



# Mining And Surface Certification CC

CC 2008/202081/23



T0444



Certificate Number: MASC M/15-0450X  
Issue: 19 May 2015  
Expire: 19 May 2025  
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## IA – CERTIFICATE

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:	<b>MASC M/15-0450X</b>
Equipment:	I.S. 17V 1.6A 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 Street 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:** 17V, 1.6A (Functional)  
**Ex rating:** [Ex ia] I (-20°C to +55°C)  
**IA No:** MASC M/15-0450X  
**Serial Numbers:** See “Conditions of Certification”  
**Safety Parameters:**

**Um** = 60Vdc  
**Uo** = 17.2V  
**Io** = 1.6A (@17.2V)  
**Io** = 2.255A (@ Short “0V”)  
**Lo** = 30µH  
**Co** = 7µF

**I. Compliance...**

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## COMPLIANCE:

The unit as described above and in report number MASC **15-0450** 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 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.

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- 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

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