



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 MSC 19.0001X** Page 1 of 5 [Certificate history:](#)
Issue 0 (2019-02-11)

Status: **Current** Issue No: 1

Date of Issue: 2022-03-08

Applicant: **Solexy Srl**
Via Enrico Fermi, 2
I-25015 Desenzano del Garda (BS)
Italy

Equipment: **Antenna Couplers RX, SX, UX and M Series**

Optional accessory:

Type of Protection: **Flameproof "db", Intrinsic safety "ia", Encapsulation "m" and protection by enclosure "tb"**

Marking: Ex db mb [ia Ma] I Mb
Ex db mb [ia Ga] IIA/IIB/IIC T6...T5 Gb
Ex mb tb [ia Da] IIIC T80°...T100°C Db

markings apply for M series only:
[Ex ia Ma] I
[Ex ia Ga] IIA/IIB/IIC
[Ex ia Da] IIIC

Um = 250Vdc or 250 Vac 50 – 60 Hz

Approved for issue on behalf of the IECEx
Certification Body:

Geoff Slater

Position:

Manager

Signature:
(for printed version)

Date:
(for printed version)

9/3/2022

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:

MSTC Mine Safety Technology Centre
8 Hartley Drive
Thornton NSW 2322
PO Box 343
Australia



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Certificate No.: **IECEX MSC 19.0001X**

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Date of issue: 2022-03-08

Issue No: 1

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

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 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-1:2014-06](#) Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

[IEC 60079-18:2017](#) Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

[IEC 60079-31:2022-01](#) Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure "t"
Edition:3.0

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 Reports:

[AU/MS/ExTR19.0001/00](#)
[CA/QPS/ExTR18.0018/02](#)

[AU/MS/ExTR19.0001/01](#)

[CA/QPS/ExTR18.0018/01](#)

Quality Assessment Report:

[GB/ITS/QAR17.0007/03](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Antenna Coupler RX, SX and UX Series are designed to be installed and threaded onto an enclosure and acts as a coupling between an RF transmitter, that is installed in a certified enclosure, and a passive antenna installed outside the enclosure in a hazardous location. The Antenna Coupler M Series is designed to be installed and threaded onto an enclosure located in the safe area and acts as a coupling between an RF transmitter that is installed inside the enclosure and a passive antenna installed outside the enclosure in a hazardous location.

The antenna coupler RX, SX, UX and M series function is to block DC signals and provide very high impedance to low frequency AC signals but also acts as a flameproof bushing that is threaded onto a flameproof enclosure.

The Antenna coupler output provides an intrinsically safe output for the connected passive antenna and blocks any unsafe energy from reaching the antenna under fault conditions. The circuitry that provides the intrinsically safe output is encapsulated and provides "Ex m" type of protection and all of that is enclosed in an 'Ex db'/Ex tb' stainless steel body enclosure.

The antenna coupler is also available in a UX and M series. The UX series antenna coupler is provided with the same metallic enclosure and potting compound as the RX and SX series, but is provided with an updated layout that improves RF performance and allows the equipment to operate up to 10GHz. The M series antenna coupler incorporates the updated layout as well but is only intended to be installed in a non-hazardous area. This M series antenna coupler can be manufactured with either metallic or non-metallic enclosure and with various encapsulation compound options.

The standard RX, SX, UX and M series antenna coupler are available in 5 different options. These options vary only in the way the input and output connections are assembled and have no impact on the Ex parameters that contribute to the explosion safety of the equipment.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. Solexy RX, SX, UX and M series antenna couplers must be connected to an RF source with a minimum internal impedance of 50 Ω
2. It is considered inappropriate to provide conventional IS parameters for this equipment. For connection to external antenna, refer to the Instruction and Operating Manual for clarification of the antenna requirements and calculation of the RF power
3. Solexy RX, SX, UX and M series antenna coupler does not provide any RF power limitation. The threshold power must be limited by the user in order to achieve the levels defined in IEC/EN 60079-0 Table 5
4. RX and SX Series equipment marked with an ambient temperature of -40°C to +70°C/+85°C is limited to a max RF input of 2 W.
5. Since Annex F is applied to the UX and M Series antenna couplers, they shall only be supplied with equipment rated with a maximum overvoltage category II.
6. The M series antenna coupler is only intended to be installed in a non-hazardous location. refer to manufacturer instructions for further details.

Routine test:

1. Each piece of "m" equipment shall be subjected to a visual inspection. No damage shall be evident, such as cracks in the compound, exposure of the encapsulated parts, flaking, inadmissible shrinkage, swelling, decomposition, failure of adhesion (separation of any adhered parts) or softening.
2. 100% of the assembled UX and M series printed circuit boards shall be subject to the routine dielectric strength at a test voltage of $2U + 1000V$, where $U = 250Vac$ between the input and output of the device for at least 60 seconds. No breakdown of the insulation shall occur.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

1. Included the UX and M series as part of the complete antenna coupler model series,
2. Included an additional encapsulation compounds for all models series based on previous testing conducted by DNV under NO/DNV/ExTR11.0019/00.
3. Update of the IEC 60079-31 to the current edition 3.0.



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Additional information:
Refer to the attached Annex.

Annex:

[Annex of IECEx MSC 19.0001-01 .pdf](#)

Annex for Certificate No.: IECEx MSC 19.0001X

Issue No: 01

Model #	RF Connection Type							
	N	N w/ isolated GND	TNC	TNC w/ isolated GND	BNC	BNC w/ isolated GND	RP-SMA	SMA
RX	x	x	x	x	x	x	x	x
SX	x	-	x	-	x	-	x	x
UX	x	-	x	-	x	-	x	x
M	x	x	x	x	x	x	x	x

Technical data:

Maximum input voltage	250 Vdc / 250 Vac 50-60Hz
Maximum input frequency (RX and SX)	6 Ghz
Maximum input frequency (UX and M)	10 Ghz
Minimum Internal Impedance of RF transmitter	50 Ω

Associated Ambient Temperature Range

Gas	Dust	Tamb
T5	100°C	-40°C to +80°C (When max RF input = 6W) – see note 1 -40°C to +85°C (When max RF input = 2W) – see note 1 -40°C to +85°C – see note 2
T6	80°C	-40°C to +65°C (When max RF input = 6W) – see note 1 -40°C to +70°C (When max RF input = 2W) – see note 1 -40°C to +75°C – see note 2

Note 1: the following ambient temperature ranges are related to the RX and SX series models only.
Note 2: the following ambient temperature ranges are related to the UX series models only.

Equipment Group	Threshold Power Pth (W)	Threshold Power Pth (dBm)
Group I / IIA / III	6	37.8
Group IIB	3.5	35.4
Group IIC	2	33.0

Maximum RF input power

Power	Associated Tamb	Model Series
7W (38.4 dBm)	when ta = - 40°C to +85°C	UX
	when ta = - 40°C to +75°C	
6W (37.8 dBm)	when ta = - 40°C to +85°C	M
	when ta = - 40°C to +80°C	
2W (33 dBm)	when ta = - 40°C to +85°C	RX and SX
	when ta = - 40°C to +65°C	
2W (33 dBm)	when ta = - 40°C to +85°C	RX and SX
	when ta = - 40°C to +70°C	

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IECEX Certificate of Conformity Annex

Annex for Certificate No.: IECEx MSC 19.0001X

Issue No: 01

RX	X	X	X	XX	XX	X	XX	-	XXXX X
	1	2	3	4	5	6	7		8

1	Series	F	RP-SMA
		S	SMA Female
		N	N Female
		B	BNC Female
		T	TNC Female
		1	N Female Isolated Ground
		2	TNC Female Isolated Ground
		3	BNC Female Isolated Ground
2	Thread	M	M25x1.5
		3	3/4" NPT-m
3	Material	S	AISI 303
		C	AISI 316
		L	AISI 316L
4	Coaxial cable type / Radio Connector	XX	2 digit for coax connector and cable type
5	Cable length	XX	2 digits for coax cable length (inches) 00 for double connector execution (no cable)
6	Version	X	1 digit for version
7	Standard Reference	XX	2 digits for certification marking – see Note 1
		X0	European - IECEx
		N0	North American (USA & CANADA)
		XN	European IECEx - North America (double marking)
8	Special Execution	XXXXX	Up to 5 digits for special execution in terms of marking, labelling, instruction, packaging, etc.
Note 1: further coding will be defined in case of different approvals.			

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Issue No: 01

SX & UX	X	X	X	XX	XX	X	XX	-	XXXX
	1	2	3	4	5	6	7		X
									8

1	Series	F	RP-SMA
		S	SMA Female
		N	N Female
		B	BNC Female
		T	TNC Female
2	Thread	M	M25x1.5
		3	3/4" NPT-m
3	Material	S	AISI 303
		C	AISI 316
		L	AISI 316L
4	Coaxial cable type / Radio Connector	XX	2 digits for coax connector and cable type
5	Cable length	XX	2 digits for coax cable length (inches) 00 for double connector execution (no cable)
6	Version	X	1 digit for version
7	Standard Reference	XX	2 digits for certification marking – see Note 1
		X0	European - IECEx
		N0	North American (USA & CANADA)
		XN	European IECEx - North America (double marking)
8	Special Execution	XXXXX	Up to 5 digits for special execution in terms of marking, labelling, instruction, packaging, etc.
Note 1: further coding will be defined in case of different approvals.			

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Annex for Certificate No.: IECEx MSC 19.0001X

Issue No: 01

M	X	X	X	XX	XX	X	XX	-	XXXXX
	1	2	3	4	5	6	7		8

1	Number of Channel	x	1 digit for number of channel
2	Series	F	RP-SMA
		S	SMA Female
		N	N Female
		B	BNC Female
		T	TNC Female
		1	N Female Isolated Ground
		2	TNC Female Isolated Ground
		3	BNC Female Isolated Ground
3	Material	P	Plastic
		A	Aluminium
		S	AISI 303
		C	AISI 316
		L	AISI 316L
4	Coaxial cable type / Radio Connector	XX	2 digits for coax connector and cable type
5	Cable length	XX	2 digits for coax cable length (inches) 00 for double connector execution (no cable)
6	Version	X	1 digit for version
7	Standard Reference	XX	2 digits for certification marking - see note 1
		X0	European - IECEx
		N0	North American (USA & CANADA)
		XN	European IECEx - North America (double marking)
8	Special Execution	XXXXX	Up to 5 digits for special execution in terms of marking, labelling, instruction, packaging, etc.
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Annex for Certificate No.: IECEx MSC 19.0001X

Issue No: 01

Manufacturer's documents pertaining to issue 0 of this certificate:

Manufacturer's Documents			
Title:	Drawing No.:	Rev. Level:	Date: YYYY/MM/DD
RX Series Assembly 1/4-36 ATEX/IECEX	DDAD-0006-S	00	2018 /09/10
RX Series Assembly 5/8-24 ATEX/IECEX	DDAD-0007-S	00	2018 /09/10
RX Series Assembly 5/8-24 Isolate Ground ATEX/IECEX	DDAD-0011-S	00	2018 /09/10
Control Drawing RX series ATEX/IECEX	DDCD-0006-S	00	2018 /09/10
Control Drawing SX series ATEX/IECEX	DDCD-0008-S	00	2018 /09/10
Compound Thickness RX series 5/8-24	DDDD-0001-0	00	2018 /09/10
Compound Thickness RX series 1/4-36	DDDD-0002-0	00	2018 /09/10
Compound Thickness SX series 5/8-24	DDDD-0003-0	00	2018 /09/10
Compound Thickness SX series 1/4-36	DDDD-0004-0	00	2018 /09/10
Housing RX Series M25x1.5 – 1/4-36	DDDM-0007-S	00	2018 /09/10
Housing RX Series M25x1.5 – 5/8-24	DDDM-0008-S	00	2018 /09/10
Housing RX Series 3/4-14 NPT – 1/4-36	DDDM-0009-S	00	2018 /09/10
Housing RX Series 3/4-14 NPT – 5/8-24	DDDM-0010-S	00	2018 /09/10
Product Marking RX Series ATEX/IECEX	DDMD-0009-S	00	2018 /09/10
Product Marking SX Series ATEX/IECEX	DDMD-0012-S	00	2018 /09/10
Schematic RX Series	DDSD-0003-S	00	2018 /09/10
Schematic RX Series Isolate Ground	DDSD-0004-S	00	2018 /09/10
Schematic SX Series Surge Resistance	DDSD-0005-S	00	2018 /09/10
PCB RX Series	PE010-0041	00	2018 /09/10
PCB RX and SX Series	PE010-0041	01	2018 /09/17
PCB RX Series Isolate Ground	PE010-0043	00	2018 /09/10
BOM RX Assembly (3 Sheets)	TDBM-0003	00	2018 /10/15
BOM SX Assembly (3 Sheets)	TDBM-0004	00	2018 /10/15
BOM RX Isolate Ground Assembly (3 Sheets)	TDBM-0005	00	2018 /10/15

*Note: An * is included before the title of documents that are new or revised.*

Reference documents			
Title:	Drawing No:	Rev. Level:	Date:
RX Installation & Operation Manual	IM0005	00	-----
SX Installation & Operation Manual	IM0006	00	-----

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Mine Safety Technology Centre

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Issue No: 01

Manufacturer's documents pertaining to issue 01 of this certificate:

Manufacturer's Documents			
Title:	Drawing No.:	Rev. Level:	Date: YYYY/MM/DD
RX Series Assembly 1/4-36 ATEX/IECEX	DDAD-0006-S	00	2018 /09/10
RX Series Assembly 5/8-24 ATEX/IECEX	DDAD-0007-S	00	2018 /09/10
*UX Series Assembly 1/4-36 ATEX/IECEX	DDAD-0008-S	01	2020/12/21
*UX Series Assembly 5/8-24 ATEX/IECEX	DDAD-0009-S	01	18/12/2020
RX Series Assembly 5/8-24 Isolate Ground ATEX/IECEX	DDAD-0011-S	00	2018 /09/10
*PCB Assembly UX and M Series ATEX/IECEX	DDAD-0028-S	01	21/12/2020
*Assembly Drawing M series plastic housing	DDAD-0030-S	00	2021/08/03
*Assembly Drawing M series aluminium housing	DDAD-0031-S	00	2021/08/03
Control Drawing RX series ATEX/IECEX	DCCD-0006-S	00	2018 /09/10
Control Drawing SX series ATEX/IECEX	DCCD-0008-S	00	2018 /09/10
*Control Drawing UX series ATEX/IECEX	DCCD-0010-S	00	2020/12/18
*Control Drawing M series ATEX/IECEX	DCCD-0012-S	00	2018/09/10
Compound Thickness RX series 5/8-24	DDDD-0001-0	00	2018 /09/10
Compound Thickness RX series 1/4-36	DDDD-0002-0	00	2018 /09/10
Compound Thickness SX series 5/8-24	DDDD-0003-0	00	2018 /09/10
Compound Thickness SX series 1/4-36	DDDD-0004-0	00	2018 /09/10
*PCB dimensional drawing UX and M series	DDDD-0011-S	00	2021/05/11
*Compound thickness UX series	DDDD-0012-S	00	2021/05/03
*Compound thickness M series plastic housing	DDDD-0013-S	00	2021/08/03
*Compound thickness M series aluminium housing	DDDD-0014-S	00	2021/08/06
*Dimension M series plastic housing	DDDD-0015-S	00	2021/08/06
*Dimension M series Aluminium housing	DDDD-0016-S	00	2021/08/06
Housing RX Series M25x1.5 – 1/4-36	DDDM-0007-S	00	2018 /09/10
Housing RX Series M25x1.5 – 5/8-24	DDDM-0008-S	00	2018 /09/10
Housing RX Series 3/4-14 NPT – 1/4-36	DDDM-0009-S	00	2018 /09/10
Housing RX Series 3/4-14 NPT – 5/8-24	DDDM-0010-S	00	2018 /09/10
*Product Marking RX Series ATEX/IECEX	DDMD-0009-S	01	2021/12/06
*Product Marking SX Series ATEX/IECEX	DDMD-0012-S	01	2021/12/06
*Product Marking UX Series ATEX/IECEX	DDMD-0036-S	00	2020/12/17
*Product Marking M Series ATEX/IECEX	DDMD-0037-S	00	2020/12/17
Schematic RX Series	DDSD-0003-S	00	2018 /09/10

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IECEX Certificate of Conformity Annex

Annex for Certificate No.: IECEx MSC 19.0001X

Issue No: 01

Manufacturer's Documents			
Title:	Drawing No.:	Rev. Level:	Date: YYYY/MM/DD
Schematic RX Series Isolate Ground	DDSD-0004-S	00	2018 /09/10
Schematic SX Series Surge Resistance	DDSD-0005-S	00	2018 /09/10
*Schematic UX series	DDSD-0011-S	00	2021/06/29
*Schematic M series	DDSD-0012-S	00	2021/06/29
PCB RX Series	PE010-0041	00	2018 /09/10
PCB RX and SX Series	PE010-0041	01	2018 /09/17
PCB RX Series Isolate Ground	PE010-0043	00	2018 /09/10
*BOM RX Assembly (3 Sheets)	TDBM-0003	01	2021/08/31
*BOM SX Assembly (3 Sheets)	TDBM-0004	01	2021/08/31
*BOM RX Isolate Ground Assembly (3 Sheets)	TDBM-0005	01	2021/08/31
*BOM UX Assembly (2 Sheets)	TDBM-0007	00	2021/08/31
*BOM M Assembly	TDBM-0008	00	2021/08/31
*BOM PCB UX and M Series	TDBM-0009	00	2021/08/31
*BOM PCB UX and M Series	TDBM-0009	01	2022/02/25

Note: An * is included before the title of documents that are new or revised.

Reference documents			
Title:	Drawing No:	Rev. Level:	Date:
*RX Installation & Operation Manual (4pages)	IM0005-01	01	-----
*RX Installation & Operation Manual (4pages)	IM0005-02	02	-----
*SX Installation & Operation Manual (4pages)	IM0006-01	01	-----
*UX Installation & Operation Manual (4pages)	IM0031-00	00	-----
*M Installation & Operation Manual (4pages)	IM0032-00	00	-----

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