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

Certificate No.:	**IECEx BAS 23.0012**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 1	Issue 0 (2023-05-05)
Date of Issue:	2025-05-07		
Applicant:	**Eaton Electric Limited** Great Marlings Butterfield Luton Bedfordshire LU2 8DL **United Kingdom**		
Equipment:	**MTL4500 & MTL5500 Series Galvanic Isolators – Digital Output modules**		
Optional accessory:			
Type of Protection:	**Intrinsic Safety**		
Marking:	**[Ex ia Ga] IIB (Model 5522 only)** **[Ex ia Ga] IIC** **[Ex ia Da] IIIC** **[Ex ia Ma] I** **-20°C ≤ Ta ≤ +60°C – All Models** **-20°C ≤ Ta ≤ +65°C - MTL5521-T Model only**		

Approved for issue on behalf of the IECEx Certification Body: **P Oates**

Position: **Engineering Manager**

Signature: (for printed version)

Date: (for printed version) 19/5/2025

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SGS UK Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire SK17 9RZ
United Kingdom

IECEx Certificate of Conformity

Certificate No.: **IECEx BAS 23.0012**

Date of issue: 2025-05-07

Issue No: 1

Manufacturer: **Eaton Electric Limited**
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
United Kingdom

Manufacturing locations: **Eaton Electric Limited**
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
United Kingdom

MTL Instruments PVT Limited
No 3 Old Mahabalipuram Road,
Sholinganallur, Chennai, 600 119
India

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 60079-11:2011 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:

GB/BAS/ExTR23.0018/00 GB/SGS/ExTR25.0057/00

Quality Assessment Reports:

GB/BAS/QAR06.0022/11 GB/BAS/QAR07.0017/11

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

This certificate covers the following types:

- MTL452* Series Solenoid / Alarm Drivers.
- MTL4526 Two Channel Switch-operated Relay Output.
- MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers.
- MTL552* Series Solenoid / Alarm Drivers.
- MTL5526 Two Channel Switch-operated Relay Output

See Certificate Annex for a description of the types of equipment and electrical parameters

SPECIFIC CONDITIONS OF USE: NO

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Variation 1.1

To permit the addition of the 'Ex ic' load parameters for all modules.

ExTR: **GB/SGS/ExTR25.0057/00**	File Reference: **25/0211**

Annex:

IECEx BAS 23.0012 Annex Issue 1.pdf

Schedule 1 – MTL452* Series Solenoid / Alarm Drivers

The MTL452* Series Solenoid / Alarm Drivers are designed to control and monitor a device located in the hazardous area and restrict the transfer of energy from unspecified apparatus in the non-hazardous area to an intrinsically safe circuit in the hazardous area by the limitation of voltage and current. Opto-isolators and a transformer provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises an isolating transformer, opto-isolators, duplicated zener diode chains and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL452* Series Solenoid / Alarm Drivers comprises a number of different models denoted by * in the model number. All models are built on a common PCB and are configured have certain features such as Line Fault Detection (LFD) and Phase Reversal facilities. There are also models in the range that are loop powered or have low current hazardous area outputs. All models have LED indication dependent on the model configuration.

Model Range

Model No.	
MTL4521	Loop Powered Solenoid / Alarm Driver
MTL4521L	Loop Powered Solenoid / Alarm Driver
MTL4523	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4523R	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4523L	Loop Powered Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4523V	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4523VL	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4524	Solenoid / Alarm Driver with Override
MTL4524S	Solenoid / Alarm Driver with Override
MTL4525	Solenoid / Alarm Driver with Override (Low Current Output)

Input / Output Parameters

MTL4521, MTL4523, MTL4523R, MTL4523L, MTL4523V, MTL4524 & MTL4524S

Non-Hazardous Area Terminals 7 to 14

U_m = 253V

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V
I_o = 147mA
P_o = 0.92W
C_i = 0
L_i = 0

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	1.4		40
IIB*	0.84	7.2		159
IIA	2.97	14.4		328
I	4.87	20.2		478

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	3.7		87
IIB*	2.36	14.8		348
IIA	9.5	29.6		696

* Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

1) The above load parameters apply when one of the two conditions below is given:
   - the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
   - the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

2) The above parameters are reduced to 50% when both of the two conditions below are given:
   - the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

   The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

MTL4521L & MTL4523VL

Non-Hazardous Area Terminals 7 to 14

U_m = 253V

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V
I_o = 108mA
P_o = 0.68W
C_i = 0
L_i = 0

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	3.04		52
IIB*	0.84	12.19		210
IIA	2.97	24.38		421
I	4.87	40.0		691

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	6.8		117
IIB*	2.36	27.4		472
IIA	9.5	54.8		946

*Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

1) The above load parameters apply when one of the two conditions below is given:
- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

2) The above parameters are reduced to 50% when both of the two conditions below are given:
- the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

MTL4525

Non-Hazardous Area Terminals 8, 9, 10, 11, 13 & 14

U_m = 253V

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V
I_o = 83.3mA
P_o = 0.52W
C_i = 0
L_i = 0

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	5.3		68
IIB*	0.84	21.8		254
IIA	2.97	44.7		536
I	4.87	64.9		814

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	11.5		153
IIB*	2.36	46.1		571
IIA	9.5	92.2		1206

*Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC
Notes:

1) The above load parameters apply when one of the two conditions below is given:
   - the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
   - the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

2) The above parameters are reduced to 50% when both of the two conditions below are given:
   - the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

   The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

Schedule 2 – MTL4526 Two Channel Switch-operated Relay Output

The MTL4526 Two Channel Switch-operated Relay Output is designed to enable two separate intrinsically safe circuits to be switched via relay contacts by on/off switches or logic signals from unspecified apparatus in the non-hazardous area. Configuration switches on the apparatus allow the two relay output channels to be alternatively controlled by one input. Each non-hazardous area input can also be loop powered. Two relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the apparatus comprises a relay, a zener diode and fuse to provide voltage and current limitation to the relay. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided for the status of each output channel and power-on.

Input / Output Parameters

Non-Hazardous Area Terminals 8, 9, 10, 11, 13 & 14)

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 10, 11, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 1 to 3 (Channel 1)
Or
Hazardous Area Terminals 4 to 6 (Channel 2)

U_i = 30V U_o = 0
C_i = 0 I_o = 0
L_i = 0

Schedule 3 – MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers

The MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers are designed to control and monitor a device located in the hazardous area and restrict the transfer of energy from unspecified apparatus in the non-hazardous area to an intrinsically safe circuit in the hazardous area by the limitation of voltage and current. Opto-isolators and a transformer provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises an isolating transformer, opto-isolators, duplicated zener diode chains and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers are built on a common PCB with different components fitted to give certain output parameters and features. The MTL4521Y & MTL4521YL are loop-powered Solenoid / Alarm Drivers, with the only difference between the models being the current limitation fitted on the hazardous area connections. The MTL4523Y and MTL4523YL variants are similar but are bus powered and have additional Line Fault Detection (LFD) circuitry populated. All models have LED indication fitted dependent on the model indicating output status, Power on and LFD status where applicable.

Model Range

Model No.	
MTL4521Y	Loop Powered Solenoid / Alarm Driver
MTL4521YL	Loop Powered Solenoid / Alarm Driver
MTL4523Y	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4523YL	Solenoid / Alarm Driver with Line Fault Detection Alarm

Input / Output Parameters

MTL4521Y & MTL4523Y Models Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V
I_o = 147mA
P_o = 0.92W
C_i = 0
L_i = 0

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	1.4		40
IIB**	0.84	7.2		159
IIA	2.97	14.4		328
I	4.87	20.2		478

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	3.7		87
IIB*	2.36	14.8		348
IIA	9.5	29.6		696

** Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

3) The above load parameters apply when one of the two conditions below is given:
- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

4) The above parameters are reduced to 50% when both of the two conditions below are given:
- the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

MTL4521YL & MTL4523YL

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s.

The equipment is designed to operate on the above terminals from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V
I_o = 108mA
P_o = 0.68W
C_i = 0
L_i = 0

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	3.04		52
IIB*	0.84	12.19		210
IIA	2.97	24.38		421
I	4.87	40.0		691

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	6.8		117
IIB*	2.36	27.4		472
IIA	9.5	54.8		946

*Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

3) The above load parameters apply when one of the two conditions below is given:
- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

4) The above parameters are reduced to 50% when both of the two conditions below are given:
- the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

Schedule 4 – MTL552* Series Solenoid / Alarm Drivers

The MTL552* Series Solenoid / Alarm Drivers are designed to control and monitor a device located in the hazardous area and restrict the transfer of energy from unspecified apparatus in the non-hazardous area to an intrinsically safe circuit in the hazardous area by the limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises an isolating transformer, opto-isolators, duplicated zener diode chains and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL552* Series Solenoid / Alarm Drivers comprise a number of different models denoted by * in the model number. All models are built on a common PCB and are configured have certain features such as Line Fault Detection (LFD) and Phase Reversal facilities. There are also models in the range that are loop powered or have low current hazardous area outputs. All models have LED indication dependent on the model configuration.

The MTL5521-T Loop Powered Solenoid / Alarm Driver is of similar construction to the MTL5521 Loop Powered Solenoid / Alarm Driver with the same input and output parameters, but has an extended ambient temperature range of -20°C to +65°C.

Model Range

Model No.	
MTL5521	Loop Powered Solenoid / Alarm Driver
MTL5521-T	Loop Powered Solenoid / Alarm Driver
MTL5522	Loop Powered Solenoid / Alarm Driver, IIB
MTL5523	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL5523V	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL5523VL	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL5524	Solenoid / Alarm Driver with Logic Control, Phase Reversal
MTL5525	Low Current Solenoid / Alarm Driver

Input / Output Parameters

MTL5521, MTL5521-T, MTL5523, MTL5523V & MTL5524 Model Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V C_i = 0
I_o = 147mA L_i = 0
P_o = 0.92W

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	1.4		40
IIB*	0.84	7.2		159
IIA	2.97	14.4		328
I	4.87	20.2		478

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	3.7		87
IIB*	2.36	14.8		348
IIA	9.5	29.6		696

* Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

5) The above load parameters apply when one of the two conditions below is given:
- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

6) The above parameters are reduced to 50% when both of the two conditions below are given:
- the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

MTL5522 Model Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V C_i = 0
I_o = 166mA L_i = 0
P_o = 1.04W

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIB*	0.84	5.6		132
IIA	2.97	10.4		286
I	4.87	16.0		428

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIB*	2.36	11.6		297
IIA	9.5	23.2		614

*Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

5) The above load parameters apply when one of the two conditions below is given:
- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

6) The above parameters are reduced to 50% when both of the two conditions below are given:
- the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

MTL5523VL Model Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V
I_o = 108mA
P_o = 0.68W
C_i = 0
L_i = 0

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	3.04		52
IIB*	0.84	12.19		210
IIA	2.97	24.38		421
I	4.87	40.0		691

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	6.8		117
IIB*	2.36	27.4		472
IIA	9.5	54.8		946

*Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC
Notes:

1) The above load parameters apply when one of the two conditions below is given:
   - the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
   - the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

2) The above parameters are reduced to 50% when both of the two conditions below are given:
   - the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

   The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

MTL5525 Model Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V

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

Hazardous Area Terminals 2 / 3 w.r.t. 1

U_o = 25V C_i = 0
I_o = 83.3mA L_i = 0
P_o = 0.52W

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected must not exceed the following values:

'Ex ia':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.11	5.3		68
IIB*	0.84	21.8		254
IIA	2.97	44.7		536
I	4.87	64.9		814

'Ex ic':

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.4	11.5		153
IIB*	2.36	46.1		571
IIA	9.5	92.2		1206

*Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

3) The above load parameters apply when one of the two conditions below is given:
- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

4) The above parameters are reduced to 50% when both of the two conditions below are given:
- the total L_i of the external circuit (excluding the cable) is ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

Schedule 5 – MTL5526 Two Channel Switch-operated Relay Output

The MTL5526 Two Channel Switch-operated Relay Output is designed to enable two separate intrinsically safe circuits to be switched via relay contacts by on/off switches or logic signals from unspecified apparatus in the non-hazardous area. Configuration switches on the apparatus allow the two relay output channels to be alternatively controlled by one input. Each non-hazardous area input can also be loop powered. Two relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the apparatus comprises a relay, a zener diode and fuse to provide voltage and current limitation to the relay. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided for the status of each output channel and power-on.

Input / Output Parameters

Non-Hazardous Area Terminals 8, 9, 10, 11, 13 & 14)

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 10, 11, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 1 to 3 (Channel 1)
Or
Hazardous Area Terminals 4 to 6 (Channel 2)

U_i = 30V U_o = 0
C_i = 0 I_o = 0
L_i = 0