

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx EXV 15.0008U		Issue No: 0	Certificate history:	
Status:	Current		Page 1 of 5		
Date of Issue:	2016-01-08				
Applicant:	EXIS Energy Ltd. GRANARY OFFICE, Mill Granary, East Knapton YO17 8JA United Kingdom				
Electrical Apparatus: Optional accessory:	Intrinsically Safe Battery Pack EXI	8			
Type of Protection:	Intrinsic Safety "i"				
Marking:	Ex ib IIC (Ta = -10°C to +40°C)				
Approved for issue on behalf of the IECEx Certification Body:		S D'Henin			
Position:		Certification Manager			
Signature: (for printed version)					
Date:					
 This certificate and schedule ma This certificate is not transferable The Status and authenticity of the 	y only be reproduced in full. e and remains the property of the is:	suing body.	lehsite		

Certificate issued by:

ExVeritas Limited Units 16-18 Abenbury Way Wrexham Ind. Est. Wrexham LL 139UZ United Kingdom





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Date of Issue:	2016-01-08
Manufacturer:	EXIS Energy Ltd. GRANARY OFFICE, Mill Granary, East Knapton YO17 8JA United Kingdom

Additional Manufacturing location(s):

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 electrical apparatus 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 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

This Certificate does not indicate compliance with electrical 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:

GB/EXV/ExTR15.0009/00

Quality Assessment Report:

GB/EXV/QAR15.0003/00



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The intrinsically safe battery pack EXIS is designed to be used in hand-held devices as an Ex Component. It is comprised of two LG ICR18650D1 Lithium cells connected in series and a board that includes the safety critical components that limit the output parameters. The cells and the board are encapsulated and housed in a suitable enclosure, this enclosure includes an external connector that is covered by a cap to provide mechanical protection and IP54 rating when not assembled in a host device.

Electrical output parameters are according to the attached.

Schedule of limitations



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CONDITIONS OF CERTIFICATION: NO



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Additional information:

See annex for the intrinsically safe entity parameters.

Annex:

IECEx 15.0008U - Annex.pdf



Description Continued:

Electrical Output Parameters

Host equipment provided with infallible galvanic insulation:

Terminals combination	Uo	lo	Po	Co	Lo	Uconstant	Pconstant	$C_i and L_i$
PWR_EXIS_DSP vs PWR_0V	8.4 V	750 mA	1.6 W	3.4 µF	47 µH	7.6 V	1.2 W	Negligible
PWR_EXIS_LCD vs PWR_0V	8.4 V	750 mA	1.6 W	3.4 µF	47 µH	7.6 V	1.2 W	Negligible
PWR_EXIS_SENSOR vs PWR_0V	8.4 V	750 mA	1.6 W	3.4 µF	47 µH	7.6 V	1.2 W	Negligible
PWR_EXIS_VRAIL1 vs PWR_0V	8.4 V	657 mA	1.4 W	3.4 µF	61 µH	7.6 V	920 mW	Negligible
PWR_EXIS_VRAIL2 vs PWR_0V	8.4 V	657 mA	1.4 W	3.4 µF	61 µH	7.6 V	920 mW	Negligible
EXIS_CONTROL vs PWR_0V	8.4 V	18 mA	40 mW	3.4 µF	85 mH	7.6 V	31 mW	Negligible

NOTES:

a) Each power circuit has the same PWR_0V potential, because all the lines are connected to the negative pole of the cells series association. However, each circuit has a PWR_0V line infallible segregated of the others, which assure that the combination of the currents at only one PWR_0V line is not possible to the output.

b) Constant Power and Voltage shall be considered for thermal evaluations.

When the host equipment is provided without galvanic insulation and the different IS circuits can be combined, the following parameters apply:

U _o = 8.4 V	Constant p <mark>arameters:</mark>		
I _o = 3.6 A	PWR_EXIS <mark>_DSP:</mark>	U = 7.6 V @ I	= 425 m <mark>A @ P = 1.2 W</mark>
$P_o = 7.5 W$	PWR_EXIS_L <mark>CD:</mark>	U = 7.6 V @ I	= 425 mA @ P = 1.2 W
$C_o = 3.4 \ \mu F$	PWR_EXIS_S <mark>ENSOR:</mark>	U = 7.6 V @ I	= 42 <mark>5 mA @ P = 1.2 W</mark>
L _o = 2 μΗ	PWR_EXIS_VR <mark>AIL1:</mark>	U = 7.6 V @ I	= 4 <mark>25 mA @ P = 920 mW</mark>
	PWR_EXIS_VRAIL2:	U = 7.6 V @ I	= <mark>425 mA @ P = 920 m</mark> W
	EXIS_CONTROL:	U = 7.6 V @ I	<mark>= 16 mA @ P = 31 m</mark> W
	PWR_0V under fault:	I = 2.14 A	

Routine Tests: N/A

Special Conditions for manufacture: N/A

Annex to: IECEx EXV 15.0008U Issue 0



Manufacturer's documents:						
Title:	Drawing No.:	Rev	Date:			
EXIS BatteryPack System	CDX1000-200	1.3d	2015/05/21			
CorDEX EXIS-740 BatteryPack System Schematic BOM	CDX1000-201	1.3d	2015/05/21			
Instructions for Safe Use Intrinsically Safe Battery Pack	EE740SOM	A	-			
EXIS BatteryPack schematic	CDX1000-220	1.3	2015/04/30			
EXIS BatteryPack BOM (Certification)	CDX1000-222	1.3	2015/05/21			
EXIS BatteryPack PCB fabrication drawing	CDX1000-223	1.3	2015/05/01			
EXIS BatteryPack PCB assembly drawing	CDX1000-224	1.3	2015/05/01			
EXIS BatteryPack RS274 (gerbers)	CDX1000_EXISBatteryPack	1.3	2015/05/01			
EXIS PackConn schematic	CDX1000-240	1.3	2015/04/30			
EXIS PackConn BOM (Certification)	CDX1000-242	1.3	2015/05/20			
EXIS PackConn PCB fabrication drawing	CDX1000-243	1 .3	2015/04/30			
EXIS PackConn PCB assembly drawing	CDX1000-244	1.3	2015/04/30			
EXIS PackConn RS274 (gerbers)	CDX1000_EXISPackConn	1.3	2015/04/30			
EXIS BatteryPack General Assembly	CDX1000-019	С	2015/07/29			
EXIS BatteryPack encapsulation	CDX1000-025	D	2015/07/2 <mark>5</mark>			
EXIS BatteryPack clip General Assembly	CDX1000-030	В	2015/0 <mark>5/20</mark>			
EXIS BatteryPack rating plate	CDX1000-441	D	2015/1 <mark>1/18</mark>			
IECEx OEM Declaration	N/A	N/A	2015 <mark>/11/04</mark>			
IECEx Trade Declaration	N/A	N/A	2015/11/04			