



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 20ATEX2004X** Issue: **0**

4 Equipment: **G7 EXO model numbers G7EXO-AZ2, G7EXO-EU2, G7EXO-NA2**

5 Applicant: **Blackline Safety**

6 Address: **Unit 100, 803 - 24 Avenue SE  
Calgary, AB T2G 1P5  
Canada**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service, notified body number 0518 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 1G  
Ex ia IIC T3 Ga  
Ta = -20°C to +50°C

Project Number 80011717

Signed: N Jones

Title: Certification Manager

Sira Certification Service  
Unit 6 Hawarden Industrial Park  
Hawarden, CH5 3US, United Kingdom



## SCHEDULE

### EU-TYPE EXAMINATION CERTIFICATE

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#### 13 DESCRIPTION OF EQUIPMENT

Transportable long-term area gas monitor instrument G7 EXO Models G7EXO-AZ2, G7EXO-EU2 and G7EXO-NA are 3 models of multi-gas monitor which continuously monitor toxic and combustible gas concentrations using a variety of sensors types using various measuring principles. The G7 EXO Models are equipped with integrated cellular modules supporting several forms of connectivity. The G7 EXO Models are intended for automated long-term area gas monitor.

The models G7EXO-AZ2, G7EXO-EU2 and G7EXO-NA share the same enclosure and firmware. Besides the different model designation on the nameplates, the differences between the models G7EXO-AZ2, G7EXO-EU2 and G7EXO-NA follow:

#### Country Dependent Cell Radio Modules

##### G7EXO-NA2:

MOD300 (cellular):

LTE: Band 12 (700 MHz), Band 5 (850 MHz), Band 4 (1700 MHz), Band 2 (1900 MHz)

3G: Band 5 (850 MHz), Band 2 (1900 MHz)

##### G7EXO-EU2:

MOD300 (cellular):

LTE: Band 20 (800 MHz), Band 3 (1800 MHz), Band 7 (2600 MHz),

2G: E-GSM 900 MHz, DCS 1800 MHz

##### G7EXO-AZ2:

MOD300 (cellular):

LTE: Band 28 (700 MHz), Band 8 (900 MHz), Band 3 (1800 MHz)

3G: Band 1 (2100 MHz)

All models also contain the following communications modules on the main board (EXO Main):

U400: receive only radio module, no transmission capabilities

U501: 2.4GHz BT/BLE/WiFi

The housing is constructed of Aluminum (ANSI 380.0-F). The front of the monitor has an LCD Display, with buttons to change menu items. There is also an Alarm Reset switch. All models are powered by a rechargeable Lithium polymer battery. The Lithium polymer battery must be replaced and charged outside the hazardous area.

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Product overview:

Input Entity Parameters, Group IIC (Zone 0):

Parameters	EXO – Input Power Port for Solar Panel Input / Trickle Charger gas application
Terminals	External Side Connector Pin 1 – Input Power Pin 2 – GND Pin 3 – Debug Port Pin 4 – Debug Port
Voltage $U_i$	18Vdc
Current $I_i$	500mA
Power $P_i$	5.3W
Effective internal capacitance $C_i$	0nF
Effective internal inductance $L_i$	12.48uH

Output Entity Parameters, Group IIC (Zone 0):

Parameters	EXO – Relay Outputs 1 & 2 gas application
Terminals	External Side Connector Pin 1 – Input for Low Side Switch Pin 2 – GND Pin 3 – Output(20V) Pin 4 – Output(5V)
Pin 1 Input Entity Parameters	
Voltage $U_i$	24VDC
Current $I_i$	3.33A
Power $P_i$	1.25W
Effective internal capacitance $C_i$	0 $\mu$ F
Effective internal inductance $L_i$	0H
Pin 3 Entity Parameters	
$U_o$	20.76VDC
$I_o$	268mA
$P_o$	1.39W
$C_o$	0.194 $\mu$ F
$R_o$	77.46 $\Omega$
$L_o$	495 $\mu$ H
$L_o/R_o$	6.39 $\mu$ H/ $\Omega$

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Pin 4 Entity Parameters	
U <sub>o</sub>	4.94VDC
I <sub>o</sub>	0.108A
P <sub>o</sub>	97mW
C <sub>o</sub>	100μF
U <sub>o</sub> /I <sub>o</sub>	33.25Ω
L <sub>o</sub>	3.05μH
L <sub>o</sub> /R <sub>o</sub>	91.7μH/Ω

**14 DESCRIPTIVE DOCUMENTS**

**14.1 Drawings**

Refer to Certificate Annexe.

**14.2 Associated Reports and Certificate History**

Issue	Date	Report number	Comment
0	17 September 2020	R80011717A	The release of the prime certificate.

**15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)**

15.1 The enclosure is manufactured from Aluminium, magnesium, titanium or zirconium which may be used at the accessible surface of the equipment. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered when the EXO is being installed in Zone 0 locations for group II level of protection Ga.

**16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)**

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

# Certificate Annexe



Certificate Number: Sira 20ATEX2004X  
 Equipment: G7 EXO model numbers G7EXO-AZ2,  
 G7EXO-EU2, G7EXO-NA2  
 Applicant: Blackline Safety

## Issue 0

Drawing	Sheets	Rev.	Date	Title
SCH_102873	1 to 17	6	09 Sep 20	EXO Main
SCH_103039	1 of 1	3	09 Sep 20	EXO Antenna
SCH_103041	1 of 1	3	09 Sep 20	EXO Battery Pack
SCH_103043	1 of 1	3	09 Sep 20	EXO LCD
SCH_103045	1 of 1	2	09 Sep 20	EXO Flex LED
SCH_103063	1 of 1	1	09 Sep 20	EXO Cartridge Adaptor
SCH_103331	1 of 1	2	09 Sep 20	EXO Power Adaptor
SCH_10341	1 of 1	2	09 Sep 20	EXO Cellular Antenna
PCB_102872	1 to 6	4	09 Sep 20	EXO Main
PCB_103038	1 to 4	3	09 Sep 20	EXO Antenna
PCB_103040	1 to 4	3	09 Sep 20	EXO Battery Pack
PCB_103042	1 to 2	3	09 Sep 20	EXO LCD
PCB_103044	1 to 2	2	09 Sep 20	EXO Flex LED
PCB_103062	1 to 2	1	09 Sep 20	EXO Cartridge Adaptor
PCB_103330	1 to 6	2	09 Sep 20	EXO Power Adaptor
PCB_103451	1 of 1	2	09 Sep 20	EXO Cellular Antenna
FAB_102872	1 to 2	4	09 Sep 20	EXO Main PCB Fab
BOM_102873	1 of 1	6	09 Sep 20	EXO Main
BOM_103039	1 of 1	3	09 Sep 20	EXO Antenna
BOM_103041	1 of 1	3	09 Sep 20	EXO Battery Pack
BOM_103043	1 of 1	3	09 Sep 20	EXO LCD
BOM_103045	1 of 1	2	09 Sep 20	EXO Flex LED
BOM_103063	1 of 1	1	09 Sep 20	EXO Cartridge Adaptor
BOM_103331	1 of 1	2	09 Sep 20	EXO Power Adaptor
01696-38546	1 to 4	E	09 Sep 20	Door
01696-38547	1 to 8	E	09 Sep 20	Front Enclosure
01696-38548	1 to 6	F	09 Sep 20	Back Enclosure
01696-38549	1 to 5	E	09 Sep 20	Battery Back Enclosure
01696-38550	1 to 5	D	09 Sep 20	Battery Front Enclosure
01696-38552	1 to 4	C	09 Sep 20	Handle
01696-38557	1 to 4	B	09 Sep 20	Right Pump Cover
01696-38558	1 to 3	B	09 Sep 20	Left Pump Cover
01696-38559	1 to 5	E	09 Sep 20	Speaker
01696-38562	1 to 5	B	09 Sep 20	Right Bumper
01696-38563	1 of 1	A	09 Sep 20	Left Bumper
01696-41583	1 to 3	D	09 Sep 20	Latch
01696-41977	1 to 4	D	09 Sep 20	Keypad
01696-42130	1 of 1	E	09 Sep 20	Tripod plate
01696-42271	1 to 2	G	09 Sep 20	Window
01696-42325	1 to 3	C	09 Sep 20	Latch holder
01696-42328	1 to 3	B	09 Sep 20	Handle bumper
01696-42410	1 to 3	B	09 Sep 20	Door gas channel
01696-43709	1 of 1	A	09 Sep 20	Speaker Grill
01696-43757	1 to 3	B	09 Sep 20	Inlet Cap

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# Certificate Annexe



Certificate Number: Sira 20ATEX2004X

Equipment: G7 EXO model numbers G7EXO-AZ2,  
G7EXO-EU2, G7EXO-NA2

Applicant: Blackline Safety

Drawing	Sheets	Rev.	Date	Title
01696-43764	1 of 1	C	09 Sep 20	Label alarm light front
01696-43765	1 of 1	C	09 Sep 20	Label alarm light back
01696-43766	1 of 1	C	09 Sep 20	Label alarm light right
01696-43767	1 of 1	C	09 Sep 20	Label alarm light left
01696-43768	1 of 1	B	09 Sep 20	EXO Label Identification
01696-A14209	1 to 3	C	09 Sep 20	EXO assembly
01696-A14634	1 to 2	C	09 Sep 20	Battery pack assembly
LBL_103418	1 of 1	3	09 Sep 20	EXO Label Artwork
LBL_103475	1 of 1	0	09 Sep 20	EXO Battery Pack Label Artwork
MAN_103482	1 to 44	12	09 Sep 20	EXO Installation Manual
MAN_103744	1 of 1	1	09 Sep 20	EXO Battery Pack Installation Manual
01696-A18940	1 of 1	A	09 Sep 20	Main PCB Potting Procedure
01696-A19146	1 of 1	B	09 Sep 20	Battery PCB Potting Procedure

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