[1] EC TYPE-EXAMINATION CERTIFICATE

[2] Equipment or Protected System Intended for use in Potentially explosive atmospheres Directive 94/9/EC

[3]	**EC-Type Examination Certificate Number:**	**Nemko 09ATEX1080X**
[4]	**Equipment or Protective System:**	**Resistive Power Supply CT5005AA [XX-YY-1]**
[5]	**Applicant / Manufacturer:**	**Nautitech Mining Systems Pty Limited**
[6]	**Address:**	**Unit 55, 4 Hoyle Ave Castle Hill, 2154, NSW, Australia**

[7] **This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.**

[8] **Nemko AS, notified body number 0470 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.**

The examination and test results are recorded in confidential report no. 131693

[9] **Compliance with the Essential Health and Safety Requirements has been assured by compliance with:**

CENELEC EN 60079-0: 2006, CENELEC EN 60079-11, Ed 5.0: 2007, CENELEC EN 50303: 2000

[10] **If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.**

[11] **This EC-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC.**
Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

[12] **The marking of the equipment or protective system shall include the following :**

CE **I (M1)** **[Ex ia] I $-20^{o}C \leq Ta \leq 60^{o}C$**

Oslo, 2009-07-13

Rolf Hoel
Certification Manager, Ex-products

Revised Issue. Correction of certificate reference on page 2 and page 3.

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Enterprise number: **NO 974404532**

[13] Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE No Nemko 09ATEX1080X

[15] Description of Equipment or Protective System

The Resistive Power Supply Type CT5005AA [XX-YY-1] is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to the hazardous area circuits by limitation of voltage and current.

The equipment comprises electronic components mounted on a double sided printed wiring board all encapsulated within a metallic enclosure. External connections are made by integral flying leads or integral plugs/sockets mounted in the wall of the enclosure.

Combination overview

The combinations covered are identified by AA [XX-YY-1].

Where:

AA – Number from 01 to 99 Specific configuration not effecting certification
XX - Output Parameters
01 – 8.0 V/1.1 A
YY – Specific Type
01 – Flying Leads Non-Galvanic
02 – Interconnected Non-Galvanic

[16] Report No. 131693

Descriptive Documents

Name/Title	Drawing No.	Rev/Issue	Date	Sheet No
IS Resistive Power Supply-Mechanical assembly	ExMD500501 Sheets 1 & 2	1.0	2009/01/09	2
IS Resistive Power Supply Type 500501	ExPB500501-05	1.0	2009/02/09	1
IS Resistive Power Supply Type 500501	ExSH500501-05 Sheets 1 to 4	1.0	2009/02/09	4
IS Resistive Power Supply - Encapsulation	ExNTD500501	1	2009/01/12	1
IS Resistive Power Supply Type 500501	ExMK500503-s1	1	2009/02/11	1
IS Resistive Power Supply Type 500501	ExMK500503-s2	1	2009/02/11	1

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[17] Special Conditions for Safe Use

The following parameters are to be taken into account in the installation

Non Hazardous Area Connections

1. Input Parameters Red Cable with respect to Black Cables (earth) or Non Intrinsically Safe Input Connector pin 1 with respect to pins 2, 3, 4 .
   U_m = 60 V

   Hazardous Area Connections

Brown Cable with Respect to Blue Cable OR Intrinsically Safe Output	
U_o =	8.9 V
I_o =	2.8 A
P_o =	12.5 W
C_i =	1.1 µF
L_i =	Negligible

2. The capacitance and either the inductance or the inductance to resistance (L/R) ratio of the hazardous area load connected to the Brown cable with respect to the Blue Cable must not exceed the following values;

GROUP	**Capacitance (µF)**	**Inductance OR (mH)**	**L/R Ratio (µH/Ω)**
I	283.9	0.060	152

The above load parameters apply where;

a. The external circuit contains no combined lumped inductance (L_i) or lumped capacitance (C_i) greater than 1% of the above values. OR
b. The external circuit contains either only lumped inductance (L_i) or lumped capacitance (C_i) in combination with a cable. OR
c. The inductance and capacitance are distributed as in a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and capacitance, up to 50% of each of the inductance and capacitance values are allowed.

3. The equipment must be installed within a suitable enclosure offering a degree of protection not less than IP20.

4. In earth reference systems the non-hazardous area Black Cables (3 off) must be connected to the main intrinsically safe system earth in an earth reference system or infallibly connected to the secondary circuit 0 V node in a galvanically isolated power supply system.

[18] Essential Health and Safety Requirements

See item 9

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