1 # TYPE EXAMINATION CERTIFICATE

2 **Electrical Apparatus for Explosive Gas Atmospheres**

3 Type Examination Certificate Number : **Baseefa03Y0493**

4 Equipment : **9121-IS FISCO POWER SUPPLY - IIC**

5 Manufacturer : **MEASUREMENT TECHNOLOGY LIMITED**

6 Address : **Luton, Bedfordshire, LU1 3JJ, UK**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd. certifies that this equipment has been found to comply with the requirements of the following IEC Standards relating to the design and construction of electrical apparatus for explosive gas atmospheres classified in accordance with IEC 60079-10.

IEC 60079-0 (2000) IEC 60079-11 (1999) IEC TS 60079-27 (2002)

9 The examination and test results are recorded in confidential Report No. **02(C)0388**

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions of safe use specified in the schedule to this certificate.

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following :

[Ex ib] IIC ($-40°C \leq T_a \leq +70°C$)

Baseefa (2001) Ltd. Customer Reference No. **0703**

Project File No. **02/0388**

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13 **Schedule**

14 **Certificate Number Baseefa03Y0493**

15 **Equipment Description**

The 9121-IS FISCO Power Supply - IIC is a module comprising electronic components on two printed circuit boards mounted within a plastic enclosure. The electrical circuit is designed for a duplicated d.c. input voltage of 19.2 to 30V d.c. to provide redundancy. This supply is switched at high frequency into a high frequency transformer which also provides galvanic isolation. A secondary output voltage is rectified and smoothed and is provided with triplicated crowbar circuits which provide Ex ia voltage limitation and power limitation for the output zener diodes. These circuits will trip on under- or over-voltage which will disable the supply. The power supply contains two independent active current limiting (ACL) circuits. One of the ACLs performs additional functions associated with the Fieldbus operational requirements in accordance with IEC61158-2. The output terminals are further clamped by duplicated zener diodes forming an infallible assembly which clamps the output voltage for Ex ia.

The output has been clamped in such a manner as to provide a category "ia" voltage but requires further current limitation before it can be considered an Intrinsically Safe category "ia" circuit.

Input Power Supply Connector Power Pins 1, 2 & 3 (CON2 Pins 1- 3)

U_m = 250V

The circuit connected to the safe area terminals CON2 is designed to operate from a d.c. supply voltage of up to 30V.

Host Output Connector Host Pins 4, 5 & 6 (CON3 pins 1 to 3)

U_m = 250V

The circuit connected to the safe area terminals CON3 is designed to operate from a d.c. supply voltage of up to 32V.

Field Bus Power Supply IS Pins 7, 8 & 9 (CON1 Pin 1 wrt 3)

U_o = 14V
I_o = 180mA @ 14V
P_o = 2.52W
C_o = 0.20µF
L_o = 300µH

When used in accordance with IEC60079-27, there is no need to take into consideration C_o and L_o.

The 9121-IS FISCO Power Supply - IIC has been designed to meet the requirements of the Fieldbus Intrinsically Safe Concept (FISCO) to IEC TS 60079-27 (2002).

16 **Report**

02(C)0388

17 **Special Conditions for Safe Use**

None

18 Drawings and Documents

Document No.	Sheet	Document Title	Issue	Date
CI9121	1 to 16	MTL9121 & MTL9122 Circuit Diagram	1	2002.07
CI9121-1	1 to 5	PCB971/Top Parts List	2	2002.12
CI9121-2	1	PCB972/Bottom Parts List	1	2002.08
CI9121-3	1 to 3	PCB971/Top PCB Assembly	1	2002.08
CI9121-4	1 & 2	PCB972/Bottom PCB Assembly	1	2002.08
CI9121-5	1	TFR254 Transformer	1	2002.08
CI9121-6	1 to 3	General Assembly	1	2002.08
CI9121-8	1 to 2	PCB971/Top PCB Track Layout	1	2002.07
CI9121-9	1 to 2	PCB972/Bottom PCB Track Layout	1	2002.07
CI9121-10	1	Segregation PCB	1	2002.07
CI9121-11	1	Common Mode Choke	1	2002.08
CI9121-12	1	Certification Label Drawing	1	2003.07
CI4100-1	1	MTL4000 Series IS Transformer	5	1998.06

The above drawings are associated with Certificate Number Baseefa03Y0494