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RE-EXAMINATION OF  
MODELS PIT-DIN AND PIX PRESSURE TRANSMITTERS  
FOR  
HAZARDOUS LOCATIONS APPLICATIONS

from

MOORE INDUSTRIES, INC.  
16650 SCHOENBORN STREET  
SEPULVEDA, CA 91343-7111

J.I. OROH7.AX  
(3610)

January 28, 1991



**Factory Mutual Research**

1151 Boston-Providence Turnpike  
P.O. Box 9102  
Norwood, Massachusetts 02062



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## I. INTRODUCTION

1.1. Moore Industries, Inc. requested re-examination Approval of the apparatus listed in Section 1.2 to be in compliance with the applicable requirements of the following standards:

<u>Title</u>	<u>No.</u>	<u>Issue Date</u>
Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1 Hazardous (Classified) Locations	Class No. 3610	October 1988
<i>Note: Factors applied to voltage or current rather than energy.</i>		
Electrical Equipment for Use in Class I, II, Division 2, Class III, Divisions 1 and 2 Hazardous (Classified) Locations	Class No. 3611	April 1986
Electrical Equipment for Use In Hazardous (Classified) Locations General Requirements	Class No. 3600	March 1989
Electrical and Electronic Test, Measuring, and Process Control Equipment	Class No. 3810	March 1989

1.2. The following apparatus is Intrinsically Safe for Class I, Division 1, Groups A, B, C and D Hazardous Indoor Locations in accordance with Entity requirements per drawing 100-100-20, Rev. A, and will appear in the Approval Guide as follows:

IS/I/1/ABCD 100-100-20/A; Entity  
NI/I/2/ABCD

Vmax = 30 Vdc Imax = 110 mA Ci = 0.03 uF Li = 0.9 uH

Pressure to Current Transmitter. Models PIT-DINabcde, PIXabcde

- a - Input pressure range; 3-15 PSIG, 3-27 PSIG, 6-30 PSIG, 20-100 KPA, 20-186 KPA, 0.2-1 BAR or 0.2-1 KGCM2.
- b - Current output; 4-20 mA or 10-50 mA.
- c - Power input; 12-30 Vdc (for IS), 12-42 Vdc (for NI).
- d - Access/mounting options ; FA1, FA2, FA3, FA4, FA7 and FA8 (for PIT-DIN only), HP, FL or D2 (for PIX only)
- e - Certification, FMRC Approved; ISF2.

## II. DESCRIPTION

Moore Industries PIT-DIN and PIX are two wire pressure to current transmitters which convert up to 30 psig (207 kPa) pneumatic pressure to a 4 to 20 mA or 10 to 50 mA current signal. Model PIT-DIN is a rail mounted rectangular metal enclosure measuring 85.1 mm by 25.4 mm by 130 mm. Model PIX is a "hockey puck" metal enclosure measuring 7.5 mm in diameter by 4 mm. Model PIT-DIN contains a single conformally coated printed circuit board on which contains a solid state pressure transducer and associated circuitry. Model PIX contains two conformally coated printed circuit boards which has circuitry similar to the PIT-DIN assembly.

## III. EXAMINATION AND TESTS

3.1. General - Models PIT and PIX Pressure to current Transmitters, Model PTX Potentiometer Transmitter and Model RBX Resistance Bulb Transmitter were all originally Approved as part of Factory Mutual Research Corporation (FMRC) examination J.I. 1COA1.AX. Moore Industries, Inc. elected to divide the re-examination program for these products in two separate efforts. Models PTX and RBX transmitters are subject to re-examination as part of examination J.I. OT1H5.AX and Models PIT and PIX transmitters are subject to re-examination as part of this examination. The manufacturer superseded the original PIT and PIX products with redesigned instruments. The new instruments are distinguished from the originally Approved instruments by the model code FMRC Approved selection; ISF2. Representative samples of new Models PIT-DIN and PIX Pressure to Current transmitters were examined and tested by FMRC to determine the acceptability for use in the specified hazardous locations. The re-examination included circuit analysis, temperature measurements, ignition tests, as well as a review of the manufacturer's documentation and the units' physical construction. All were satisfactory and are summarized in the following sections. All data is on file at FMRC along with other documents and correspondence applicable to this program.