



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx EXA 14.0001 Issue No: 1 Certificate history:  
Status: **Current** Page 1 of 5 [Issue No. 1 \(2015-10-20\)](#)  
Date of Issue: **2015-10-20** [Issue No. 0 \(2014-07-21\)](#)  
Applicant: **Solexy Srl.**  
Via Enrico Fermi 2  
I-25015 Desenzano Del Garda (BS)  
**Italy**  
Electrical Apparatus: **Control unit**  
*Optional accessory:*  
Type of Protection: **db, lb, mb, tb**  
Marking:  
(control unit without antenna coupler)  
Ex db IIC T6-T5-T4 Gb  
Ex tb IIIC T110°C/T110°C/T140°C Db  
Ex db I Mb  
(control unit with antenna coupler AX series)  
Ex db mb [ja Ga] IIA/IIB/IIC T6 Gb  
Ex mb tb [ja Da] IIIC T85°C Db  
Ex db mb [ja Ma] I Mb

Approved for issue on behalf of the IECEx  
Certification Body:

Stipo Đerek

Position:

Director General

Signature:  
(for printed version)

Date:

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 the [Official IECEx Website](#).

Certificate issued by:



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Agencija za prostore ugrožene eksplozivnom atmosferom (Ex-  
Agencija)  
Bastijanova bb  
HR-10001 Zagreb  
Croatia





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Manufacturer: **Solexy Srl.**  
Via Enrico Fermi 2  
I-25015 Desenzano Del Garda (BS)  
**Italy**

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:

<b>IEC 60079-0 : 2011</b> Edition:6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-1 : 2014-06</b> Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
<b>IEC 60079-11 : 2011</b> Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-18 : 2014</b> Edition:4.0	Explosive atmospheres – Part 18: Equipment protection by encapsulation "m"
<b>IEC 60079-31 : 2013</b> Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*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:

[HR/EXA/ExTR14.0005/00](#)      [HR/EXA/ExTR14.0005/01](#)

Quality Assessment Report:

[HR/EXA/QAR14.0001/00](#)



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The WA and WS type control units are designed in two versions, one is control unit without antenna coupler and the other is control unit with Antenna coupler AX series.

For details see annex of this certificate.

**CONDITIONS OF CERTIFICATION: NO**



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

- Evaluation of product according to current editions of standards
- Optional assembly with Antenna Coupler Types AXabcdefX series certified by IECEx DNV 11.0015U (evaluation by IEC 60079-11, evaluation of intrinsic safety parameters of installed antenna coupler according to installed radio transmitter devices)
- Updated codification of product (nomenclature)

## Annex:

[IECEx\\_EXA\\_14\\_0001\\_ISSUE No\\_1\\_annex\\_01.pdf](#)



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The WA and WS type control units consist of an Ex d / Ex tb enclosure with threaded cover, made of aluminum with internal volume of 1020 cm<sup>3</sup> for WA type, or stainless steel and 1167 cm<sup>3</sup> for WS type. They can be used to enclose a wide range of electronic devices, such as radio modems, transceivers, repeaters, Ethernet access point, Ethernet switches, terminals, etc...

Enclosures have max 4 cable/conduit entries. To provide IP6X for Ex tb, an elastomeric O-ring is placed between the cover and the body of the enclosure.

Only WS type is suitable for underground mining applications.

New optional assembly is added, consisting of WA or WS enclosure with certified Antenna Coupler AXabcdefX series (IECEX DNV 11.0015U) attached to its cable entries.

Antenna couplers act as a capacitive coupling between an RF transmitter installed in an enclosure and a passive antenna installed outside the enclosure. It is designed to be mounted to the cable entry of a flameproof enclosure engaged in a threaded flameproof joint. The antenna coupler blocks DC signals and provides very high impedance to low frequency AC signals.

Ambient temperature range depends on type of radio transmitting device installed inside control unit housing. Refer to Table 1 where complete list of optional types of installed radio transmitting devices is given together with ambient temperature range for each device. Table 2, Table 3 and Table 4 contain cross reference showing relation between applicable combination of gas group, maximum allowable antenna gain and type of antenna coupler for type of installed device.

#### **Technical data (option without antenna coupler)**

Max. Power Dissipation: 24W

Max. Voltage: 125 Vdc or 250 Vac

The equipment is intended to be used in an ambient temperature range according to the following table:

Gas	Dust	Ta
T4	140 °C	-60°C Ta 105 °C
T5	110 °C	-60°C Ta 80 °C
T6	110 °C	-60°C Ta 60 °C

#### **Technical data (option with antenna coupler)**

Max. Power Dissipation: 24W

Max. Voltage: 125 Vdc or 250 Vac

Refer to Table 1, Table 2, Table 3 and Table 4.



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### Type designation coding

X	WA	xxx	xx	-	xx	x	xx	-	xxxxx
1	2	3	4		5	6	7		8

1 – Family

H -> Empty enclosure

S -> Enclosure supply with electronic device

2 – Housing (2 digits)

WA ⇨ WA series made in aluminum

WS ⇨ WS series made in stainless steel

3 – Device code (3 digits)

Identify the device installed (type, model and manufacturer)

4 – Antenna coupler (2 digits)

Identify the series and quantity of Solexy Antenna Coupler assembled on enclosure (optional accessories, 00 identify an enclosure without Solexy Antenna Coupler)

5 – Cable Entries (2 digits)

Identify the cable entries combination

6 – Colour - Brand (1 digit)

Identify the colour of housing and/or brand

7 – Marking (2 digits)

Identify the Ex marking

8 – Special Execution (5 digits)

Identify special execution



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**Table 1**

Device code	Ambient temperature range (°C)			
	WA		WS	
	max	min	max	min
310	72	-30	70	-30
320	74	-30	73	-30
340	74	-30	72	-30
341	70	-30	65	-30
370	75	-40	70	-40
510	70	-30	65	-30
540	70	-30	65	-30
570	75	-40	70	-40
110	69	-20	62	-20
111	62	-20	49	-20
160	62	-20	49	-20
16A	66	-20	57	-20
16B	69	-20	62	-20
161	69	-20	62	-20
162	62	-20	49	-20
16C	66	-20	57	-20
16D	69	-20	62	-20
163	62	-20	49	-20
16E	66	-20	57	-20
16F	69	-20	62	-20
167	62	-20	49	-20
16G	66	-20	57	-20
16H	68	-20	61	-20
Ux0	68	-20	61	-20
Ux1	68	-20	61	-20
Ux2	68	-20	61	-20
Ux3	68	-20	61	-20
Ux4	68	-20	61	-20
Ux5	68	-20	61	-20
Vx0	68	-20	61	-20
Vx1	68	-20	61	-20
Vx2	68	-20	61	-20

Device code	Ambient temperature range (°C)			
	WA		WS	
	max	min	max	min
Vx3	68	-20	61	-20
Lx0	68	-20	61	-20
Lx1	68	-20	61	-20
Lx2	68	-20	61	-20
Lx3	68	-20	61	-20
Lx4	68	-20	61	-20
Lx5	68	-20	61	-20
Mx0	68	-20	61	-20
Mx1	68	-20	61	-20
Mx2	68	-20	61	-20
Mx3	68	-20	61	-20
Hx0	68	-20	61	-20
Hx1	68	-20	61	-20
Hx2	68	-20	61	-20
Hx3	68	-20	61	-20
Hx4	68	-20	61	-20
Hx5	68	-20	61	-20
Gx0	68	-20	61	-20
Gx1	68	-20	61	-20
Gx2	68	-20	61	-20
Gx3	68	-20	61	-20
870	65	-20	55	-20
B10	79	-40	77	-40
B11	79	-40	77	-40
C10	79	-30	78	-30
C11	79	-30	78	-30
C12	79	-30	78	-30
C13	79	-30	78	-30
D10	37	-10	34	-10

**Table 2**

Equipment for	Max Threshold power
Group I	6W (37,78 dBm)
Group IIA	6W (37,78 dBm)
Group IIB	3,5W (35,44 dBm)
Group IIC	2W (33,01 dBm)
Group III	6W (37,78 dBm)

The maximum allowable antenna gain shall be calculated using following formula:

$$\text{Antenna gain (dBi)} = \text{Max threshold power (dBm)} - \text{RF radio output power (dBm)} + \text{Coax cable loss (dB)}^*$$

\*when used for antenna connection to Solexy Antenna Coupler

In case of device with multiple antennas, each antenna gain shall be calculated according to above formula.

For antenna gain calculation and installation group following tables shall be considered:





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**Table 3**

Device code	RF Power Output		Group
	(mW)	(dBm)	
<b>310</b>	200	23,01	I, IIA, IIB, IIC, III
<b>320</b>	10	10	I, IIA, IIB, IIC, III
<b>340</b>	25	13,98	I, IIA, IIB, IIC, III
<b>341</b>	500	26,99	I, IIA, IIB, IIC, III
<b>370</b>	100	20	I, IIA, IIB, IIC, III
<b>510</b>	500	26,99	I, IIA, IIB, IIC, III
<b>540</b>	500	26,99	I, IIA, IIB, IIC, III
<b>570</b>	100	20	I, IIA, IIB, IIC, III
<b>110</b>	500	26,99	I, IIA, IIB, IIC, III
<b>111</b>	2000	33,01	I, IIA, IIB, III
<b>160</b>	2000	33,01	I, IIA, IIB, III
<b>16A</b>	1200	30,79	I, IIA, IIB, IIC, III
<b>16B</b>	350	25,44	I, IIA, IIB, IIC, III
<b>161</b>	500	26,99	I, IIA, IIB, IIC, III
<b>162</b>	2000	33,01	I, IIA, IIB, III
<b>16C</b>	1200	30,79	I, IIA, IIB, IIC, III
<b>16D</b>	350	25,44	I, IIA, IIB, IIC, III
<b>163</b>	2000	33,01	I, IIA, IIB, III
<b>16E</b>	1200	30,79	I, IIA, IIB, IIC, III
<b>16F</b>	350	25,44	I, IIA, IIB, IIC, III
<b>167</b>	2000	33,01	I, IIA, IIB, III
<b>16G</b>	1200	30,79	I, IIA, IIB, IIC, III
<b>16H</b>	350	25,44	I, IIA, IIB, IIC, III
<b>Ux0</b>	2000	33,01	I, IIA, IIB, III
<b>Ux1</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	50 (WiFi)	16,99	
<b>Ux2</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	0 (GPS)	0	
<b>Ux3</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	50 (WiFi)	16,99	
	0 (GPS)	0	
<b>Ux4</b>	50 (WiFi)	16,99	I, IIA, IIB, IIC, III

Device code	RF Power Output		Group
	(mW)	(dBm)	
<b>Ux5</b>	50 (WiFi)	16,99	I, IIA, IIB, IIC, III
	0 (GPS)	0	
<b>Vx0</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
<b>Vx1</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	50 (WiFi)	16,99	
<b>Vx2</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	0 (GPS)	0	
<b>Vx3</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	50 (WiFi)	16,99	
	0 (GPS)	0	
<b>Lx1</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	50 (WiFi)	16,99	
<b>Lx2</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	0 (GPS)	0	
<b>Lx3</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	50 (WiFi)	16,99	
	0 (GPS)	0	
<b>Lx4</b>	50 (WiFi)	16,99	I, IIA, IIB, IIC, III
<b>Lx5</b>	50 (WiFi)	16,99	I, IIA, IIB, IIC, III
	0 (GPS)	0	
<b>Mx0</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
<b>Mx1</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	50 (WiFi)	16,99	
<b>Mx2</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	0 (GPS)	0	
<b>Mx3</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	50 (WiFi)	16,99	
	0 (GPS)	0	
<b>Hx1</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	50 (WiFi)	16,99	
<b>Hx2</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	0 (GPS)	0	



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Device code	RF Power Output		Group
	(mW)	(dBm)	
<b>Hx3</b>	2000 (GSM)	33,01	I, IIA, IIB, III
	50 (WiFi)	16,99	
	0 (GPS)	0	
<b>Hx4</b>	50 (WiFi)	16,99	I, IIA, IIB, IIC, III
<b>Hx5</b>	50 (WiFi)	16,99	I, IIA, IIB, IIC, III
	0 (GPS)	0	
<b>Gx0</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
<b>Gx1</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	50 (WiFi)	16,99	
<b>Gx2</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	0 (GPS)	0	

Device code	RF Power Output		Group
	(mW)	(dBm)	
<b>Gx3</b>	1250 (GSM)	30,97	I, IIA, IIB, IIC, III
	50 (WiFi)	16,99	
	0 (GPS)	0	
<b>870</b>	50	16,99	I, IIA, IIB, IIC, III
<b>B10</b>	63	17,99	I, IIA, IIB, IIC, III
<b>B11</b>	63	17,99	I, IIA, IIB, IIC, III
<b>C10</b>	63	17,99	I, IIA, IIB, IIC, III
<b>C11</b>	63	17,99	I, IIA, IIB, IIC, III
<b>C12</b>	63	17,99	I, IIA, IIB, IIC, III
<b>C13</b>	63	17,99	I, IIA, IIB, IIC, III
<b>D10</b>	251	24	I, IIA, IIB, IIC, III

The values in Table 3 refer to WA and WS enclosure with Solexy Antenna coupler. Type of Antenna coupler allowed for particular group is written in Table 4:

**Table 4**

Antenna coupler type	Group
AX__H_	I, IIA, IIB, III
AX__J_	I, IIA, IIB, IIC, III
AX__K_	I, IIA, IIB, IIC, III
AX__L_	I, IIA, IIB, IIC, III
AX__M_	I, IIA, IIB, IIC, III
AX__N_	I, IIA, IIB, IIC, III
AX__O_	I, IIA, IIB, IIC, III
AX__P_	I, IIA, IIB, IIC, III
AX__Q_	I, IIA, IIB, IIC, III
AX__R_	I, IIA, IIB, IIC, III
AX__S_	I, IIA, IIB, IIC, III
AX__T_	I, IIA, IIB, IIC, III