Health & Safety Executive

BASEEFA

British Approvals Service for Electrical Equipment in Flammable Atmospheres

1. CERTIFICATE OF CONFORMITY

2. BAS No Ex 882115

3. This certificate is issued for the intrinsically safe electrical system:

AN MTL 2213 3-CHANNEL SWITCH/PROXIMITY DETECTOR RELAY SYSTEM

4. submitted for certification by:

MEASUREMENT TECHNOLOGY LIMITED
of Luton, Bedfordshire, LU1 3JJ

5. This electrical system and any acceptable variation thereto is specified in the Schedule to this Certificate and the documents therein referred to.

6. BASEEFA confirms that the system has been found to comply with European Standard BS 5501:Part9:1982 EN50 039

Relevant examination and test requirements are recorded in confidential Test Report No 88(i)053 dated 10 March 1988

7. This system is coded EEx ia IIC T4

8. The supplier and/or user of the intrinsically safe electrical system referred to in this certificate, 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.

File No. EECS 0703/02/018

pp. I M CLEARE
DIRECTOR
10 March 1988

Sheet 1/3

This certificate is granted subject to conditions applicable to the Approval Service, it does not necessarily indicate that the apparatus may lawfully be used in particular industries or circumstances.

BASEEFA Harpur Hill Buxton Derbyshire SK17 9JN Tel 0298 6211 Telex 668113 RLSD G

CERTIFICATE OF CONFORMITY SCHEDULE

NUMBER Ex 882115

DATED 10 March 1988

SYSTEM

An MTL 2213 3-CHANNEL SWITCH/PROXIMITY DETECTOR RELAY SYSTEM comprises:

1. Apparatus located in a non-hazardous area (Safe Area).

   1.1 An MTL 2213 3-Channel Switch/Proximity Detector Relay (Certificate No Ex 88B2114).

   1.2 Apparatus which is unspecified except that it must not be supplied from nor contain in normal or abnormal conditions a source of potential with respect to earth in excess of 250 volts r.m.s. or 250 volts d.c.

2. Apparatus which may be located in a Hazardous Area.

   2.1 Apparatus which meets the requirements of Clause 1.3 of EN50 014 and installed in accordance with Clauses 4.1 and 5 of EN50 020.

3. Permissible Interconnecting Cables.

   3.1 The Capacitance and Inductance OR Inductance to Resistance (L/R) ratio of the interconnecting cables must not exceed the following values:

GROUP	CAPACITANCE in µF	INDUCTANCE in mH	OR	L/R RATIO in µH/ohm
IIC	2.4	165		825
IIB	7.2	495		2475
IIA	19.2	1320		6600

DRAWING

Number	Issue	Date	Description
SCI-166 Sheet 1 of 2	1	Oct 87	MTL 2213 System

CERTIFICATE OF CONFORMITY SCHEDULE

NUMBER Ex 882115

DATED 10 March 1988

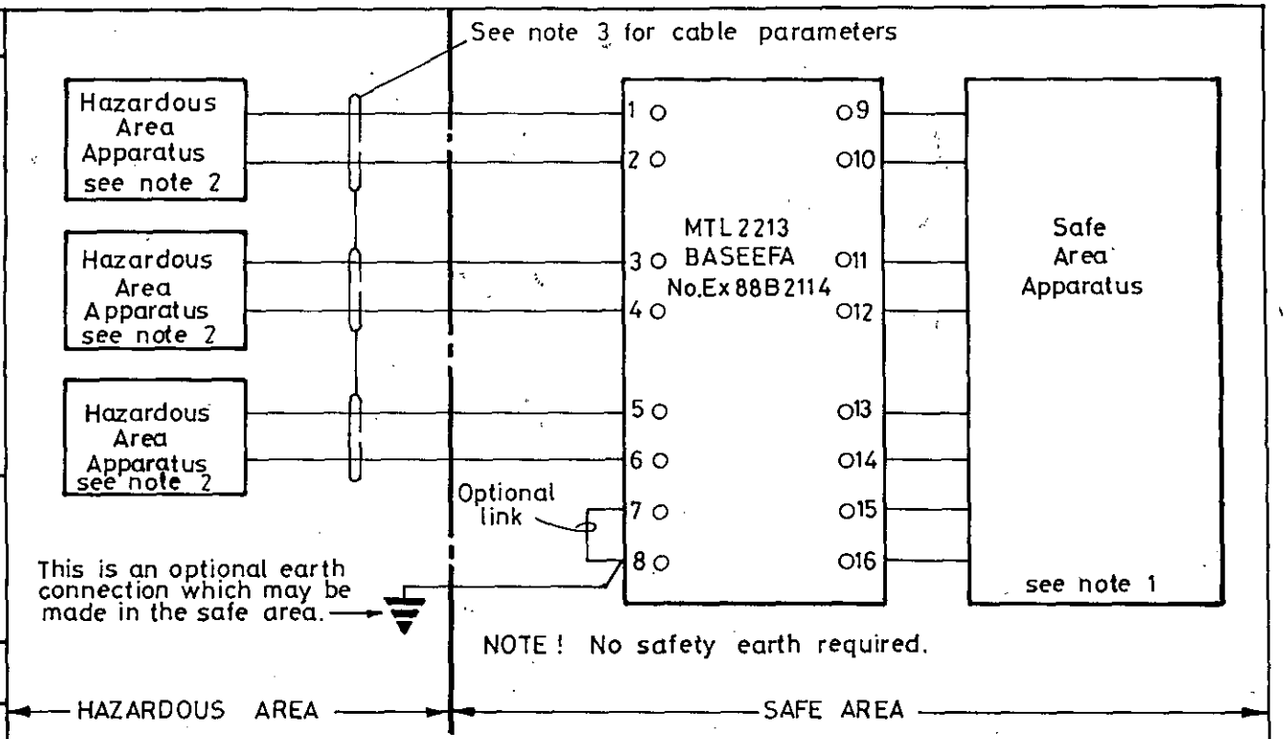
VARIATION ONE

To permit the use of an MTL 2220 Earth Leakage Detector (Certificate No Ex 802327), located in a non-hazardous (safe) area, in the above system.

The Capacitance and Inductance OR Inductance to Resistance (L/R) ratio of the interconnecting cables must not exceed the following values:

GROUP	CAPACITANCE in µF	INDUCTANCE in mH	OR	L/R RATIO in µH/ohm
IIC	0.44	165		825
IIB	1.32	495		2475
IIA	3.52	1320		6600

DRAWING Number	Issue	Date	Description
SCI-166 Sheet 2 of 2	1	Oct 87	MTL 2213 with MTL 2220 Earth Leakage Detector



Note 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 250V r.m.s. or 250V d.c.

Note 2. Hazardous area apparatus - must meet the requirement of clause 1.3 of EN50 014 and must be selected and installed to meet the requirements of EN50 020, in particular with respect to clauses 4.1 and 5.

Note 3. The following cable parameters must not be exceeded (applies to each channel):-

Group	Capacitance	Inductance	or	L/R ratio
IIA	19.2 µF	1320 mH		6600 µH/Ω
IIB	7.2 µF	495 mH		2475 µH/Ω
IIC	2.4 µF	165 mH		825 µH/Ω

Note 4. Where the hazardous area cables are part of a multicore, they must be part of a Type A or Type B multicore cable (as defined in Clause 5.3 of BS5501: Part 9:1982 EN50 039). The peak voltage of any circuit contained within the multicore must not exceed 60 volts.

Note 5. For intrinsic safety purposes, the MTL2213 output circuit is considered to be a source of power with a maximum open circuit voltage of 10.5 volts, a maximum open circuit voltage of 10.5 volts, a maximum short circuit current of 14mA and a source resistance of 800 ohms minimum.

Note 6. When only one channel is used then the apparatus in the hazardous area need not meet the 500V insulation requirement provided there is no other earth connection. Otherwise the hazardous area apparatus must be capable of withstanding an a.c. test voltage of 500V r.m.s. with respect to earth or frame of the apparatus for a period of one minute without breakdown (d.c. resistance and impedance at 50 Hz shall not be less than 100KΩ).

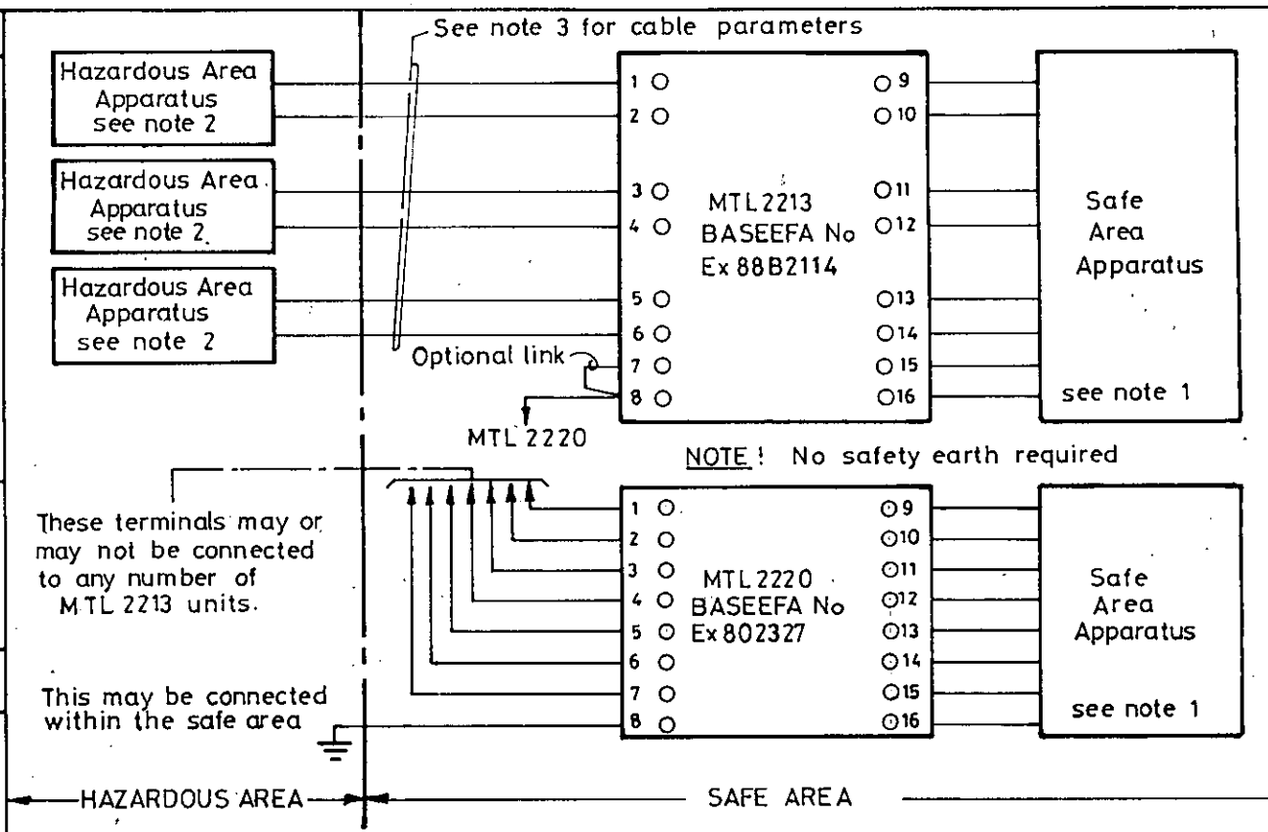
BASEEFA System Certificate no.Ex882115 Code EEx ia IIC T4

Used on Certifying Authority:- BASEEFA	Scale
Tolerance unless otherwise stated ±	Sheet 1 of 2
Title Installation drawing for the MTL2213 3-channel switch/proximity detector relay.	Drg. No. SCI-166

Iss. 1 Date/Drawn 10.87/DRG

Modification

Chk



Note 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 250V r.m.s. or 250V d.c.

Note 2. Hazardous area apparatus - must meet the requirement of clause 1.3 of EN50 014 and must be selected and installed to meet the requirement of EN50 020, in particular with respect to clauses 4.1 and 5.

Note 3. The following cable parameters must not be exceeded (applies to each channel):-

Group	Capacitance	Inductance or	L/R ratio
IIA	3.52 μF	1320 mH	6600 μH/Ω
IIB	1.32 μF	495 mH	2475 μH/Ω
IIC	0.44 μF	165 mH	825 μH/Ω

Note 4. Where the hazardous area cables are part of a multicore, they must be part of a Type A or Type B multicore cable (as defined in Clause 5.3 of BS5501: Part 9:1982 EN50 039). The peak voltage of any circuit contained within the multicore must not exceed 60 volts.

Note 5. For intrinsic safety purposes, the MTL2213 output circuit is considered to be a source of power with a maximum open circuit voltage of 10.5 volts, a maximum short circuit current of 14mA and a source resistance of 800 ohms minimum.

Note 6. The circuit in the hazardous area must be capable of withstanding a test voltage of 500 volts r.m.s. with respect to earth or frame of the apparatus for a period of one minute without breakdown (d.c. resistance and impedance at 50 Hz not be less than 100KΩ).

Iss.	Date/Drawn	Modification	Chk
1	10.87/DRG		

Used on Certifying Authority:- BASEEFA	Scale
Tolerance unless otherwise stated ±	Sheet 2 of 2
Title Installation drawing for the MTL2213 3-channel switch/proximity detector relay with the MTL2220	Drg. No. SCI-166

Health & Safety Executive

BASEEFA

British Approvals Service for Electrical Equipment in Flammable Atmospheres

CERTIFICATE OF CONFORMITY VARIATION

THIS IS TO CERTIFY THAT CERTIFICATE OF CONFORMITY BAS NO Ex 882115

Issued to MEASUREMENT TECHNOLOGY LIMITED
of Luton, Beds
LU1 3JJ

for the MTL 2213 3-CHANNEL SWITCH/PROXIMITY DETECTOR RELAY SYSTEM

is hereby extended to the apply to the system designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having the variations specified in the attached Schedule.

File: EECS 0703/02/018

IMC

CERTIFICATE OF CONFORMITY BAS NO Ex 882115/1
Sheet 1/3
BA

I M CLEARE
DIRECTOR EECS
20 September 1989

CERTIFICATE OF CONFORMITY SCHEDULE

NUMBER Ex 882115/1

DATED 20 September 1989

VARIATION TWO

To permit an alternative method of connection between the apparatus at Items 1.1 and 2.1 of the schedule.

The cable parameters are amended as follows:

GROUP	CAPACITANCE in μF	INDUCTANCE OR in mH	L/R RATIO in μH/ohm
IIC	2.4	165	583.3
IIB	7.2	495	1750
IIA	19.2	1320	4666.7

DRAWINGS

Number	Issue	Date	Description
SCI-220 Sheet 1 of 3	1	4.89	MTL 2213 system

VARIATION THREE

To permit the use of an MTL Earth Leakage Detector (Certificate No Ex 802327), located in a non-hazardous (safe) area in the system outlined at Variation Two.

The cable parameters are amended as follows:-

GROUP	CAPACITANCE in μF	INDUCTANCE OR in mH	L/R RATIO in μH/ohm
IIC	0.44	165	583.3
IIB	1.32	495	1750
IIA	3.52	1320	4666.7

DRAWINGS

Number	Issue	Date	Description
SCI-220 Sheet 2 of 3	1	4.89	MTL 2213 system with Earth Leakage detector

VARIATION FOUR

To permit the use of an additional MTL 2213 3-Channel Switch/ Proximity Detector Relay at Item 1.1 of the Schedule, with the optional use of an MTL 2220 Earth Leakage Detector (Cert. No. Ex 802327).

The cable parameters are amended as follows:-

CERTIFICATE OF CONFORMITY SCHEDULE

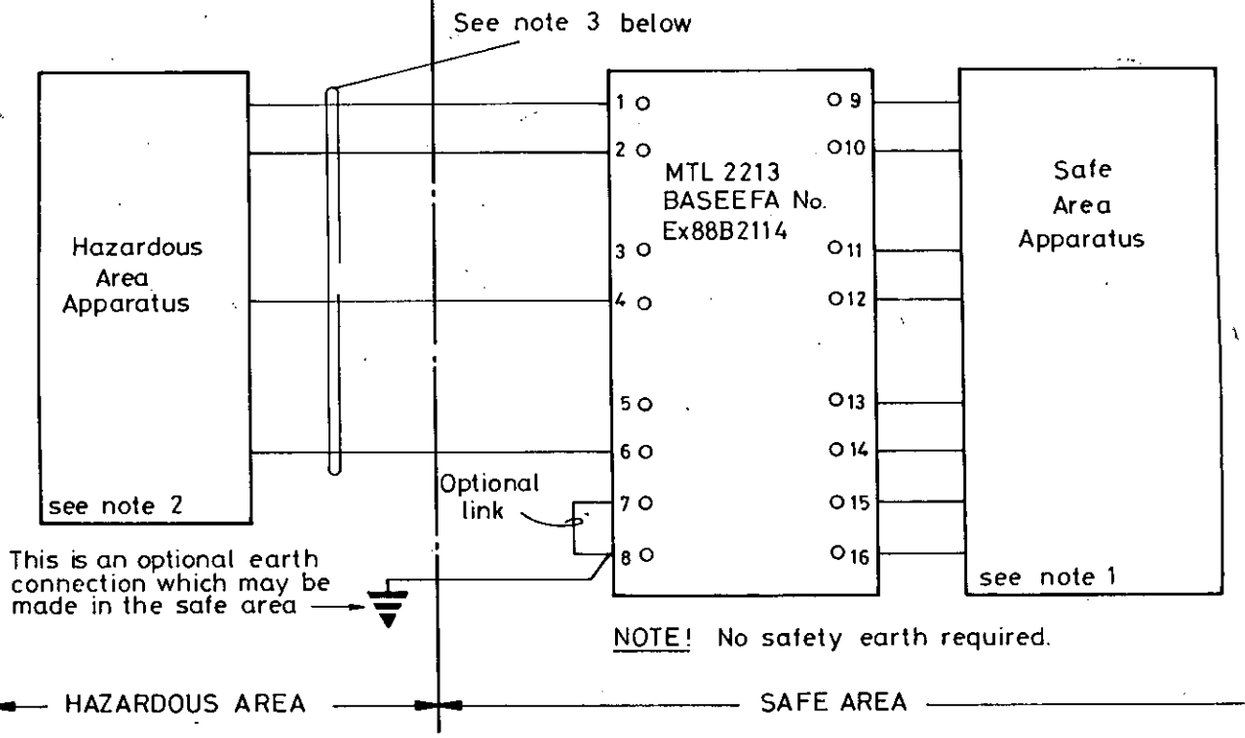
NUMBER Ex 882115/1
DATED 20 September 1989

GROUP	CAPACITANCE in μF	INDUCTANCE OR inmH	L/R RATIO in μH/ohm
IIC	0.27 (0.13)	50 (50)	291.6 (291.6)
IIB	0.81 (0.39)	150 (150)	875 (875)
IIA	2.16 (1.04)	400 (400)	2333.3 (2333.3)

The figures in parentheses are when the MTL 2220 Earth Leakage Detector is used.

DRAWINGS

Number	**Issue**	**Date**	**Description**
SCI-220 Sheet 3 of 3	1	4.89	MTL 2213 system



NOTE 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 250V. rms or 250V d.c.

NOTE 2: Hazardous Area Apparatus - must meet the requirements of clause 1.3 of EN50 014 and must be selected and installed to meet the requirements of EN50 020, in particular with respect to clauses 4.1 and 5. When the hazardous area apparatus are switches the system may be classified T6.

NOTE 3: The following cable parameters must not be exceeded:

Group	Capacitance	Inductance or	L/R Ratio
IIA	19.2 µF	1320 mH	4666.7 µH/Ω
IIB	7.2 µF	495 mH	1750 µH/Ω
IIC	2.4 µF	165 mH	583.3 µH/Ω

NOTE 4: Where the hazardous area cables are part of a multicore cable, they must be part of a Type A or Type B multicore (as defined in Clause 5.3 of BS5501:Part 9:1982 EN50 039). The peak voltage of any circuit contained within the multicore must not exceed 60 volts.

NOTE 5: The circuit in the hazardous area must be capable of withstanding a test voltage of 500 volts rms with respect to earth or frame of the apparatus for a period of one minute without breakdown (d.c. resistance and impedance at 50Hz not less than 100KΩ).

NOTE 6: The installation must comply with National Requirements (e.g. in the UK generally BS5345:Part 4:1977).

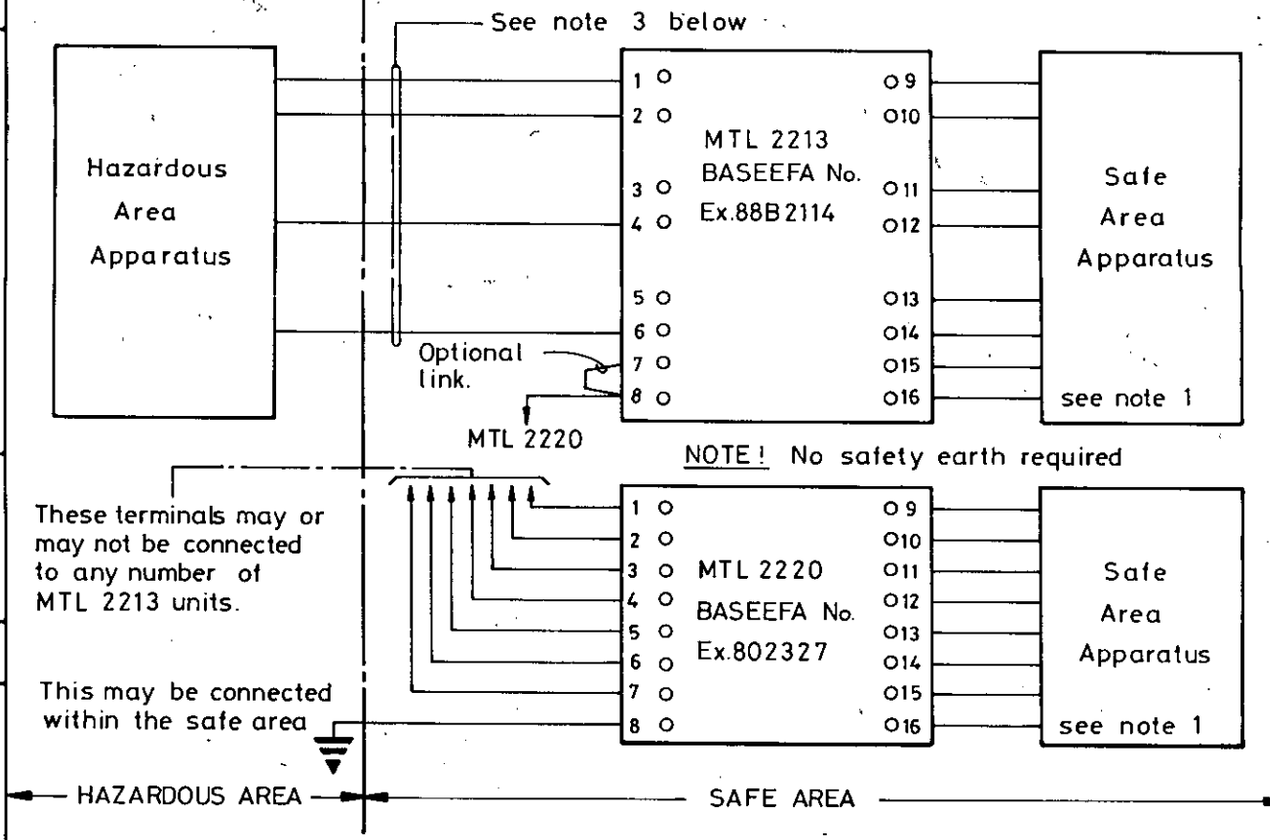
BASEEFA System Certificate No. Ex882115 Code EEx ia IIC T4

Iss.	Date/Drawn	Modification	Chk
1	4.89/DRG		

CERTIFYING AUTHORITY: BASEEFA	Scale
Tolerance unless otherwise stated ±	Sheet 1 of 3
Title MTL 2213 3-channel switch/proximity detector relay - Installation with commoned inputs	Drg. No. SCI-220

OZALID (UK) LTD 7719-183

Size A4



NOTE 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 250V r.m.s. or 250V d.c.

NOTE 2: Hazardous Area Apparatus - must meet the requirements of clause 1.3 of EN50 014 and must be selected and installed to meet the requirements of EN50 020 in particular with respect to clauses 4.1 and 5. When the hazardous area apparatus are switches the system may be classified T6.

NOTE 3: The following cable parameters must not be exceeded:-

Group	Capacitance	Inductance	or	L/R Ratio
IIA	3.52 µF	1320 mH		4666.7 µH/Ω
IIB	1.32 µF	495 mH		1750 µH/Ω
IIC	0.44 µF	165 mH		583.3 µH/Ω

NOTE 4: Where the hazardous area cables are part of a multicore cable, they must be part of a Type A or Type B multicore (as defined in clause 5.5 of BS5501:Part 9:1982 EN50 039).

NOTE 5: The circuit in the hazardous area must be capable of withstanding a test voltage of 500 volts rms with respect to earth or frame of the apparatus for a period of one minute without breakdown (d.c. resistance and impedance at 50Hz not less than 100K Ω).

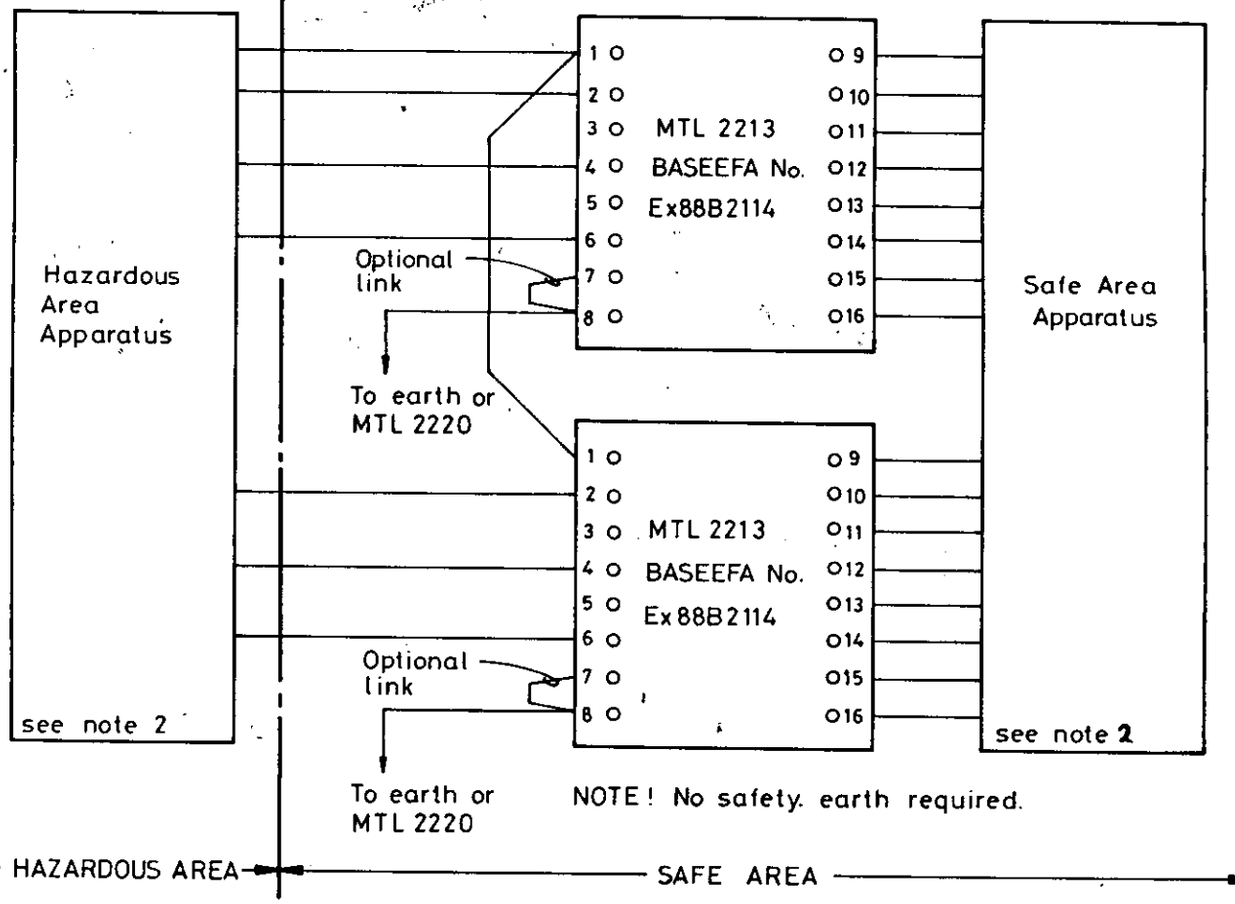
NOTE 6: The installation must comply with National requirements (e.g. in the UK generally BS5345:Part 4:1977).

Iss.	Date/Drawn	Modification	Chk
1	4.89/DRG		

CERTIFYING AUTHORITY: BASEEFA	Scale
Tolerance unless otherwise stated ±	Sheet 2 of 3
Title MTL 2213 3-channel switch/proximity detector relay - Installation with commoned input	Drg. No. SCI -220

OZALID (UK) LTD 7719-183

Size A4



NOTE 1: The following cable parameters must not be exceeded (the figures in ( ) apply when an MTL 2220 is connected).

Group	Capacitance	Inductance or L/R Ratio
IIA	2.16(1.04)	400 (400) mH — 2333.3 (2333.3) µH/Ω
IIB	0.81(0.39)	150 (150) mH — 875 (875) µH/Ω
IIC	0.27(0.13)	50 (50) mH — 291.6 (291.6) µH/Ω

NOTE 2: The notes on the previous sheets also apply to this arrangement.

Iss.	Date/Drawn	Modification
1	4.89/DRG	

CERTIFYING AUTHORITY: BASEEFA	Scale
Tolerance unless otherwise stated ±	Sheet 3 of 3
Title MTL 2213 3-channel switch/proximity detector relay - Installation with commoned input	Drg. No. SCI-220

OZALID (UK) LTD 7719-183

Size A4