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

Certificate No.: IECEx MSC 18.0014X

Issue No: 1

Certificate history:
Issue No. 1 (2019-07-31)
Issue No. 0 (2018-12-04)

Status: **Current**

Date of Issue: **2019-07-31**

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

Equipment: **Ethernet Couplers Models BAF and BXF**

Optional accessory:

Type of Protection: **Flameproof "db", Intrinsic safety "ia" and Encapsulation "m"**

Marking:

BAF : [Ex ia Ma] I
[Ex ia Ga] IIC
[Ex ia Da] IIIC

BXF : Ex db mb [ia Ma] I Mb
Ex db mb [ia Ga] IIC T5…T4 Gb
Ex mb [ia Da] IIIC T100°C…T135°C Db

$-40\ °C \leq T_{amb} \leq +60\ °C/+85\ °C$

Approved for issue on behalf of the IECEx Certification Body: Geoff Slater

Position: Manager

Signature:
(for printed version)

Date: 31/7/2019

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:

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

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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 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 : 2017 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-18 : 2017 Edition:4.1	Explosive atmospheres - Part 18: Protection by encapsulation "m"

*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:

AU/MSC/ExTR18.0017/00 AU/MSC/ExTR18.0017/01 CA/QPS/ExTR18.0015/00
CA/QPS/ExTR18.0015/01

Quality Assessment Report:

GB/ITS/QAR17.0007/00 GB/ITS/QAR17.0007/01

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Solexy BAF and BXF series Ethernet Couplers are an integrated protection device that facilitates Ethernet cabling installation in hazardous areas making the signal intrinsically safe. The coupler incorporates limiting circuitry which protects the filed cabling from voltages and currents high enough to cause a spark ignition.

The BAF circuit is completely encapsulated and is housed in either an aluminium or stainless steel enclosure. The BAF itself is installed in a non-hazardous area, with only the energy limited Ethernet wiring entering the hazardous area for connection to another Ethernet coupler unit located elsewhere.

The BXF circuit is also completely encapsulated and is housed in a stainless steel enclosure. The BXF is installed in a threaded entry of a suitable enclosure utilizing one of the protection types listed in Clause 1 of IEC 60079-0. As with the BAF, the BXF provide energy limited Ethernet wiring into the hazardous area for connection to another Ethernet coupler unit located elsewhere.

Model Nomenclature:

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

1	Series	BXF	Explosion Proof Ethernet Barrier
		BAF	Intrinsically Safe Ethernet Barrier
2	Thread	M	M25x1.5
		3	3/4" npt-m
3	Material	A	Aluminium (for BAF Model only)
		S	AISI 303
		C	AISI 316
		L	AISI 316L
4	Housing Connector	01	M12 Female Receptacle
5	Cable Connector	xx	2 digits for cable connector
6	Certification Marking	XX	2 digits for certification marking
		X0	European - IECEx
		N0	North American (USA and CANADA)

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		XN	European – IECEx – North American (double marking)
7	Cable Length	XXX	3 digits for cable length
8	Special Execution	XXXXX	Up to 5 digits for special execution in terms of marking, labelling, instruction, packaging, etc…

Entity parameters:

Input		Output		
Um =	250 Vac / 48 Vdc at 50-60 Hz	Uo =	2.8 V at 100 MHz	3.328 V at 50-60 Hz
Maximum Frequency 100 MHz		Io =	1.117 A at 100 MHz	701 mA at 50-60 Hz
Um =	2.8 V at 100 MHz	Co =	1000 µF	
		Lo =	37 µH	

SPECIFIC CONDITIONS OF USE: YES as shown below:

All Ethernet Coupler Models:

1. Because the Ethernet Coupler limitation circuitry is referenced to earth/case, it does not meet the dielectric strength requirement specified in Clause 6.3.13 of IEC 60079-11. This must be considered during installation.
2. Installation of the Ethernet couplers shall be in accordance with the requirements detailed in the control drawings specified on the product label in addition to the requirements specified here.
3. The free end of the cable that connects to the output of either the BAF or BXF unit can only be connected to another BAF or BXF unit.
4. Since Um is less than 250 V, Um = 2.8 V at 100 MHz, the apparatus shall be installed in accordance with the following options to ensure an input voltage of 2.8 V is not exceeded.

a) Where Um does not exceed 50 Va.c, or 120 Vd.c, in a SELV PELV system, or

b) Via a safety isolating transformer complying with the requirements of IEC 61558-2-6,

or technically equivalent standard, or

c) Directly connected to apparatus complying with the IEC 60950 series, IEC 61010-1, or

a technically equivalent standard, or

d) Fed directly from cells or batteries

5. Length of cable that is permitted at the output of the BAF/BXF unit is dependent on

the Lo and Co values assigned to the device, see IEC 60079-14, clause 16.2.2.2

6. The values of Lo and Co are determined by the ignition curves and table given in Annex A are allowed for;
   - Distributed inductance and capacitance e.g. as in a cable or,
   - if the total Li of the external circuit (excluding cable) is < 1 % of the Lo value, or
   - if the total Ci of the external circuit (excluding cable) is < 1 % of the value.
7. Maximum input frequency is 100 MHz.

Model BAF Only:

1. The model BAF is an associated apparatus and shall only be installed in a non-hazardous location.

Model BXF only:

1. The free end of the cemented bushing and its associated integral cable shall be protected by a suitable enclosure utilizing one of the protection types listed in Clause 1 of IEC 60079-0. The protection type utilized shall be applicable to the specific area of use (ie. Gas or Dust).
2. BXF models can withstand a maximum hydrostatic pressure of 30 bar without leakage
3. *FOR EPL Ma Only:* In accordance with Clause 26.4.2 of IEC 60079-0, the BXF have been tested corresponding to a low risk of mechanical danger for Group I hazardous locations. This must be considered during installation.

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Date of Issue: **2019-07-31**

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

1. Updated circuit layout to improve performance.
2. Entity parameters were changed. Marking label updated.
3. Additional special conditions of use were added.
4. The additional of an O-ring seat and an optional O-ring to the metric thread enclosure.
5. Updated the IEC 60079-18 Standard from edition 4.0 to 4.1.
6. Updated model nomenclature.
7. Updated the certified documentation to reflect the above changes and also updated the manufacturer trademark.

Annex:

Annex of IECEx MSC 18.0014X-01.pdf

IECEx Certificate of Conformity Annex

Annex for Certificate No.: IECEx MSC 18.0014X Issue No: 01

Manufacturer's documents pertaining to issue 00 of this certificate:

Manufacturer's Documents			
Title:	Drawing No.:	Rev. Level:	Date: YYYY/MM/DD
BAF Assembly, Intrinsically safe Ethernet coupler ATEX/IECEx	DDAD-0001-S	00	2018/07/16
BXF Assembly, Explosion proof Ethernet coupler ATEX/IECEx	DDAD-0002-S	00	2018/07/16
PCB conformal coating BAF/BXF	DDAD-0005-0	00	2018/07/16
Control Drawing BAF ATEX/IECEx	DDCD-0001-S	00	2018/07/16
Control Drawing BXF ATEX/IECEx	DDCD-0002-S	00	2018/07/16
BXF Housing M25X1.5	DDDM-0001-S	00	2018/07/16
BXF Housing 3/4 " NPT	DDDM-0002-S	00	2018/07/16
BXF Housing End Cap	DDDM-0003-S	00	2018/07/16
BAF Housing 3/4 " NPT	DDDM-0004-S	00	2018/07/16
BAF Housing M25x1.5	DDDM-0005-S	00	2018/07/16
Product Marking BXF ATEX/IECEx	DDMD-0001-S	00	2018/07/16
Product Marking BAF ATEX/IECEx	DDMD-0002-S	00	2018/07/16
Schematic Main Board BXF/BAF	DDSD-0001-S	00	2018/07/16
Schematic Diode Board BXF/BAF	DDSD-0002-S	00	2018/07/16
Main Board BXF BAF	PE010-0039	00	2018/07/16
Diode Board BXF BAF	PE010-0040	00	2018/07/16
BOM BXF Assembly *(sheets 1 & 2 of 2)*	TDBM-0001	00	2018/07/19
BOM BAF Assembly *(sheets 1 to 3 of 3)*	TDBM-0002	00	2018/07/19

Reference documents			
Title:	**Drawing No:**	**Rev. Level:**	**Date:**
BXF Explosion Proof / Intrinsically Safe Ethernet Coupler for use in Hazardous Areas Installation & Operation Manual *(sheets 1 to 3 of 3)*	IM0001-00	00	undated
BAF Intrinsically Safe Ethernet Coupler for signals operating in Hazardous Areas Installation & Operation Manual *(sheets 1 to 3 of 3)*	IM0002-00	00	undated

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IECEx Certificate of Conformity Annex

Annex for Certificate No.: IECEx MSC 18.0014X 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
*BAF Assembly, Intrinsically safe Ethernet coupler ATEX/IECEx	DDAD-0001-S	01	2019/03/04
*BXF Assembly, Explosion proof Ethernet coupler ATEX/IECEx	DDAD-0002-S	01	2019/03/04
*Control Drawing BAF ATEX/IECEx	DDCD-0001-S	01	2019/05/31
*Control Drawing BXF ATEX/IECEx	DDCD-0002-S	01	2019/05/31
*Main Board BXF BAF	PE010-0039	01	2018/12/14
*Diode Board BXF BAF	PE010-0040	01	2018/12/14
*Product Marking BXF ATEX/IECEx	DDMD-0001-S	01	2019/05/31
*Product Marking BAF ATEX/IECEx	DDMD-0002-S	01	2019/05/31
*Schematic Main Board BXF/BAF	DDSD-0001-S	01	2018/12/14
Schematic Diode Board BXF/BAF	DDSD-0002-S	00	2018/07/16
BXF Housing M25X1.5	DDDM-0001-S	00	2018/07/16
*BXF Housing M25X1.5	DDDM-0016-S	00	2019/03/01
BAF Housing 3/4 " NPT	DDDM-0002-S	00	2018/07/16
BXF Housing End Cap	DDDM-0003-S	00	2018/07/16
BAF Housing 3/4 " NPT	DDDM-0004-S	00	2018/07/16
BAF Housing M25x1.5	DDDM-0005-S	00	2018/07/16
*PCB conformal coating BAF/BXF	DDAD-0005-0	01	2018/12/14
*BOM BXF Assembly *(sheets 1 to 3 of 3)*	TDBM-0005	00	2018/12/14
*BOM BAF Assembly *(sheets 1 to 3 of 3)*	TDBM-0006	00	2018/12/14

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

Reference documents			
Title:	**Drawing No:**	**Rev. Level:**	**Date:**
BXF Explosion Proof / Intrinsically Safe Ethernet Coupler for use in Hazardous Areas Installation & Operation Manual *(sheets 1 to 3 of 3)*	IM0001	01	undated
BAF Intrinsically Safe Ethernet Coupler for signals operating in Hazardous Areas Installation & Operation Manual *(sheets 1 to 3 of 3)*	IM0002	01	undated

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