



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX ETL 18.0030X** Page 1 of 4 Certificate history:  
Status: **Current** Issue No: 2 [Issue 1 \(2019-05-22\)](#)  
[Issue 0 \(2018-12-19\)](#)  
Date of Issue: 2020-04-27  
Applicant: **Relcom Inc.**  
2221 Yew St  
Forest Grove, OR 97116  
**United States of America**  
Equipment: **MTL831C, MTL831C-P[S,C]**  
Optional accessory:  
Type of Protection: **Intrinsic Safety "ia"**  
Marking: Ex ia IIC T4 Ga  
-40°C ≤ Tamb ≤ 70°C  
IECEX ETL 18.0030X

Approved for issue on behalf of the IECEx  
Certification Body:

**Kevin J. Wolf**

Position:

**Certification Officer**

Signature:  
(for printed version)

2020-04-27

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



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**Intertek**  
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United States of America



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Manufacturer: **Relcom Inc.**  
USA  
**United States of America**

Additional  
manufacturing  
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

#### STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

**IEC 60079-0:2017** Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

**IEC 60079-0:2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**IEC 60079-11:2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"  
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

#### TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[US/ETL/EXTR18.0036/00](#)

[US/ETL/EXTR18.0036/01](#)

[US/ETL/EXTR18.0036/02](#)

Quality Assessment Report:

[FR/LCI/QAR06.0002/11](#)



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The Analog Transmitter (MTL831C) is part of a multi-component system that aggregates temperature or mV measurements from field sensors and provides them to the control system (DCS, PLC, etc.). The system consists of the MTL831C, which can connect to 16 sensors, and a Receiver (MTL838C) that makes the data from the sensors available via Modbus/RS485. Up to 2 Analog Transmitters can be connected on the bus to a single Receiver – providing a total of up to 32 sensors per system. An IS isolator (e.g. MTL5053) is used when the MTL831C is installed in a hazardous location (Zone 0, 1, or 2). Sensors connected to the MTL831C may be in Zone 0, 1 or 2.

Power for the MTL831C is provided by the IS isolator. The IS isolator is connected to the MTL831C with twisted shielded pair cable. The cable wires are terminated at the dual input screw-retained pluggable Data Highway port. The dual connector allows connection of an optional second MTL831C. Wires from external sensors are connected to the MTL831C via fixed screw terminals (4 per sensor input, 16 inputs per MTL831C). A green LED indicates minimal voltage is present for the MTL831C. A red LED indicates detection of a fault condition. The unit is housed in a custom polycarbonate case that includes a DIN rail mounting mechanism. Both sides of the PCB are conformally coated except for areas along both sides of the PCB where connectors are mounted. An area on the top of the PCB is spot encapsulated.

The standard product (MTL831C) has fixed screw terminals for the 16 sensor input channels. Part number MTL831C-PS has pluggable screw terminals for the 16 sensor input channels. Part number MTL831C-PC has pluggable cage clamp terminals for the 16 sensor input channels.

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

The equipment is housed within a plastic enclosure. Suitable precautions must be made to avoid rubbing or cleaning with solvents.



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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

Refer to Annex Issue 1 for details of change tables.

**Annex:**

[104305863CRT-002c - IECEx EXTR Annex Issue 1\\_1.pdf](#)



# IECEX Certificate of Conformity

Certificate No:	IECEX ETL 18.0030X	Issue No. 2
Annex No. 1		

## Details of Change, IECEX ETL 18.0030X Issue No. 1

Item:	Change:		
1)	Update certificate version of IEC 60079-0 (From: IEC 60079-0:2011; To: IEC 60079-0:2017)		
2)	Revised Document:		
	Title: MTL831C Analog Transmitter Ex Safety Instructions		
	Drawing No.: 503-215		
	From:	Rev. Level: A.0	Date: 06 NOV 2018
	To:	Rev. Level: B.0	Date: 09 JAN 2019
	Changes:		
	<p>A). Changed IS isolator referenced in control drawing (Page 4) from MTL5053 to MTL5553.</p> <p>B). Change the control drawing (Page 4) to make it clear which entity parameters apply to the Data Highway and which apply to the sensor inputs.</p> <p>C). Changed control drawing (Page 4) to show Data Highway screen ground near MTL5553 and update Note 3: "Screen ground is for reasons other than electric safety. The screen of the Data Highway cable is either connected to an earth rail in the MTL831C's field enclosure or connected to an earth rail by the IS Isolator/Power Supply."</p> <p>D). Change the control drawing (Page 4) to add Note 6: for address terminals A and S (user installed jumper).</p>		
3)	Revised Document:		
	Title: MTL831C Analog Transmitter Ex Certification Package		
	Drawing No.: 503-214		
	From:	Rev. Level: A.14	Date: 06 DEC 2018
	To:	Rev. Level: B.0	Date: 11 FEB 2019
	Changes:		
	<p>A). (Page 5 of the certification package: Add: "Both sides of the PCB are conformally coated <u>except for areas along both sides of the PCB where connectors are mounted.</u>"</p> <p>B). (Page 7 of the certification package): Add detail to conformal coating description to include dipping, brushing, or spraying of two coats of conformal coating and masking of connector regions (added: brushing or spraying and masking of connectors).</p> <p>C). (Pages 9-20: Schematics (503-207): Imbedded Document of certification package):</p>		

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From:	Rev. Level: G.0	Date: 8/17/2018
To:	Rev. Level: H.0	Date: 4/25/2019
C-1). Removed L5 (Was Shown On Page 11 in previous revision of certification package).		
C-2). Changed/Corrected reversed reference designators of C33 & R34 (Page 11 of certification package).		
C-3). Changed Side of PCB for D25 & D26 (Page 11 of certification package).		
C-4). Add New: D16: Diode, TVS, SMA, POPULATION IS OPTIONAL (Page 12 of the certification package).		
C-5). Populate C41: from DNP to 220pF (Page 14 of certification package).		
C-6). Add New: R4_A and R4_B: $\geq 1K\Omega$ , 0.1W, 1%, SMO603 in series with thermistors R3_A & R3_B and resistors R2_A & R2_B (Page 16 of certification package).		
D). (Pages 21 – 27: Board Layout of the certification package):		
From:	Rev. Level: G.0	Date: 10 SEP 2018
To:	Rev. Level: H.0	Date: 09 FEB 2019
D-1). PCB Change: Removed L5 (Was shown on Pages 22 & 23 of certification package).		
D-2). PCB Change: Fixed terminator resistor footprint (changed from 1206 to 1218) and reference designator (changed from C33 to R34). (Pages 22 & 23 of certification package).		
D-3). PCB Change: Fix R26 footprint (changed from 1206 to 1210). (Pages 22 & 23 of certification package).		
D-4). PCB Change: Changed/Corrected reversed reference designators of C33 & R34 (Pages 22 & 23 of certification package).		
D-5). PCB Change: Change R2 footprint from 2512 to 1206 (Pages 22 and 23 of certification package).		
D-6). PCB Change: Add R4_A & R4_B (Pages 22 & 23 of cert package).		
D-7). PCB Change: Changed Side of PCB for D25 & D26 (Pages 22 and 23 of certification package).		
D-8). PCB Change: Add New: D16: Diode, TVS, SMA, POPULATION IS OPTIONAL (Pages 26 and 27 of the certification package).		
D-9). PCB Change: Change y-filters (FL1_1-16, FL2_1-16, FL3_1-16, and		

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	FL4_1-16) footprint (wider end pads). Changed the end pads from 0.8mm wide to 1.2mm wide (Pages 22, 23, 26 & 27 of cert package).
	D-10). PCB Change: Move y-filters (FL1_1-16, FL2_1-16, FL3_1-16, and FL4_1-16) away from GND vias where possible (Pages 22, 23, 26 & 27 of certification package).
	D-11). PCB Change: More space between resistors (R29_1-16, R30_1-16, R31_1-16, and R32_1-16) and y-filters (FL1_1-6, FL2_1-16, FL3_1-16, and FL4_1-16) (Pages 22, 23, 26 & 27 of certification package).
	D-12). PCB Change: Make trace between resistors (R29_1-16, R30_1-16, R31_1-16, and R32_1-16) and y-filters (FL1_1-6, FL2_1-16, FL3_1-16, and FL4_1-16) narrower (Pages 22, 23, 26 & 27 of cert package).
	D-13). PCB Change: Straighten trace from J2-1 (data highway port) to F1 (Page 23 of certification package).
	E). (Pages 29 – 33: PCB Bill of Material of the certification package):
	E-1). (Page 29 of certification package, Item 1): Changed/Corrected From: R34 To: C33.
	E-2). (Page 29 of certification package, Item 4): Deleted C1 & C42.
	E-3). (Page 29 of certification package, Item 5): Added C1 & C42.
	E-4). (Page 29 of certification package, Item 5): Added D16 (Population Is Optional).
	E-5). (Page 31 of certification package, Item 38): Added R2.
	E-6). (Page 31 of certification package, Item 42): Added R4_A & R4_B.
	E-7). (Page 31 of certification package, Item 51): Changed/Corrected From: C33 To: R34.
	E-8). (Page 32 of certification package): Add alternate part D14.
	E-9). (Page 32 of certification package): Add alternate part U1.
	E-10). Removed L5 (Was Shown On Page 30 in previous revision of certification package).
	E-11). Removed R2 (Was Shown On Page 30 in previous revision of certification package).
	F). (Page 40 certification package): Encapsulation: From: “Encapsulation (potting) is implemented using 2 methods: a potting fence and a potting box.”; To: “Encapsulation is implemented using a potting fence.”
	G). Removed section about the Potting Box (Was Shown On Page 43 in previous revision of certification package).

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## Details of Change, IECEX ETL 18.0030X Issue No. 2

Item:	Change:		
1)	Revised Document:		
	Title: MTL831C Analog Transmitter Ex Safety Instructions		
	Drawing No.: 503-215		
	From:	Rev. Level: B.0	Date: 09 JAN 2019
	To:	Rev. Level: C.0	Date: 16 APR 2020
	Changes:		
	A) Change the product references to include added pluggable variants (MTL831C-P[S,C]). Safety Instruction Pages 3 and 4. B) Fixed the notified body number. Safety Instructions page 3.		
2)	Revised Document:		
	Title: MTL831C Analog Transmitter Ex Certification Package		
	Drawing No.: 503-214		
	From:	Rev. Level: B.0	Date: 11 FEB 2019
	To:	Rev. Level: B.1	Date: 27 FEB 2020
	Changes:		
	A) Fixed the notified body number on the label CE mark from 0359 to the correct number 0081 in the Certification Markings section. Certification Package Page 6. B) Increased Capacitor C29 from 10000pF to 0.1uF. Schematic Page 6 and in the BOM Certification Package Page 29. C) Changed Resistors R29_x, R30_x, R31_x, and R32_x components (not footprints) from package SM1206 to MELF0204. These changes affect the BOM. Schematic Page 9 and Certification Package page 31. D) Fixed the wrong PCB Revision in the BOM from G.0 to H.0. Certification Package page 32.		
3)	Revised Document:		
	Title: MTL831C Analog Transmitter Ex Certification Package		
	Drawing No.: 503-214		
	From:	Rev. Level: B.1	Date: 27 FEB 2020
	To:	Rev. Level: C.0	Date: 01 APR 2020
	Changes:		
	A) PCB Layout Revision to I.0. Certification Package Pages 7 and 22-27. a. Moved caps C22 and C35 to the data highway connector J2, but they are still not populated. b. Add 2.2uF cap C46 to 6.25V bus. c. Removed R7 (was a shorted resistor used in development). d. Moved R17, but still not populated (shorted resistor used only in		

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	<p>development).</p> <ul style="list-style-type: none"> <li>e. Change all feed-through caps (ref. des. FL1_x, FL2_x, FL3_x, FL4_x) to standard 0603 caps (ref. des. C47_x, C48_x, C49_x, C50_x).</li> <li>f. Changed footprint of R29_x, R30_x, R31_x, and R32_x from SM1206 to MELF0204.</li> <li>g. Increased the diameter of the through holes for J1 and J3 by 4 mils (no change to pad size).</li> </ul>
	<p>B) Schematic Changes to Revision to I.0.</p> <ul style="list-style-type: none"> <li>a. Moved caps C22 and C35 to the data highway connector J2, but they are still not populated. Moved from schematic page 6 to 3. Certification Package pages 11, 14.</li> <li>b. Add 2.2uF cap C46 to 6.25V bus. (Added C46 to schematic page 6.) Certification Package page 14.</li> <li>c. Removed R7 (was a shorted resistor used in development). Was on schematic page 4. Certification Package page 12.</li> <li>d. Moved R17, but still not populated (shorted resistor used only in development). See schematic page 6. Certification Package page 14.</li> <li>e. Change all feed-through caps (ref. des. FL1_x, FL2_x, FL3_x, FL4_x) to standard 0603 caps (ref. des. C47_x, C48_x, C49_x, C50_x). See schematic page 9. Certification Package page 17.</li> </ul>
	<p>C) Added -PS (pluggable screw terminals) and -PC (pluggable cage clamp) variants:</p> <ul style="list-style-type: none"> <li>a. Added new variants to Transmitter Models table. Certification Package page 1.</li> <li>b. Added description of new variants to Product Information section. Certification Package page 5.</li> <li>c. Added description of Type Identification marking on label for new variants in Certification Markings section. Certification Package page 5.</li> </ul>
	<p>D) BOM changes. Certification Package pages 29-33.</p> <ul style="list-style-type: none"> <li>a. Add 2.2uF cap C46.</li> <li>b. Change all feed-through caps (ref. des. FL1_x, FL2_x, FL3_x, FL4_x) to standard 0603 caps (ref. des. C47_x, C48_x, C49_x, C50_x).</li> <li>c. Removed R7 (was a shorted resistor used in development).</li> <li>d. Changed footprint of R29_x, R30_x, R31_x, and R32_x from SM1206 to MELF0204.</li> <li>e. Changed PCB to Rev I.0.</li> <li>f. Listed headers and locating clips for new variants.</li> <li>g. Listed plugs, keying slides, and labels for new variants.</li> <li>h. Made the Overlay line item in the BOM more generic to cover the new variants.</li> </ul>

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## Manufacturer's documents

### Documents associated with Issue 2 of this certificate

Title:	Drawing No.:	Rev. Level:	Date:
MTL831C Analog Transmitter Ex Certification Package	503-214	B.1	27 FEB 2020
MTL831C Analog Transmitter Ex Certification Package	503-214	C.0	01 APR 2020
MTL831C Analog Transmitter Ex Safety Instructions	503-215	C.0	16 APR 2020

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