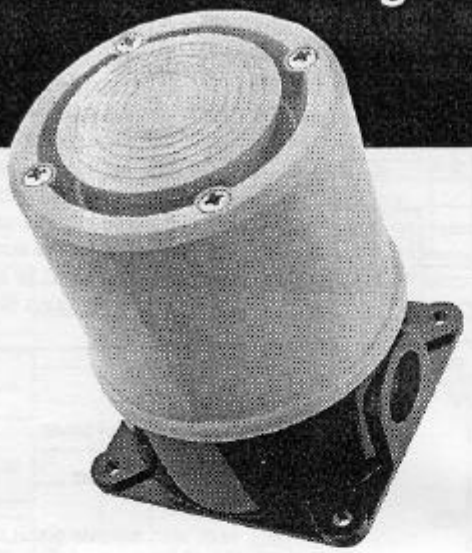
IS 28 Mk 4 Banshee Audible Warning Device

Hosiden Besson Ltd.



IS 28 Mk 4 Banshee Audible Warning Device:

This product has been assessed to conform to the ATEX Directive. It has the following approval identification.

CE 0359 Ex II 1G EEx ia IIC T5

T amb -40°C to +70°C

ITSO3ATEX21311X

Instructions for use.

The IS 28 Banshee is intended for use in locations that are considered to present a risk of explosion or fire due to the presense of flammable gases or vapours.

Marking.

The product is marked with a label on the outside giving details of manufacturer, model name, category of hazardous protection provided, details of limiting design parameters and a statement about minimising any electrostatic hazard.

Inside the Banshee sounder is another label. This shows the location and direction of operation of the volume control, the name of the product and the approving authority and number.

The ATEX classification is:- Group II, Category 1 and Group G .

Further the text shows that the apparatus is intended to conform to requirements of Intrinsic Safety operation with 2 faults present in a group IIC [Hydrogen] gas environment. The maximum surface temperature of any part of the Banshee is assessed not to exceed a T5 [85 degrees C] category in an ambient air temperature of +70 degrees C.

The label further reminds the installer to only connect this sounder via a safety barrier, and then shows the position of the common [positive] supply, and the choice of 4 different sounds that may be selected by the connection of the negative supply.

Installation.

Warning. The sound pressure produced by the sounder may be loud enough to cause hearing damage, if the installer happens to be close [less than about 1 m from the unit]. This must be taken into account if installation and test are to be carried out with the installer sited on a ladder or similar structure.

The IS 28 Banshee is intended to be mounted on a vertical surface, and secured using 4 fixings [not supplied] 4 mm diameter [M4]. It should normally be sited at a height of about 2 to 3 m from the floor surface, to ensure good sound coverage and without causing unnecessary hearing damage.

If protection to IP 66 is required, then no holes or knockouts must be made to any part of the Banshee, except to allow fitting of a 20mm gland assembly, [not supplied] suitably sealed to the base. All wiring must pass through this gland assembly and again be suitable to maintain IP 66 protection.

For continued IP 66 protection, a gasket [supplied] must be located between the base part and the sounder, during any wiring between these parts.

It cannot be fitted afterward !!

Wiring must conform to general requirements shown on drawing 57767.

This drawing shows various combinations of options that installer's may care to use, but it is not exhaustive. The essence is the cable parameter's and the zener barrier sections. Consultation with the installer's preferred cable and zener barrier supplier's, should enable the correct components to be selected.

Incoming wiring may be either routed directly to the sounder terminal block, and having checked polarity, connected to the required sound. Or, the wiring may be routed to a terminal block mounted on a PCB located in the sounder base, and 2 wires coloured Red and Black, on this PCB, taken to the required terminals on the sounder.

Note that if these 2 wires are not required, they may be cut off.

This PCB assembly, also contains a diode and resistor mounted in series across the incoming wiring. The resistor has a value of 10,000 Ohms, and these items may be used for "alarm line monitoring" if this facility is needed [and is available] into the hazardous area.

Note the value of resistor cannot be changed, and if this function is not required, then either of these components may be removed [cut-off] from the PCB.

This has no effect on the safety of the equipment.

Finally, with all wiring correct and tested, the sounder may be refitted to the base, with the gasket in place, the whole assembly held together with 4 off special screws [supplied].

If it required to adjust the loudness of the audible tone produced, the volume control located on the sounder may be adjusted. The sounder must be removed from the base for this to happen. Ensure all wiring and gasket are correctly located before the 2 parts are re-assembled.

There are no other user controls or adjustments with the product.

Maintenance and Servicing.

The Banshee AWD needs no adjustment, providing the environment it operates in has not changed. Any such change may mean adjustment to the volume control.

The sounder needs no servicing beyond avoiding the removal of any obstruction to the sound outlet "nose". All debris should be removed as soon as possible to avoid loss of sound output.

Water should be allowed to drain from the nose area, assuming the sounder has been mounted on a vertical surface, any other debris should be gently blown from the nose using low pressure [2 to 5 psi] air. High pressure, [shop] air, may result in debris getting into eyes' or ears' etc of service personnel, and must not be used for this purpose.

A warning notice on the sounder allows for cleaning of the apparatus, Only with a damp cloth, to avoid any electrostatic hazard from the plastics housings.

No hydro-carbon based solvents should be used as these will cause a chemical reaction with the [ABS] plastics mouldings, as will any other substance with similar composition.

If the Banshee sounder fails to function, there are no user parts to change, the complete product must be removed from it's installation and a replacement sounder obtained and fitted.

Other Notes and Warnings.

This product is intended for use ONLY with a Zener barrier, or similar intrinsic safety protection power supply device. It is NOT intended for direct connection to "24 volt" fire alarm panels, as the supply voltage will be too high for safe operation. Also the fire panel is unlikely to be approved for this type of operation. [Internal components limit the maximum safe voltage that may be applied to the Banshee to about 17 volts dc].

Simple zener barriers are not suitable for operation from "24 volt" fire alarm panels [as the float charge voltage can exceed 27 volts dc, which is beyond the maximum rating of this type of barriers.

Some "dc/dc galvanically isolated barriers" may accept input voltages beyond 30 volts dc, and could be safe to use with the Banshee. Consult the barrier manufacturer for further clarification.

Note however, that these cannot generally be used in "Alarm line monitoring" applications as even if they support input polarity reversal, they will still require some current to function, when in the line monitor mode, and this would be "seen" by the fire alarm panel as a leakage or short circuit condition.

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DRG. No. 5 7 7 6 7 SHT 1 OF 4

PROJECTION FIRST THIRD ANGLE

HAZARDOUS AREA
BANSHEE IS28

SAFE AREA

ISSUE No.	DESCRIPTION	QTY	PART No.	ECN No.
1				

1S.28

MAXIMUM CABLE PARAMETERS

GROUP	CAPACITANCE µF	INDUCTANCE mH	or L/R RATIO µH/Ω
IIC	0.13	4.2	56

EARTHED BUSBAR

ONE 28 VOLT 300 OHM SHUNT ZENER DIODE SAFETY BARRIER CERTIFIED BY BASEEFA [EEx ia] IIC

1 THE CIRCUIT IN THE HAZARDOUS AREA MUST BE CAPABLE OF WITHSTANDING AN AC TEST VOLTAGE OF 500 VOLTS RMS TO EARTH OR FRAME OF APPARATUS

2 CABLE PARAMETERS ARE FOR GROUP IIC VALUES FOR GROUPS IIB AND IIA ARE 3 AND 8 TIMES RESPECTIVELY THOSE FOR GROUP IIC

APPARATUS WHICH IS UNSPECIFIED EXCEPT THAT IT MUST NOT BE SUPPLIED FROM, NOR CONTAIN IN NORMAL OR ABNORMAL CONDITIONS A SOURCE OF POTENTIAL IN EXCESS OF 250 VOLTS RMS OR 250 VOLTS D.C.

EG STL TYPE E965
CERT EX 84B2735
MTL TYPE 787
CERT EX 832452
P&F TYPE Z787/Z287
CERT EX 822097

ONE 28 VOLT 300 OHM SHUNT ZENER DIODE SAFETY BARRIER WITH DIODE RETURN CERTIFIED BY BASEEFA [EEx ia] IIC CONT –

UP TO FOUR UNITS IN PARALLEL

GROUP	CAPACITANCE µF	INDUCTANCE mH	or L/R RATIO µH/Ω
IIC	0.8	1.7	65

ONE DUAL CHANNEL 15 VOLT 100 OHM SHUNT ZENER DIODE SAFETY BARRIER CERTIFIED BY BASEEFA [EEx ia] IIC BOTH CHANNELS OF THE SAME POLARITY

GROUP	CAPACITANCE µF	INDUCTANCE mH	or L/R RATIO µH/Ω
IIC	0.2	7	80

ONE DUAL CHANNEL 22 VOLT 300 OHM SHUNT ZENER DIODE SAFETY BARRIER CERTIFIED BY BASEEFA [EEx ia] IIC 'BOTH CHANNELS' OF THE SAME POLARITY

GROUP	CAPACITANCE µF	INDUCTANCE mH	or L/R RATIO µH/Ω
IIC	0.45	17	110

ONE DUAL CHANNEL 28 VOLT 600 OHM SHUNT ZENER DIODE SAFETY BARRIER CERTIFIED BY BASEEFA [EEx ia] IIC BOTH CHANNELS OF THE SAME POLARITY

INSTALLATION MUST MEET NATIONAL INSTALLATION REQUIREMENTS (E.G. IN THE U.K. – B.S. 5345 PART 4 1977)

C	IS.28 NOW DRIVEN BY 4 UNITS INSTALLATION NOTE MOD (EEx ia) to (EEx ia)	JF	24.8.87
B	SHT 4 ADDED IS.28 ADDED IN PARALLEL	JF DJC	9.2.88 7.4.88
REVISION		CHANGE	INT.	DATE

A. P. BESSON
A DIVISION OF CRYSTALATE ELECTRONICS
ST JOSEPH'S CLOSE, HOVE, SUSSEX, BN3 7EZ, ENGLAND

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ALL DIMENSIONS ARE IN MM (INCHES) REMOVE BURRS & SHARP EDGES AQUA 9%

MATERIAL	METRIC TOLERANCES UNSPECIFIED	1st USED ON	PROD. CODE
FINISH	± 0.1 Dim. up to 3 dec. places ± 0.4 Dim. up to 1 dec. place ± 2° Angles	DRAWN CHECKED APPROVED SCALE	BLOCK DIAGRAM FOR IS 28 SYSTEM
		DRG. No. 5 7 7 6 7	SHT 1 A2

DRG. No. 5 7 7 6 7 SHT 2 OF 4

PROJECTION FIRST THIRD ANGLE

ISSUE No.	DESCRIPTION	QTY	PART No.	ECN No.
1				

HAZARDOUS AREA
BANSHEE I.S.28

SAFE AREA

EARTHED BUSBAR

I.S. 28

MAXIMUM CABLE PARAMETERS

GROUP	CAPACITANCE µF	INDUCTANCE mH	L/R RATIO µH/OHM
IIC	0.8	1.5	60

ONE 15 VOLT 100 OHM BARRIER

1 THE CIRCUIT IN THE HAZARDOUS AREA MUST BE CAPABLE OF WITHSTANDING AN AC TEST VOLTAGE OF 500 VOLTS RMS TO EARTH OR FRAME OF THE APPARATUS

2 CABLE PARAMETERS ARE FOR GROUP IIC VALUES FOR GROUPS IIB AND IIA ARE 3 AND 8 TIMES RESPECTIVELY THOSE FOR GROUP IIC

APPARATUS WHICH IS UNSPECIFIED EXCEPT THAT IT MUST NOT BE SUPPLIED FROM, NOR CONTAIN IN NORMAL OR ABNORMAL CONDITIONS A SOURCE OF POTENTIAL IN EXCESS OF 250 VOLTS RMS OR 250 VOLTS D.C.

I.S. 28

MAXIMUM CABLE PARAMETERS

GROUP	CAPACITANCE µF	INDUCTANCE mH	L/R RATIO µH/OHM
IIC	0.7	1.5	40

ONE 22 VOLT 150 OHM BARRIER

I.S. 28

ONE 22 VOLT 150 OHM BARRIER

I.S. 28

I.S. 28

I.S. 28

UP TO FOUR UNITS I.S. 28 MAY BE DRIVEN IN PARALLEL FROM ONE 22 VOLT 150 OHM BARRIER. BUT AT REDUCED SOUND OUTPUT

SHUNT ZENER DIODE SAFETY BARRIERS CERTIFIED BY BASEEFA TO [EEx ia] IIC

INSTALLATION MUST MEET NATIONAL INSTALLATION REQUIREMENTS (E.G. IN THE U.K. – B.S. 5345 PART 4 1977)

C	INSTALLATION NOTE MOD: (EEx ia) to (EEx ia)	JF	24.8.87
B	ONE 4 ADDED	JF	9.2.88
A		JF	7.4.88
REVISION		CHANGE	INT.	DATE

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ALL DIMENSIONS ARE IN MM (INCHES) REMOVE BURRS & SHARP EDGES AQUA 9%

MATERIAL	METRIC TOLERANCES UNSPECIFIED	1st USED ON	PROD. CODE
FINISH	± 0.1 Dim. up to 3 dec. places ± 0.4 Dim. up to 1 dec. place ± 2° Angles	DRAWN CHECKED APPROVED BM SCALE	BLOCK DIAGRAM FOR IS 28 SYSTEM
		DRG. No. 5 7 7 6 7	SHT 2 A2

SHT 2 OF 4

DRG.No. 5 7 7 6 7 ISS. No. C SHT 3 OF 6 PROJECTION: FIRST / THIRD ANGLE

ITEM No.	DESCRIPTION	No. REQD.	PART No.	DRG. No.
1				

HAZARDOUS AREA

SAFE AREA

I.S. 28

TABLE 1

GROUP	CAPACITANCE µF	INDUCTANCE mH	L/R RATIO or R µH OHM
II C	0.11	4.8	54
II B	0.33	19	211
II A	0.88	38	441

SOLENOID DRIVER/POWER SUPPLY TYPE ZG27/Ex OR ZG28/Ex - CERTIFICATE NUMBER BAS Ex832220

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 250 VOLTS R.M.S. OR D.C.

UP TO FOUR UNITS I.S.28 MAY BE DRIVEN FROM ONE SOLENOID DRIVER/ POWER SUPPLY, EITHER ZG27/Ex OR ZG28/Ex.

NOTES:

1. Either terminal 3 or 4 on the ZG27/Ex or the ZG28/Ex may be connected to earth if desired without affecting the certification.
2. The capacitance and inductance or inductance to resistance (L/R) ratio of the hazardous area cables must not exceed the values shown in table 1.
3. Installation must meet National Installation requirements (e.g. in the U.K.- B.S.5345 part 4 1977)

ISS.	REVISION	DATE	INT.
C	INSTALLATION NOTE MOD:	2.4.87	JT
B	SHT 6 ADDED	9.2.87	JT
A	—	7.4.86	JT

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AQL 0.4%
REMOVE BURRS AND SHARP EDGES
ALL DIMENSIONS ARE IN MM (INCHES)

USED ON	BILL OF MAT.

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ST. JOSEPH'S CLOSE, HOVE, SUSSEX.
BN3 7EZ, ENGLAND
TELEPHONE BRIGHTON 732651

MATERIAL

FINISH

METRIC TOLERANCES UNSPECIFIED
± 0·1 Dim. to 2 dec. places
± 0·4 Dim. to 1 dec. place
± 2° Angular

DRAWN
CHECKED
APPROVED
SCALE —

BLOCK DIAGRAM FOR PEPPERL & FUCHS SOLENOID DRIVER/ POWER SUPPLY TYPE ZG27/Ex & ZG28/Ex TO I.S.28

DRG.No. 5 7 7 6 7 ISS. No. C A3

SHT 3 OF 6

DRG. No. 5 7 7 6 7 ISS. No. C SHT. 4 OF 6 PROJECTION: FIRST / THIRD ANGLE

PART No.

ITEM No.	DESCRIPTION	QTY.	PART No.	DRG. No.

OPTO - ISOLATOR

CONTROL SWITCHES OR LOGIC SIGNALS

HAZARDOUS AREA

SAFE AREA

I.S.28 UNITS ONE PER CHANNEL

I.S.28

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 250 VOLTS R.M.S. OR D.C.

MTL 2242 4 CHANNEL ALARM DRIVER CERTIFICATE No: EX.802208

ALTERNATIVE WIRING METHOD :-

UP TO FOUR UNITS I.S.28 MAY BE DRIVEN FROM ONE SOLENOID/ ALARM DRIVE UNIT. MTL 2242 WITH THE OUTPUTS CONNECTED IN PARALLEL.

TO ⏚ OR EARTH LEAKAGE DETECTOR MTL 2220 CERTIFICATE No. EX.802327

TERMINAL 8	GROUP	Capacitance µF	Inductance mH	L/R Ratio or µH/Ω
EARTHED OR NOT CONNECTED	IIC	0.13	4.2	55
ANY NUMBER TO ONE MTL 2220	IIC	0.08	4.2	55

VALUE FOR GROUPS IIB AND IIA ARE 3 AND 8 TIMES RESPECTIVELY THOSE FOR GROUP IIC.

NOTE:
SUM OF ALL CABLE PARAMETERS MUST NOT EXCEED THESE VALUES.

INSTALLATION MUST MEET NATIONAL INSTALLATION REQUIREMENTS (E.G. IN THE U.K. - B.S.5345 PART 4 1977.)

ISS.	REVISION	CHANGE	INIT	DATE
C	INSTALLATION NOTE MOD:		JT	2.4.87
B	CERTIFICATE Nos. SHT 6 & SAFE AREA ADDED		JT	9.2.87
A	—		JT	8.4.86

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AQL 0.4%
REMOVE BURRS & SHARP EDGES
ALL DIMENSIONS ARE IN MM (INCHES).

1st USED ON	PROD. CODE

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TELEPHONE BRIGHTON 732651

MATERIAL

FINISH

METRIC TOLERANCES UNSPECIFIED
± 0·1 Dim. to 2 dec. places
± 0·4 Dim. to 1 dec. place
± 2° Angular

DRAWN
CHECKED
APPROVED
SCALE ~

BLOCK DIAGRAM FOR SOLENOID/ALARM DRIVER MTL 2242 TO I.S.28

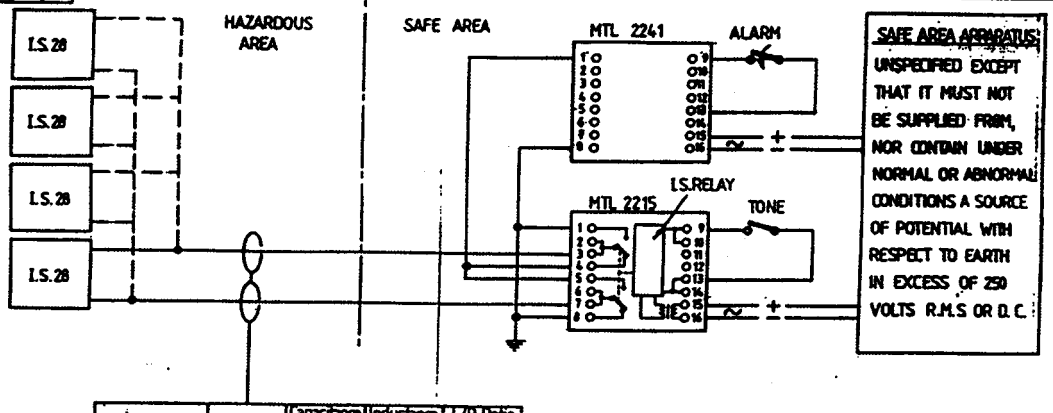
DRG. No. 5 7 7 6 7 ISS. No. C A3

SHT 4 OF 6

DRG. No. 5 7 7 6 7 ISS. No. C — SHT 5 OF 6 — PROJECTION: FIRST / THIRD ANGLE

PART No.

ITEM No.	DESCRIPTION	QTY.	PART No.	DRG. No.



FOUR UNITS MAY BE DRIVEN FROM MTL 2241 / MTL 2215.

TERMINAL 8	GROUP	Capacitance µF	Inductance mH	L/R Ratio µH/Ω
EARTHED OR NOT CONNECTED	IIC	0.13	4.2	55
ANY NUMBER TO ONE MTL 2220	IIC	0.08	4.2	55

VALUES FOR GROUPS IIB AND IIA ARE 3 AND 8 TIMES RESPECTIVELY THOSE FOR GROUP IIC.

MTL 2241 SINGLE CHANNEL ALARM DRIVER CERTIFICATE No. EX 812280

MTL 2215 INTRINSICALLY SAFE RELAY CERTIFICATE No. EX.822403

INSTALLATION MUST MEET NATIONAL INSTALLATION REQUIREMENTS (E.G. IN THE U.K. – B.S. 5345 PART 4 1977)

ISS	REVISION	CHANGE	INIT	DATE
C	INSTALLATION SHT MOD		JT	2.4.87
B	SHT 6 ADDED		JT	9.2.87
A	~		JT	8.4.86

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AQL 0.4%
REMOVE BURRS & SHARP EDGES
ALL DIMENSIONS ARE IN MM (INCHES)

1st USED ON | PROD. CODE

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TELEPHONE BRIGHTON 732461

MATERIAL

FINISH

METRIC TOLERANCES UNSPECIFIED
± .0-1 Dim. to 2 dec. places
± 0-4 Dim. to 1 dec. place
± 2° Angular

DRAWN | CHECKED | APPROVED | SCALE ~

DRG. No. 5 7 7 6 7 ISS. No. C — A3

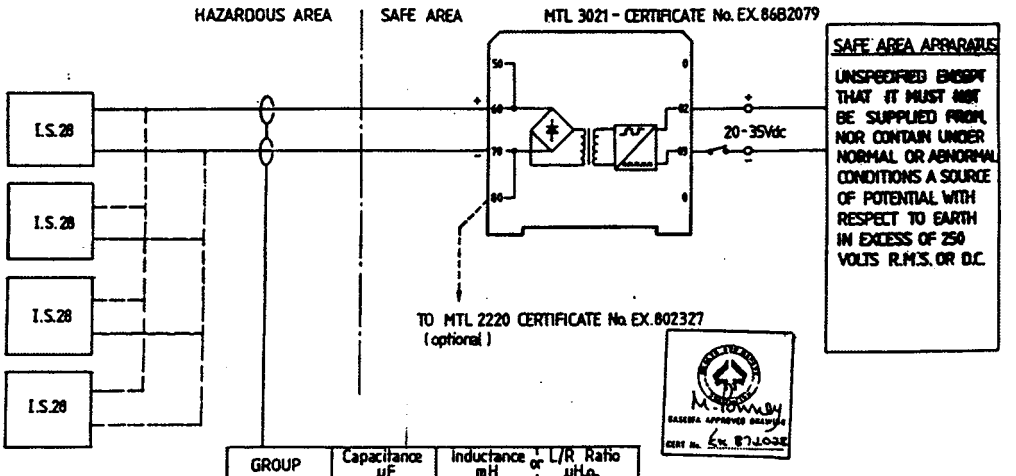
BLOCK DIAGRAM FOR SWITCH OPERATED RELAY / SOLENOID/ALARM DRIVE UNIT TO I.S. 28

SHT 5 OF 6

DRG. No. 5 7 7 6 7 ISS. No. C — SHT.6 OF 6 — PROJECTION: FIRST / THIRD ANGLE

PART No.

ITEM No.	DESCRIPTION	QTY.	PART No.	DRG. No.



UP TO FOUR UNITS MAY BE DRIVEN FROM MTL 3021

TO MTL 2220 CERTIFICATE No. EX.802327 (optional)

GROUP	Capacitance µF	Inductance or mH	L/R Ratio µH/Ω
IIC	0.13	4.2	55

INSTALLATION MUST MEET NATIONAL INSTALLATION REQUIREMENTS (E.G. IN THE U.K.– B.S. 5346 PART 4 1977.)

ISS	REVISION	CHANGE	INIT	DATE
C	INSTALLATION NOTE MOD.		JT	2.4.87
B	~		JT	11.2.87

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AQL 0.4%
REMOVE BURRS & SHARP EDGES
ALL DIMENSIONS ARE IN MM (INCHES)

1st USED ON | PROD. CODE

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TELEPHONE BRIGHTON 732461

MATERIAL

FINISH

METRIC TOLERANCES UNSPECIFIED
± .0-1 Dim. to 2 dec. places
± 0-4 Dim. to 1 dec. place
± 2° Angular

DRAWN | CHECKED | APPROVED | SCALE ~

DRG. No. 5 5 7 6 7 ISS. No. C — A3

BLOCK DIAGRAM FOR SOLENOID/ALARM DRIVE UNIT TO I.S. 28

SHT 6 OF 6