

# 1 EC-TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC**

3 EC-Type Examination Certificate No: **FM07ATEX0007X**

4 Equipment or protective system: **Model TFZ and TPZ Temperature Transmitters**  
(Type Reference and Name)

5 Name of Applicant: **Moore Industries-International, Inc**

6 Address of Applicant: **16650 Schoenborn Street  
North Hills, CA 91343**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Ltd, notified body number 1725 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.  
The examination and test results are recorded in confidential report number 3025595EC dated 20<sup>th</sup> December, 2007.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents: EN 60079-0:2006, EN 60079-11:2007 and EN 60079-26:2004

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:



II 1 G Ex ia IIC T4 Ta = -40°C to 85°C

**Andrew Was**  
General Manager, FM Approvals Ltd.

Issue date: 20<sup>th</sup> December, 2007



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## 13 Description of Equipment or Protective System:

The Model TFZ and TPZ are temperature transmitters which accept a direct input from RTD, T/C, Ohms, mV or potentiometer input sensors. The temperature transmitter then converts the input sensor signal for a true temperature reading. The Model TFZ temperature transmitter utilizes PROFIBUS communication and the Model TPZ temperature transmitter utilizes Fieldbus communication.

### **TFZ/a/H1/b/-c [d]. Temperature Transmitter.**

Energy Limitation Parameters:

$V_{max} = 30V$ ,  $I_{max} = 300mA$ ,  $P_i = 1.3W$ ,  $C_i = 0\mu F$ ,  $L_i = 7.15\mu H$ .

FISCO Parameters:

$V_{max} = 24V$ ,  $I_{max} = 380mA$ ,  $P_i = 5.32W$ ,  $C_i = 0\mu F$ ,  $L_i = 7.15\mu H$ .

Field Sensor Energy Limitation Parameters:

$U_o = 6.6V$ ,  $I_o = 35.24mA$ ,  $P_o = 57.53mW$ ,  $C_o = 20.53\mu F$ ,  $L_o = 25mH$  (Group IIC).

$U_o = 6.6V$ ,  $I_o = 35.24mA$ ,  $P_o = 57.53mW$ ,  $C_o = 498.53\mu F$ ,  $L_o = 100mH$  (Group IIB).

$U_o = 6.6V$ ,  $I_o = 35.24mA$ ,  $P_o = 57.53mW$ ,  $C_o = 998.54\mu F$ ,  $L_o = 200mH$  (Group IIA).

a= Input: TPRG, J-, K-, E-, T-, R-, S-, N-, B-, C-, MV, R1-, R2-, R3-, R4-, R5-, R6-, R7-, R8-, R9-, R10-, R11-, R12-, R13-, R14-, RO- or POT-.

b= Power: 9-30DC (Intrinsically Safe), 9-24V (FISCO).

c= Options: VTB or VTD.

d= Housing options: DN, FL, HP, TW or VDN.

### **TPZ/a/PA/b/-c [d]. Temperature Transmitter.**

Energy Limitation Parameters:

$V_{max} = 30V$ ,  $I_{max} = 300mA$ ,  $P_i = 1.3W$ ,  $C_i = 0\mu F$ ,  $L_i = 7.15\mu H$ .

FISCO Parameters:

$V_{max} = 24V$ ,  $I_{max} = 380mA$ ,  $P_i = 5.32W$ ,  $C_i = 0\mu F$ ,  $L_i = 7.15\mu H$ .

Field Sensor Energy Limitation Parameters:

$U_o = 6.51V$ ,  $I_o = 35.39mA$ ,  $P_o = 57.6W$ ,  $C_o = 20\mu F$ ,  $L_o = 25mH$  (Group IIC).

$U_o = 6.51V$ ,  $I_o = 35.39mA$ ,  $P_o = 57.6W$ ,  $C_o = 498\mu F$ ,  $L_o = 100mH$  (Group IIB).

$U_o = 6.51V$ ,  $I_o = 35.39mA$ ,  $P_o = 57.6W$ ,  $C_o = 998\mu F$ ,  $L_o = 200mH$  (Group IIA).

a= Input: TPRG, J-, K-, E-, T-, R-, S-, N-, B-, C-, MV, R1-, R2-, R3-, R4-, R5-, R6-, R7-, R8-, R9-, R10-, R11-, R12-, R13-, R14-, RO- or POT-.

b= Power: 9-30DC (Intrinsically Safe) 9-24V (FISCO).

c= Options: VTB or VTD.

d= Housing options: DN, FL, HP, TW or VDN.

## 14 Special Conditions for Safe Use:

1. *The Temperature Transmitter shall be installed in an enclosure which maintains an ingress protection rating of IP20.*
2. *For Zone 0 installations, the final enclosure shall not contain more than 10% in total of aluminum, magnesium, titanium and zirconium, or more than 7.5% in total of magnesium, titanium and zirconium; For Zone 1 installations, the final enclosure shall not contain 7.5% in total of magnesium.*
3. *Using the box provided on the nameplate, the user shall permanently mark the protection type chosen for the specific installation. Once the type of protection has been marked it shall not be changed.*
4. *The COM port shall not be used in the hazardous area.*

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**15 Essential Health and Safety Requirements:**

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

**16 Test and Assessment Procedure and Conditions:**

This EC-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's ATEX Certification Scheme.

**17 Approved Drawings**

Drawing No:	Revision	Title / Description
100-100-72	A	Control Drawing: Field Installation Diagram: TFZ [HP] & TPZ [HP] Intrinsically Safe Systems
200-213-05	F	Fabrication: Bottom Case Cover
200-251-2251	A	Label: Rear ID label (TPZ)
200-251-2253	A	Label: Rear ID label (TFZ)
200-301-00	C	Fabrication: Blank Labels, Weber TIY Rear Panel
205-217-01	D	Fabrication: Front Panel TDY-HP
207-223-00	C	Mech. Assembly: TPZ Top Assembly[HP]
207-286-00	B	Mech. Assembly: TFZ Top Assembly [HP]
207-286-05	A	Fabrication: Front Panel Modified, TFZ
207-866-00	A	List of Materials: TFZ-HP, Mech Assy
238-405-00	A	Display Board PC1, TFZ [HP]
238-405-01	A	Schematic: TFZ [HP] CPU Board PC2
238-405-02	A	Schematic: TFZ [HP] Power Supply PC3
238-409-00	A	Schematic: Display Board PC1, TPZ [HP]
238-409-01	B	Schematic: TPZ [HP] CPU Board
238-409-02	B1	Schematic: TPZ [HP] Power Supply PC2
Drawing No:	Revision	Title / Description
238-506-00	A	PC Assembly: PC1 TFZ [HP]
238-507-00	A	PC Assembly: PC2, TFZ [HP]

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238-508-00	A	PC Assembly: PC3, TFZ [HP]
238-705-00	A	TFZ Programmable Foundation Fieldbus Temperature Transmitter Manual
238-705-04	A	Model Number Example (TFZ)
238-709-00	E	TPZ Programmable Profibus Temperature Transmitter Manual
238-709-04	D	Model Number Example (TPZ)
238-805-00	A	List of Materials: TFZ-HP, Top Assy
238-806-00	A	List of Materials: TFZ-HP, PC1 Assy Drawing
238-807-00	A	List of Materials: TFZ-HP, PC2 Assy Drawing
238-808-00	A	List of Materials: TFZ-HP, PC3 Assy Drawing
238-810-00	A	List of Materials: PC1 TPZ Display Board
238-811-00	A	List of Materials: PC2 TPZ Assy CPU
238-812-00	A1	List of Materials: PC3 Assy Power Supply
506-510-01	A2	PC Fabrication: PC1 TFZ/TPZ [HP]
508-585-01	A	PC Fabrication: PC1, TFZ/TPZ - HP
508-585-02	A	Board Layout: THZ/TPZ-HP PC1 Display
508-586-01	B1	PC2 Fabrication: PC2, TFZ/TPZ-HP
508-586-02	B	Board Layout: PC2 TFZ/TPZ CPU Board
508-587-01	A1	PC Fabrication: PC3, TFZ/TPZ-HP
508-587-02	A	Board Layout: PC3, TFZ/TPZ Power Supply
810-804-73	A1	Spec Control: Transformer TFZ/TPZ [DIN]

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