



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 CES 16.0014X** Page 1 of 4 **Certificate history:**
Issue 0 (2016-06-01)

Status: **Current** Issue No: 1

Date of Issue: 2024-10-18

Applicant: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

Equipment: **Command, control and interface units, EJB.. series (and AQS-1 model)**

Optional accessory:

Type of Protection: **Flameproof enclosures 'd'; Intrinsic Safety 'i'**

Marking: **Ex db [ja Ma] I Mb (EJBX.. stainless steel type only)**
Ex db [ja Ga] IIB T6 or T5 Gb
Ex db [ja Ga] IIB+H2 T6 or T5 Gb
Ex tb [ja Da] IIIC T85°C or T100°C Db
IP66 or IP66/67

Approved for issue on behalf of the IECEx
Certification Body:

Alessandro Fedato

Position:

Head of IECEx CB

Signature:
(for printed version)

Date:
(for printed version)

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Certificate issued by:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
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Italy

CESI



IECEX Certificate of Conformity

Certificate No.: **IECEX CES 16.0014X**

Page 2 of 4

Date of issue: 2024-10-18

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Manufacturer: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

Manufacturing locations: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

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 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 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

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:

[IT/CES/ExTR16.0006/00](#)

[IT/CES/ExTR16.0006/01](#)

Quality Assessment Report:

[IT/CES/QAR06.0002/18](#)



IECEx Certificate of Conformity

Certificate No.: **IECEx CES 16.0014X**

Page 3 of 4

Date of issue: 2024-10-18

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The EJB-.. command, control and interface units series (and AQS-1 model) are equipments composed by an Ex db or Ex tb enclosure used to install common electrical devices such as contactors, switches, measuring instruments, programmable logic controllers, contact blocks. Pilot lights, maneuvers and push button covered by IECEx certificates can be mounted on the cover or on the enclosure walls. Furthermore, circular or rectangular transparent glass windows sealed on the cover can be installed to permit instrument reading.

These EJB-.. command, control and interface units series can incorporate separately certified associated apparatus for interface with intrinsic safety circuits.

The EJB-.. Command, control and interface units series have the body and the cover made in aluminium alloy or stainless steel and are in Ex db [ia Ma] I Mb (stainless steel only), Ex db [ia Ga] IIB Gb, Ex db [ia Ga] IIB+H2 Gb and Ex tb [ia Da] IIIC Db execution.

The EJB-.. series is available in two particular execution:

- with external flange for type EJB-..;
- with internal flange for type AQS-1.

The command, control and interface units, EJB.. series (and AQS-1 model) characteristics are further described in the Annexe of this certificate.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The accessories used for cable entries and for closing unused openings shall be certified according to IEC 60079-0, IEC 60079-1 and IEC 60079-31. A minimum degree of protection IP66/67 shall be guaranteed according to IEC 60529 standard.
- The command, control and interface units shall be used in the following ambient temperature range:
 - from -20°C up to +40°C/+55°C: all versions of command, control and interface units for Group I EJBX.. (made in stainless steel only), Group IIB, Group IIB+H₂ and Group IIIC;
 - from -40°C up to +40°C/+55°C/+70°C: all versions of command, control and interface units for Group IIB, Group IIB+H₂ and Group IIIC with polycarbonate pilot lights;
 - from -60°C up to +40°C/+55°C/+70°C all versions of command, control and interface units for Group IIB, Group IIB+H₂ and Group IIIC without polycarbonate pilot lights.
- The operating temperature limits of Ex accessories used for connection of more command, control and signal unit EJB series, shall be duly observed.
- The minimum distance between flameproof flanged joint of the enclosure and external obstacle should be:
 - 20 mm for Group IIB execution;
 - 30 mm for Group IIB+H₂ execution.



IECEX Certificate of Conformity

Certificate No.: **IECEX CES 16.0014X**

Page 4 of 4

Date of issue: 2024-10-18

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Variation 1.1: The **Command, control and interface units EJB..** originally assessed in compliance with IEC 60079-0:2011 have been re-assessed on the basis of the new edition of IEC 60079-0:2017 Standard.

Variation 1.2: Extended the ambient temperature up to +70°C.

Variation 1.3: The equipment can be supplied with external/internal coating and valves ECD-2 series.

Variation 1.4: Editorial changes were applied to parameters of choice for IS components.

Variation 1.5: Certified accessories admitted for cable entries and for connection of more command, control and interface unit EJB series were added.

Unchanged the other constructional characteristics of Command, control and interface units **EJB-..** and **AQS-1** series.

Annex:

[CORTEM - IECEx CES 16.0014X Issue 01 ANNEX - EJB Command and Interface units_1.pdf](#)



Prot: C4014504

Annex to certificate:

Applicant:

Electrical Apparatus:

IECEX Certificate of Conformity



IECEX CES 16.0014X Issue No: 1 of 18th October 2024

CORTEM S.p.A.

Via Aquileia, 10 - 34070 Villesse (Gorizia - Italia)

Command, control and interface units EJB-.. series (and AQS-1 model)

Description of the equipment:

The **EJB-..** command, control and interface unit series are equipment composed by an Ex db or Ex tb enclosure used to install common electrical devices such as contactors, switches, measuring instruments, programmable logic controllers, and pilot lights, contact blocks, maneuvers and push button can be mounted on the cover or on the enclosure walls. Furthermore, transparent glass windows sealed on the cover can be installed to permit instrument reading.

The **EJB-..** Command, control and interface unit series have the body and the cover made in aluminium alloy or stainless steel and are in Ex db [ia Ma] I Mb (**EJBX-** stainless steel only), Ex db [ia Ga] IIB Gb, Ex db [ia Ga] IIB+H₂ Gb and Ex tb [ia Da] IIIC Db execution and can be painted with internal anticondensation painting.

The **EJB-..** series is available in two particular executions:

- with external flange for series **EJB-..**;
- with internal flange for model **AQS-1**.

Gaskets between cover and body flanged joint and for all other accessories are made in silicon and they guarantee the protection degree IP66 while IP67 for Equipment without control-signal operators only.

The flanged joint between the body of **EJB-..** command, control and interface unit series and the covers are fixed with quality A2-70 stainless steel screws.

The walls of the Equipment can be drilled and threaded with maximum size and maximum number of hubs as specified in the manufacturer documents annexed. Each enclosure is provided with internal and external earthing screw or bolt.

Electrical characteristics:

Rated voltage:	12 ÷ 250	Vdc
	24 ÷ 1000	Vac
Nominal frequency:	50/60	Hz
Max. rated current:	400	A
Maximum power for lamps:	3W with Tamb. +55°C	

Electrical characteristics for Associated Apparatus: max. Voltage $U_m \leq 250V$.

When Ex i circuits are present the distances between Intrinsic Safety circuits and Non-Intrinsic Safety circuits or between separate intrinsic safety circuits shall be according to IEC 60079-11 Standard. Intrinsically safe circuits shall be clearly identified. Where a colour is used for this purpose, it shall be light blue for the intrinsically safe connections.



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Via Aquileia, 10 - 34070 Villesse (Gorizia - Italia)

Command, control and interface units EJB-.. series (and AQS-1 model)

The associated apparatus shall be certified according to IEC 60079-0 and IEC 60079-11 standards and with suitable service temperatures.

Table of typical electrical and electronic Equipment inside the boxes:

DESCRIPTION	[V]	DISSIPATED POWER (W)	[A]
Analogical digital instruments	660	10	5
Electronic gear case	400	10	-
PLC, multiplexer, amplifier	240	80	-
Control and gauging device	240	100	-
Automatic breakers	660	-	400
Fuses	660	-	400
Air thermal relays	500	12	10
Electronic control device	660	100	-
Air contactors	660	30	400
Sequence timer	240	5	10
Photoelectrical cell	240	2	-
Capacitors (discharge time 30sec)	660	-	-
Transformers	660	200	-
Resistors	240	300	-
Terminals	660	-	-
Ballasts	277	40	7,5

The ratings specified are maximum values, actual values will be subject to the electrical equipment/component used from case to case. Depending on the system conditions, the mode of operation, the utilisation category, etc., the manufacturer will define ratings which will be within the range of these limiting values and will comply with the relevant Standards.

Intrinsic safety circuits:

The electrical characteristics of the intrinsic safety circuits are reported on the label of the associated apparatus used.



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Command, control and interface units EJB-.. series (and AQS-1 model)

Model identification:

Aluminium alloy Equipment		Stainless steel Equipment
EJB series	EJBT series	EJBX series
AQS-1	-	-
EJB-01	EJBT0	EJBX-01
-	-	EJBX-01B
EJB-1	EJBT1	EJBX-1
EJB-2	EJBT2	EJBX-2
-	EJBT2CB	-
-	EJBT2C	-
EJB-3	EJBT3	EJBX-3
EJB-3B	EJBT3B	EJBX-3B
EJB-4	EJBT4	EJBX-4
EJB-4B	EJBT4B	EJBX-4B
EJB-45	EJBT45	EJBX-45
EJB-45B	EJBT45B	EJBX-45B
EJB-48BA	-	-
EJB-5	EJBT5	EJBX-5
EJB-5B	EJBT5B	EJBX-5B
EJB-55	EJBT55	EJBX-55
EJB-55B	EJBT55B	EJBX-55B
EJB-503	-	-
EJB-55C	-	-
EJB-6	EJBT6	EJBX-6
EJB-6B	EJBT6B	EJBX-6B
EJB-7	EJBT7	EJBX-7
EJB-7B	-	-



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IECEX CES 16.0014X Issue No: 1 of 18th October 2024

CORTEM S.p.A.

Via Aquileia, 10 - 34070 Villesse (Gorizia - Italia)

Command, control and interface units EJB-.. series (and AQS-1 model)

Maximum dissipated power:

Table 1.

Type			Maximum dissipated power inside enclosures			
			Tamb. = +40°C		Tamb. = +55°C	
Aluminium alloy		Stainless steel	No signalling lamps, only LEDs are allowed	With signalling lamps and/or LEDs	No signalling lamps, only LEDs are allowed	With signalling lamps and/or LEDs
			T6 / T85 °C	T5 / T100 °C	T6 / T85 °C	T5 / T100 °C
EJBT0 / EJBT2CB	EJB-01	-	30 W	30 W	25 W	25 W
EJBT1 / EJBT2C	EJB-1	EJBX-1	45 W	45 W	34 W	34 W
EJBT2	EJB-2	EJBX-2	60 W	60 W	45 W	45 W
EJBT3	EJB-3	EJBX-3	75 W	75 W	56 W	56 W
EJBT3B	EJB-3B	EJBX-3B	55 W	55 W	40 W	40 W
EJBT4	EJB-4	EJBX-4	100 W	100 W	75 W	75 W
EJBT4B	EJB-4B	EJBX-4B	75 W	75 W	56 W	56 W
EJBT45	EJB-45	EJBX-45	140 W	140 W	105 W	105 W
EJBT45B	EJB-45B	EJBX-45B	120 W	120 W	90 W	90 W
-	EJB-48BA	-	120 W	120 W	90 W	90 W
EJBT5	EJB-5	EJBX-5	210 W	210 W	160 W	160 W
EJBT5B	EJB-5B	EJBX-5B	170 W	170 W	130 W	130 W
-	EJB-503	-	230 W	230 W	176 W	176 W
EJBT55	EJB-55	EJBX-55B	260 W	260 W	200 W	200 W
EJBT55B	EJB-55B	-	260 W	260 W	160 W	160 W
-	EJB-55C	EJB-55	360 W	360 W	270 W	270 W
EJBT6	EJB-6	EJBX-6	600 W	600 W	460 W	460 W
EJBE-6B	EJB-6B	EJBX-6B	490 W	490 W	370 W	370 W
-	EJB-7	-	770 W	770 W	590 W	590 W
-	EJB-7B	-	600 W	600 W	460 W	460 W
-	-	EJBX-7	610 W	610 W	470 W	470 W
-	AQS-1	-	100 W	100 W	75 W	75 W

For the ambient temperature of +70°C the values of dissipated power correspond to those indicated on columns of +55°C decreased by 25%.



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Command, control and interface units EJB-.. series (and AQS-1 model)

Cable Entries

The accessories used for the cable entries and to close the unused holes, shall be subject of a separate certification, shall be used according to the Safety Instructions reported in the relevant certificate and shall guarantee the same type/degree of protection assigned to the Equipment. Moreover, the accessories shall be suitable to be used in the ambient temperature range assigned to the Equipment.

In case of cylindrical threads, the coupling shall be locked against loosening using thread-lock compound.

In addition, certified sealing fittings or sealing bushings can be used for cable entries and for connection of other units. To facilitate the installation of the sealed joints, certified conduit fittings can be used. The certified accessories admitted are as follows:

- Sealing fittings EYS, EYD, EZS, EZD series;
- Sealing bushings NPS, CP, TP, NCS, LPS series;
- Three-pieces conduit unions R, B, RB series;
- Nipples NP, Couplings EM and Elbows ELF series;
- Adaptors RE, REB, REM, REN series and Plugs PLG series.

The operating temperature limits of Ex certified accessories admitted, shall be duly observed during Command, Control and Interface unit EJB Equipment mounting.

Furthermore, the different types of protection of the equipment enclosures connected by means of these Ex certified accessories shall be duly fulfilled.

Routine tests:

The routine overpressure test shall be carried out on empty enclosure with the static method (paragraph 15.2.3.2 of IEC 60079-1 Standard), at:

- 12.3 bar on all EJB enclosures for minimum ambient temperature until -20 °C;
- 12.3 bar on all EJBX enclosures for minimum ambient temperature until -20 °C;
- 14.9 bar on all EJB enclosures for minimum ambient temperature until -40 °C;
- 15.2 bar on all EJBX enclosures for minimum ambient temperature until -40 °C;
- 16.4 bar on all EJB enclosures for minimum ambient temperature until -60 °C;
- 17.0 bar on all EJBX enclosures for minimum ambient temperature until -60 °C.



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IECEX CES 16.0014X Issue No: 1 of 18th October 2024

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Command, control and interface units EJB.. series (and AQS-1 model)

Warning labels:

“Use screws of quality A2-70 with tensile strength of at least 700 N/mm².”

“Warning - do not open when energized”.

For equipment with capacitors:

“After de-energizing, wait 10 minutes before opening”.

For equipment with batteries or cells:

“Warning – Do not open when an explosive atmosphere is present”.

For equipment with temperature class T5:

“Use cables suitable for temperature of 90°C”.

For products complete with external coating in non-metallic material with a thickness:

○ > 0.2 mm for IIB+H₂ execution *or*

○ > 2 mm for IIB execution

“Warning – Potential electrostatic charging hazard – for cleaning use only a damp cloth”.

LIST OF THE COMPONENTS/DEVICES INTENDED TO BE INSTALLED ON THE EQUIPMENT SERIES

Ex Equipment / Component	Model / Type	Manufacturer	Type of protection	Certificate Number
Empty enclosure series	EJB-..., EJBX..., EJB... and AQS-1 type	CORTEM S.p.A.	Ex db IIB Gb Ex db IIB+H ₂ Gb Ex tb IIIC Db Ex db I Mb (EJBX..)	IECEX CES 14.0017U
Signal and control operators series	M-0...	CORTEM S.p.A.	Ex db IIC Gb Ex tb IIIC Db	IECEX CES 14.0030U
Pilot Lights	M-0487	CORTEM S.p.A.	Ex db IIC Gb Ex tb IIIC Db	IECEX CES 11.0030U
Breathing and Draining valves series	ECD-2..	ELFIT S.p.A.	Ex db IIB/IIC Gb Ex eb IIB/IIC Gb Ex tb IIIC Db	IECEX CES 14.0016U
Range of Adaptors, Plugs and Fittings	RE..., REB..., REM..., REN.. and PLG..	CORTEM S.p.A.	Ex db IIC Gb Ex db eb IIC Gb Ex eb IIC Gb	IECEX CES 10.0001X
Three-pieces connection fittings series	R., B.. and RB..	CORTEM S.p.A.	Ex db IIB Gb Ex db IIC Gb (R..) Ex tb IIIC Db	IECEX CES 10.0002U
Conductor Sealing Bushings types	NPS..., TP..., NCS..., CP.. and LPS..	CORTEM S.p.A.	Ex db IIC Gb Ex tb IIIC Db (NPS..)	IECEX CES 10.0003U
Sealing fittings series	EYS..., EZS..., EYD.. and EZD..	CORTEM S.p.A.	Ex db IIC Gb (EYD...,EZD..) Ex db IIC Gb and Ex tb IIIC Db (EYS...,EZS..)	IECEX CES 14.0019X
Nipples, Couplings and Elbow series	NP..., EM..., ELF..., ELM.. and ELMF..	CORTEM S.p.A.	Ex db IIC Gb Ex eb IIC Gb Ex tb IIIC Db	IECEX CES 15.0005U