

CERTIFICATE OF CONFORMITY



Member of the FM Global Group

1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. **Certificate No:** FM23US0032X
3. **Equipment:** MTL5582B Resistance Isolator
(Type Reference and Name)
4. **Name of Listing Company:** Eaton Electric Ltd
5. **Address of Listing Company:** Great Marlings,
Butterfield,
Luton, Bedfordshire LU2 8DL, United Kingdom

6. The examination and test results are recorded in confidential report number:

PR465518 dated 4 June 2023

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM 3600:2022, FM 3610:2021, FM 3611:2021, FM 3810:2021, ANSI/UL 121201:2019, ANSI/UL 60079-0:2020, ANSI/UL 60079-11:2018, ANSI/UL 60079-15:2017, ANSI/UL 61010-1:2018

8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Nonincendive for Class I, Division 2, Groups A-D; T4
Associated Intrinsically Safe for Class I, II, III, Division 1, Groups A-G in accordance with drawing no. SCI-1087
Non-Sparking for Class I, Zone 2 with intrinsically safe outputs to Zone 0, AEx nA [ia Ga] IIC T4 Gc in accordance with drawing no. SCI-1087

Certificate issued by:

4 June 2023

J.E. Marquedant
VP, Manager - Electrical Systems

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

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11. The marking of the equipment shall include:

Class I, Division 2, Groups A-D, T4
Associated Apparatus providing IS circuits for Class I, II, III, Division 1, Groups A-G
Class I, Zone 2, AEx nA [ia Ga] IIC T4 Gc
T4, Ta = -20°C to +60°C

12. **Description of Equipment:**

The MTL5582B Resistance Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a Resistance Temperature Device (RTD) or other resistance located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5582B Resistance Isolator is designed for the connection to a 2-wire, 3-wire or 4-wire RTD or other resistance situated in the hazardous area. The equipment repeats the resistance on the non-hazardous area output terminals for connection to a monitoring system.

The equipment comprises an isolating transformer, opto-isolator, duplicated zener diodes and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a single printed circuit board (PCB) and housed in a molded plastic enclosure. Polarized plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for connection of a suitably certified data terminal for programming the equipment. An LED is fitted to provide power on indication.

Operation Temperature Ranges:

The ambient operating temperature range of the MTL5582B Resistance Isolator is -20°C to +60°C.

Electrical data:

The MTL5582B Resistance Isolator has the following electrical ratings:

Input/Output Parameters

Non-Hazardous Area Terminals 9, 10, 11, 12, 13 and 14

$U_m = 253V_{rms}$

The circuit connected to non-hazardous area terminals 9 thru 14 is designed to operate from a dc supply voltage up to 35V

Hazardous Area Terminals 1, 3, 4 and 5

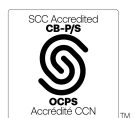
$U_o = 6.51V$	$C_i = 0\mu F$
$I_o = 10mA$	$L_i = 0\text{ mH}$

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$P_o = 16.1\text{mW}$	
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Hazardous Area Terminals 1, 3 and 4

$U_o = 6.51\text{V}$	$C_i = 0\mu\text{F}$
$I_o = 6\text{mA}$	$L_i = 0\text{mH}$
$P_o = 9.2\text{mW}$	

Hazardous Area Terminals 1 and 3

$U_o = 1.2\text{V}$	$U_i = 5\text{V}$
$I_o = 4\text{mA}$	$C_i = 0\mu\text{F}$
$P_o = 1.2\text{mW}$	$L_i = 0\text{mH}$

Programming/Configuration Port (Jack Socket)

$U_o = 6.68\text{V}$	$U_i = 9.1\text{V}$
$I_o = 12\text{mA}$	$C_i = 0\mu\text{F}$
$P_o = 17.7\text{mW}$	$L_i = 0\text{mH}$

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to the hazardous area terminals must not exceed the following values:

Group	Capacitance (μF)	Inductance (mH)	or	L/R ratio ($\mu\text{H}/\Omega$)
<i>Hazardous area terminals 1, 3, 4 and 5</i>				
IIC	22.0	355.5		1,536
<i>Hazardous area terminals 1, 3 and 4</i>				
IIC	22.0	987.6		921
<i>Hazardous area terminals 1 and 3</i>				

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IIC	100	1,000	3,333
<i>Programming/Configuration Port (Jack Socket)</i>			
IIC	0.478	79.4	448

NOTES:

- The above load parameters apply when one of the two conditions below is given:
 - The total L_i of the external circuit (excluding the cable) is $<1\%$ of the L_o value or
 - The total C_i of the external circuit (excluding the cable) is $<1\%$ of the C_o value
- The above parameters are reduced to 50% when both of the two conditions below is given:
 - The total L_i of the external circuit (excluding the cable) is $<1\%$ of the L_o value or
 - The total C_i of the external circuit (excluding the cable) is $<1\%$ of the C_o value

The reduced capacitance of the external circuit shall not be greater than 600nF for Group IIC

Input/Output Parameters

Hazardous Area Terminals 1, 3, 4 and 5

$U_o = 6.51V$	$C_i = 0\mu F$
$I_o = 10mA$	$L_i = 0\text{ mH}$
$P_o = 16.1mW$	

Hazardous Area Terminals 1, 3 and 4

$U_o = 6.51V$	$C_i = 0\mu F$
$I_o = 6mA$	$L_i = 0\text{ mH}$
$P_o = 9.2mW$	

Hazardous Area Terminals 1 and 3

$U_o = 1.2V$	$U_i = 5V$
$I_o = 4mA$	$C_i = 0\mu F$
$P_o = 1.2mW$	$L_i = 0\text{ mH}$

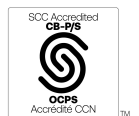
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Programming/Configuration Port (Jack Socket)

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$I_o = 12mA$	$C_i = 0\mu F$
$P_o = 17.7mW$	$L_i = 0\text{ mH}$

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to the hazardous area terminals must not exceed the following values:

Group	Capacitance (μF)	Inductance (mH)	or	L/R ratio ($\mu H/\Omega$)
<i>Hazardous area terminals 1, 3, 4 and 5</i>				
IIC	22.0	355.5		1,536
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IIC	0.478	79.4		448

NOTES:

- The above load parameters apply when one of the two conditions below is given:
- The total L_i of the external circuit (excluding the cable) is <1% of the L_o value or
- The total C_i of the external circuit (excluding the cable) is <1% of the C_o value
- The above parameters are reduced to 50% when both of the two conditions below is given:
- The total L_i of the external circuit (excluding the cable) is <1% of the L_o value or
- The total C_i of the external circuit (excluding the cable) is <1% of the C_o value

The reduced capacitance of the external circuit shall not be greater than 600nF for Group IIC

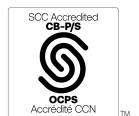
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13. Specific Conditions of Use:

1. The equipment must be installed in an area of not more than Pollution Degree 2 as defined in IEC 60664-1, and in an enclosure that provides a degree of protection of at least IP54 and meets the relevant requirements of ANSI/UL 60079-0 and ANSI/UL 60079-15.
2. All connections to the equipment must not be inserted or removed unless either the area in which the equipment is installed is known to be non-hazardous, or the circuit to which it is connected has been de-energized.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
4 June 2023	Original Issue.

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