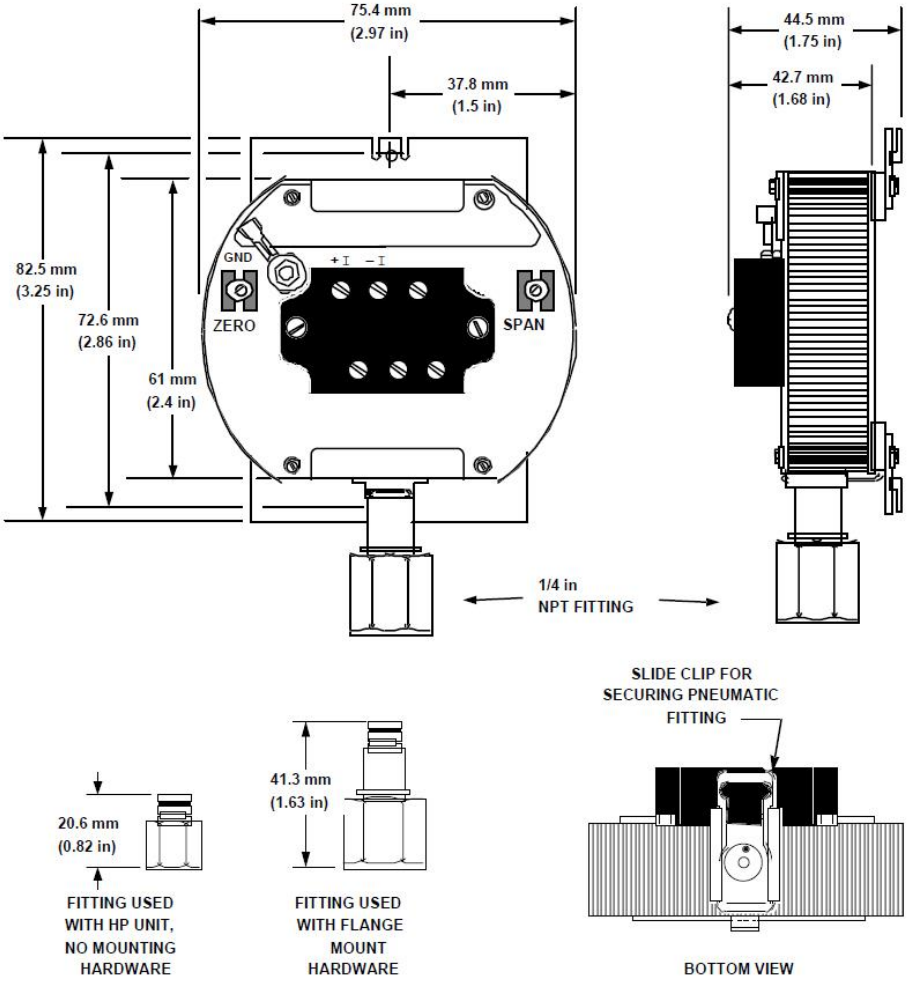
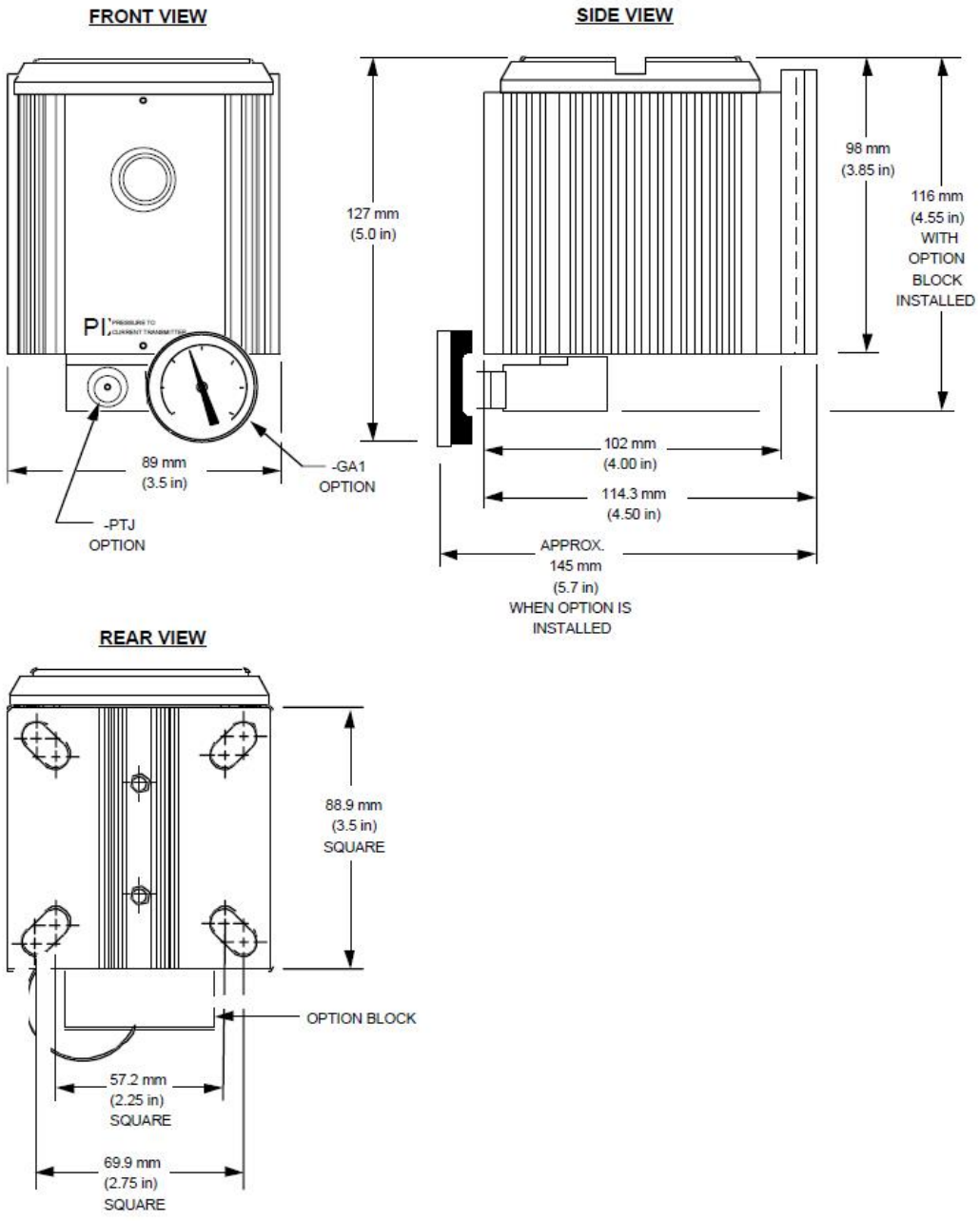


Figure 3. EXI PIX Outline Dimensions



Pneumatic Connections

The first phase of PIX installation consists of connecting the pneumatic input line. The following suggestions are made regarding the connection of the pneumatic input to the PIX:

- Provide independent support for any components or equipment installed in the lines. Cushioning brackets are best.
- Avoid “straight-line” connections, if possible.
- Seal all fittings with Teflon tape or equivalent. “Pipe dope” is not recommended. If your application environment prohibits the use of Teflon, contact Moore Industries for assistance.
- Always “blow down” or purge all tubing before connecting to the PIX.

NOTE: On the EXI PIX’s equipped with the PTJ Option, a removable plug (1/8 in NPT) is placed in the unused port, unless the unit is also equipped with the Gage Option,GA1.

Before connecting a pneumatic input line to the PIX, ensure that the line is free of debris. Use the methods recommended by the maintenance section of your facility. Absent that, apply high input pressure (up to 60 psig) to the line until the flow is clear.

CAUTION: Air nozzles, nipple, and valves should be lubricated before installation. Teflon® spray lubricant is recommended. If a substitute is used, exercise extreme care to ensure that it is kept out of the unit’s air passage and input line.

Electrical Connections

The PIX has two electrical connection terminals, labeled “+I” and “–I”, on its front panel. These are for the connection of wiring for the unit’s 4-20 mA output.

Figure 4 shows the electrical hookup diagram for the PIX.

As the PIX is a loop-powered device, no additional electrical connections are required. Check the Power field of the unit model number to verify appropriate loop voltage. Refer to the explanation of the model number in the Description Section of this manual, and to the specifications listed in table 1 for more information.

CAUTION

Certain Intrinsic Safety Certification options for the PIX carry restrictions for the unit power (loop voltage).

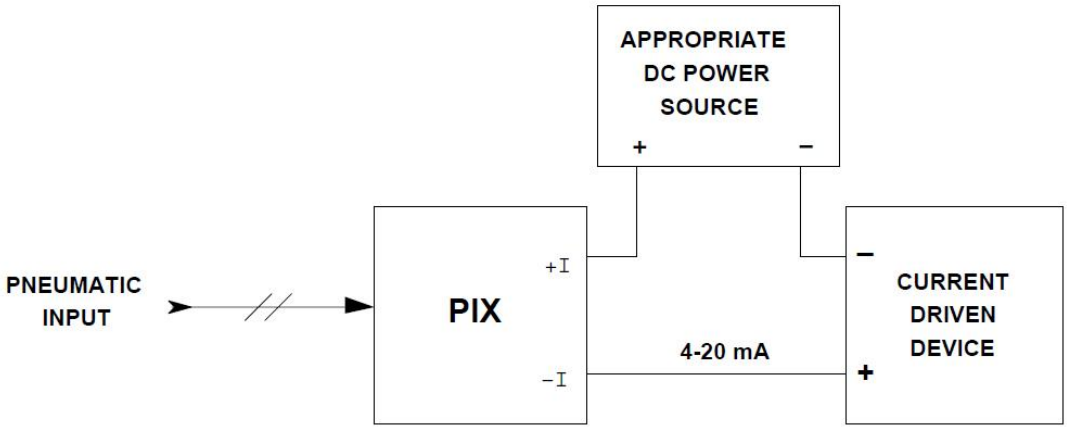
As shown in figure 4, connect the +I terminal of the PIX to the positive lead from the power source in the loop. Connect the –I PIX terminal in series with the positive terminals of the other devices in the loop, and the negative terminal of the loop power supply.

Terminal wires used should be between 14 and 22 AWG. Connections are made with compression screw sockets. Use a slotted-tip screwdriver with a head width no greater than 3 mm (0.12 inch).

NOTE: The use of shielded, twisted-pair wiring, grounded as near as possible to the PIX, is recommended.

The enclosure in which explosionproof HP units are shipped, as well as the housing of EXI PIX's, have a built-in grounding screw. In the case of the explosionproof HP PIX, it is located on the interior wall of the enclosure, opposite the port used for connection of the pneumatic input. On EXI units, it is located inside the electrical connections compartment of the housing, next to the conduit port.

Figure 4. PIX Installation Hookup



Grounding. To ground the HP PIX make sure a shielded grounding lead is connected to the GND screw on the unit front panel. This screw is located to the right of the Zero adjustment pot, and is typically fitted with a wire or wire terminating lug. Typically, in the case of HP units in explosionproof enclosures, the unit grounding screw is attached to the enclosure ground prior to shipment.

To ground the EXI PIX, run the shielded grounding lead through the housing's wiring conduit port, and connect it to the screw on the interior wall of the housing.

Multiple PIX Hook-ups

Some precautions must be taken when powering more than one PIX in a single loop. Make sure that one side of the power source is common to all PIX's, and that the other side of the power source is common to all loads.

Figure 5 shows an example of this type of hookup.

When using a single source to power multiple units, care must be taken to avoid ground loop problems due to the loads being at different potentials. If separate power supplies cannot be employed, contact your Moore Industries Sales Representative for assistance is selecting a compatible signal isolator.

Operation

Once properly installed, supplied with pneumatic input, and connected to load instrumentation in the process loop, PIX transmitters operate unattended.

If a unit is determined to be the cause of a loop discrepancy or malfunction, refer to the Troubleshooting Section of this manual for instructions.

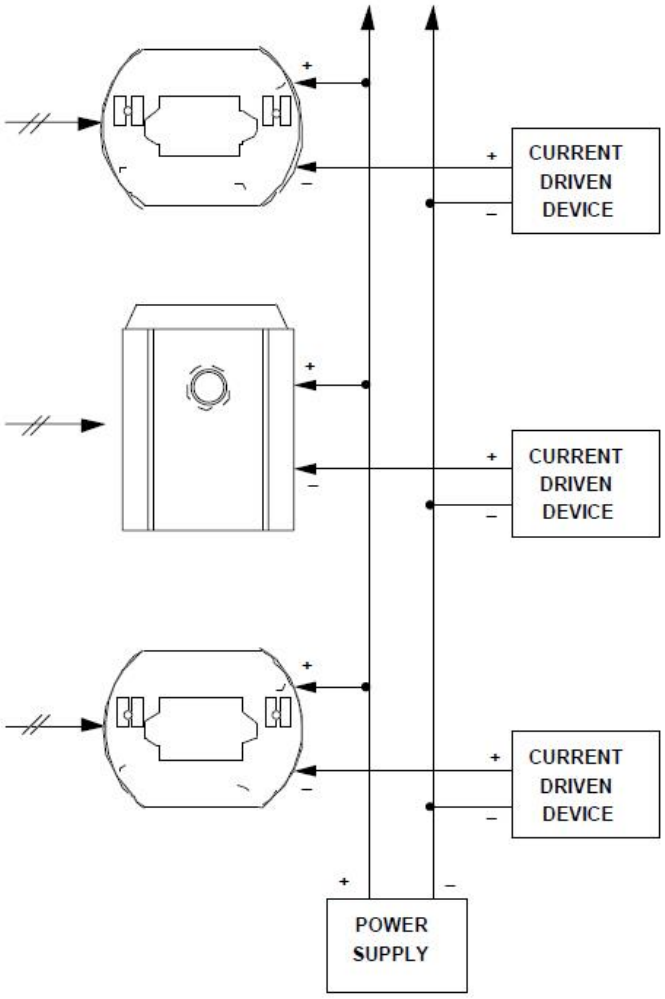
Maintenance & Troubleshooting

PIX transmitters are built with highly reliable components and contain no moving parts. These two aspects ensure that these units operate reliably for extended periods of time.

Once installed and operating, the PIX requires no field maintenance other than an occasional visual inspection of the unit connection terminals and pneumatic connection. This inspection is recommended at least once every six months, or more frequently in those installations where the unit is subjected to extremes in vibration or dust and dirt.

Field troubleshooting of the PIX is limited to visual inspection of the housing, the pneumatic connections, and verification of specified signal response.

Figure 5. Multiple PIX Installation Hookup



If problems arise in the function of the unit in its application:

- Make sure that input and output connections are clean and tight.
- Remove the unit from service and recalibrate, making sure that bench instruments used are themselves properly calibrated.
- Verify loop power levels.

If, after re-calibration, the PIX fails to perform up to specifications, contact the factory Customer Service Department. Phone numbers of your local STAR Center are listed inside the front cover of this manual. Instructions for the return of the unit to the factory for further testing or rehab can be found on the back cover of this manual.

When calling for assistance, always remember to provide your Customer Service Representative with the model and serial number of the offending unit, and if possible, with the job number and the purchase order number under which the unit was ordered.

Current-to-Pressure Product Solutions

IPT² DIN-style Current-to-Pressure Transmitter

The high-performance IPT² Current-to-Pressure (I/P) DIN-style Transmitter converts a current signal to a pneumatic signal so that an electronic-based system such as a DCS, PLC, or PC can control a pneumatic actuator, valve, or damper drive. Available models accept a wide range of current inputs (4-20mA, 4-12mA, and 12-20mA) and provide a proportional pneumatic signal (3-15psig, 0.2-1 Bar, 20-100kPA, etc.).

Features:
- 22 direct and reverse output ranges
- Low air consumption and high output volume
- High accuracy and fast response
- Immune to supply pressure variation
- Clog-resistant design, clean start up
- RFI/EMI protection

IPH² and IPX² Field Mount Current-to-Pressure Transmitter

IPH²

IPX²

The IPH² and IPX² Field Mount I/P transmitters accept a current signal (such as 4-20mA) from a DCS, PLC or PC-based control system. They convert the current signal to a pneumatic signal (3-15psig, 0.2-1bar, 20-100kPa, etc.) to provide precise, proportional control of valves, actuators and other pneumatically controlled devices.

Features:
- 22 direct and reverse output ranges
- Low air consumption and high output volume
- Accurate and stable
- Immune to supply pressure variation
- Clog Resistant Filtered Nozzle and Orifice

IPX² Additional Features:
- Switch-selectable reverse output
- Removable electronics module
- Approved for use with Natural Gas with -NG1 and -NG2 options
- Both intrinsically-safe and flameproof approved

Demand Moore Reliability • **www.miinet.com**

MOORE INDUSTRIES

United States • info@miinet.com
Tel: (818) 894-7111 • FAX: (818) 891-2816

Belgium • info@mooreind.be
Tel: 03/448.10.18 • FAX: 03/440.17.97

China • dho@mooreind.sh.cn
Tel: 86-21-62491499 • FAX: 86-21-62490635

Australia • sales@mooreind.com.au
Tel: (02) 8536-7200 • FAX: (02) 9525-7296

The Netherlands • sales@mooreind.nl
Tel: (0)344-617971 • FAX: (0)344-615920

United Kingdom • sales@mooreind.com
Tel: 01293 514488 • FAX: 01293 536852