



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX ITA 14.0028X** Page 1 of 5 [Certificate history:](#)  
Issue 0 (2015-01-28)

Status: **Current** Issue No: 1

Date of Issue: 2021-08-20

Applicant: **Nautitech Mining Systems Pty. Ltd.**  
Unit 3, 9 Packard Avenue  
Castle Hill  
NSW  
2154  
**Australia**

Equipment: **12V IS Battery Pack: ME 5070-2-99-153**

Optional accessory:

Type of Protection: **Intrinsic safety "ia"**

Marking: NTMS  
12v Battery: ME5070-2-99-153  
Ex ia I Ma (Um withdrawn)/[Ex ia] I Ma (Um available)  
IECEX ITA 14.0028X  
-20°C ≤ Tamb ≤ +60°C

Approved for issue on behalf of the IECEx  
Certification Body:

**Ajay Maira**

Position:

**Certification Authority**

Signature:  
(for printed version)

*Ajay Maira*

Date:

2021-08-20

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**Ex Testing and Certification Pty Ltd**  
1/30 Kennington Drive  
Tomago NSW 2322  
Australia



TESTING & CERTIFICATION



# IECEX Certificate of Conformity

Certificate No.: **IECEX ITA 14.0028X**

Page 2 of 5

Date of issue: 2021-08-20

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Manufacturer: **Nautitech Mining Systems Pty. Ltd.**  
Unit 3, 9 Packard Avenue  
Castle Hill  
NSW  
2154  
**Australia**

Additional  
manufacturing  
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

#### STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

**IEC 60079-0:2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**IEC 60079-11:2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

#### TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[AU/ITA/ExTR14.0059/00](#)

Quality Assessment Report:

[AU/MSC/QAR21.0001/00](#)



# IECEx Certificate of Conformity

Certificate No.: **IECEx ITA 14.0028X**

Page 3 of 5

Date of issue: 2021-08-20

Issue No: 1

## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The equipment contains a Battery pack with 10 nickel cadmium cells and its associated printed circuit board with protective components, connected internally to a Battery interconnect board that provides the external connections. The complete assembly is encapsulated inside a metallic container.

The equipment is normally installed inside a separately certified flameproof enclosure.

The equipment is typically provided a Um of 24V from a flameproof alternator or external DC supply installed within a flameproof enclosure for the charging of the battery (JA-2). A PMU module (JA-1), a display (JA-5), EMU connections (JA-6 and JA-7), auxiliary CAN and analog connection (JA-3) are all installed in separately certified flameproof enclosures and are connected to the non-intrinsically safe inputs to the equipment.

The equipment also provides intrinsically safe connections to an isolation switch (JB-1, JB-2, JB-3), air switch input (JB-4), Methane detector (JB-5), Aux in/out (JB-6), IS Isolator (JB-7), and Deputy bypass Interface (JB-8).

If the Um is not available, and the isolation switches are not in continuity, the entire assembly has been considered for compliance with Ex ia I. In this case, it may be installed in the explosive area without the need for an external flameproof enclosure, but an enclosure providing IP54 ingress protection to the external connections is required, unless the equipment is being transported and changed and there is no accumulation of dust expected on the external connection facility during this brief period.

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

See Annexe for details.



# IECEX Certificate of Conformity

Certificate No.: **IECEX ITA 14.0028X**

Page 4 of 5

Date of issue: 2021-08-20

Issue No: 1

**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**  
See Annexe for details.



# IECEX Certificate of Conformity

Certificate No.: **IECEX ITA 14.0028X**

Page 5 of 5

Date of issue: 2021-08-20

Issue No: 1

**Additional information:**

Job 21105

**Annex:**

[IECEX ITA 14.0028X Annex final.pdf](#)

# IECEX Certificate of Conformity



## Annexe



Annexe for Certificate No.:

IECEX ITA 14.0028X

Issue No.:

1

### Description:

As provided in 'Equipment' section of the certificate.

### Specific Conditions of Use pertaining to Issue 0 of this Certificate:

The following parameters shall be taken into account when connecting into the system:

On the non-intrinsically safe connections JA-1, JA-2, JA-3, JA-5, JA6 and JA-7:

Um = 0 in the Um withdrawn condition

Um = 24V in the Um available condition

(Um is monitored by a protection circuit to check that it is isolated from the chassis)

Battery Interconnect Board	External Connections at JB-1, JB-2, JB-3 "BATTERY ISOLATORS"
Uo	17.7V
Io	0.002A
Po	0.009W
Co	5uF
Lo	100uH

Battery Interconnect Board	External Connections at JB-4 "AIR SW"
Uo	17.7V
Io	0.014A
Po	0.063W
Co	5uF
Lo	100uH

Battery Interconnect Board	External Connections at JB-5 "CH4 SENSOR"
Uo	11.9V
Io	1.1A
Po	3.27W
Co	18uF
Lo	10uH

# IECEX Certificate of Conformity



## Annexe



**Annexe for Certificate No.:**

**IECEX ITA 14.0028X**

**Issue No.:**

**1**

Battery Interconnect Board	External Connections at JB-6 "AUX" Aux In/Air SW PMU
Uo	17.7V
Io	0.027A
Po	0.12W
Co	5uF
Lo	100uH

Battery Interconnect Board	External Connections at JB-7 "IS ISLATOR"
Uo	17.7V
Io	0.001A
Po	0.004W
Co	5uF
Lo	100uH

Battery Interconnect Board	External Connections at JB-8 "DYP BYP"
Uo	17.7V
Io	0.076A
Po	0.34W
Co	5uF
Lo	100uH

Battery Interconnect Board	External Connections at JA-1 "PMU"
Uo	16.0V
Io	0.018A
Po	0.075W
Co	10uF
Lo	10mH

Battery Interconnect Board	External Connections at JA-2 "Alternator Input"
Uo	16.0V
Io	0.002A
Po	0.08W
Co	10 uF
Lo	100 mH

# IECEX Certificate of Conformity



## Annexe



<b>Annexe for Certificate No.:</b>	<b>IECEX ITA 14.0028X</b>	<b>Issue No.:</b>	<b>1</b>
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Battery Interconnect Board	External Connections at JA-3 "Aux CAN and Analog"
Uo	16.0V
Io	0.038A
Po	0.15W
Co	10 uF
Lo	100 mH

Battery Interconnect Board	External Connections at JA-5 "Display"
Uo	16.0V
Io	0.038A
Po	0.15W
Co	30 uF
Lo	100 mH

Battery Interconnect Board	External Connections at JA-6/JA-7 "EMU-1 and EMU-2"
Uo	16.0V
Io	0.018A
Po	0.07W
Co	10 uF
Lo	100 mH

The equipment shall be installed in a suitably rated IP54 enclosure.

Wiring for the isolator inputs shall be performed by the manufacturer with suitably insulated and segregated wiring.

**Drawing list pertaining to Issue 0 of this Certificate:**

**Manufacturer's Documents**

Title:	Drawing No.:	Pages	Rev. Level:	Date:
BATTERY PACK 12V WITH IS (Circuit Schematics)	ME5070-2-12-037-A	15	R08	2014-12-22
BATTERY INTERCONNECT 12V WITH IS (Circuit Schematics)	ME5070-2-12-038-A	14	R04	2015-01-20
Battery Pack 12V With IS (PCB layers)	ME5070-0-12-037-A	5	08	2014-12-29



# IECEX Certificate of Conformity



## Annexe



<b>Annexe for Certificate No.:</b>	<b>IECEX ITA 14.0028X</b>	<b>Issue No.:</b>	<b>1</b>
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Title:	Drawing No.:	Pages	Rev. Level:	Date:
Battery Interconnect 12V with IS (PCB Layers)	ME5070-0-12-038-A	5	04	2015-01-09
LABEL - 12V BATTERY - IS	ME5070-1-25-032-A	1	4	2015-01-20
BATTERY ASSEMBLY - 12V IS	ME5070-2-99-153-A	1	1	2014-11-19

### Variations permitted by Issue 1 of this certificate:

- The manufacturer's Quality Assessment was changed from Ex Testing and Certification to another IECEX Certification Body, Mine Safety Technology Centre. QAR reference has been changed accordingly.

### Specific Conditions of Use pertaining to Issue 1 of this certificate:

There are no changes to the conditions of use.

### Drawings Associated with the Issue 1 of this Certificate:

There are no drawings applicable to this issue of the certificate.