



Member of the FM Global Group

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

TCM/a/HART/15-30Vdc/b/DIN. Temperature Concentrator Module.

IS/I/1/ABCD/T4 Ta = -40°C to 85°C; T5 Ta = -40°C to 40°C – 100-100-74; Entity; I/0/AEx ia IIC T4 Ta = -40°C to 85°C T5 Ta = -40°C to 40°C – 100-100-74; Entity

Entity Parameters:

Ui = 30V, Ii = 110mA, Pi = 825mW, Ci = 0, Li = 0.

Field Sensor Terminals:

Uo = 4V, Isc = 254.14mA, Po = 717.38mW, Co = 396µF, La = 9.4µH.

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, POT.

b= Options: -TROP or-VTD.

Special Conditions of Use:

- 1. The Model TCM Temperature Concentrator Module shall be installed in an enclosure which maintains an ingress protection rating of IP20.*
- 2. The Model TCM Temperature Concentrator Module shall be installed in a final enclosure which meets the requirements of ANSI/ISA 61010-1 and the National Electrical Code®.*
- 3. For Zone 0 and Division 1 installations, the final enclosure shall not contain more than 10% in total of aluminum, magnesium, titanium and zirconium, or 7.5% in total of magnesium, titanium and zirconium; For Zone 1 installations, the final enclosure shall not contain more than 7.5% in total of magnesium.*
- 4. If the final enclosure is non-metallic, under certain extreme circumstances, the non-metallic parts incorporated in the final enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, particularly when it is used for applications that specifically require group II, Zone 0 and Division 1 located equipment, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. Additionally, the equipment shall only be cleaned with a damp cloth.*
- 5. The COM port shall not be used in the hazardous area.*



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Equipment Ratings:

Intrinsically Safe (Entity) for use in Class I, Division 1, Groups A, B, C and D; Temperature Class T4 Ta = -40°C to 85°C; Temperature Class T5 Ta = -40°C to 40°C; in accordance with Control Drawing No. 100-100-74; Intrinsically safe (Entity) for use in Class I, Zone 0, AEx ia IIC T4 Ta = -40°C to 85°C; Temperature Class T5 Ta = -40°C to 40°C; in accordance with Control Drawing No. 100-100-74 Hazardous (Classified) Locations.

TCM/a/HART/15-42Vdc/b/DIN. Temperature Concentrator Module.

NI/1/2/ABCD/T4 -40°C to 85°C T5 Ta = -40°C to 40°C – 100-100-74; NIFW (Sensors only)

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, POT.

Field Sensor Terminals:

Uo = 4V, Isc = 254.14mA, Po = 717.38mW, Co = 396µF, La = 9.4µH.

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, POT.

b= Options: -TROP or-VTD.

Special Conditions of Use:

1. The Model TCM Temperature Concentrator Module shall be installed in a final enclosure which meets the requirements of ANSI/ISA 61010-1 and the National Electrical Code®.
2. The COM port shall not be used in the hazardous area.

Equipment Ratings:

Nonincendive for use in Class I, Division 2, Groups A, B, C, and D; Temperature Class T4 Ta = -40°C to 85°C; Temperature Class T5 Ta = -40°C to 40°C; NIFW (sensor terminals) in accordance with Control Drawing No. 100-100-74; Hazardous (Classified) Locations.

FM Approved for:

Moore Industries-International, Inc.
North Hills, CA 91343 USA

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

FM3600	1998
FM3610	2010
FM3611	2004
FM3810	2005

Original Project ID: 3037170

Approval Granted: *July 22, 2010*

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
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FM Approvals LLC



James Marquedant
Group Manager

22 July 2010

Date

CERTIFICATE OF COMPLIANCE

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

TCM/a/HART/15-30Vdc/b/DIN. Temperature Concentrator Module.

IS/I/1/ABCD/T4 Ta = -40°C to 85°C; T5 Ta = -40°C to 40°C; – 100-100-74; Entity

Entity Parameters:

Ui = 30V, Ii = 110mA, Pi = 825mW, Ci = 0, Li = 0.

Field Sensor Terminals:

Uo = 4V, Isc = 254.14mA, Po = 717.38mW, Co = 396µF, La = 9.4µH.

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, POT.

b= Options: -TROP or-VTD.

Special conditions of Use:

- 1. The Model TCM Temperature Concentrator Module shall be installed in a final enclosure which meets the requirements of C22.2 No. 1010-1 and the Canadian Electrical Code.*
- 2. The COM port shall not be used in the hazardous area.*

Equipment Ratings:

Intrinsically Safe (Entity) for use in Class I, Division 1, Groups A, B, C and D; Temperature Class T4 Ta = -40°C to 85°C; Temperature Class T5 Ta = -40°C to 40°C in accordance with Control Drawing No. 100-100-74 Hazardous Locations.



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TCM/a/HART/15-42Vdc/b/DIN. Temperature Concentrator Module.

NI/II/2/ABCD/T4 -40°C to 85°C; T5 Ta = -40°C to 40°C – 100-100-74; NIFW (Sensors only)

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, POT.

Field Sensor Terminals:

Uo = 4V, Isc = 254.14mA, Po = 717.38mW, Co = 396µF, La = 9.4µH.

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, POT.

b= Options: -TROP or-VTD.

Special conditions of Use:

1. *The Model TCM Temperature Concentrator Module shall be installed in a final enclosure which meets the requirements of ANSI/ISA 61010-1 and the National Electrical Code®.*
2. *The COM port shall not be used in the hazardous area.*

Equipment Ratings:

Class I, Division 2, Groups A, B, C, and D; Temperature Class T4 Ta = -40°C to 85°C; Temperature Class T5 Ta = -40°C to 40°C; NIFW in accordance with Control Drawing No. 100-100-74; Hazardous Locations.

FM Approved for:

Moore Industries-International, Inc.
North Hills, CA 91343 USA



This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

C22.2 No.157-92	1998
C22.2 No. 213-M1987	1987
Reaffirmed	2004
C22.2 No. 1010.1	2004

Original Project ID: 3037170C

Approval Granted: *July 22, 2010*

Subsequent Revision Reports / Date Approval Amended

Report Number	Date	Report Number	Date
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FM Approvals LLC

J.E. Marquardt

James Marquardt
Group Manager

22 July 2010

Date