



CERTIFICATE OF CONFORMITY



1. Certificate ITS No. Ex 03E21194

Dated: 23 May 2003

2. This Certificate is issued for the electrical system:
MTL646/647 SERIAL TEXT DISPLAY SYSTEM A

3. Manufactured and submitted for Certification by:
MEASUREMENT TECHNOLOGY LIMITED
Power Court, Luton, LU1 3JJ

4. This electrical system and any acceptable variation thereto is specified in the Schedule to this Certificate and the documents therein referred to.
5. ITS being an Approved Certification Body in accordance with Article 14 of the Council Directive of the European Communities of 18 December 1975 (76/117/EC) certifies that the system has been found to comply with harmonised European Standard: EN50 039: 1980

and has successfully met the examination and test requirements recorded in the confidential reports identified below.

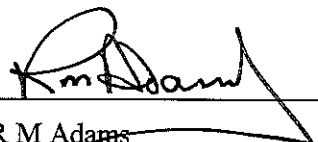
ITS Report Number: 03010243 Issue 1 Dated: May 2003

6. The apparatus marking shall include the code:

EEx ia IIC T5

7. It is the responsibility of the system certificate holder to supply the relevant documentation to the installer of the intrinsically safe electrical system referred to in this certificate.
8. The installer has the responsibility to ensure that the system conforms to the specification laid down in the Schedule to this certificate and has satisfied routine verifications and tests specified therein.
9. This system may be marked with the distinctive European Community mark specified in Annex II of European Council Directive 84/47/EEC as illustrated in the top left hand corner.

Certificate Approved by:


R M Adams
Deputy Certification Manager

ITS Testing & Certification Limited
ITS House, Cleeve Road, Leatherhead, Surrey, KT22 7SB
Tel: +44 (0)1372 370900 Fax: +44 (0)1372 370977
<http://www.etlsemko.com/uk>
Registered No 3272281 Registered Office: 25 Savile Row London W1X 1AA

This Certificate is the property of ITS Testing and Certification Ltd
and is subject to ITS Testing and Certification Conditions for Granting Certification.



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SYSTEM

MTL646/647 SERIAL TEXT DISPLAY SYSTEM A comprises:

1. Apparatus located in a non-hazardous area.
 - 1.1 Apparatus which is unspecified except that it must not be supplied from nor contain under normal or abnormal conditions a source of potential with respect to earth in excess of 250 V rms or 250 V dc.
 - 1.2 A galvanic isolator MTL5051 Serial Data Communications Isolator, Certificate BAS No. Ex 98D2009 or Certificate No BAS01ATEX7158
2. Apparatus which may be located in the hazardous area.
 - 2.1 An MTL646 Serial Text Display, Certificate No. ITS03ATEX21172, coded EEx ia IIC T5 (Tamb = -40°C to 60°C), or
 - 2.2 An MTL647 Serial Text Display, Certificate No. ITS03ATEX21173, coded EEx ia IIC T5 (Tamb = -40°C to 60°C).

Two MTL646 or two MTL647 Serial Text Displays, or one MTL646 and one MTL647 Serial Text Displays, or one MTL646 or one MTL647 Serial Test Display may be connected to one system.
- 2.3 Six optional switches meeting the requirements of Clause 5.4 of EN 50020:2002. The switches must be housed in an enclosure providing a Degree of Protection at least IP20, be installed in accordance with the requirements of Clause 6 of EN 50020:2002.

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3. Permissible interconnecting cables.
- 3.1 The cable must be a separate cable or a multicore cable which must be a Type 'A' or Type 'B' cable as defined in EN50 039 subject to the following.
- a) The circuit from each barrier to be individually screened when used with Type A multicore cable.
 - b) The peak voltage of any other circuit with a Type B multicore cable must not exceed 60 V.
- 3.2 The capacitance and either inductance or inductance to resistance (L/R) ratio of the cable connected to the output (hazardous area) terminals 2 & 3 of the galvanic isolator MTL5051 must not exceed the following values.

Group	Capacitance μF	Inductance mH	or	L/R Ratio $\mu\text{H}/\Omega$
IIC	0.71	1.92		58
IIB	4.58	9.36		288
IIA	16.98	17.36		533

- 3.3 The capacitance and either inductance or inductance to resistance (L/R) ratio of the cable connected between the MTL646 or MTL647 terminals TBS and the switches must not exceed the following values.

Group	Capacitance μF	Inductance mH	or	L/R Ratio $\mu\text{H}/\Omega$
IIC	0.22	0.48		14
IIB	3.46	2.34		72
IIA	14.50	4.34		133

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DRAWINGS

Number	Issue	Date	Description
SCI-976, sheets 1 & 2	1	5.03	MTL646/647 Serial Text Display System A

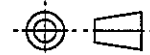
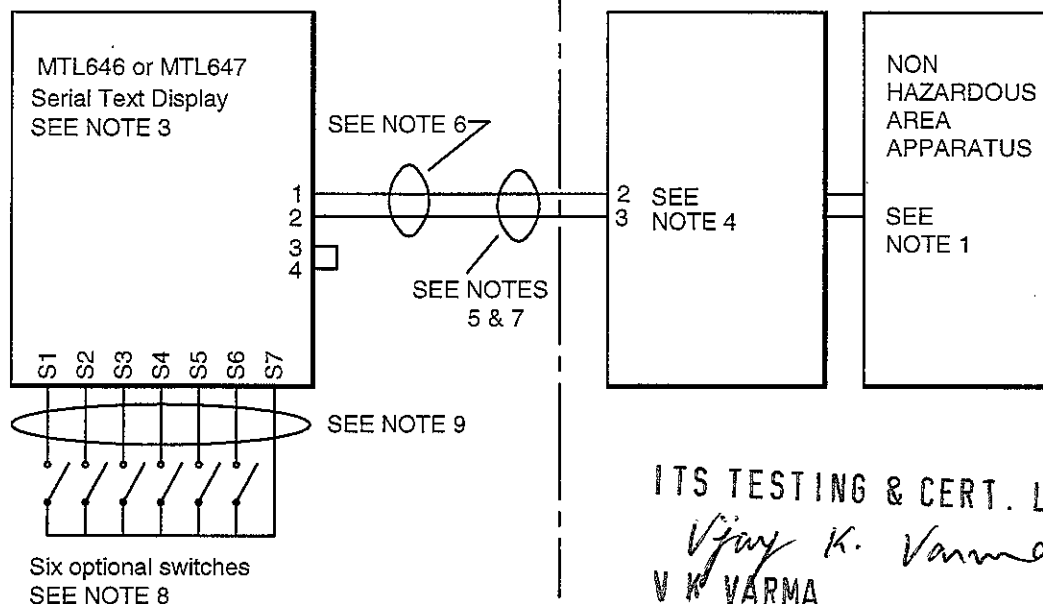
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Dimensions in mm

Do Not Scale

Third Angle Projection

HAZARDOUS AREANON-HAZARDOUS AREA

ITS TESTING & CERT. LTD

Vijay K. Varma
V K VARMA

APPROVED DRAWING

CERTIFICATE No

Ex 03E21194

1. Safe area apparatus - unspecified except that it must not be supplied from nor contain under normal or abnormal conditions a source of potential with respect to earth in excess of 250Vrms or 250Vdc.
2. The installation must comply with the installation requirements of EN60079:14:1997
3. Apparatus may be a MTL646 (ITS03ATEX21172) or MTL647 (ITS03ATEX21173) Serial Text Display.
4. Galvanically isolated supply to be:

MTL5051 Serial data communications isolator BAS No.Ex98D2009 or
BAS01ATEX7158

5. The total capacitance and either total inductance or inductance to resistance (L/R) ratio of the cable connected between the output (hazardous area) terminals of the galvanically isolated supply and the MTL646 or MTL647 must not exceed the values given in table 1.

Table 1

Group	Capacitance μF	Inductance mH	or L/R ratio $\mu\text{H}/\Omega$
IIC	0.71	1.92	58
IIB	4.58	9.36	288
IIA	16.98	17.36	533

System Certificate No: Ex03E21194

Scale N/A

Certifying Authority: ITS Testing & Certification Limited

Sheet 1 of 2

Title System information for MTL646 & MTL647
Serial Text Display
Two wire using galvanic isolator

Drg. No.
SCI-976

Modification

Date Dm

Iss

MEASUREMENT TECHNOLOGY LTD
Luton, England
Copyright Reserved - Written Permission
to Copy Should be Obtained

Chd


Modification

Date Dm

Iss

SOLID EDGE

A4

Chd		Dimensions in mm	Do Not Scale	Third Angle Projection																
Modification		<p>6. Two MTL646 or two MTL647 Serial Text Displays, or one MTL646 and one MTL647, or one MTL646, or one MTL647 may be connected to a single MTL5051.</p> <p>7. Wiring to terminals of separate intrinsically - safe circuits must be achieved using separate cables or by separate circuits within Type A or Type B multicore cables (as defined in clause 5.3 of EN50039), subject to the following:-</p> <p>a) The circuit is to be individually screened when contained within a Type A multicore cable.</p> <p>b) The peak voltage of any circuit within a Type B multicore cable must not exceed 60V.</p> <p>8. Switches meeting the requirements of Clause 5.4 of EN50020:2002. They must have at least IP20 protection, be installed in accordance with the requirements of Clause 6 of EN50020:2002.</p> <p>9. The total capacitance and either total inductance or inductance to resistance (L/R) ratio of the cable connected between the MTL646 or MTL647 and the switches must not exceed the values given in table 2.</p> <p>Table 2</p> <table border="1"> <thead> <tr> <th>Group</th> <th>Capacitance μF</th> <th>Inductance mH</th> <th>or L/R ratio μH/Ω</th> </tr> </thead> <tbody> <tr> <td>IIC</td> <td>0.22</td> <td>0.48</td> <td>14</td> </tr> <tr> <td>IIB</td> <td>3.46</td> <td>2.34</td> <td>72</td> </tr> <tr> <td>IIA</td> <td>14.50</td> <td>4.34</td> <td>133</td> </tr> </tbody> </table> <p>10. The marking should normally appear on or adjacent to the principal item of electrical apparatus in the system or at the interface between the intrinsically safe and non-intrinsically safe circuits.</p>			Group	Capacitance μF	Inductance mH	or L/R ratio μH/Ω	IIC	0.22	0.48	14	IIB	3.46	2.34	72	IIA	14.50	4.34	133
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Date																				
Iss																				
<p>MEASUREMENT TECHNOLOGY LTD Luton, England Copyright Reserved - Written Permission to Copy Should be Obtained</p>		<p>SYSTEM LABEL</p> <div style="border: 1px solid black; padding: 5px;"> <p>Measurement Technology Ltd</p> <p>MTL646 or 647</p> <p>Serial Text Display system A</p> <p> SYST ITS No. Ex03E21194 EEx ia IIC T5</p> </div>																		
<p>Chd</p> <p>Modification</p>		<p>*****</p> <p>* NOTE:</p> <p>* No modification to be made without</p> <p>* reference/approval from ITS and</p> <p>* Measurement Technology Ltd</p> <p>*****</p> <p>ITS TESTING & CERT. LTD</p> <p><i>V K Varma</i></p> <p>V K VARMA</p> <p>APPROVED DRAWING</p> <p>CERTIFICATE No</p> <p>Ex 03E21194</p>																		
Dm		System Certificate No: Ex03E21194																		
Date		Certifying Authority: ITS Testing & Certification Limited																		
Iss		<p>Title</p> <p>System information for MTL646 & MTL647</p> <p>Serial Text Display</p> <p>Two wire using galvanic isolator</p>																		
Scale		N/A																		
Sheet		2 of 2																		
Drg. No.		SCI-976																		