http://www.explolabs.co.za
EXPLOLABS Explosion Prevention Services (Pty) Ltd
Reg No: 1999/027771/07 - VAT No: 438 018 7403

Government Approved Test laboratory
7 Spanner rd. PO Box 467
Olifantsfontein
1665

Tel: +27 (11) 316 4601
Fax: +27 (11) 316 5670
E- mail: admin-mgr@explolabs.co.za

ASSESSMENT AND TEST REPORT No.: XPL/13872/13.0067 REV 3

OMNIFLEX (PTY) LTD
PO BOX 37219
OVERPORT
DURBAN
4067

Your Reference: PO 132175
Enquiries: George Howard
Date: 17 March 2014

Revision 3

OMNI16C ALARM ANNUNCIATOR MODEL C1480B-EX

1. SCOPE

This report provides the basis for the certification of the OMNI16C ALARM ANNUNCIATOR model C1480B-EX as Intrinsically Safe Electrical Apparatus as defined in the listed standards to Category ic with respect to Group I/IIC and Temperature Class T4 (-20°C ≤ T_a ≤ +59°C).

SANS 60079-0: 2005 Ed 3 **IEC 60079-0: 2004 Ed 4**	"Electrical apparatus for explosive gas atmospheres, Part 0: General requirements"
SANS 60079-11: 2007 Ed 3 **IEC 60079-11: 2006 Ed 5**	"Electrical apparatus for explosive gas atmospheres, Part 11: Equipment protection by Intrinsic safety 'i'"

2. PRODUCT DESCRIPTION

Manufacturer	OMNIFLEX
Supplier	OMNIFLEX
Type of Product	OMNI16C ALARM ANNUNCIATOR
Model	C1480B-EX
Serial Number(s)	Type Test

The Alarm Annuncitor consisted of a metal enclosure with all the electronics and circuity mounted within the enclosure. The front part of the enclosure had 16 individual white tinted plastic lenses and a set of terminal blocks was located at the back to facilitate connection to the power supply.

3. ASSESSMENT REQUIRED

Approval		Type Approval
Sample Serial Number(s)		N/A
Enclosure		IP 20
Environment	Gas	Group I/IIC
	Temperature	T4
	Zone	Zone 2

The Alarm Annuncitor consisted of a metal enclosure with all the electronics and circuity mounted within the enclosure. The front part of the enclosure had 16 individual white tinted plastic lenses and a set of terminal blocks was located at the back to facilitate connection to the power supply. The enclosure was manufactured of black coated mild steel and dimensions were 286mm x 120mm x 80mm with air vents on the back and sides.

4. ASSESSMENT AND TEST RESULTS

The VERDICT is designated by one of the following:

C = Complied with the Requirement
N/A = Requirement is Not Applicable to this Equipment
F = Failed to comply with the requirements
N/T = This requirement was Not Tested for

CLAUSE	DESCRIPTION	RESULT	VERDICT
IEC 60079-0: 2005 ED 3 / SANS 60079-0 2004 ED 4			
1	**Scope**		
2	**Normative references**		
3	**Terms and definitions**		
4	**APPARATUS GROUPING AND TEMPERATURE CLASSIFICATION**		
4.1	Apparatus grouping		
4.2	Group II		C
4.2.1	Group II subdivisions		C
4.2.2	Group II – Surface temperature marking		N/A
4.2.3	Apparatus for a particular explosive atmosphere		N/A
5	**TEMPERATURES**		
5.1	Environmental influences		C
5.1.1	Ambient temperature -20℃ to 40℃	-20℃ ≤ T_a ≤ +59℃	C
5.1.2	External source of heating or cooling		N/A
5.2	Service temperature.	Not specified by the Manufacturer	N/A
5.3	Maximum surface temperature	T4	C
5.4	Surface and Ignition Temperature		
5.5	Small components		
	< 20mm²	Components that were smaller than 20mm² fell within these parameters and did not exceed 275℃ as listed on the thermal calculation datasheets Ref (XL001)	C
	≥ 20mm²	The power dissipation as calculated (Ref XL001) did not exceed 1.3W	C
	≥ 20mm² ≤1000 mm²	Components that were ≥ 20mm² and smaller than ≤1000 mm² fell within these parameters and did not exceed 200℃ as listed on the thermal calculation datasheets Ref (XL001)	C
7	**NON-METAL ENCLOSURES AND NON-METAL PARTS**		

CLAUSE	DESCRIPTION	RESULT	VERDICT
7.1	General	Not a non metallic enclosure	
7.1.1	Applicability		N/A
7.1.2	Specification of materials		N/A
7.1.3	Plastic materials		N/A
7.2	Thermal endurance		N/A
7.3	Electrostatic Charges		N/A
7.3.2	Avoidance of static build-up		N/A
(a)	As in accordance to Clause 26.1.3		N/A
(b)	By limitation of surface area Table 4		N/A
(c)	By limitation of transfer charge as according to Clause 26.14		N/A
(d)	By measurement of capacitance as according to Clause 26.15		N/A
8	**ENCLOSURES CONTAINING LIGHT METALS**		
	Group I	Not an aluminium enclosure	N/A
	Groups II	Not an aluminium enclosure	N/A
23.1	**Batteries:**		
23.2	Cells	None used	N/A
Table 6	Primary cells.		N/A
Table 7	Secondary cells		N/A
23.3	Cells in battery		N/A
23.4	Ratings of battery		N/A
23.5	Mixture of cells		N/A
23.6	Interchangeability		N/A
23.7	Charging of primary batteries		N/A
23.8	Leakage		N/A
23.9	Connections		N/A
23.10	Orientation		N/A
23.11	Replacement of cells or batteries		N/A
26	**TYPE VERIFICATION AND TESTS**		
26.4.2	Impact Test	The safety of the device was not dependent on the enclosure and not subject to an impact test	N/A
(a)	Enclosures and parts of enclosures other that light transmitting parts		N/A
(b)	Guard, protective covers, fan hoods, Cable glands		N/A
(c)	Light transmitting parts without guards'		N/A

CLAUSE	DESCRIPTION	RESULT	VERDICT
(d)	Light transmitting parts with guards having individual openings 625mm² -2500mm²		N/A
26.4.3	Drop Test of Handheld Electrical Equipment	Not a handheld device	
26.4.4	Acceptance criteria		N/A
26.4.5	Degree of protection of enclosures	IP 20	C
26.4.5.1	Test procedure	As in according IEC/SANS 60529 Tables 1 and 3	C
26.4.5.2	Acceptance criteria		C
IEC 60079-11:2006 ED 3 / SANS 60079-11:2007 ED 5			
No	**Heading of clause**		
1	Scope		
2	Normative references		
3	Definitions		
4	Grouping and classification of intrinsically safe apparatus and associated apparatus		
5	**CATEGORIES OF ELECTRICAL APPARATUS**		
5.1	General		
5.2	Level of protection ia (Two countable faults)		N/A
5.3	Level of protection ib (One countable fault)		N/A
5.4	Level of protection ic (Not capable of causing ignition in normal operation.)		C
5.5	Spark ignition compliance	This circuit was exempted from a type test with the spark-test apparatus as its electrical parameters were sufficiently well defined as deduced from the reference Curves and Tables as referred to in Annex A	C
5.6	**Thermal ignition compliance**		
5.6.1	General		
5.6.2	Temperature for small components	As according to IEC/SANS 60079-0 Clauses 5.5 Table 3	C
5.6.3	Wiring within apparatus	Wire diameter as according to Table 3: > 0,5mm, Permissible current: > 7.7A for a temperature classification of T4.	C
5.6.4	Tracks on Printed circuit boards.	The maximum power did not exceed 1.3W thus the tracks were suitable for a temperature classification of T4.	C
5.7	Simple apparatus		N/A
6	**APPARATUS CONSTRUCTION**		
6.1	Enclosures		
6.1.1	Apparatus complying with table 5		C

CLAUSE	DESCRIPTION	RESULT	VERDICT
6.1.2	Apparatus complying with Annex F		N/A
6.2	**Facilities for connection of external circuits**		
6.2.1	Terminals		
(a)	Separation distance between bare conducting terminals shall be at least 50mm	No bare conductors present in the device.	N/A
(b)	Terminals located in separate enclosures or separated by partitions.	No partitioning was used.	N/A
6.2.2	Plugs and sockets	Plugs and sockets conformed to the required separation distance as according to Table 5: and was > 0,4mm.	C
6.2.3	Determination of maximum external inductance to resistance ratio		N/A
6.2.4	Permanent connected cables (Pull test as in Clause 10.9)		N/A
6.3	**Separation distances**		
6.3.1	Separation of conductive parts		N/A
6.3.1.1	Distances according to Table 5	Conformed to the required separation distance.	C
6.3.1.2	Distances according to Annex F		N/A
6.3.2	Voltages between conductive parts	The maximum rated voltage was 5V	C
6.3.3	Clearances Required = 50mm	No bare conductive parts or partitions were used.	N/A
6.3.4	Separation distances through casting compound.	No casting compound was used	N/A
6.3.5	Separation distances through solid insulation.	Required: 0.2mm Measured: > 0.5mm	C
6.3.6	Composite separations.	No composite separations present.	N/A
6.3.7	Creepage distance	Required: 1mm Measured: >1mm	C
6.3.8	Distance under coating	Required: 0.3mm Measured: >0.3mm	C
6.3.9	Requirements for assembled PCB's	The Creepage and clearances had no negative impact on the intrinsic safety of the device.	C
6.3.10	Separation by earth	Non used	N/A
6.3.11	Internal insulated wires	Require: 0.5mm Measured: > 0.5mm	C
6.3.12	**Dielectric strength requirement**		
	Insulation IS to Frame 500 V / 60 Sec		N/A
	Leakage Current < 5 mA		N/A
	Insulation IS to non-IS > 1500 V		N/A

CLAUSE	DESCRIPTION	RESULT	VERDICT
	IS Breakdown > 500 V		N/A
6.3.13	**Relays**		
	Relays 5A/250V/100VA	The contact switching current was less than 5A and according to the datasheet was listed as 2A	C
	Relays 10A/500VA Table 5		N/A
	Earthed Metal Barrier		N/A
	Creepage & Clearance Table 5 Connector Blocks	Required: 1mm Measured: 5.08mm	C
6.4	**Protection against polarity reversal**	Sufficient polarity makings were printed on the enclosure so that revere polarity would be obvious.	C
6.5	**Earth conductors connections and terminals**		
	Components or conductors etc to be rated to carry maximum current as specified in clause 5		N/A
	Components to conform to Clause 7		N/A
	Comprise of 2 or 3 Independent Connections		N/A
	Terminal Construction		N/A
	Terminals for Conductors up to $4mm^2$ Shall be suitable.		N/A
	Terminals comply with Ex e		N/A
	No sharp edges, non-turn-able or insulating contact pressure means used.		N/A
6.6	**Encapsulation for Exclusion of Potentially Explosive Atmospheres**		
	Ignition		N/A
	Temperature		N/A
7	**Components on which intrinsic safety depends.**		
7.1	Rating of components	Components did not operate at more than their maximum current and voltage ratings. And at no more than two thirds of its power.	C
7.2	Connectors for internal connections, plug-in cards and components.	Interchangeability of plug-in cards was not possible due to its design and markings.	C
7.3	Fuses	The fuses (F1) used operated at their normal rating.	C
7.4	**Primary and secondary cells and batteries**		
7.4.1	General	No cells were used as the device was externally powered.	N/A

CLAUSE	DESCRIPTION	RESULT	VERDICT
7.4.2	Electrolyte leakage and ventilation		N/A
7.4.3	Cell voltages.		N/A
7.4.4	Internal resistance of cell or battery		N/A
7.4.5	Battery in apparatus protected by other means of protection.		N/A
7.4.6	Batteries used and replaced in an explosive gas atmosphere.		N/A
7.4.7	Batteries used but not replaced in explosive atmosphere.		N/A
7.4.8	External contacts for charging batteries.		N/A
7.4.9	Battery construction		N/A
7.5	**Semiconductors**		
7.5.1	Transient effects		N/A
7.5.2	Shunt voltage limiters	A fuse (F1) was used and the zener diode (D3) were rated in accordance to 7.1 and was thus considered adequate means of limiting transients connected at zener.	C
7.5.3	Series current limiters		N/A
7.6	**Failure of components, connections and separations.**		
(a)	Components rated in accordance with Clause 7.1	Not subject to failure.	C
(b)	Subsequent fault		N/A
(c)	Failure of a resistor to open circuit or short circuit	Not subject to failure.	C
(d)	Semi conductor devices considered to fail to open or short circuit	Not subject to failure.	C
7.7	Piezo-electric devices.	Non used	N/A
7.8	**Electrochemical cells for detection of gasses.**		N/A
8	**Infallible components, assemblies of components etc.**		
8.1	**Mains transformers.** None used.		
8.1.1	Protective measures.		N/A
8.1.2	Transformer construction		N/A
8.1.3	Transformer type test		N/A
8.1.4	Routine test for mains transformers		N/A
8.2	**Transformers other that mains transformers**		
8.3	Infallible windings		N/A
8.3.1	Damping windings		N/A
8.3.2	Inductors made by insulated conductors.		N/A

CLAUSE	DESCRIPTION	RESULT	VERDICT
8.4	Current limiting resistors		N/A
8.5	Blocking capacitors		N/A
8.6	**Shunt safety assemblies**		
8.6.1	General		
8.6.2	Safety shunts		N/A
8.6.3	Shunt voltage limiters	5.1V	C
8.7	**Wiring, printed circuit board tracks and connectors**		
(a)	**For wires**		
1	Two wires in parallel		N/A
2	Single wire with a diameter of 0.5 and unsupported length of 50mm		N/A
3	Single strand or flexible ribbon cable with a cross section area of 0,125mm²		N/A
(b)	**For tracks**		
1	Two tracks 1mm wide and in parallel		N/A
2	Single track 2mm wide or with of 15 its length		N/A
3	Tracks on different layers and vias of 2mm or two 1mm vias.		N/A
(c)	Connections		N/A
1	Two connection in parallel		N/A
2	Wire connection through through-hole plated and bent over		N/A
3	Solder joint of surface mount component 2mm in length		N/A
4	Single connection with screw on nut and bolt		N/A
5	Three independent connections and in parallel		
8.8	**Galvanic-ally Separating Components:**		
8.1	General		
8.2	Isolating components between intrinsically safe and non-intrinsically safe circuits		
(a)	Requirements as according to Table 5		N/A
(b)	Rating as according to Clause 7.1		N/A
(c)	Dielectric Strength Clause 6.3.12		N/A
	Galvanic ally separated relays shall conform to Clause 6.3.13		N/A
8.8.3	**Isolating components between separately intrinsically safe circuits**		N/A
(a)	Rating as according to Clause 7.1		N/A
(b)	Dielectric Strength Clause 6.3.12		N/A

CLAUSE	DESCRIPTION	RESULT	VERDICT
9	**DIODE SAFETY BARRIERS**		
9.1	General	Not a diode safety barrier	N/A
9.2	**Construction**		
9.2.1	Mounting		N/A
9.2.2	Facilities for Connection to Earth		N/A
9.2.3	Protection of Components		N/A
10	**TYPE VERIFICATION AND TYPE TESTS**		
10.1	Spark Ignition Test	This circuit was exempted from a type test with the spark-test apparatus as its electrical parameters were sufficiently well defined as deduced from the reference Curves and Tables as referred to in Annex A	C
10.1.1	General		N/A
10.1.2	Spark test apparatus See clause 10.1		N/A
10.1.3	Explosive test mixtures and spark test apparatus calibration current		N/A
10.1.3.1	Explosive mixtures suitable for test with a safety factor of 1.0 and calibration current of the spark test apparatus as per Table 7		N/A
10.1.3.2	Explosive mixtures suitable for test with a safety factor of 1.5 and calibration current of the spark test apparatus as per Table 8		N/A
10.1.4	**Tests with spark test apparatus**		
10.1.4.1	Circuit test		N/A
(a)	For DC circuits		N/A
(b)	For AC circuits		N/A
(d)	For Capacitive circuits		N/A
10.1.4.2	**Safety factors**		
(a)	Increased mains voltage (Safety factor 1.5)		N/A
(b)	Most easily explosive mixture.(Safety factor 1.5)		N/A
	Safety factor 1		N/A
10.1.5	**Testing considerations**		
10.1.5.1	General	This circuit was exempted from a type test with the spark-test apparatus as its electrical parameters were sufficiently well defined as deduced from the reference Curves and Tables as referred to in Annex A	C
10.1.5.2	Circuits with Inductance and Capacitance		N/A
10.1.5.3	Circuits using shunt short-circuit projection		N/A
10.1.5.4	Results of spark test		N/A
10.2	Temperature test		N/A

CLAUSE	DESCRIPTION	RESULT	VERDICT
10.3	Dielectric strength test		
10.4	Determination of parameters of loosely specified components		
10.5	**Tests for cells and batteries**		
10.5.1	General: An external intrinsic safe power source was used		N/A
10.5.2	Electrolyte leakage test for cells and batteries.		N/A
(a)	Short circuit until discharge		N/A
(b)	Application of input charge currents within the Manufacturers recommendations		N/A
(c)	Charging the battery within the manufacturers recommendations		N/A
10.5.3	Spark ignition and surface temperature of cells and batteries		N/A
10.5.4	Battery container pressure test		N/A
10.6	**Mechanical tests**		
10.6.1	Casing compound		N/A
10.6.2	Sealing of components before encapsulation		N/A
10.6.3	Partitions		N/A
10.7	**Tests for apparatus containing piezoelectric devices**		N/A
	For Group I Apparatus 1500uJ		N/A
	For group IIA Apparatus 950uJ		N/A
	For group IIB Apparatus 250uJ		N/A
	For Group IIC 50uJ		N/A
10.8	Type test for safety barrier		N/A
10.9	Cable pull test		N/A
10.10	Transformer test		N/A
11	**Routine verification and tests**		
11.1	**Routine tests for Diode safety barrier**		
11.1.1	Complete Barriers		N/A
11.1.2	Diodes for 2 diode “ia Barrier		N/A
11.2	Routine tests for infallible transformers.		N/A
Annex A	**Assessment of Intrinsic safe circuits**		
A.2	Assessment using reference curves and tables		
Fig A.1	Resistive circuits		
Fig A.2	Group I Capacitive circuits		
Fig A.3	Group II Capacitive circuits Safety factor 1 =1000uF		C
Fig A.4	Group II Inductive circuits:		

CLAUSE	DESCRIPTION	RESULT	VERDICT
Fig A.5	Group I inductive circuits:		
Fig A.6	Group IIC Inductive circuits		
	Permitted short circuit current as according to Table A.1 with a safety factor of 1		
Group I	Short circuit current		N/A
Group IIA	Short circuit current		N/A
Group IIB	Short circuit current		N/A
Group IIC	Short circuit current @5V = 5A	Calculated sort circuit current was 2.55A	C
	Permitted Capacitance as according to Table A.2 with a safety factor of 1.5		
Group I	Permitted Capacitance		N/A
Group IIA	Permitted Capacitance		N/A
Group IIB	Permitted Capacitance		N/A
Group IIC	Permitted Capacitance @ 5 V= 1000uF	Calculated capacitance = 65uF	C
IEC 60079-0: 2005 Ed 3 / SANS 60079-0 2004 Ed 4			
29	**MARKING**		
29.1	**Location**		
	Legible and durable on the main body		C
29.2	**General**		
	Manufacturer/Supplier	OMNIFLEX (PTY) LTD	C
	Description	OMNI16C ALARM ANNUNCIATOR	C
	Model	C1480B	C
	Serial Number	Prototype	C
	Ex Symbol	Ex	C
	Ex Protection Type	ic	C
	Gas Group	I/IIC	C
	Temperature Class	T4	C
	Associated Apparatus Marking		N/A
	FP Associated Apparatus		N/A
	Certification Body Marking	MS-XPL/ 13.0067X	C
	Ta (ambient)	(-20℃ ≤ T_a ≤ +59℃)	C
29.3	**Different Types of protection**		N/A
29.4	**Order of Markings**		N/A
29.5	**Ex Components**		N/A
29.6	**Small apparatus and Ex components**		N/A
	Minimum marking requirements		

CLAUSE	DESCRIPTION	RESULT	VERDICT
IEC 60079-11:2006 Ed 3 / SANS 60079-11:2007 Ed 5			
12	MARKING		
12.1	Safety Parameters		N/A
12.2	Connections faculties markings		C
12.3	Warning markings.		C

COMPONENTS CRITICAL TO THE INTRINSIC SAFETY OF THE EQUIPMENT

No	Component	Designation	Identification	Rating
1	Fuse	F1	CPU Board	1A
2	Zener Diode	D2	CPU Board	5.1V
3	Zener Diode	D2	CPU Board	33V

5. MARKING REQUIREMENTS

The following (or similar) information had to be clearly and permanently marked on all unit(s) covered by this report:

Supplier	OMNIFLEX (PTY) LTD
Product	OMNI16C ALARM ANNUNCIATOR model C1480B-EX
IA Number	MS–XPL/13.0067 X
Classification	Ex ic I/IIC T4 (-20°C ≤ T_a ≤ +59°C)

U_m: 27V

Ui: 24V				
U_i: 5V	I_i: 2.55A	P_i: 1.57W	C_i: 65uF	L_i: Neg

Warning! Electrostatic discharge possible. Wipe only with damp cloth.

6. DOCUMENTATION

The following documents were provided as part of the approval:

No	Type	Description/Identification
1.	Circuit diagrams	Documentation pack as kept on file
2.	Track layouts.	Documentation pack as kept on file
3	Component layouts	Documentation pack as kept on file
4	Semiconductor Datasheets	Documentation pack as kept on file
5	Passive component Datasheets	Documentation pack as kept on file
6	BOM	Documentation pack as kept on file
7	Track segregation	Documentation pack as kept on file
8	Safety component spreadsheet	Ref XL001
10	Thermal assessment spreadsheet	Ref XL 001

7. CONDITIONS

7.1 SPECIAL CONDITIONS OF USE (X)

Electrostatic discharge possible. Wipe with a damp cloth

7.2 CONDITIONS OF MANUFACTURE

None

8. CONCLUSION

The sample(s) as described in Paragraph 2 above have COMPLIED with the requirements as set out in Paragraph 1.

The approved explosion protection rating of the equipment is **Ex ic I/IIC T4 (-20℃ ≤ T_a ≤ +59℃)**

Inspection Authority Certificate Number **MS–XPL/13.0067X**

Locations	Surface	Zone 2 Gas
Frequency	Intermittent as could occur under normal operation	
Environment	Group I/IIC	Methane and Coal dust, Propane to Hydrogen
Limiting Temperature	T4	135℃ (-20℃ ≤ T_a ≤ +59℃)

9. VALIDITY

This report covers only the unit(s) as described in Paragraph 2. Other identical units will only be covered by:

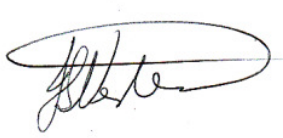
a. additional approvals covering all serial numbers, or
b. approval of certified equipment under a product certification scheme accepted by the Department of Mineral Resources and/or the Department of Labour as relevant.

This type approval report remains valid unless modifications are made to the equipment without obtaining prior approval.

Responsible Testing Officer:

D Young
Senior IS Testing Officer

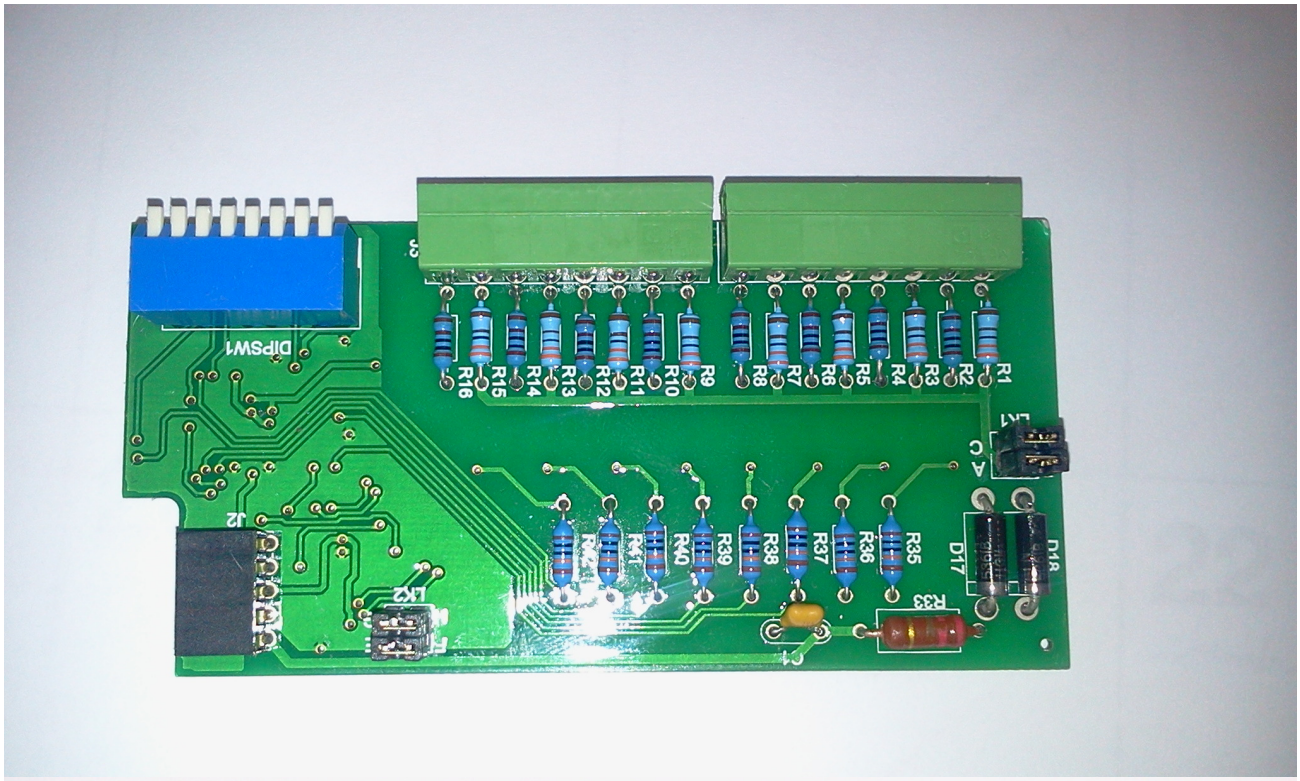
Reviewed by:

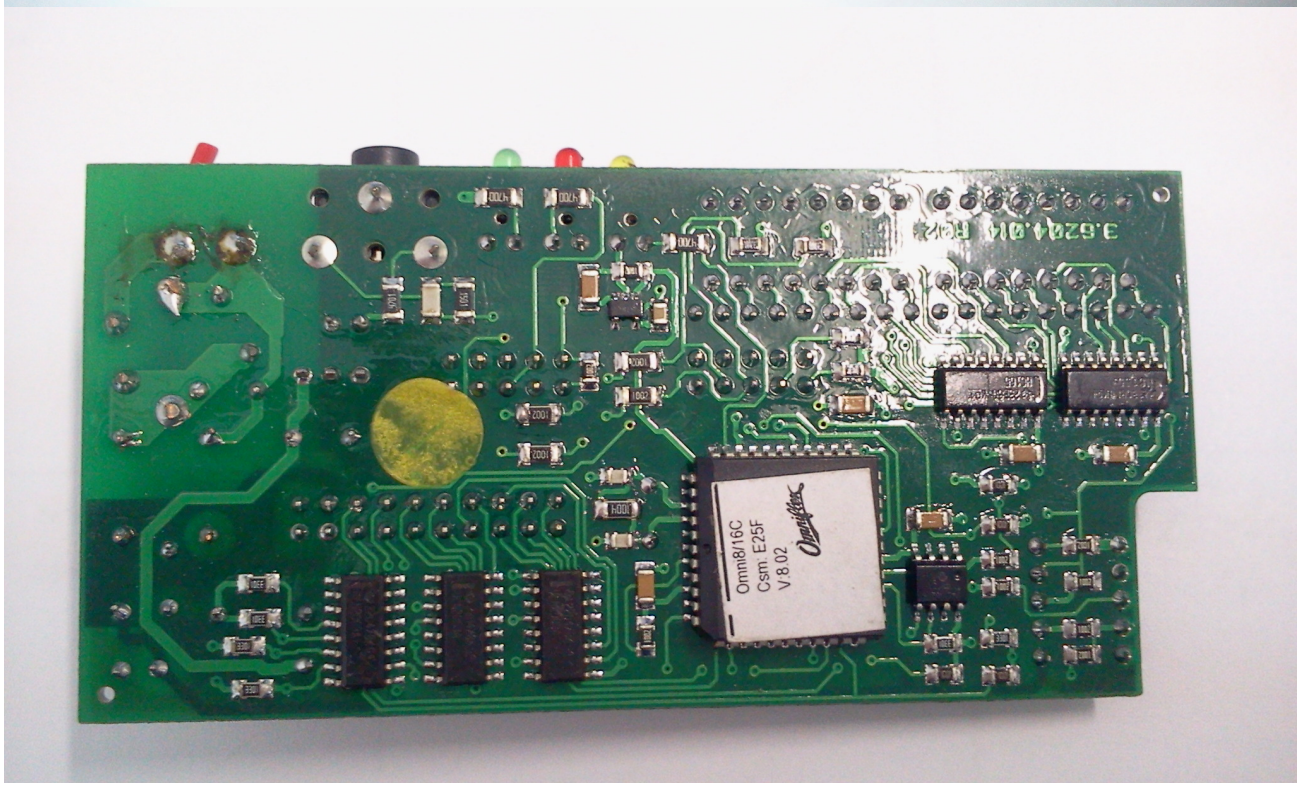


JS Venter
Ex Physicist

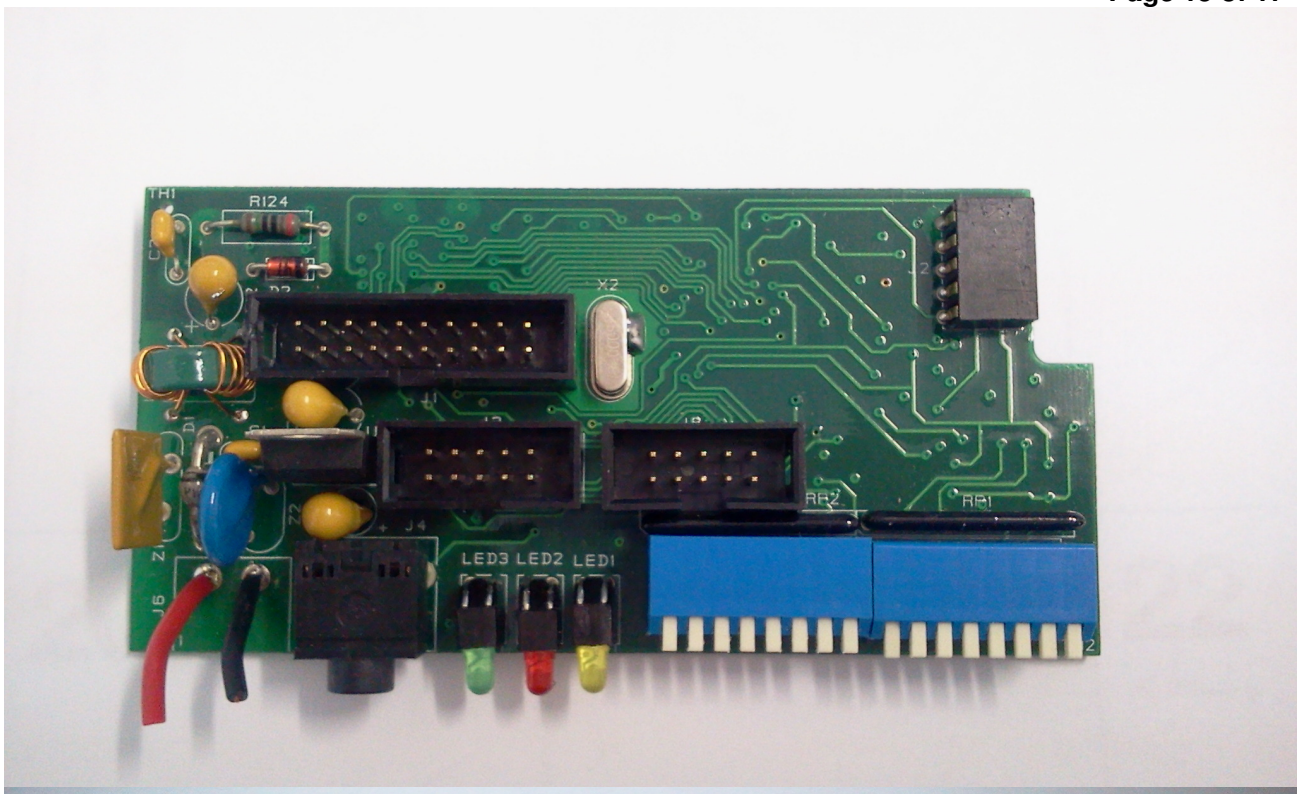
EXPLOLABS EXPLOSION PREVENTION SERVICES

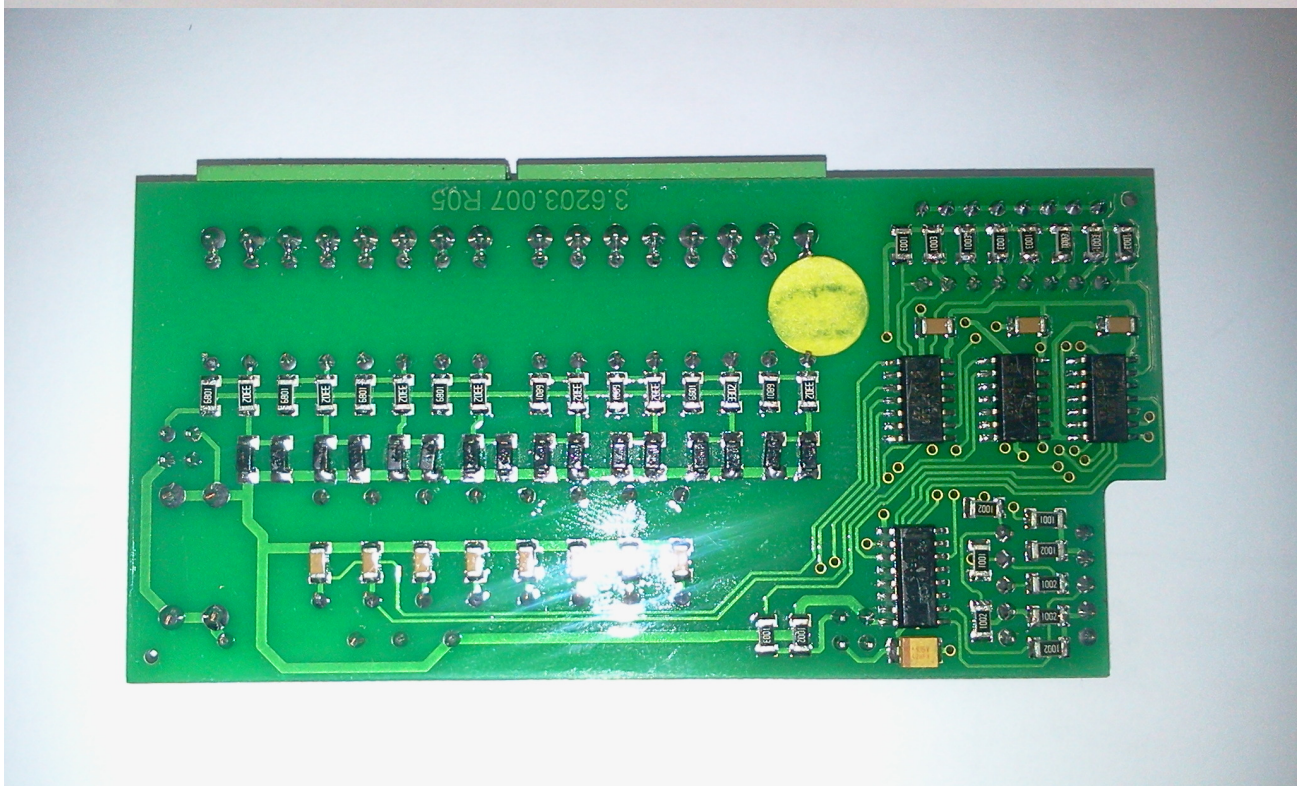
Photographs: OmniFlex:
Alarm Annunciator.
XPL/13.0067

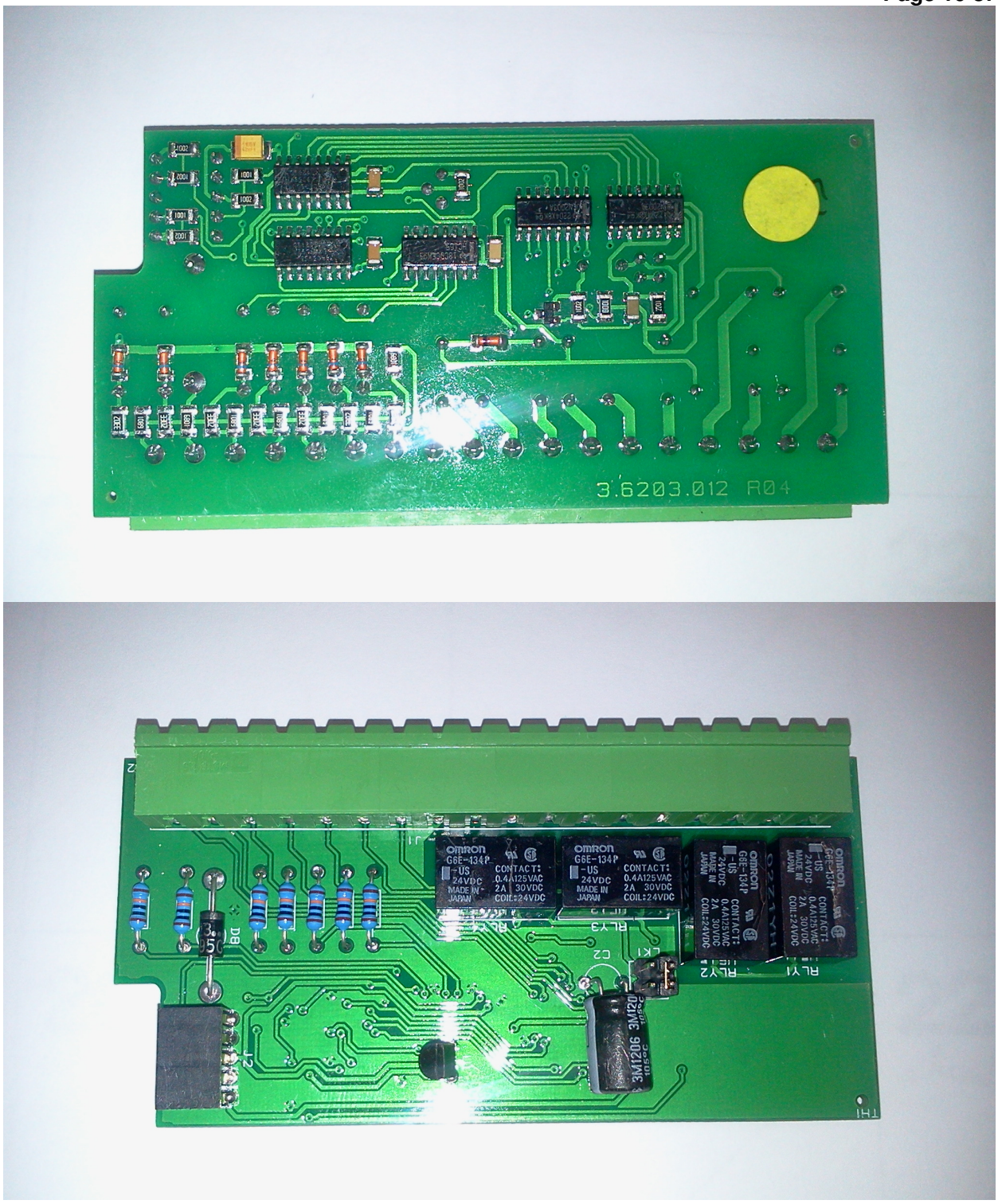


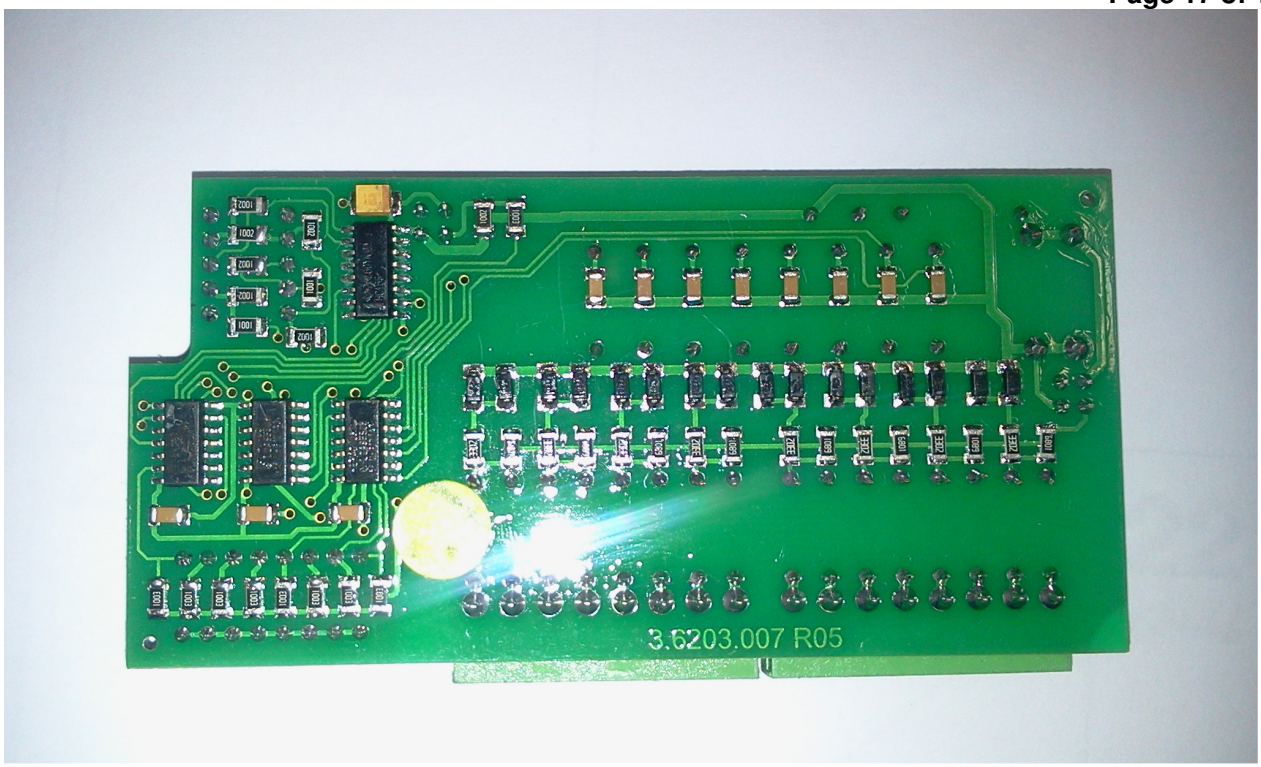


This report supersedes all previous documents bearing the reference no XPL/13981/13.0221 Rev 1.


TH1
R124
X2
J4
LED3 LED2 LED1
RR2
RR1
J6


3.6203.007 R05


3.6203.012 R04
OMRON
G6E-134P
-US
24VDC
MADE IN JAPAN
CONTACT:
0.4A125VAC
2A 30VDC
COIL:24VDC
RLY1
RLY2
RLY3
D8
C2
K1
J1
J2
TH1



This report supersedes all previous documents bearing the reference no XPL/13981/13.0221 Rev 1.

EXPLOLABS
Explosion Prevention Services

Government Approved Test Laboratory
(Previouslv AIA)

Reg No: 1999/027771/07

ACCREDITED AND APPROVED TEST LABORATORY

IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

IA CERTIFICATE

OMNIFLEX (PTY) LTD
PO BOX 37219
OVERPORT
DURBAN
4067

Issued: **17 Mar 2014**
*Expire: **28 Feb 2023**
Revision 3

Equipment: OMNI16C ALARM ANNUNCIATOR
Manufacturer: OMNIFLEX (PTY) LTD
Type: C1480B-EX
Serial No: All serial numbers of equipment covered by a valid report, or accepted product certification mark.

Supplied by
OMNIFLEX
Identified by Inspection Authority number
MS-XPL /13.0067X
Electrostatic discharge possible. Wipe with a damp cloth

And as described in the Explolabs **test report number XPL/13872/13.0067** is hereby certified "Explosion Protected "**Ex ic I/IIC T4 (-20℃ ≤ T_a ≤ +59℃)**", having been examined and inspected in accordance with the relevant requirements of South African Standards.

SANS 60079-0: 2005 Ed 3 **IEC 60079-0: 2004 Ed 4**	"Electrical apparatus for explosive gas atmospheres, Part 0: General requirements"
SANS 60079-11: 2007 Ed 3 **IEC 60079-11: 2006 Ed 5**	"Electrical apparatus for explosive gas atmospheres, Part 11: Equipment protection by Increased safety 'i'"

This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:

i) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
ii) Any conditions mentioned in the above report;
iii) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
iv) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
v) A revision certificate replaces all previous version of the certificate.
vi) * - Only covers equipment Imported between the "Issued" and "Expire" dates.
vii) If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd

ilac-MRA

sanas Testing Laboratory
T0104

The South African National Accreditation System (SANAS) is a member of the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). This Arrangement allows for the mutual recognition of technical test and calibration data by the member accreditation bodies worldwide. For more information on the Arrangement please consult www.ilac.org

1. GENERAL

The Alarm Annuncitor consisted of a metal enclosure with all the electronics and circuity mounted within the enclosure. The front part of the enclosure had 16 individual white tinted plastic lenses and a set of terminal blocks was located at the back to facilitate connection to the power supply. The enclosure was manufactured of black coated mild steel and dimensions were 286mm x 120mm x 80mm with air vents on the back and sides.

2. SAFETY PARAMETERS

Ui: 24V				
Ui: 5V	*Ii*: 2.55A	*Pi*: 1.57W	*Ci*: 65uF	*Li*: Neg

3. SPECIAL CONDITIONS OF USE (X)

Electrostatic discharge possible. Wipe with a damp cloth.

4. MARKING

The following markings shall be added to the unit in a legible and durable manner:

Supplier	OMNIFLEX (PTY) LTD
Product	OMNI16C ALARM ANNUNCIATOR model C1480B-EX
IA Number	MS–XPL/13.0067 X
Classification	Ex ic I/IIC T4 (-20°C ≤ T_a ≤ +59°C)

U_m: 27V

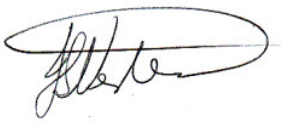
Ui: 24V				
U_i: 5V	I_i: 2.55A	P_i: 1.57W	C_i: 65uF	L_i: Neg

Warning! Electrostatic discharge possible. Wipe only with damp cloth.

Responsible Testing Officer:

D Young
Senior IS Testing Officer

Reviewed by:



JS Venter
Ex Physicist

EXPLOLABS EXPLOSION PREVENTION SERVICES