[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 09ATEX1070X** **Issue 1**

[4] Equipment or Protective System: **CAN GAUGE**
[5] Applicant/ Manufacturer: **Nautitech Mining Systems Pty Limited**
[6] Address: **Unit 3, 9 Packard Avenue, 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. 218470

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

EN 60079-0: 2006, EN 60079-11: 2007 and 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:

I M1 **Ex ia I**
II 1G **Ex ia IIB T4** **$-20^{o}C \leq Ta \leq +40^{o}C/70^{o}C$**

Oslo, 2012-12-13

pp Asle Kaastad
Certification Manager, Ex-products

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[13] Schedule

[14] EC-TYPE EXAMINATION CERTIFICATE No Nemko 09ATEX1070X Issue 1

[15] Description of Equipment or Protective System

The CAN GAUGE CT5002AA [XX-YY] are designed to provide Digital Data related to measured field values, diagnostics and status of the device. The apparatus comes in two types of enclosure a single channel module CAN Gauge and CAN Concentrator up to 12 channel module.

The single channel module.

The single channel module comprises an interface board, a bottom board, a top board fitted with an optional Liquid Crystal Display and either up to 50 integral float boards or a gas connection boards all housed in a metallic enclosure fitted with either integral flying leads or plug and sockets mounted in the wall of the enclosure for the connection of external circuits and an optional window.

Standard CAN Gauge:
Type CT5002AA [02→15-YY] can either be used in Group I or II atmospheres in ambient temperatures range
$20^oC \leq Ta \leq 70^oC$.
CE Ⓔx I M1 Ex ia I II 1G Ex ia IIB T4.

Gas CAN Gauge:
Type CT5002AA [01-YY] is only to be used in Group I atmospheres in ambient temperatures range
$-20^oC \leq Ta \leq 40^oC$.
CE Ⓔx I M1 Ex ia I .

CAN Gauge Concentrator.

The CAN Gauge Concentrator types are totally encapsulated modules that comprises up to 12 Standard Can Gauge modules mounted in the same stainless steel enclosure with the exception of the loop power input connection each can gauge output separated from adjacent circuits. Ambient temperatures range
$-20^oC \leq Ta \leq 70^oC$.
CE Ⓔx I M1 Ex ia I II 1G Ex ia IIB T4.

The model references are detailed in the manufacturer's instruction manual.

Combination overview

The combinations covered are identified by AA[XX-YY] associated with the model reference identified as follows:

AA = 00 to ZZ Device configuration not effecting Certification.

XX
= 01 Gas Sensor fitted.
= 02 Float Sensor fitted.
= 03 External Sensing.
= 04 to 15 Concentrator with 1 up to 12 Concentrator units fitted.

YY
= 01 Plug/Socket connections.
= 02 Flying leads

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[16] Report No. 218470

Descriptive Documents

Name/Number	Rev.	Date	Title/Description	Sheets
ExMD500201	1.0	2008/11/20	CAN Gauge	2
ExMD500202	1.0	2008/11/26	CAN Gauge Concentrator	2
ExMD500203	1.0	2008/12/04	CAN Gauge Float Level Sensor	2
ExMD500219	1.0	2008/12/04	CAN Gauge Gas - Sensor	2
ExMD500239	1.0	2008/12/05	CAN Gauge 3 Length Magnetic Measurement	1
ExNTD500201-01	1.0	2008/12/08	CAN GAUGE Display – Float - Encapsulation	1
ExNTD500203-01	1.0	2008/12/30	CAN Concentrator	1
ExPB127201-04	1.0	2008/09/30	CAN GAUGE Bottom PCB	1
ExPB127202-05	1.0	2008/12/24	CAN GAUGE Top PCB	1
ExPB127203-03	1.0	2008/11/18	CAN GAUGE Float PCB	1
ExPB127205-02	1.0	2008/09/30	CAN GAUGE Bottom Gas Detection PCB	1
ExPB127206-02	1.0	2008/12/08	CAN GAUGE Gas Connection PCB	1
ExPB127207-01	1.0	2008/11/17	CAN GAUGE Interconnection PCB	1
ExPB127208-01	1.0	2008/12/29	CAN GAUGE Interconnection PCB (Std Bottom PCB)	1
ExPB127209-01	1.0	2008/12/29	CAN GAUGE Interconnection PCB (Multi Bottom PCB)	1
ExPBS127201-04	1.0	2008/11/25	CAN GAUGE Bottom PCB	2
ExPBS127202-05	1.0	2008/11/25	CAN GAUGE Top PCB	1
ExPBS127203-03	1.0	2008/11/25	CAN GAUGE Float PCB	1
ExPBS127205-02	1.0	2008/11/25	CAN GAUGE Bottom Gas PCB	2
ExPBS127206-02	1.0	2008/12/08	CAN GAUGE Gas Connection PCB	1
ExPBS127207-01	1.0	2008/11/25	CAN GAUGE Interconnection PCB	1
ExPBS127208-01	1.0	2008/12/29	CAN GAUGE Interconnection PCB (Std Bottom PCB)	1
ExPBS127209-01	1.0	2008/12/29	CAN GAUGE Interconnection PCB (Multi Bottom PCB)	1
ExWD500201	1.0	2008/11/17	CAN GAUGE Base Wiring Diagram	1
ExWD500202	1.0	2008/11/17	CAN GAUGE Float Wiring Diagram	1
ExWD500203	1.0	2008/11/24	CAN GAUGE Multiple Input Wiring Diagram	1
ExWD500204	1.0	2008/11/24	CAN GAUGE Gas Head Sensor Wiring Diagram	1
ExWD500205	1.0	2008/12/30	CAN GAUGE Concentrator Unit Wiring Diagram	1
ExMK500202	1.1	2009-02-23	CAN GAUGE IS Markings	4
ExPB502005-A	1	2012/02/05	RELAY BOARD – PILOT LINE RELAY	4
ExSH5020-2-10-001-A	1	2012/02/05	PILOT LANE RELAY	1
ME5020-0-11-003-A	A	2011/11/03	BOBBIN – 1.5kV ISOLATION	1
ME5020-2-99-002-A	A	2012/02/07	FINAL ASSEMBLY-IS PILOT RELAY	2
WD502003-A	A	2011/11/14	WIRING DIAGRAM – PILOT LINE RELAY	1

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Certificate History and Associated Nemko Reports

Issue	Date	Report	Description
0	2009-03-03	123028	Prime Certificate released
1	2012-12-07	218470	Include an IS Relay CT5002AA[20-01] To provide switching functions via High voltage relays that provide galvanic isolation between the CAN Gauge electronics and the high voltage switched circuit. A change of address of the applicant and manufacturing location.

[17] Special Conditions for Safe Use

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

1.1 Inputs

CT5002AA [01-YY] CT5002AA [02- YY] CT5002AA [03- YY] "BUS Power + CAN"		
U_i :	8.9	V
C_i :	2.3	µF
L_i :	Negligible	µH

CT5002AA [04-YY] to CT5002AA [15-YY] "BUS Power + CAN"		
U_i :	8.9	V
Pi :	25	W
C_i :	***	µF
L_i :	Negligible	µH

*** See table below. The C_i is determined from the number of CAN Concentrator units fitted see table below;

*** CAN Concentrator Model Number	C_i
CT5002AA [04-YY]	2.3 µF
CT5002AA [05-YY]	4.6 µF
CT5002AA [06-YY]	6.9 µF
CT5002AA [07-YY]	9.2 µF
CT5002AA [08-YY]	11.5 µF
CT5002AA [09-YY]	13.8 µF
CT5002AA [10-YY]	16.1 µF
CT5002AA [11-YY]	18.4 µF
CT5002AA [12-YY]	20.7 µF
CT5002AA [13-YY]	23.0 µF
CT5002AA [14-YY]	25.3 µF
CT5002AA [15-YY]	27.6 µF

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1.2 Outputs

Multiple Output Version CT5002AA-[03-YY] "Sensor"		
U_o :	8.9	V
I_o :	As supply	
P_o :	1.92	W
C_i :	30	µF
L_i :	Negligible	µH

Concentrator Versions CT5002AA-[04-YY] to CT5002AA-[15-YY] Per Channel "Sensor"		
U_o :	8.9	V
I_o :	As supply	
P_o :	1.92	W
C_i :	30	µF
L_i :	Negligible	µH

2. The Gas CAN Gauge Type CT5002AA [01-YY] is only be used in Group I atmospheres in ambient temperatures from -20 ^{o}C up to 40^{o}C.

3. When fitted with an integral cable the electrical connections to the integral cable must be housed within a suitable enclosure offering a degree of protection not less than IP20.

4. The IS Relay – CT500201[20-01] may only be used for connection to a Group I pilot circuit which can be considered as non-intrinsically safe under certain circumstances. This must be taken in to consideration in the installation / application.

Inputs

CT5002AA[20-YY] "BUS Power + CAN"		
U_i :	8.9	V
C_i :	2,3	µF
L_i :	Negligible	mH

CT5002AA[20-01] Pilot Circuit		
U_m :	1575	Vpeak
I_m :	1.0	A

Outputs

CT5002AA[20-01] Pilot Circuit		
U_o :	0	V
I_o :	0	A
P_o :	0	W
C_i :	Negligible	µF
L_i :	Negligible	mH

[18] Essential Health and Safety Requirements
See item 9

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