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 BVS 19.0038X

Issue No: 0

Certificate history:
Issue No. 0 (2019-06-17)

Status: **Current**

Date of Issue: **2019-06-17**

Applicant: **BARTEC GmbH**
Max-Eyth-Str. 16
97980 Bad Mergentheim
Germany

Equipment: **Ex p control unit type 07-37A2-*1*1/**** (APEX py), type 07-37A2-*2*1/**** (APEX px) and type A7-37S2-*1*1/**** (SILAS pz)**

Optional accessory:

Type of Protection: **Intrinsic Safety "i", Encapsulation "m", Pressurized Enclosure "p", Protection by Enclosure "t", Increased Safety "e"**

Marking:
See Annex

Approved for issue on behalf of the IECEx Certification Body: Jörg Koch

Position: Head of Certification Body

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:

DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
On the safe side.

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Manufacturer: **BARTEC GmbH**
Max-Eyth-Str. 16
97980 Bad Mergentheim
Germany

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 : 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"
IEC 60079-18 : 2014 Edition:4.0	Explosive atmospheres – Part 18: Equipment protection by encapsulation “m”
IEC 60079-2 : 2014-07 Edition:6	Explosive atmospheres - Part 2: Equipment protection by pressurized enclosure "p"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*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:

DE/BVS/ExTR19.0038/00

Quality Assessment Report:

DE/TUN/QAR06.0017/10

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Subject and type
See Annex

Description
See Annex

Listing of all components used referring to older standards
See Annex

Parameters
See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

Overvoltage Category II of the non-intrinsically safe circuits according to IEC 60664-1 has to be kept.

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Additional information:

Annex:

BVS_19_0038X_Bartec_Annex.pdf

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Annex

Type and Ex-marking

Type	Marking
07-37A2-11*1/**** and 07-37A2-21*1/****	Ex eb mb ib [ib pyb] [ia Ga] IIC T5, T4 Gb Ex tb [ib pyb] [ia Da] IIIC T80°C, T95°C, T130°C Db
07-37A2-31*1/****	Ex eb mb ib [ib pyb] [ia Ga] IIC T5, T4 Gb
07-37A2-12*1/**** and 07-37A2-22*1/****	Ex eb mb ib [ib pxb] [ia Ga] IIC T5, T4 Gb Ex tb [ib pxb] [ia Da] IIIC T80°C, T95°C, T130°C Db
07-37A2-32*1/****	Ex eb mb ib [ib pxb] [ia Ga] IIC T5, T4 Gb
A7-37S2-11*1/**** and A7-37S2-21*1/****	Ex ec mc ic [ic pzc] IIC T5, T4 Gc Ex tc [ic pzc] IIIC T80°C, T95°C, T130°C Dc
A7-37S2-31*1/****	Ex ec mc ic [ic pzc] IIC T5, T4 Gc

For large Ex p products the Ex p control unit can be additionally be equipped with ball valves, pressure reducers and separately certified purge gas valves. This product is named **APEX** ^{mpc} or **SILAS** ^{mpc}.

A special variant named **APEX** ^{GEA} or **SILAS** ^{GEA} consists of a one up to three of the above mentioned Ex p control units 07-37*2-***1/**** and additional further separately certified equipment. All parts are either installed completely inside an protective enclosure or in the outer wall of the enclosure.

Subject and type

Ex p control unit type 07-37A2-^{abc}1/^{deff} (APEX)

Item	Description
a	Enclosure material
	1 Stainless steel V2A
	2 Stainless steel V4A
	3 Polyester
b	Ex p function
	1 Ex py (APEX^{py})
	2 Ex px (APEX ^{px})
c	Pressure range
	1 0 up to 25 mbar
	2 0 up to 300 mbar
d	Power supply
	1 DC (wide range)
	2 AC (wide range)
e	Variant without influence to explosion protection
ff	Variant without influence to explosion protection

Ex p control unit type A7-37S2-^{a}1^{b}1/^{cdee} (SILAS)

Item	Description
a	Enclosure material
	1 Stainless steel V2A
	2 Stainless steel V4A
	3 Polyester
b	Pressure range
	1 0 up to 25 mbar
	2 0 up to 300 mbar
c	Power supply
	1 DC (wide range)
	2 AC (wide range)
d	Variant without influence to explosion protection
ee	Variant without influence to explosion protection

Description

The Ex p control unit type 07-37A2-***1/**** (APEX) and type A7-37S2-*1*1/**** (SILAS) consists either of a separately tested and certified empty enclosure (stainless steel) of type 07-56*1-****/**** with certificate IECEx IBE 09.0016U or a separately certified empty enclosure (polyester) of type 07-5185-****/**** with certificate IECEx PTB 09.0008U.

Depending on the configuration the size of the separately certified enclosures varies as well as the number of built in components / equipment.

The Ex p electronic block of 17-5*12-****/**** with certificate IECEx BVS 19.0032U is responsible for the Ex p controlling function.

For the configuration and for the monitoring of the system a separately certified control panel of 17-51P5-*111/**** with certificate IECEx BVS 19.0037X can be connected to the terminals of the Ex p electronic block.

Optional a space heater can be installed inside the enclosure for low temperature operation between -50 °C ≥$T_{amb,min}$ > -20 °C. Two thermostats are used for control. One thermostat is responsible for the temperature range where the space heater is on, the second thermostat is responsible for the temperature range where the Ex p control unit can is on.

Depending on local requirements there are variations of the Ex p control unit possible:

Variant 1

Only the certified Ex p electronic block is installed inside the enclosure. The whole measuring and monitoring components are connected to the electronic block by use of the intrinsically safe circuits.

Variant 2

The pressure sensor PCB is integrated into the same enclosure as the Ex p electronic block. The hoses are led into the enclosure by use of sockets in the enclosure wall.

Variant 3

For equipment which require a high volume flow the Ex p control unit is designed as motor purge control or other customer adjusted variants.

The used valves are separately tested and certified and can either be installed near the Ex p equipment connected to the Ex p control unit or can be installed in an optional add-on enclosure. The add-on enclosure is the same certified enclosure which is used for the Ex p control unit but with modifications not in the scope of the related certificate. This enclosure is only used for mechanical protection of the separately certified built-in equipment and for better installation purposes.

Listing of all components used referring to older standards

Subject and type	Certificate	Standards
Empty enclosure 56*1-****/****	IECEx IBE 09.0016U Iss. 4 [1]	IEC 60079-0:2011, Ed. 6 IEC 60079-7:2006, Ed. 4 [1] IEC 60079-31:2008, Ed. 1 [1]
Empty enclosure 07-518*-****/****	IECEx PTB 09.0008U Iss. 6 [1]	IEC 60079-0:2011, Ed. 6 IEC 60079-7:2006, Ed. 4 [1] IEC 60079-31:2013, Ed. 2
Self-limiting heating cable 07-5803-****	IECEx KEM 07.0048U, Iss. 2 [1]	IEC 60079-0:2011, Ed. 6 IEC 60079-30-1:2007, Ed. 1 IEC 60079-31:2008, Ed. 1

[1] No applicable technical differences

[2] Technical differences evaluated and found satisfactory

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Parameters

Thermal parameters

Type	Variants	Range T_{amb}	T_{class}	$T_{Surface}$
07-37A2-***1/****	standard	-25°C up to 50 °C	T5	T95°C
		-25°C up to 60 °C	T4	T130°C
	With flange protective housing cf, dp, mv	-25°C up to 50 °C	T4	T130°C
07-37A2-***1/*M**	MPC standard	-25°C up to 50 °C	T4	T130°C
	MPC with space heater	-50°C up to 50 °C	T4	T130°C
A7-37S2-*1*1/****	standard	-25°C up to 50 °C	T5	T95°C
		-25°C up to 60 °C	T4	T130°C
	With flange protective housing mv	-25°C up to 50 °C	T4	T130°C
A7-37S2-*1*1/*M**	MPC standard	-25°C up to 50 °C	T4	T130°C
	MPC with space heater	-50°C up to 50 °C	T4	T130°C

Electrical parameters

Power supply		
Rated voltage type 07-37A2-****/1***	24 up to 44 ± 10 %	VDC
Maximum input voltage U_m type 07-37A2-****/1***	48.4	VDC
Rated current type 07-37A2-****/1***	11.5	A
Rated voltage type 07-37A2-****/2***	100 up to 230 ± 10 %	VAC
Maximum input voltage U_m type 07-37A2-****/2***	253	VAC
Rated current type 07-37A2-****/2***	11.0	A
Rated voltage type A7-37S2-*1*1/1***	24 up to 44 ± 10 %	VDC
Maximum input voltage U_m type A7-37S2-*1*1/1***	48.4	VDC
Rated current type A7-37S2-*1*1/1***	11.5	A
Rated voltage type A7-37S2-*1*1/2***	100 up to 230 ± 10 %	VAC
Maximum input voltage U_m type A7-37S2-*1*1/2***	253	VAC
Rated current type A7-37S2-*1*1/2***	11.0	A

Ethernet-Interface

Maximum input voltage U_m = 60 V AC/DC

Switching contacts type 07-37A2-****/****		
Relay K1 (SIL)	250 VAC 24 VDC	5 A 5 A
Relay K2 (SIL)	250 VAC 24 VDC	3 A 3 A
Relay K3	250 VAC 24 VDC	1 A 1 A
Relay K4	250 VAC 24 VDC	1 A 1 A

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Switching contacts type A7-37S2-*1*1/****		
Relay K1	250 VAC 24 VDC	5 A 5 A
Relay K2	250 VAC 24 VDC	3 A 3 A
Relay K3	250 VAC 24 VDC	1 A 1 A
Relay K4	250 VAC 24 VDC	1 A 1 A

Valve control circuit			
Purge valve	Signal form Voltage	I/O or PWM 24	 VDC
Exhaust valve only for 07-37A2-****/****	Signal form Voltage	I/O or PWM 24	 VDC

Intrinsically safe interfaces

Temperature sensor outputs, (intrinsically safe ib type APEX / intrinsically safe ic type SILAS)
Terminal blocks X9, X14, X16

per terminal block:

Maximum output voltage	U_o	DC	18	V
Maximum output current	I_o		150	mA
linear output characteristic				
Maximum connectable capacity	C_o		97	nF
Maximum connectable inductance	L_o		1.4	mH

HMI connection, (intrinsically safe ib type APEX / intrinsically safe ic type SILAS)
Terminal block X17

Maximum output voltage	U_o	DC	3.61	V
Maximum output current	I_o		1	A
Maximum stationary output current			350	mA
Maximum output power	P_o		1.25	W
Maximum connectable capacity	C_o		89	uF
Maximum connectable inductance	L_o		36	µH

4-20 mA interface, (intrinsically safe ia - only type APEX)
Terminal block X13

Maximum output voltage	U_o	DC	27	V
Maximum output current	I_o		91	mA
Maximum output power	P_o		615	mW
Maximum connectable capacity	C_o		70	nF
Maximum connectable inductance	L_o		1	mH

4-20 mA interface, (intrinsically safe ib - only type APEX)
Terminal block X15

Maximum output voltage	U_o	DC	27	V
Maximum output current	I_o		114	mA
Maximum stationary output current			53	mA
Maximum output	P_o		1.34	W
Maximum connectable capacity	C_o		70	nF
Maximum connectable inductance	L_o		1	mH