



# Mining And Surface Certification (Pty) Ltd

2015/021934/07



**Certificate Number:** MASC M/11-290  
**Issue:** 12 March 2021  
**Expire:** 12 March 2024  
**Page:** 1 of 3

## IA – CERTIFICATE

(Supplement 3: Supplemented as per ARP 0108)

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:

Equipment:

Serial No:

**MASC M/11-290**

TX2121 Single Port Isolator

(See “Conditions of Certification”)

Applicant:

Address:

Troxex Limited.

Hazel Grove

Stockport

Cheshire

SK7 5DY

United Kingdom

Manufacturer:

Address:

Troxex Limited.

Hazel Grove

Stockport

Cheshire

SK7 5DY

United Kingdom

### DESCRIPTION:

The TX2121 Single Port Isolator is designed to take a single serial communications interface and repeat it via an isolated interface. The TX2121 Single Port Isolator is mounted in the non-hazardous area and provides an intrinsically safe serial interface into the hazardous area.

The apparatus consists of two PCB's mounted within a plastic DIN rail mounted enclosure. The TX2121 Single Port Isolator measures approximately 105mm x 85mm x 60mm. On the side of the enclosure is an eight way DIL switch block used to set the address of the repeater. LED indicators are situated on top of the enclosure indicating power and communications status.

Electrical connections to the apparatus are made via screw terminals. The TX2121 Single Port Isolator is intended to be mounted in a separate outer enclosure offering additional protection suitable for mining environment.

Power connections: CN101/7 w.r.t CN101/5 (0V)

$U_m = 253V_{rms}$

The circuit connected to the non-hazardous area terminals is designed to operate from a nominal supply voltage of 12Vdc.

**/ . Serial interface...**

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Mining And Surface Certification (Pty) Ltd Reg No: 2015/021934/07

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**IA CERTIFICATE NUMBER: MASC M/11-290**  
**TX2121 Single Port Isolator**

Serial interface connections: CN101/1 and CN101/3 w.r.t 0V (CN101/5)

$U_m = 253V_{rms}$

The circuit connected to the non-hazardous area terminals is designed to operate from a nominal supply voltage of 5Vdc

**1. Hazardous Area Terminals**

**Power Connections: CN201/7 w.r.t CN201/5 (0V)**

$U_i = 14.4V$

$I_i = 3.33A$

$C_i = 6.86\mu F$

$L_i = 0$

Serial Interface Connections: CN201/1 and CN201/3 w.r.t 0V (CN101/5)

$U_i = 5.66V$

$I_o = 65mA$

$P_o = 0.208W$

$U_i = 6.88V$

$C_i = 1.08\mu F$

$L_i = 0$

$C_o = 130\mu F$

$L_o = 50mH$

$L_o/R_o = 3355\mu H\Omega$

**MARKING:**

BASEEFA marking remains applicable. The following MASC Certificate number (IA number) must be additionally applied to the equipment.

IA No: MASC M/11-290

**COMPLIANCE:**

The equipment as described above and in MASC letter 11-290 R2 is hereby certified "Explosion Protected" [Ex ia] I (-20°C <Ta<+50°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 / IEC Standards:

**The evaluation was conducted according to the requirements of:**

- i) SANS (IEC) 60079-0 : 2006 "Explosive atmospheres – Part 0: Equipment — General requirements"
- ii) SANS (IEC) 60079-11 : 2007 "Explosive atmospheres – Part 11: Equipment protection by intrinsic safety 'i'"

Location	Zone *0, 1 & 2	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
Surface Temperature	150°C	
Service/Ambient Temperature	-20°C to 50°C	Ambient Temperature

**/./ The use...**

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

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

**CONDITIONS OF MANUFACTURE:**

- None

**SPECIAL CONDITIONS OF USE (X):**

- None

**CONDITIONS OF CERTIFICATION:**

1. This Certificate remains valid based on a three yearly review covered by an official MASC letter.
2. The apparatus must be additionally marked with the MASC marking details above.
3. This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date.
4. The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by BASEEFA and in this approval.
5. The BASEEFA certification must remain valid.
6. The extent of the requirements in the ARP 0108 (or regulations) and SANS 10108 on the certification of the equipment must remain unchanged.
7. The Ex quality assurance notification/report for the equipment must remain valid.



**D.P. Visser**  
**TECHNICAL SPECIALIST**



**C. Welthagen**  
**TECHNICAL SPECIALIST**

**Mining And Surface Certification**

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*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).*

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