Dimensions in mm | Do Not Scale | Third Angle Projection

Iss	Date	Drn	Modification
1	2.12	CMB	
2	11.13	SB	Notes 2 to 10 re-worked, now notes 2 to 13 and various tables added.

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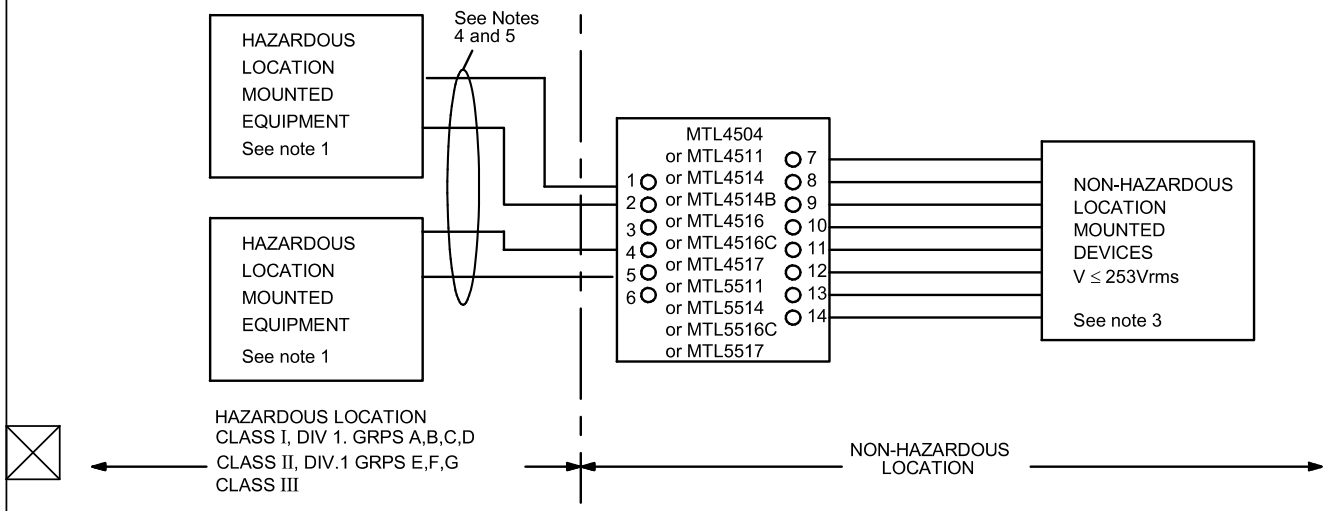

Note 1
The Hazardous location equipment may be switches or thermocouples. Other apparatus such as RTD's, LEDs and non-inductive resistors may also be used if the auto-ignition temperature of the hazardous location is greater than T4 (275°F or 135°C).
Certified devices with correct Entity Concept parameters may also be used.
This associated apparatus may also be connected to simple apparatus as defined in Article 504.2 and installed and temperature classified in accordance with Article 504.10 (B) of the National Electrical Code (ANSI/NFPA 70), or other local codes, as applicable.

Note 2
Selected intrinsically safe equipment must be third party listed as intrinsically safe for the application, and have intrinsically safe entity parameters conforming with Table 1 below. :-

TABLE 1

IS Equipment		Associated Apparatus
V max (or Ui)	≥	Voc or Vt (or Uo)
I max (or Ii)	≥	Isc or It (or Io)
P max, Pi	≥	Po
Ci + Ccable	≤	Ca (or Co)
Li + Lcable	≤	La (or Lo)

Note 3
Control equipment must not use or generate more than 250Vrms with resect to earth.

Note 4
For guidance on the installation see ANSI/ISA RP 12.6.

Note 5
Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated apparatus shall be calculated and must be included in the system calculations as shown in Table 1. Cable capacitance, Ccable, plus intrinsically safe equipment capacitance, Ci must be less than the marked capacitance, Ca (or Co), shown on any associated apparatus used. The same applies for inductance (Lcable, Li and La or Lo, respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used : Ccable = 60pF/ft., Lcable = 0.2 uH/ft.

Note 6
Non-Hazardous Area Input Terminals 7 to 14:

Um = 250V

The apparatus are designed to operate on the above terminals from d.c. supply voltage of up to 35V.

The non-hazardous area terminals 7 to 12 are connected to relay contacts which can switch up to 253Vrms, 2Arms and 100VA.

System Certificate No:	Drn. By N/A	Scale N/A
Certifying Authority: UL	Drn. Date 11.13	Sheet 1 of 2
Title: Installation Drawing for the MTL4504, MTL451x and MTL551x		Drg. No. SCI-1034

Iss	Date	Drn	Modification
2	11.13	SB	Notes 2 to 10 re-worked, now notes 2 to 13 and various tables added.

The device has the output entity parameters, as shown in Table 2 below :-

TABLE 2

Terminal nos.	$V_{oc} = U_o$	$I_{sc} = I_o$	C_i	L_i	P_o
1 w.r.t 2/3	10.5V	14mA	0	0	37mW
4 w.r.t 5/6	10.5V	14mA	0	0	37mW

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the values for either channel, as shown in Table 4 below:-

TABLE 4

Group	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/ohm)
Hazardous Area Terminals 1 w.r.t 2/3			
Group A & B	2.41	175	983
Group C & E	16.8	680	1333
Group D, F & G	75.0	1000	1333
Hazardous Area Terminals 4 w.r.t 5/6			
Group A & B	2.41	175	983
Group C & E	16.8	680	1333
Group D, F & G	75.0	1000	1333

Note a)
The above load parameters apply when one of the two conditions below is given:

- The total Li of the external circuit (excluding the cable) is <1% of the Lo value or
- The total Ci of the external circuit (excluding the cable) is <1% of the Co value

Note b)
The above parameters are reduced to 50% when both of the two conditions below are given:

- The total Li of the external circuit (excluding the cable) is ≥ 1% of the Lo value and
- The total Ci of the external circuit (excluding the cable) is ≥ 1% of the Co value

The maximum capacitance allowed shall not be more than Co = 600nF Groups A & B and Co = 1uF Groups C, D, E, F & G.

Note 7
The module is Associated Apparatus and when mounted in the appropriate enclosure (see notes 10 and 12) is suitable for installation in the following areas:

Non - Hazardous Locations

Note 8
Associated Apparatus must be installed in an enclosure suitable for the application in accordance with the National Electrical Code (ANSI/NFPA 70) for installation in the United States. Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 of the National Electrical Code (ANSI/NFPA 70) or other local codes, as applicable.

Where multiple circuits extend from the same piece of associated apparatus, they must be installed in separate cables or in one cable having suitable insulation. Refer to Article 504.30(B) of the National Electrical Code (ANSI/NFPA 70) and Recommended Practice ISA RP12.6 for installing intrinsically safe equipment.

Note 9
This associated apparatus has not been evaluated for use in combination with another associated apparatus.

Note 10
Refer to Instruction Manual for further information.

Note 11
WARNING - Substitution of components may impair intrinsic safety.

Note 12
WARNING - This equipment is suitable for use in non-hazardous locations only when installed in a suitable electrical enclosure.

System Certificate No:	Drn. By N/A	Scale N/A
Certifying Authority: UL	Drn. Date 11.13	Sheet 2 of 2
Title: Installation Drawing for the MTL4504, MTL451x and MTL551x		Drg. No. SCI-1034