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

Certificate No.:	**IECEx ITA 14.0035X**	Page 1 of 5	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2017-06-09) Issue 0 (2015-02-18)
Date of Issue:	2021-08-21		
Applicant:	**Nautitech Mining Systems Pty Ltd** Unit 3, 9 Packard Avenue Castle Hill NSW 2154 **Australia**		
Equipment:	**Uninterruptable Power Supply (UPS)**		
Optional accessory:			
Type of Protection:	**Intrinsic Safety "ia"**		
Marking:	Ex ia I Ma -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: 2021-08-21

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 or use of this QR Code.

Certificate issued by:

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

Ex TESTING & CERTIFICATION

IECEx Certificate of Conformity

Certificate No.: **IECEx ITA 14.0035X**

Date of issue: 2021-08-21

Issue No: 2

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/ExTR14.0073/00

Quality Assessment Report:

AU/MSC/QAR21.0001/00

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The Uninterruptible Power Supply (UPS) is a purpose built apparatus that may be present in a configurable instrumented system built to achieve a safety and/or a control function. The UPS, which contains rechargeable lithium cells, supplies intrinsically safe power to the instrumented system and is suited for operation where explosive gases may be continuously present.

The complete instrumented system may use several modules, where the modules are mechanically and electrically connected to each other using header-socket connections on the compatible sides that mate with each other, and the modules are fastened together to form one assembly.

For further details, see the Annexe.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Refer to the Annexe.

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

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Certificate No.: **IECEx ITA 14.0035X**

Date of issue: 2021-08-21

Issue No: 2

Additional information:
Job 21105

Annex:

IECEx ITA 14.0035X-2 Annexe final.pdf

IECEx Certificate of Conformity

Annexe

Annexe for Certificate No.:	IECEx ITA 14.0035X	Issue No.:	2

Description:

Continued from the 'Equipment' section of the certificate:

The complete instrumented system may use several modules, where the modules are mechanically and electrically connected to each other using header-socket connections on the compatible sides that mate with each other, and the modules are fastened together to form one assembly.

A typical configuration of the instrumented system may contain a power supply module which connects to a suitably certified input source (usually alternator or other mains connected power source) and after its voltage and current limitation delivers power on a '4 Pin Power Rail' through all the modules, thus forming a backplane based connection system. This high power rail with Un = 20 V and In =11.9A is adequately segregated between the active and return lines, and also segregated from all other circuits, connection pins are duplicated and all the modules are fastened together to prevent sparking to be considered.

The backplane also contains four selectable Exia Power Buses delivered by the PSM, UPS or compatible module. The Exia Buses (Uo 8.95V Io 2.4A) are suitably segregated and each galvanically isolated to prevent combinations of circuits and energy.

When Zone 0 conditions are present the UPS will utilise the internal lithium cells to deliver one of the four galvanically isolated Ex ia power buses in the 9 Pin Power Rail. When Zone 0 conditions are not present, the UPS may utilise the '4 Pin Power Rail' to source power for charging the cells and deliver a galvanically isolated Ex ia power on the same 9 Pin Power Rail.

There are also 24 intrinsically safe, adequately segregated data circuits carried through the '24 Pin Signal Rail' to all the modules completing the communications on the backplane. The UPS Module contains several internal printed circuit boards interconnected to each other. It is totally encapsulated except for the keypad switches and LCD display on the front (user available) surface of the module.

The UPS module has two external field connectors P1 and P2 located on the bottom surface.

P1 'External Loopback Connection' contains input and output pins which will normally be used in a loopback configuration but will enable the use of an auxiliary UPS to bypass a faulted/discharged module to temporarily power the backplane.

P2 'External Pushbutton Connection' is used to connect a simple device such as a pushbutton or pressure switch which when actuated will remotely control on/off state of the module. The UPS Type 12002 is also referred to as CX002-xxx

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

a) The UPS must be installed with a compatible module on either side or end plates to form a complete system.

b) The parameters provided below shall be taken into account in installation. Consult the manufacturer for assistance and advice.

Internal Connectors (Backplane) J1, J2 *Note 2					
Description	Circuit	Pin	Function	**12002 UPS**	
Exia 9 pin Power Rail	BUS A	1	POWER_A	Output Circuit *Note 1	Input Circuit *Note 1
		2	GROUND_A		
	BUS B	7	POWER_B		
		4	GROUND_B		
	BUS C	3	POWER_C		
		6	GROUND_C		
	BUS D	8	POWER_D		
		9	GROUND_D		
	Not Connected	5	Not Connected	Not connected	
Exia 24 Pin Signal Rail	Datalogger/ Non Safety CAN BUS	10	CANH_NS	U_i = 9V C_i = 3uF L_i = 0uH	
		11	CANL_NS		
		28	CANH_DL		
		29	CANL_DL		
		19	DATACAN_POWER		
		12	DATACAN_GROUND		
	UPS Toggle	30	TOGGLE_1	Toggle Input Circuit *Note 1	
		33	TOGGLE_GROUND		
		31	TOGGLE_2		
		33	TOGGLE_GROUND		
		32	TOGGLE_3		
		33	TOGGLE_GROUND		
	Safety CAN BUS	13	CANH_S	U_i = 9V Feed through only	
		14	CANL_S		
		26	SAFETYCAN_POWER		
		25	SAFETYCAN_GROUND		
	Heartbeat	17	DATAH	U_i = 9V Feed through only	
		16	DATAL		
	CAN BUS Bridge A	27	CANH_BA	U_i = 9V Feed through only	
		21	CANL_BA		
	CAN BUS Bridge B	22	CANH_BB	U_i = 9V Feed through only	
		23	CANL_BB		
	Spare	15	Reserved for future module	U_i = 9V Feed through only	
		18	Reserved for future module	U_i = 9V Feed through only	

		20	Reserved for future module	U_i = 9V Feed through only
		24	Reserved for future module.	U_i = 9V Feed through only
4 Pin Power Rail	Charging Terminals	37	Ground	Un withdrawn: U_o = 20V I_o = negligible Un available: U_n = 20V I_n = 11.9A
		36		
		35	Power	
		34		

Note 1: Entity parameters that depend of the position of the configuration jumpers are shown in the tables below.

Note 2: J1 and J2 form a back plane through each module with all signals passing through unless stated otherwise.

The UPS shall be configured using two sets of configuration jumpers to supply power to only one Power Bus and connect to only one Toggle line as provided below:

Permitted configurations	UPS #1	UPS #2	UPS #3	UPS #4	UPS #5
Jumpers populated	JP2_1 JP2_2	JP2_3 JP2_4	JP2_5 JP2_6	JP2_7 JP2_8	
BUS A	U_o = 8.95V I_o = 2.4A C_o = 66.8uF L_o = 30uH	U_i = 9V Feed through only	U_i = 9V Feed through only	U_i = 9V Feed through only	U_i = 9V Feed through only
BUS B	U_i = 9V Feed through only	U_o = 8.95V I_o = 2.4A C_o = 66.8uF L_o = 30uH	U_i = 9V Feed through only	U_i = 9V Feed through only	U_i = 9V Feed through only
BUS C	U_i = 9V Feed through only	U_i = 9V Feed through only	U_o = 8.95V I_o = 2.4A C_o = 66.8uF L_o = 30uH	U_i = 9V Feed through only	U_i = 9V Feed through only
BUS D	U_i = 9V Feed through only	U_i = 9V Feed through only	U_i = 9V Feed through only	U_o = 8.95V I_o = 2.4A C_o = 66.8uF L_o = 30uH	U_i = 9V Feed through only

Permitted configurations	UPS #1	UPS #2	UPS #3	UPS #4
Jumpers populated	JP1_1	JP1_2	JP1_3	
Toggle 1	U_i = 9V I_i = 60mA P_i = 70mW C_i = Neg L_i = Neg	U_i = 9V Feed through only	U_i = 9V Feed through only	U_i = 9V Feed through only
Toggle 2	U_i = 9V Feed through only	U_i = 9V I_i = 60mA P_i = 70mW C_i = Neg L_i = Neg	U_i = 9V Feed through only	U_i = 9V Feed through only
Toggle 3	U_i = 9V Feed through only	U_i = 9V Feed through only	U_i = 9V I_i = 60mA P_i = 70mW C_i = Neg L_i = Neg	U_i = 9V Feed through only

External Field Connections P1 and P2

External connections				Entity Parameters	Derived from
Description	Circuit	Pin	Function	12002	
Field Connections External Loopback	P1	1	N/C	U_o = 8.95V I_o = 2.4A C_o = 66.8uF L_o = 30uH	Co determined from spark test results of DS_EZ minus the 7.7uF of the DS_EZ circuit and 5.5uF from the DS_AV circuit.
		2	N/C		
		3	PWRout		
		4	GNDout		
		5	N/C	U_i = 9V I_i = 2.4A C_i = Note1 L_i = Note1	Note 1
		6	N/C		
		7	PWRin		
		8	PWRin		
Field Connections Pushbutton	P2	1	PWR	U_o = 20V I_o = 128mA C_o = 5uF L_o = 30mH	Pushbutton outputs from Un = 20V and resistive barrier DS_HB on sheet 3 using RHB1 for Io (x3 outputs). Co from Table A.2 allow upto 8uF. Customer requested 5uF for upto 45m of cable and simple devices.
		2	PS		
		3	PB		
		4	GND		

Note 1 the input capacitance/inductance is inherited from the backplane power bus connected using JP2_1 JP2_2 or JP2_3 JP2_4 or JP2_5 JP2_6 or JP2_7 JP2_8

Conditions of Certification (Manufacturer's Responsibility) pertaining to Issue 0 of this Certificate:

1. Applicable to PCB 7592-1.0 only: An infallible connection shall be made by placing a wire link between UEZ1 and DEZ1/DEZ3 as detailed in ECO88 from the manufacture.
2. Applicable to PCB 7592-1.0 only: REZ5/REZ24 on PCB 7592-1.0 shall be checked for correct orientation and height to top of resistor is > 0.2mm.

Routine tests pertaining to Issue 0 of this Certificate:

Infallible transformer T1 shall be routine tested in accordance with IEC 60079.11:2011 Clause 11.2 by applying a test voltage of 1500V r.m.s between the input and output windings for 60 seconds, or alternatively at 1800V r.m.s for 1 second duration.

Drawing list pertaining to Issue 0 of this Certificate:

Manufacturer's Documents

Title:	Drawing No.:	Pages	Rev. Level:	Date:
Part# 12002-1.0 Uninterruptible Power Supply (UPS) COVERSHEET	ZUQPTY4FSNWN-191-454	1 of 42	1	2014-10-02
Part# 7593-1.0 UPS PCB2 MAIN LEFT COVERSHEET SCHEMATIC	ZUQPTY4FSNWN-191-454	2 of 42	1	2014-10-02
Part# 7595-1.0 UPS PCB3 DAUGHTER RIGHT COVERSHEET SCHEMATIC	ZUQPTY4FSNWN-191-454	3 of 42	1	2014-10-17
Part# 7597-1.0 UPS PCB4 DAUGHTER LEFT COVERSHEET SCHEMATIC	ZUQPTY4FSNWN-191-454	4 of 42	1	2014-10-02
Part# 7599-1.0 UPS PCB5 FLYBACK SCHEMATIC	ZUQPTY4FSNWN-191-454	5 of 42	1	2014-10-02
Part# 7591-1.0 UPS PCB1 MAIN RIGHT COVERSHEET SCHEMATIC	ZUQPTY4FSNWN-191-454	6 of 42	1	2014-10-02
Part# 7557-1.1 BATTERY PACK PCB1 SCHEMATIC	ZUQPTY4FSNWN-191-454	7 of 42	2	2013-02-25
Part# 7559-1.1 BATTERY PACK PCB2 SCHEMATIC	ZUQPTY4FSNWN-191-454	8 of 42	1	2013-02-25

Title:	Drawing No.:	Pages	Rev. Level:	Date:
Part# 7567-1.0 BREAKOUT BOARD SCHEMATIC	ZUQPTY4FSNWN-191-454	9 of 42	1	2014-12-02
Part# 7585-1.0 UPS-FLEX SCHEMATIC	ZUQPTY4FSNWN-191-454	10 of 42	1	2014-12-02
Part# 7590-1.0 DIG IO OPTO BARRIER SCHEMATIC	ZUQPTY4FSNWN-191-454	11 of 42	1	2013-01-23
Part# DS_GA-1.0 Ideal Diode SCHEMATIC	ZUQPTY4FSNWN-191-454	12 of 42	1	2014-08-25
Part# DS_HP-1.0 Inrush limiter SCHEMATIC	ZUQPTY4FSNWN-191-454	13 of 42	1	2014-12-05
Part# DS_HK-1.0 I2C Current+Voltage Sense with GPIO SCHEMATIC	ZUQPTY4FSNWN-191-454	14 of 42	1	2014-10-24
Part# DS_EZ-1.1 Safety Shunt Circuit SCHEMATIC	ZUQPTY4FSNWN-191-454	15 of 42	3	2012-12-05
Part# DS_BH-1.0 OPTO I2C Um:9V SCHEMATIC	ZUQPTY4FSNWN-191-454	16 of 42	1	2013-07-01
Part# DS_AM-1 OPTO-2CH-Ui_9V-5V-3V3_ISIS SCHEMATIC	ZUQPTY4FSNWN-191-454	17 of 42	2	2014-02-27
Part# DS_AN-1 OPTO-2CH-Ui_9V-3V-5V_ISIS SCHEMATIC	ZUQPTY4FSNWN-191-454	18 of 42	2	2014-02-27
Part# 7595-1.0 PUSH BUTTON & PRESSURE SWITCH SCHEMATIC	ZUQPTY4FSNWN-191-454	19 of 42	1	2014-11-25
Part# DS_AZ-1.0 I2C Opto Isolation NIS-IS SCHEMATIC	ZUQPTY4FSNWN-191-454	20 of 42	2	2014-06-03
Part# DS_FL-1.0 Isolated Voltage Monitor SCHEMATIC	ZUQPTY4FSNWN-191-454	21 of 42	1	2014-07-08

Title:	Drawing No.:	Pages	Rev. Level:	Date:
Part# DS_FK-1.0 DIG IO OPTO BARRIER SCHEMATIC	ZUQPTY4FSNWN-191-454	22 of 42	1	2013-01-23
Part# DS_HB-1.0 BARRIER SCHEMATIC	ZUQPTY4FSNWN-191-454	23 of 42	1	2014-09-30
Part# DS_HE-1.0 DIG IO OPTO BARRIER SCHEMATIC	ZUQPTY4FSNWN-191-454	24 of 42	1	2013-01-23
Part# 7596-1.0 UPS_uP_App_Board SCHEMATIC	ZUQPTY4FSNWN-191-454	25 of 42	1	2013-05-01
Part# 7596-1.0 SAFEPSU SCHEMATIC	ZUQPTY4FSNWN-191-454	26 of 42	2	2014-03-06
Part# 7596-1.0 PSU_1V2 SCHEMATIC	ZUQPTY4FSNWN-191-454	27 of 42	2	2014-03-06
Part# 7596-1.0 PSU_3V3 SCHEMATIC	ZUQPTY4FSNWN-191-454	28 of 42	2	2014-03-06
Part# 7596-1.0 PSU_5V0 SCHEMATIC	ZUQPTY4FSNWN-191-454	29 of 42	1	2014-03-06
Part# DS_BT-1.0 MEMORY_SPI_FLASH_4MB SCHEMATIC	ZUQPTY4FSNWN-191-454	30 of 42	1	2013-06-25
Part# DS_BR-1.0 SAFETY µP SCHEMATIC	ZUQPTY4FSNWN-191-454	31 of 42	1	2013-05-29
Part# DS_BS-1.0 Sensor - Temperature - Analog SCHEMATIC	ZUQPTY4FSNWN-191-454	32 of 42	1	2013-06-25
Part# DS_BQ-1.0 BQ_SENSOR-RTC-I2C-0x68-No Coin Cell SCHEMATIC	ZUQPTY4FSNWN-191-454	33 of 42	1	2013-06-25
Part# DS_EB-1.0 ISOLATED CAN TRANSCEIVER SCHEMATIC	ZUQPTY4FSNWN-191-454	34 of 42	2	2014-05-12

Title:	Drawing No.:	Pages	Rev. Level:	Date:
Part# DS_AV-1.0 IS BARRIER Ui_9V Ci_5.5uF Po_<3.15W SCHEMATIC	ZUQPTY4FSNWN-191-454	35 of 42	1	2013-08-12
Part# DS_EY-1.0 Isolated Flyback SCHEMATIC	ZUQPTY4FSNWN-191-454	36 of 42	1	2014-09-23
Part# DS_EF-1.0 CUBEx_BACKPLANE_LEFT SCHEMATIC	ZUQPTY4FSNWN-191-454	37 of 42	2	2013-07-22
Part# DS_EF-1.0 CUBEx_BACKPLANE_RIGHT SCHEMATIC	ZUQPTY4FSNWN-191-454	38 of 42	1	2013-07-22
Part# DS_HL-1.0 GAS GUAGE - BQ20Z80A - SMBUS SCHEMATIC	ZUQPTY4FSNWN-191-454	39 of 42	1	2014-10-28
Part# DS_HM-1.0 LI-ION BATTERY CHARGER SCHEMATIC	ZUQPTY4FSNWN-191-454	40 of 42	1	2014-10-28
Part# DS_HR-1.0 PSU LDO SCHEMATIC	ZUQPTY4FSNWN-191-454	41 of 42	1	2014-12-05
Part# DS_HS-1.0 Current Limiter SCHEMATIC	ZUQPTY4FSNWN-191-454	42 of 42	1	2014-12-05
PART 12002-1 UPS CERTIFICATION DETAIL	ZUQPTY4FSNWN-191-407	1	1	2014-05-26
PART 12002-1 UPS DATASHEET	ZUQPTY4FSNWN-191-408	1	1	2014-02-26
Part# 7556-1.1 UPS BATTERY 1 (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-466	7	1	2014-12-02
Part# 7558-1.2 UPS BATTERY 2 (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-467	6	1	2014-12-02

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Annexe

Annexe for Certificate No.:	IECEx ITA 14.0035X	Issue No.:	2

Title:	Drawing No.:	Pages	Rev. Level:	Date:
Part# 7566 1.0 UPS Breakout (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-464	4	1	2014-12-02
Part# 7584-1.0 UPS FLEX (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-468	9	1	2014-12-02
Part# 7590-1.0 UPS PCB1 MAIN RIGHT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-459	9	1	2014-12-02
Part# 7592-1.0 UPS PCB2 MAIN LEFT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-461	9	1	2014-12-02
Part# 7592-1.1 UPS PCB2 MAIN LEFT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-475	9	1	2015-01-27
Part# 7594-1.0 PCB3 ISOLATION RIGHT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-460	9	1	2014-12-02
Part# 7596-1.0 PCB4-CPU LEFT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-462	9	1	2014-12-02
Part# 7598-1.0 UPS PCB5 FLYBACK (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-465	9	1	2014-12-02
Part# 2181-936-2.0 CUBEx UI Faceplate SCHEMATIC	ZUQPTY4FSNWN-191-448	1 of 7	1	2014-03-06
Part# 7521-1.2 UIFP Main PCB SCHEMATIC	ZUQPTY4FSNWN-191-448	2 of 7	1	2015-01-12

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Title:	Drawing No.:	Pages	Rev. Level:	Date:
Part# 7521-1.2 UIFP Load SCHEMATIC	ZUQPTY4FSNWN-191-448	3 of 7	1	2015-01-12
Part# 7521-1.2 UIFP LCD SCHEMATIC	ZUQPTY4FSNWN-191-448	4 of 7	1	2015-01-12
Part# 7525-1.0 UIFP FLEX Keypad SCHEMATIC	ZUQPTY4FSNWN-191-448	5 of 7	1	2014-02-11
Part# DS_BZ-1 IS BARRIER Keypad SCHEMATIC	ZUQPTY4FSNWN-191-448	6 of 7	1	2014-01-08
Part# DS_EJ-1 Bluetooth 4.0 BLE SCHEMATIC	ZUQPTY4FSNWN-191-448	7 of 7	1	2014-03-06
Part 2181-936-2 UIFP CERTIFICATION DETAIL	ZUQPTY4FSNWN-191-445	1	1	2013-07-30
Part# 7520 UIFP Main PCB (Set of PCB Artwork)	ZUQPTY4FSNWN-191-449	10	1	2015-01-12
Part# 7525 UIFP FLEX Keypad (All Layers) PCB Artwork	ZUQPTY4FSNWN-191-450	6	1	2015-01-12

Variations permitted by Issue 1 of this certificate:

1. The applicant and manufacturer have changed to NTMS.
2. Revised QAR reference to AU/ITA/QAR08.0004/09 to include this equipment in the scope of the audit of the manufacturer.
3. The manufacturer has submitted a complete set of drawings which have been retitled with their name. Where the drawing contained pictures showing the name of the earlier manufacturer, these have been edited to that extent. No other changes were made, and the revised drawing list is included below.
4. There are no changes in the parameters or conditions from the earlier issue of the certificate.

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:

Manufacturer's Documents

Title:	Drawing No.:	Pages	Rev. Level:	Date:
12002 Uninterruptible Power Supply (UPS)	ZUQPTY4FSNWN-191-454	1 of 42	1.1	2014-10-02
7593 UPS PCB2 MAIN LEFT COVERSHEET	ZUQPTY4FSNWN-191-454	2 of 42	1.1	2014-10-02
7595 UPS PCB3 DAUGHTER RIGHT COVERSHEET	ZUQPTY4FSNWN-191-454	3 of 42	1.1	2014-10-17
7597 UPS PCB4 DAUGHTER LEFT COVERSHEET	ZUQPTY4FSNWN-191-454	4 of 42	1.1	2014-10-02
7599 UPS PCB5 FLYBACK	ZUQPTY4FSNWN-191-454	5 of 42	1.1	2014-10-02
7591 UPS PCB1 MAIN RIGHT COVERSHEET	ZUQPTY4FSNWN-191-454	6 of 42	1.1	2014-10-02
7557 BATTERY PACK PCB1	ZUQPTY4FSNWN-191-454	7 of 42	2.2	2013-02-25
7559 BATTERY PACK PCB2	ZUQPTY4FSNWN-191-454	8 of 42	1.2	2013-02-25
7567 BREAKOUT BOARD	ZUQPTY4FSNWN-191-454	9 of 42	1.1	2014-12-02
7585 UPS-FLEX	ZUQPTY4FSNWN-191-454	10 of 42	1.1	2014-12-02
7590 DIG IO OPTO BARRIER	ZUQPTY4FSNWN-191-454	11 of 42	1.1	2013-01-23

Title:	Drawing No.:	Pages	Rev. Level:	Date:
DS_GA Ideal Diode	ZUQPTY4FSNWN-191-454	12 of 42	1.1	2014-08-25
DS_HP Inrush limiter	ZUQPTY4FSNWN-191-454	13 of 42	1.1	2014-12-05
DS_HK I2C Current+Voltage Sense with GPIO	ZUQPTY4FSNWN-191-454	14 of 42	1.1	2014-10-24
DS_EZ Safety Shunt Circuit	ZUQPTY4FSNWN-191-454	15 of 42	3.1	2012-12-05
DS_BH OPTO I2C Um:9V	ZUQPTY4FSNWN-191-454	16 of 42	1.1	2013-07-01
DS_AM OPTO-2CH-Ui_9V-5V-3V3_ISIS	ZUQPTY4FSNWN-191-454	17 of 42	2.1	2013-06-13
DS_AN OPTO-2CH-Ui_9V-3V-5V_ISIS	ZUQPTY4FSNWN-191-454	18 of 42	2.1	2013-06-13
7595 PUSH BUTTON & PRESSURE SWITCH	ZUQPTY4FSNWN-191-454	19 of 42	1.1	2014-11-25
DS_AZ I2C Opto Isolation NIS-IS	ZUQPTY4FSNWN-191-454	20 of 42	2.1	2014-06-03
DS_FL Isolated Voltage Monitor	ZUQPTY4FSNWN-191-454	21 of 42	1.1	2014-07-08
DS_FK DIG IO OPTO BARRIER	ZUQPTY4FSNWN-191-454	22 of 42	1.1	2013-01-23
DS_HB BARRIER	ZUQPTY4FSNWN-191-454	23 of 42	1.1	2014-09-30
DS_HE DIG IO OPTO BARRIER	ZUQPTY4FSNWN-191-454	24 of 42	1.1	2013-01-23
7596 UPS_uP_App_Board	ZUQPTY4FSNWN-191-454	25 of 42	1.1	2013-05-01
7596 SAFEPSU	ZUQPTY4FSNWN-191-454	26 of 42	2.1	2014-03-06

Title:	Drawing No.:	Pages	Rev. Level:	Date:
7596 PSU_1V2	ZUQPTY4FSNWN-191-454	27 of 42	2.1	2014-03-06
7596 PSU_3V3	ZUQPTY4FSNWN-191-454	28 of 42	2.1	2014-03-06
7596 PSU_5V0	ZUQPTY4FSNWN-191-454	29 of 42	1.1	2014-03-06
DS_BT MEMORY_SPI_FLASH_4MB	ZUQPTY4FSNWN-191-454	30 of 42	1.1	2013-06-25
DS_BR SAFETY µP	ZUQPTY4FSNWN-191-454	31 of 42	1.1	2013-05-29
DS_BS Sensor - Temperature - Analog	ZUQPTY4FSNWN-191-454	32 of 42	1.1	2013-06-25
DS_BQ BQ_SENSOR-RTC-I2C-0x68-No Coin Cell	ZUQPTY4FSNWN-191-454	33 of 42	1.1	2013-06-25
DS_EB ISOLATED CAN TRANSCEIVER	ZUQPTY4FSNWN-191-454	34 of 42	2.1	2013-10-08
DS_AV IS BARRIER Ui_9V Ci_5.5uF Po_<3.15W	ZUQPTY4FSNWN-191-454	35 of 42	1.1	2013-08-12
DS_EY Isolated Flyback	ZUQPTY4FSNWN-191-454	36 of 42	1.1	2014-09-23
DS_EF CUBEx_BACKPLANE_LEFT	ZUQPTY4FSNWN-191-454	37 of 42	2.1	2013-07-22
DS_EF CUBEx_BACKPLANE_RIGHT	ZUQPTY4FSNWN-191-454	38 of 42	1.1	2013-07-22
DS_HL GAS GUAGE - BQ20Z80A - SMBUS	ZUQPTY4FSNWN-191-454	39 of 42	1.1	2014-10-28
DS_HM LI-ION BATTERY CHARGER	ZUQPTY4FSNWN-191-454	40 of 42	1.1	2014-10-28
DS_HR PSU LDO	ZUQPTY4FSNWN-191-454	41 of 42	1.1	2014-12-05

DS_HS Current Limiter	ZUQPTY4FSNWN-191-454	42 of 42	1.1	2014-12-05
UPS CERTIFICATION DETAIL	12002-A	1 of 2	2	2017-02-10
UPS DATASHEET	12002-A	2 of 2	2	2017-02-10
Part# 7556 UPS BATTERY 1 (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 466	7	1.2	2014-12-02
Part# 7558 UPS BATTERY 2 (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 467	6	1.3	2014-12-02
Part# 7566 UPS Breakout (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 464	4	1.1	2014-12-02
Part# 7584 UPS FLEX (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 468	9	1.1	2014-12-02
Part# 7590 UPS PCB1 MAIN RIGHT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 459	9	1.1	2014-12-02
Part# 7592 UPS PCB2 MAIN LEFT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 461	9	2.1	2014-12-02
Part# 7592 UPS PCB2 MAIN LEFT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 475	9	2.2	2015-01-27
Part# 7594 PCB3 ISOLATION RIGHT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 460	9	1.1	2014-12-02
Part# 7596 PCB4-CPU LEFT (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 462	9	1.1	2014-12-02
Part# 7598 UPS PCB5 FLYBACK (All Layers) PCB Artwork	ZUQPTY4FSNWN-191- 465	9	1.1	2014-12-02
UIFP Faceplate				
2181-936 CUBEx UI Faceplate SCHEMATIC	ZUQPTY4FSNWN-191-448	1 of 7	2.1	2014-03-06
7521 UIFP Main PCB SCHEMATIC	ZUQPTY4FSNWN-191-448	2 of 7	1.3	2015-01-12
7521 UIFP Load SCHEMATIC	ZUQPTY4FSNWN-191-448	3 of 7	1.3	2015-01-12
7521 UIFP LCD SCHEMATIC	ZUQPTY4FSNWN-191-448	4 of 7	1.3	2015-01-12
7525 UIFP FLEX Keypad SCHEMATIC	ZUQPTY4FSNWN-191-448	5 of 7	1.1	2014-02-11
DS_BZ IS BARRIER Keypad SCHEMATIC	ZUQPTY4FSNWN-191-448	6 of 7	1.1	2014-01-08

DS_EJ Bluetooth 4.0 BLE SCHEMATIC	ZUQPTY4FSNWN-191-448	7 of 7	1.1	2014-03-06
Part# 7520 UIFP Main PCB (all layers) PCB Artwork	ZUQPTY4FSNWN-191- 449	10	1.3	2015-01-12
Part# 7525 UIFP FLEX Keypad (all layers) PCB Artwork	ZUQPTY4FSNWN-191- 450	6	1.1	2015-01-12
UIFP CERTIFICATION DETAIL	2181-936-A	1	2	2017-03-02

Variations permitted by Issue 2 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 2 of this certificate:

There are no changes to the conditions of use.

Drawings Associated with the Issue 2 of this Certificate:

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