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		SEE NOTE 7	22 33 OPTIONAL 44 EXTERNAL 55 SWITCHES 66			SEI	E NOTE 2			
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Title		M Approvals Control Dra r the Intrinsically Safe M		Serial Tex	t Display	 /S	Drg. No	SCI-10	10	lss.

		Dimensions in mm	Do Not S	Scale		Third A	Angle Pro	ojection	-	
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	Class	647 LOCATIONS: I, Division 1, Groups A, B, C, D II, Division 1, Groups E, F & G								
	Class			SEE NOTE 1						
	Class	646 LOCATIONS: I, Division 1, Groups A, B, C, D I, Zone 0, Group IIC	MTL647 or MTL646							
		L647 and MTL646 lity Parameters	SEE NOTE 1 NOTES 8 & 9		ITL5051					
	Ui :	minals 1 & 2 = 25V dc 108mA	4 1 SEE	2 SI	EE NOTE 4					
X	Pi = Ci =	= 0.58W = 0.01µF = 0.02mH	NOTE '		ITL5025					
	Ter	minals 4 & 2 = 14V dc			EE NOTE 5					
	li =	108mA = 0.45W				NON				
	Li =			 		LOCA	ARDOUS ATION PMENT			
	(coi	minals S1 to S7 mbined parameters) = 0								
	li = Pi :	0 lo = 146.7mA dc = 0 Po = 0.58W	ALARM A1	SE	E NOTE 6					
	Li =	= 0.54µF	SEE NOTE 14	i						
	Ui li =	= 28V dc Uo = 1.49V dc 200mA dc Io = 1µA dc = 0.85W Po = 3µW	ALARM A3	SE	E NOTE 6					
	Ci	= 0.03W F G = 3µW = 0.04µF Co = 1000µF = 0.02mH Lo = 1000mH	A4 SEE NOTE 14	<u></u>						
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			S1 S2	İ						
			S3 OPTIONAL S4 EXTERNAL S5 SWITCHES							
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Luton, England Copyright Reserved - Written Permission to Copy Should be Obtained HAZARDOUS (CLASSIFIED) LOCATION MTL647 LOCATIONS: Class I, Division 1, Groups A, B, C, D Class II, Division 1, Groups E, F & G Class II Class I, Zone 0, Group IIC MTL646 LOCATIONS: Class I, Zone 0, Group IIC MTL647 and MTL646 Entity Parameters Terminals 1, 2, 5 & 6 UI = 20V dc II = 139mA PI = 0.46W CI = 0.01µF LI = 0.02mH Terminals S1 to S7
HAZARDOUS (CLASSIFIED) LOCATION MTL647 LOCATIONS: Class I, Division 1, Groups A, B, C, D Class III Class I, Zone 0, Group IIC MTL646 LOCATIONS: Class I, Division 1, Groups A, B, C, D Class I, Division 1, Groups A, B, C, D MTL646 LOCATIONS: Class I, Zone 0, Group IIC MTL647 and MTL646 Entity Parameters Terminals 1, 2, 5 & 6 Ui = 20 v dc Ui = 20 v dc Ui = 139mA Pi = 0, 46W Ci = 0.01µF Li = 0.02mH Terminals S1 to S7
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Class II Class I, Zone 0, Group IIC MTL646 LOCATIONS: Class I, Division 1, Groups A, B, C, D Class I, Zone 0, Group IIC MTL647 or MTL646 Entity Parameters Terminals 1, 2, 5 & 6 Ui = 20V dc Ii = 139mA Pi = 0.46W Ci = 0.01µF Li = 0.02mH Terminals S1 to S7
Class I, Division 1, Groups A, B, C, D Class I, Zone 0, Group IIC MTL647 or MTL646 MTL646 Entity Parameters Terminals 1, 2, 5 & 6 Ui = 20V dc Ii = 139mA Pi = 0.46W Ci = 0.01 Pi = 0.02mH Terminals S1 to S7
Class I, Zone 0, Group IIC MTL647 or MTL646 Entity Parameters Terminals 1, 2, 5 & 6 Ui = 20V dc Ii = 139mA Pi = 0.46W Ci = 0.01 µF Li = 0.02mH Terminals S1 to S7
MTL647 and MTL646 Entity Parameters Terminals 1, 2, 5 & 6 Ui = 20V dc Ii = 139mA Pi = 0.46W Ci = 0.01µF Li = 0.02mH Terminals S1 to S7
Terminals 1, 2, 5 & 6 Ui = 20V dc Ii = 139mA Pi = 0.46W Ci = 0.01µF Li = 0.02mH Terminals S1 to S7
Ui = 20V dc Ii = 139mA Pi = 0.46W Ci = 0.01µF Li = 0.02mH Terminals S1 to S7
Ci = 0.01µF Li = 0.02mH
Terminals S1 to S7
(combined parameters) Ui = 0 Uo = 14.7V dc
li = 0
Li = 0.3mH Lo = 1.1mH
Terminals A1 & A2; A3 & A4; Ui = 28V dc Uo = 1.49V dc
li = 200mA dc lo = 1μA dc Pi = 0.85W Po = 3μW Ci = 0.04μF Co = 1000μF ALARM A1 A2 SEE NOTE 6
Li = 0.02mH Lo = 1000mH SEE NOTE 14
ALARM A3 A4 SEE I NOTE 14
SEE NOTE 2
S1
S2 S3 OPTIONAL
S4 EXTERNAL SWITCHES
S6 !
SEE NOTE 7
Four Wire System SEE NOTE 11
This Certification Document must not be modified without reference to the
certifying authority.
System Certificate No: Drn. By CMB Scale N/A
Certifying Authority: Factory Mutual Drn. Date 5.06 Sheet 3 of 5
Title FM Approvals Control Drawing for the Intrinsically Safe MTL646 and 647 Serial Text Displays Drg. No. Iss. SCI-1010 1

		Dimensions in mm	Do Not S	t Scale Third Angle Projection					
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Notes:

- 1. The associated intrinsically safe barriers must be FM approved and the manufacturers' installation drawings shall be followed when installing this equipment.
- 2. The unclassified location equipment connected to the associated intrinsically safe barriers shall not use or generate more than 250V rms or 250V dc.
- 3. Installation shall be in accordance with ANSI/ISA RP 12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code ANSI/NFPA 70.
- 4. MTL5051 Serial-Data Communications Isolator FM File J.I. 3000682
- 5. MTL5025 Solenoid / Alarm Driver FM File J.I. 3Z9A8.AX
- 6. One single channel or one channel of a dual channel associated intrinsically safe barrier or galvanic isolator with entity parameters complying with the following requirements:

Vo or Vtequal to or less thanVilo or Itequal to or less thanliLaequal to or greater thanLcable + LiCaequal to or greater thanCcable + Ci

7. Hazardous (classified) location equipment may be simple apparatus e.g. mechanically activated switches OR FM approved equipment with entity parameters complying with following requirements:

Vo or Vtequal to or less thanVilo or Itequal to or less thanliLaequal to or greater thanLcable + LiCaequal to or greater thanCcable + Ci

8. To maintain IP66 protection between the MTL646 and the mounting panel:

Four panel mounting clips should be used

Minimum panel thickness should be 2mm (0.08inches) Steel 3mm (0.12inches) Aluminium

Outside panel finish should be smooth, free from particle inclusions, runs or build-up around cut-out.

Panel cut-out should be 66.2 x 136.0mm -0.0 +0.5 (2.60 x 5.35 inches -0.00 +0.02)

Edges of panel cut-out should be deburred and clean

Each panel mounting clip should be tightened to between: 20 and 22cNm (1.77 to 1.95 inLb)

This Certification Document must not be modified without reference to the certifying authority.

System Certificate No:	Drn. By	СМВ	Scale	N/A			
Certifying Authority: Factory Mutual	Drn. Date	5.06	Sheet	4	of	5	
Title FM Approvals Control Drawing	-		Drg. No.				lss.
for the Intrinsically Safe MTL646 and 647 Serial Text	Display	'S	;	SCI-	1010)	1

		Dimensions in mm	Do Not S	t Scale Third Angle Projection					
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9. When installed in a hazardous (classified) location the MTL647 Serial Text Display shall be fitted with cable glands / conduit hubs selected from the following table

Metallic glands and hubs must be grounded - see note 10.

Class	Permitted gland or conduit hub							
Class I	Any metallic or plastic cable gland or conduit hub that provides the required environmental protection.							
Class II and III	Crouse - Hinds Myler hubs ST-1 STA-1 SSTG-1 STG-1 STAG-1 MHUB-1 HUB 1							
	O-Z / Gedrey Hubs CHM-50DT CHMG-50DT							
Killark Glands CMCXAA050 MCR050 MCX050								

- 10. In addition to the supplied bonding plate, when metallic 2 or 3 glands or conduit hubs are fitted to a MTL647 Serial Text Display, all metallic glands or conduit hubs must be connected together and grounded.
- 11. WARNING: The MTL647 and MTL646 Serial Text Display are manufactured from conductive plastic per Article 250 of the National Electrical Code the enclosures shall be grounded using the 'E' terminal on the terminal block.
- 12. Up to four MTL647 and/or MTL646 Serial Text Displays may be connected to one system.
- 13. Up to two MTL647 and/or MTL646 Serial Text Displays may be connected to one system.
- 14. Separate intrinsically safe circuit wiring shall comply with either:
 - a. All conductors of each circuit shall be within a grounded metal shield.
 - b. The conductors of each intrinsically safe circuit shall have insulation with a minimum thickness of 0.25mm (0.01in).

This Certification Document must not be modified without reference to the certifying authority.

System Certificate No:	Drn. By CMI	Scale	N/A			
Certifying Authority: Factory Mutual	Drn. Date 5.0	6 Sheet	5	of	5	
Title FM Approvals Control Drawing	Drg. No	Org. No.			lss.	
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