



Mining And Surface Certification (Pty) Ltd



Certificate Number: MASC M/15-1313X
Issue: 21 June 2016
Expire: 27 January 2026
Page: 1 of 3

IA – CERTIFICATE (Revision One: Minor changes to parameters)

IN TERMS OF REGULATION 21.17.2 OF THE MINERALS ACT (INCORPORATION THE MINE HEALTH AND SAFETY ACT) AND REGULATION 9 (1) OF THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT

Ex – Type Examination	
Certificate number:	MASC M/15-1313X
Equipment:	I.S. 16V PSU
Serial No:	All units must be covered by a valid batch report / accepted product certification mark
Applicant:	Ex Solutio Engineering (Pty) Ltd
Address:	29 Schoeman Street Florentia Alberton 1401 South Africa
Manufacturer:	Ex Solutio Engineering (Pty) Ltd 29 Schoeman Florentia Alberton 1401 South Africa

DESCRIPTION:

The power supply was intended for use as an interface between the safe area equipment (Non-I.S. supply) and the hazardous area equipment (I.S. equipment). The unit is associated apparatus and shall be located in the safe area or in a certified explosion proof enclosure. The power supply consists of a double layer PCB with safety components.

MARKING:

Manufacturer: Ex Solution Engineering (Pty) Ltd
Type: I.S. PSU
Model: 16V (Functional)
Ex rating: [Ex ia] I (-20°C to +55°C)
IA No: MASC M/15-1313X
Serial Numbers: See “Conditions of Certification”
Safety Parameters:

Um = 60Vdc
Uo = 16.1V
Io = 2.291A (@ 16.1V)
Io = 3A (@ Short “0V”)
Lo = 51µH
Co = 12.7µF

/I. COMPLIANCE ...

This document may only be reproduced in full
This certificate is not transferable and remains the property of the issuing body
This document will not be supported by MASC for certification purposes outside the borders of South Africa.

IA CERTIFICATE NUMBER: MASC M/15-1313X

I.S. 16V PSU
(Intrinsic Safety)
(Revision One)

Page 2 of 3

COMPLIANCE:

The unit as described above and in report number MASC 15-1313 is hereby certified "Explosion Protected" [Ex ia] I (-20°C to +55°C) and is suitable for use in hazardous locations as stated below and as tested, assessed and inspected in accordance with the relevant requirements of SANS Standards:

The evaluation was conducted according to the requirements of:

- SANS/(IEC) 60079-0 : 2009 (Edition 4) "General Requirements";
- SANS/(IEC) 60079-11 : 2007 (Edition 3) "Intrinsic Safety 'i'";

Location	Zone 0* & 1	Gas/ Coal dust: Underground
Hazard Frequency	---	Continuous as could occur under normal operating conditions in hazardous area. (Outputs Only).
Environment	Group I	Methane and coal dust
Limiting Temperature		450°C (Methane gas) / 150°C (Coal dust)
Ambient Temperature	-20°C to 55°C	

The use of apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:

- SANS 10086 requirements;
- Any conditions mentioned in the above report;
- Codes of Practice enforced in terms of Regulations 21.17.2 of Minerals Act, by Chief Inspector of Mines;
- Any restrictions and conditions enforced by Chief Inspectors of Mines, Principal Inspector (Group I equipment) of Chief Inspector of Factories (Group II equipment);
- Any relevant requirements of the MHS Act or the OHS Act.

CONDITIONS OF CERTIFICATION:

CONDITIONS OF MANUFACTURE:

- The PCB must be installed in an enclosure of at least an IP54 rating.
- The over voltage crowbars voltages must be verified on production units.

SPECIAL CONDITIONS OF SAFE USE (X):

- The unit must be installed inside a certified explosion protected enclosure (e.g. flameproof) or in the safe area inside an IP54 enclosure.
- The installation of the interface shall consider wiring practices as described in SANS 10086-2 (or using the principles of Part 1, should part 2 not be finalized yet).
- The ambient temperature rating of the interface must not be invalidated.
- The power supply powering the interface may only be fed from a voltage not exceeding the value of U_m .
- The PCB's must be located inside a separate enclosure (At least IP20 with at least IP54 for the overall installation) for the enclosure, with or without the functional power supply and all installation rules for intrinsic safety, especially ambient temperature and segregation rules must be complied with.

/. • The power supply ...

This document may only be reproduced in full
This certificate is not transferable and remains the property of the issuing body
This document will not be supported by MASC for certification purposes outside the borders of South Africa.

IA CERTIFICATE NUMBER: MASC M/15-1313X

I.S. 16V PSU
(Intrinsic Safety)
(Revision One)

Page 3 of 3

- The power supply must be powered from a power supply, complying with 1500Vrms isolation between primary and secondary, according to intrinsically safe requirements. The isolation is to be considered during full certification of the installation inside the flameproof enclosure or the systems approval.
- Application of the power supply interface must form part of a systems approval by an approved test laboratory as required in the latest draft EPA regulations.
- The enclosure of the power supply must have sufficient clearance from any non-intrinsically safe parts. In addition, a 1500V isolation shall be required.

According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory.)

Approved on behalf of MASC



F du Toit
TECHNICAL SPECIALIST

Mining And Surface Certification

This document is issued based on Mining And Surface Certification's Standard Contract terms and conditions available on request.

While every endeavour is made to ensure that a test / assessment is representative and accurately performed, and that a report is accurate in the quoted results and conclusions drawn from the test / assessment, MASC or its members/employees shall in no way be liable for any error made in carrying out the test / assessment or for any erroneous statement, whether in fact or in opinion, contained in a report issued pursuant to a test / assessment.

MASC takes no responsibility for any non-conformances, exclusions or any results / assessments not in compliance with the standards. By marking the equipment in accordance with the documentation / standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and routine tests have been successfully completed and the product complies with the documentation and standard(s).

This document is only for use and application in South Africa. It is issued based on National interpretations and accepted practises.

This document may only be reproduced in full
This certificate is not transferable and remains the property of the issuing body
This document will not be supported by MASC for certification purposes outside the borders of South Africa.

Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07
Directors: Roelof Viljoen & Francois du Toit
Unit #5, Lelyta Park, 45 Jurg Avenue, Hennospark Ext 87, Centurion, 0157 ♦ P.O. Box 14344, Clubview, 0014
Tell: 012 653 2959 ♦ Fax: 086 605 8568
e-mail: info@masc-ex.co.za