MTL831C[-xx] Analog Transmitter Ex Safety Instructions
(Relcom Doc. No. 503-215 Rev F.0 22 MAR 2024)

The following information is in accordance with the Essential Health and Safety Requirements (Annex II) of the EU Directive 2014/34/EU [the ATEX Directive - safety of apparatus] and is provided for those locations where the ATEX Directive is applicable.

The following information is also provided for safe product use in accordance with IECEx, Canadian, and US standards.

Description

The MTL831C[-xx] Analog Transmitter 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[-xx], which can connect to 16 sensors, and a Receiver (MTL838C[-xxx]) that makes the data from the sensors available to the control system. 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.

General

a) In common with all other electrical apparatus installed in hazardous areas, this apparatus must only be installed, operated and maintained by competent personnel. Such personnel shall have undergone training, which included instruction on the various types of protection and installation practices, the relevant rules and regulations, and on the general principles of area classification. Appropriate refresher training shall be given on a regular basis. [See clause 4.2 of EN 60079-17].
b) This apparatus meets the requirements of electrical apparatus in accordance with IEC/EN 60079-0 and IEC/EN 60079-11.
c) This apparatus provides protection against all the relevant additional hazards referred to in Annex II of the ATEX directive, such as those in clause 1.2.7.
d) This apparatus satisfies the dielectric strength requirements of IEC/EN 60079-11 clause 6.3.13.

Installation

a) The installation must comply with the appropriate European, national and local regulations, which may include reference to the IEC code of practice IEC 60079-14. In addition, particular industries or end users may have specific requirements relating to the safety of their installations and these requirements should also be met. For European installations the Directive 2014/34/EU [the ATEX Directive - safety of installations] is also applicable. For Canadian installations CEC Part 1 is applicable. For US installations, National Electrical Code (NFPA 70, Article 504), and ANSI/ISA-RP12.6 are applicable.
b) This apparatus must not be subjected to mechanical and thermal stresses in excess of those permitted in the certification documentation, this document and the product specification.
c) The apparatus must not be installed in a position where it may be attacked by aggressive substances and must be protected from excessive dust, moisture and other contaminants.
d) If necessary in the end use application, the product must be installed in an enclosure to protect it from excessive dust, moisture, and mechanical damage.
e) Mount on 7.5mm x 35mm ‘top hat’ DIN Rail according to the instructions on the device cover. Use of DIN Rail end stops is recommended for vertical DIN Rail installations.
f) Connect per the Control Drawing provided in this document.
g) Fusing of the power source is recommended.
h) Power for the MTL831C[-xx] is provided via the Data Highway connection to the Receiver.
    - Nominal Power Input: 10-24VDC, 25-35mA.
    - Data Highway terminals are rated for 24VDC. All other terminals are rated for 3.3VDC.

Inspection and maintenance

a) Inspection and maintenance should be carried out in accordance with applicable European, Canadian, and US national and local regulations which may refer to the IEC standard IEC 60079-17. In addition, specific industries or end users may have specific requirements which should also be met.
b) Access to the internal circuitry must not be made during operation or at any other time.
c) If the outer enclosure of the apparatus needs to be cleaned, this should be done with a cloth lightly moistened by a dilute mixture of detergent in water.

Repair

This product must not be repaired. It must be replaced by an equivalent certified product.

Marking

Each MTL831C[-xx] is marked with the following information:

General Information

a) Company Name, and Address – **Relcom Inc. Forest Grove, OR USA**
b) Product Type Identification – **MTL831C, or MTL831C-PS**
c) Ambient Temperature range - **-40°C ≤ Tamb ≤ 70°C**

IECEx

a) Certificate number – **IECEx FMG 20.0038X**
b) Ex classification – **Ex ia IIC T4 Ga**

ATEX

a) Certificate number – **FM20ATEX0048X**
b) Ex classification – **II 1 G Ex ia IIC T4 Ga**
c) CE mark and Notified Body Number – **0081**

FMCUS

a) Certificate numbers – **FM20US0142X, FM20CA0071X**
b) Ex classification – **CL I Zone 0 AEx/Ex ia IIC T4 Ga**
IS CL I DIV 1 GP ABCD T4

Specific Conditions of Use

The surface of the equipment may cause risk of electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.

WARNINGS (AVERTIESSEMENTS)

a) SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY (LE SUBSTITUTION DE COMPOSANTS PEUT NUIRE À LA SÉCURITÉ INTRINSÈQUE)
b) TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, READ, UNDERSTAND AND ADHERE TO THE MANUFACTURER'S LIVE MAINTENANCE PROCEDURES (POUR ÉVITER L'ALLUMAGE D'ATMOSPHÈRES INFLAMMABLES OU COMBUSTIBLES, LIRE, COMPRENDRE ET RESPECTER LES PROCÉDURES DE MAINTENANCE EN DIRECT DU FABRICANT)
c) POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE SPECIFIC CONDITIONS OF USE (RISQUE POTENTIEL DE CHARGE ÉLECTROSTATIQUE - VOIR LES SPECIFIC CONDITIONS OF USE)

Standards

This product complies with the following standards:

FM Class 3600:2022, FM Class 3610:2018, FM Class 3810:2018,
ANSI/UL 60079-0:2019, ANSI/UL 60079-11:2014, ANSI/UL 61010-1:2018
IEC 60079-0:2017, IEC 60079-11:2011
EN IEC 60079-0:2018, EN 60079-11:2012
CSA C22.2 NO. 60079-0:19, CAN/CSA-C22.2 NO. 60079-11:14 (R2018)

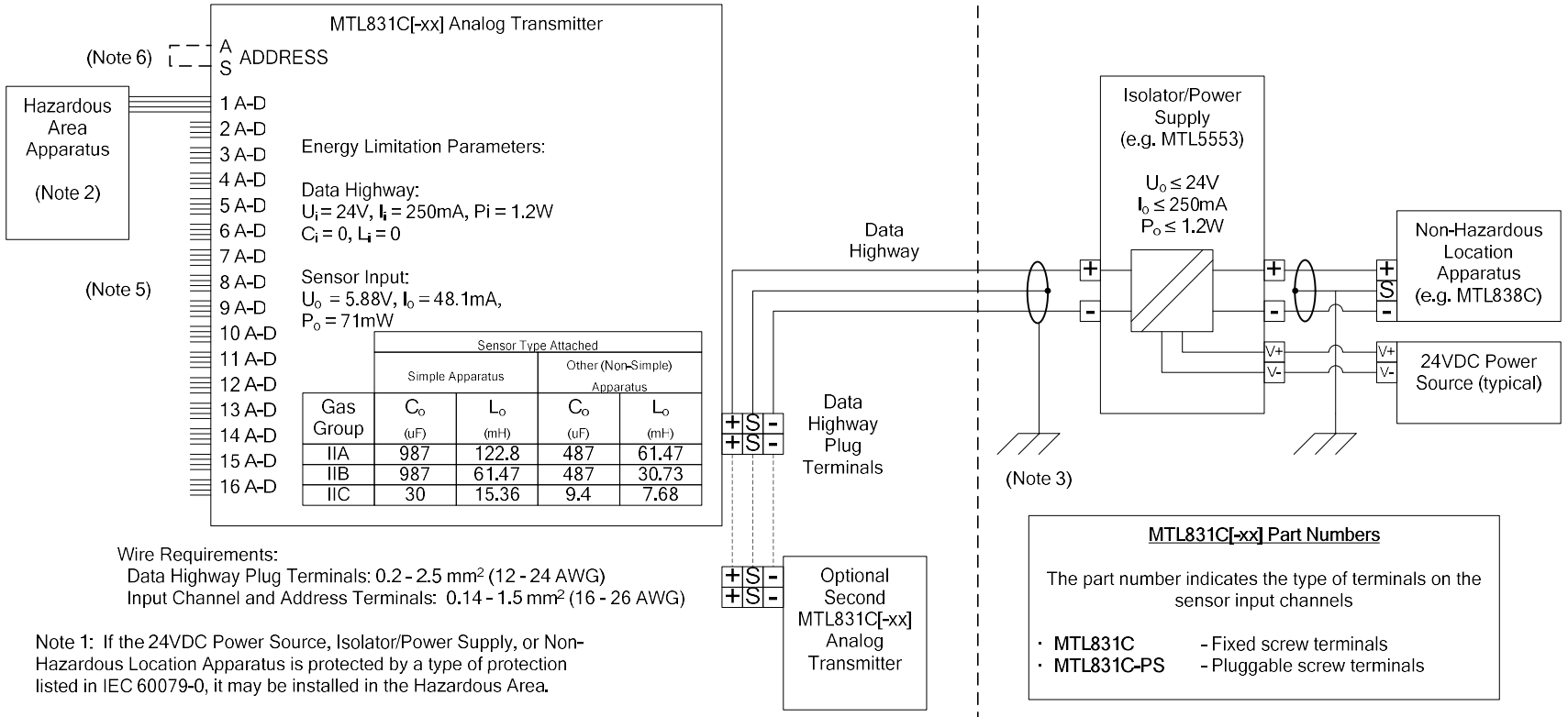
HAZARDOUS (CLASSIFIED) LOCATION

Ex ia IIC T4 Ga

II 1 G Ex ia IIC T4 Ga

NON-HAZARDOUS LOCATION

$-40°C \le T_{amb} \le 70°C$



	Sensor Type Attached			
	Simple Apparatus		Other (Non-Simple) Apparatus	
Gas Group	C_o (uF)	L_o (mH)	C_o (uF)	L_o (mH)
IIA	987	122.8	487	61.47
IIB	987	61.47	487	30.73
IIC	30	15.36	9.4	7.68

Wire Requirements:
Data Highway Plug Terminals: 0.2 - 2.5 mm^2 (12 - 24 AWG)
Input Channel and Address Terminals: 0.14 - 1.5 mm^2 (16 - 26 AWG)

MTL831C[-xx] Part Numbers

The part number indicates the type of terminals on the sensor input channels

- **MTL831C** - Fixed screw terminals
- **MTL831C-PS** - Pluggable screw terminals

Note 1: If the 24VDC Power Source, Isolator/Power Supply, or Non-Hazardous Location Apparatus is protected by a type of protection listed in IEC 60079-0, it may be installed in the Hazardous Area.

Note 2: The Hazardous Area Apparatus may be switches. Other sensors such as TCs, RTDs, and non-inductive resistors may be used if the auto-ignition temperature of the hazardous location is T4 (135C) or greater. Certified devices with the correct Entity parameters may also be used.

Note 3: Screen grounding is for reasons other than electrical safety. The screen of the Data Highway cable is either connected to an earth rail by the IS Isolator/Power Supply or connected to an earth rail in the MTL831C's field enclosure.

Note 4: Fusing of the power source is recommended.

Note 5: Each input channel is numbered (1-16). Each channel has 4 terminals (A, B, C, and D).

Note 6: Address terminals (A and S) are left unconnected on the first MTL831C[-xx] attached to the Data Highway. A and S are shorted together with a user-installed jumper wire on the second MTL831C[-xx] attached to the Data Highway.

Relcom Inc.
INDUSTRIAL LAN | WIRING COMPONENTS AND TESTERS
2221 Yew Street, Forest Grove, Oregon 97116 USA

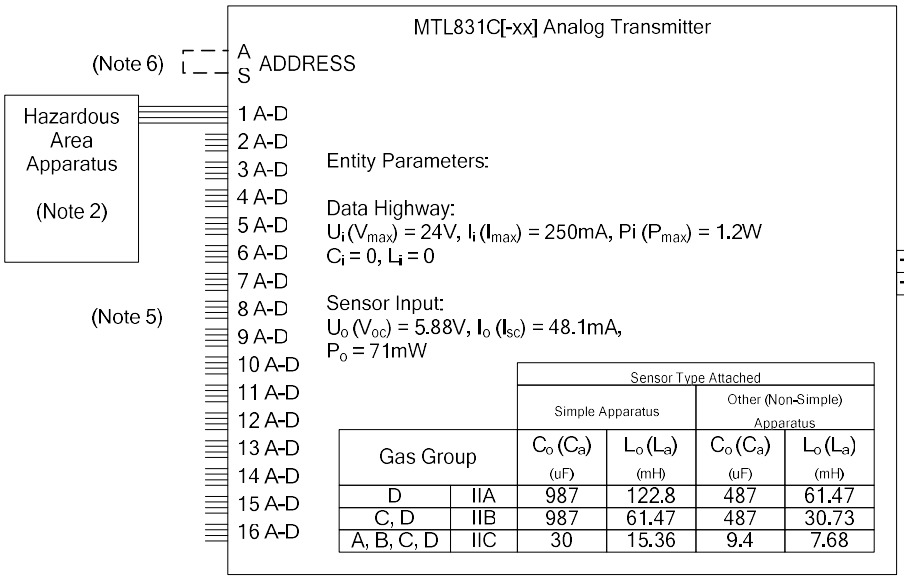
ATEX and IECEx CONTROL DRAWING FOR MTL831C[-xx] ANALOG TRANSMITTERS

HAZARDOUS (CLASSIFIED) LOCATION

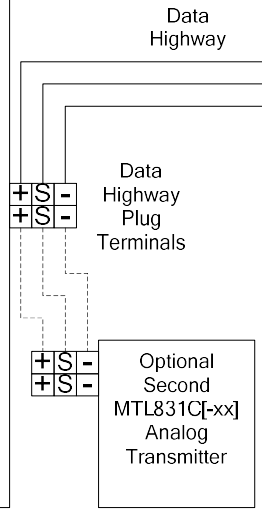
FM APPROVED

IS Class I Div 1 Groups ABCD T4
Class I Zone 0 AEx/Ex ia IIC T4 Ga

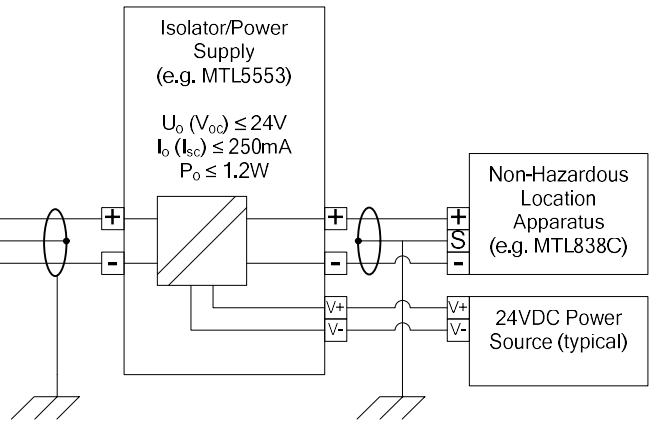
$-40°C \le T_{amb} \le 70°C$



Gas Group		Sensor Type Attached: Simple Apparatus $C_o (C_a)$ (uF)	Simple Apparatus $L_o (L_a)$ (mH)	Other (Non-Simple) Apparatus $C_o (C_a)$ (uF)	Other (Non-Simple) Apparatus $L_o (L_a)$ (mH)
D	IIA	987	122.8	487	61.47
C, D	IIB	987	61.47	487	30.73
A, B, C, D	IIC	30	15.36	9.4	7.68



NON-HAZARDOUS LOCATION



MTL831C[-xx] Part Numbers

The part number indicates the type of terminals on the sensor input channels

- **MTL831C** - Fixed screw terminals
- **MTL831C-PS** - Pluggable screw terminals

Wire Requirements:
Pluggable Screw Terminals: 0.2 - 2.5 mm^2 (12 - 24 AWG)
Fixed Screw Terminals: 0.14 - 1.5 mm^2 (16 - 26 AWG)

Specific conditions of use

- The surface of the equipment may cause risk of electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.

WARNINGS (AVERTIESSEMENTS)

- SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY (LE SUBSTITUTION DE COMPOSANTS PEUT NUIRE À LA SÉCURITÉ INTRINSÈQUE)
- TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, READ, UNDERSTAND AND ADHERE TO THE MANUFACTURER'S LIVE MAINTENANCE PROCEDURES (POUR ÉVITER L'ALLUMAGE D'ATMOSPHÈRES INFLAMMABLES OU COMBUSTIBLES, LIRE, COMPRENDRE ET RESPECTER LES PROCÉDURES DE MAINTENANCE EN DIRECT DU FABRICANT)
- POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE SPECIFIC CONDITIONS OF USE (RISQUE POTENTIEL DE CHARGE ÉLECTROSTATIQUE - VOIR LES SPECIFIC CONDITIONS OF USE)

Relcom Inc.
INDUSTRIAL LAN | WIRING COMPONENTS AND TESTERS
2221 Yew Street, Forest Grove, Oregon 97116 USA

FMCUS CONTROL DRAWING FOR MTL831C[-xx] ANALOG TRANSMITTERS (Sheet 1 of 2)

NOTES:

1: If the 24VDC Power Source, Isolator/Power Supply, or Non-Hazardous Location Apparatus is certified for installation in Hazardous Locations, it may be installed in the Hazardous Area.

2: The Hazardous Area Apparatus may be switches. Other sensors such as TCs, RTDs, and non-inductive resistors may be used if the auto-ignition temperature of the hazardous location is T4 (135C) or greater. Certified devices with the correct Entity parameters may also be used.

3: Screen grounding is for reasons other than electrical safety. The screen of the Data Highway cable is either connected to an earth rail by the IS Isolator/Power Supply or connected to an earth rail in the MTL831C's field enclosure.

4: Each input channel is numbered (1-16). Each channel has 4 terminals (A, B, C, and D).

5: Address terminals (A and S) are left unconnected on the first MTL831C[-xx] attached to the Data Highway. A and S are shorted together with a user-installed jumper wire on the second MTL831C[-xx] attached to the Data Highway.

6: All connections are energy limited and may be live worked without gas clearance where allowed by local code.

7: No revision to drawing without prior FM Approval.

8: The Associated Apparatus shall be appropriately certified for installations in the U.S.

9: The Associated Apparatus shall be Canadian Approved for installations in Canada.

10: The Associated Apparatus shall be ATEX Certified for installations in Europe.

11: The Associated Apparatus shall be IECEx Certified for IECEx installations.

12: Associated apparatus manufacturer's installation drawing shall be followed when installing this equipment.

13: The control room equipment connected to Associated Apparatus shall not generate more than 250 Vrms or Vdc, or the marked U_m on the associated apparatus, whichever is less.

14: Resistance between Intrinsically Safe Ground of the associated apparatus and earth ground shall be less than 1.0 Ohm. Earth grounding is not required for galvanically isolated associated apparatus.

15: Installations in the U.S. should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the latest edition of the National Electrical Code (ANSI/NFPA 70).

16: Installation in Canada shall be in accordance with the latest edition of the C22.1 Canadian Electrical Code, Part I.

17: Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.

18: Installations for IECEx certification shall be in accordance with IEC 60079-14 and the wiring practices for the country of origin.

19: Field wiring shall be rated for 75°C.

20: The Entity Concept allows interconnection of associated apparatus and intrinsically safe apparatus when the following is true:

$U_o\,(V_{oc}) \leq U_i\,(V_{max})$, $I_o\,(I_{sc}) \leq I_i\,(I_{max})$, $P_o \leq P_i\,(P_{max})$,

$C_o\,(C_a) \geq C_i + C_{cable}$, $L_o\,(L_a) \geq L_i + L_{cable}$.

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FMCUS CONTROL DRAWING FOR MTL831C[-xx] ANALOG TRANSMITTERS (Sheet 2 of 2)