



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 22.0011X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2022-03-24

Applicant: **ELFIT S.p.A.**
Via Aquileia, 12
I-34070 Villesse (GO)
Italy

Equipment: **Terminal boxes, Series S**, S.1**, GUA**, GUF**, EAH****

Optional accessory:

Type of Protection: **Flameproof enclosures 'd', Increased safety 'e', Intrinsic Safety 'i', Dust ignition protection "t"**

Marking: **Ex db IIC T6/T5/T3 Gb or**
Ex eb IIC T6/T5/T4 Gb or
Ex i. IIC T6/T5/T4 Gb (with i. = «ia» or «ib»)
Ex tb IIIC T85°C/T100°C/T135°C/T200°C Db
IP 66 / IP 67

Approved for issue on behalf of the IECEx
Certification Body:

Mirko BALAZ

Position:

Deputy Head of IECEx CB

Signature:
(for printed version)

Date:
(for printed version)

1. This certificate and schedule may only be reproduced in full.
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Certificate issued by:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
20134 Milano
Italy

CESI



IECEX Certificate of Conformity

Certificate No.: **IECEX CES 22.0011X**

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Date of issue: 2022-03-24

Issue No: 0

Manufacturer: **ELFIT S.p.A.**
Via Aquileia, 12
I-34070 Villesse (GO)
Italy

Manufacturing
locations: **ELFIT S.p.A.**
Via Aquileia, 12
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 60079-1:2014-06](#) 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 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

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 Report:

[IT/CES/ExTR22.0015/00](#)

Quality Assessment Report:

[IT/CES/QAR13.0001/08](#)



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Certificate No.: **IECEX CES 22.0011X**

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Date of issue: 2022-03-24

Issue No: 0

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The terminal boxes series **S****, **S.1****, **GUA****, **GUF****, **EAH**** are used in hazardous area, indoor and/or outdoor, where inflammable or explosive vapours gases or dust are present.

The terminal boxes series **S****, **S.1****, **GUA****, **GUF****, **EAH**** can have type of protection: Ex db, Ex eb, Ex ia, Ex ib or Ex tb. Terminal boxes with type of protection Ex ia are assessed for EPL Gb only.

The Terminal boxes are suitable for the installation of terminals for the connection of electrical cables and they can be manufactured in:

- Aluminium alloy EN AB 43000, EN AB 44100, according to UNI EN 1676;

- Stainless steel AISI 303, AISI 304, AISI 316L;

- Cast iron UNI EN 1563 GJS-400-15 or GJS-400-18.

The terminal boxes manufactured in aluminium alloy or in stainless steel are suitable for an ambient temperature range $-40^{\circ}\text{C} \div +150^{\circ}\text{C}$, while the terminal boxes manufactured in cast iron are for an ambient temperature range of $-20 \div +150^{\circ}\text{C}$.

A standard O-Ring, placed between the body and the cover of boxes, in order to obtain an IP hold, is made of Silicon material. The maximum temperature of the gasket shall not exceed 160°C in service.

The terminal boxes can be supplied with external conductive painting; other types of painting can be used, in this case a warning label is added regarding the risk of electrostatic charge.

Entry into the equipment is made by threaded holes located on the enclosure body. In particular, the standardised cable entries are threaded according to NPT ANSI ASME B1.20.1, but are also foreseen alternative tapered and cylindrical threads.

For further information see Annex.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- Cables connected to the terminals shall not reduce the clearance and creepage distances of the terminal boxes with type of protection "Ex e" and "Ex i.". The use of terminal block's accessories (e.g. chain bridge) can reduce the maximum rated voltage of the terminals; the instructions of the Manufacturer must be duly followed.
- The cable entry devices and blanking plugs shall be subjected of separate certification for type of protection and operating temperatures indicated on the plate. To guarantee the degree of protection IP 66 or IP 67 the threaded coupling accessory-enclosure shall be suitable sealed.
- The conditions of the installation and use of the terminal boxes included within the safety instructions, provided by the Manufacturer, shall be strictly respected.
- For terminal boxes painted with non-conductive paint, the following label shall be applied: "Warning – potential electrostatic charging hazard – see Instructions".

Annex:

[ELFIT - IECEX CES 22.0011X Issue0 - ANNEX - S-S.1-GUA-GUF-EAH Terminal boxes.pdf](#)



Prot: C2004528

IECEX Certificate of Conformity



Annex to certificate:
Applicant:

IECEX CES 22.0011X Issue No.:0 of 2022-03-24
ELFIT S.p.A.
Via Aquileia, 12; I – 34070 Villesse (Go) - Italia
Terminal boxes, Series S, S.1**, GUA**, GUF**, EAH****

Electrical Apparatus:

Description of product

The terminal boxes series **S**, S.1**, GUA**, GUF**, EAH**** are used in hazardous area, indoor and/or outdoor, where inflammable or explosive vapours gases or dust are present.

The terminal boxes series **S**, S.1**, GUA**, GUF**, EAH**** can have type of protection: Ex db, Ex eb, Ex ia, Ex ib or Ex tb. Terminal boxes with type of protection Ex ia are assessed for EPL Gb only.

The Terminal boxes are suitable for the installation of terminals for the connection of electrical cables and they can be manufactured in:

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- Stainless steel AISI 303, AISI 304, AISI 316L;
- Cast iron UNI EN 1563 GJS-400-15 or GJS-400-18.

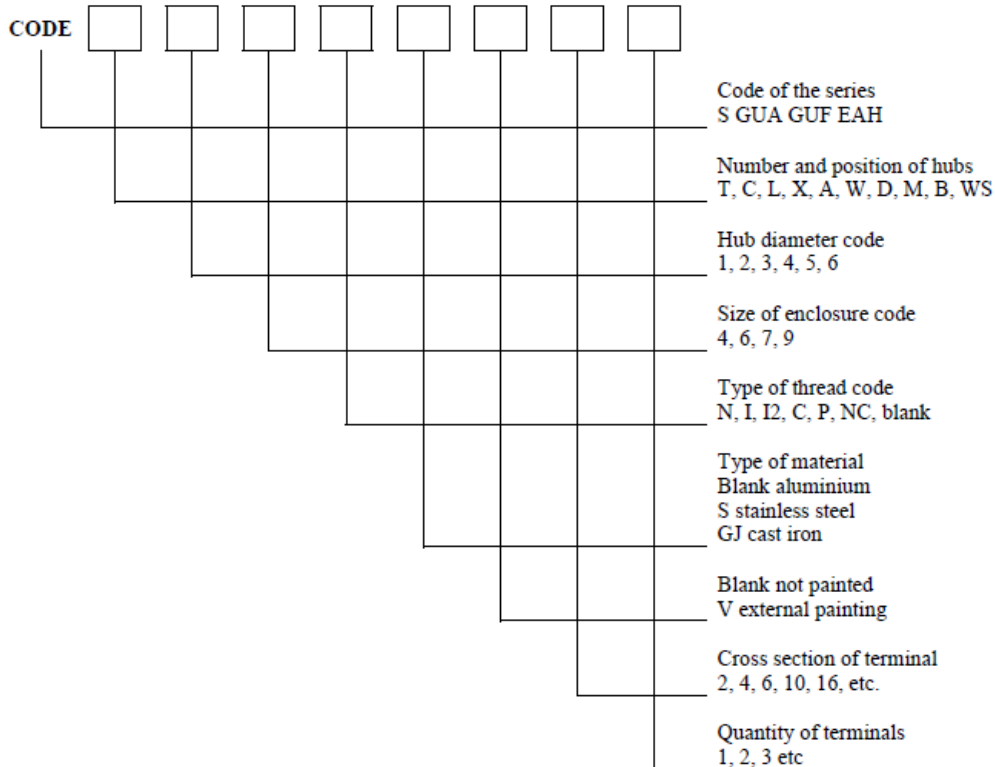
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The terminal boxes can be supplied with external conductive painting; other types of painting can be used, in this case a warning label is added regarding the risk of electrostatic charge.

Entry into the equipment is made by threaded holes located on the enclosure body. In particular, the standardised cable entries are threaded according to NPT ANSI ASME B1.20.1, but are also foreseen alternative tapered and cylindrical threads.

Equipment identification

The terminal boxes series **S**, S.1**, GUA**, GUF**, EAH**** are identified by a code with the following meaning:



When the code starts by "SF", the box is supplied complete with bracket for wall mounting (ex. SFC-26.1).
When the code starts by "SSC", the box is supplied complete with bracket for ceiling mounting (ex. SSC-26.1).
Other suffix can be added on the code for particular configuration.



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Annex to certificate:
Applicant:

IECEX CES 22.0011X Issue No.:0 of 2022-03-24
ELFIT S.p.A.

Electrical Apparatus:

Via Aquileia, 12; I – 34070 Villesse (Go) - Italia
Terminal boxes, Series S, S.1**, GUA**, GUF**, EAH****

Details of the identification codes

Number and position of hubs

Identification letter	Number	Position
A	1 cable entry	1 on the side
B	2 cable entries	1 on the bottom and 1 on the side
C	2 cable entries	2 on the opposite sides
L	2 cable entries	2 on the sides to 90°
T	3 cable entries	3 on the sides
X	4 cable entries	4 on the sides
D	3 cable entries	1 on the bottom and 2 on the opposite sides
M	3 cable entries	1 on the bottom and 2 on the sides to 90°
W	4 cable entries	1 on the bottom and 3 on the sides
WS	2 cable entries	1 on the bottom and 1 on the side

Hub diameter

Identification digit	Hub diameter (inches)	Hub diameter (metric)
1	1/2"	M20
2	3/4"	M25
3	1"	M32
4	1 1/4"	M40
5	1 1/2"	M50
6	2"	M63

Size of enclosure

Identification digit	Size of enclosure (ø mm)
4	54
6	80
7	95
9	130

Type of threads

Identification letter	Type of thread	Examples		
N	NPT ANSI ASME B1.20.1	SX.24.1N	ST-36N	GUAL-59N
I	ISO metric pitch 1,5mm	SX.24.1I	ST-36I	GUAL-59I
I2	ISO metric pitch 2mm	SX.24.1I2	ST-36I2	GUAL-59I2
C	GAS UNI 228/1	SX.24.1C	ST-36C	GUAL-59C
P	Pg DIN 40430	SX.24.1P	ST-36P	GUAL-59P
NC	NPSM ANSI ASME B1.20.1	SX.24.1NC	ST-36NC	GUAL-59NC
Blank	Gk CEI EN 60079-1	SX.24.1	ST-36	GUAL-59

Cross section of terminal blocks

Digit	1	2	4	6	10	16	25	35	70
Sqmm	1,5	2,5	4	6	10	16	25	35	70

Quantity of terminal blocks

Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Quantity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16



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ELFIT S.p.A.

Via Aquileia, 12; I – 34070 Villesse (Go) - Italia

Electrical Apparatus:

Terminal boxes, Series S, S.1**, GUA**, GUF**, EAH****

Electrical characteristics

“Ex d” terminal boxes:

Rated voltage of terminals:	750 Vac/dc
Rated frequency:	50/60 Hz
Rated cross section of terminals:	from 1.5 mm ² up to 70 mm ²
Rated current of terminals:	from 8 A up to 175 A
Current density of terminals and cables wiring:	from 2.5 A/mm ² up to 6.6 A/mm ²
Degree of protection of enclosures:	IP 66 or IP 67
Ambient temperature:	-40°C or -20°C ÷ +40°C or +65°C or +150°C

“Ex e” and “Ex i” terminal boxes:

Rated voltage of terminals:	630 Vac/dc
Rated frequency:	50/60 Hz
Rated cross section of terminals:	from 1.5 mm ² up to 25 mm ²
Rated current of terminals:	from 5.5 A up to 65 A
Current density of terminals and cables wiring:	from 3 A/mm ² up to 6.6 A/mm ²
Degree of protection of enclosures:	IP 66 or IP 67
Ambient temperature:	-40°C or -20°C ÷ +40°C or +65°C or +80°C

The ratings specified are maximum values; actual values will be subject to the electrical equipment/component used from case to case.

In the following table, for the different type of boxes, the temperature classe (T) and the max. surface temperature (T°C) are shown as a function of the ambient temperature.

Junction boxes Ex db IIC and Ex tb IIIC			Junction boxes Ex eb IIC, Ex i. IIC and Ex tb IIIC		
Ambient temperature	Temperature class	Max. surface temperature	Ambient temperature	Temperature class	Max. surface temperature
-20 °C ÷ +40 °C	T6	85 °C	-20 °C ÷ +40 °C	T6	85 °C
-40 °C ÷ +40 °C	T6	85 °C	-40 °C ÷ +40 °C	T6	85 °C
-20 °C ÷ +65 °C	T5	100 °C	-20 °C ÷ +65 °C	T5	100 °C
-40 °C ÷ +65 °C	T5	100 °C	-40 °C ÷ +65 °C	T5	100 °C
-20 °C ÷ +150 °C	T3	200 °C	-20 °C ÷ +80 °C	T4	135 °C
-40 °C ÷ +150 °C	T3	200 °C	-40 °C ÷ +80 °C	T4	135 °C

The maximum service temperature of the gaskets on boxes shall not exceed 160 °C.



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Terminal boxes, Series S, S.1**, GUA**, GUF**, EAH****

Electrical Apparatus:

Terminal blocks

The terminals installed within the enclosures with type of protection “Ex e” and “Ex i” are subjects to a separate certification as component according to IEC 60079-7 standard.

The terminals normally used are manufactured by Cabur or Weidmuller, but other IEC certified equivalent type of terminals can be used.

The Terminal boxes with type of protection “Ex e” shall be fitted in accordance with the manufacturer’s instructions and, when installed, they shall guarantee the minimum clearance and creepage distances in compliance with table 2 of IEC 60069-7 standard.

For Terminal boxes with type of protection “Ex i” the distances between “Intrinsic Safety Circuits” and “Non-Intrinsic Safety Circuits” or between “Separate Intrinsic Safety Circuits” shall be in compliance with the IEC 60079-11 standard.

The Terminal boxes series S**, S.1**, GUA**, GUF**, EAH** can contain several terminals with different rated cross sections, when selecting the permitted continuous current for cross section, the maximum permitted electrical current for the terminal and connecting cable or conductor should be taken into consideration.

In the following tables are reported, for each box, the section and the maximum number of terminals admissible and the maximum dissipated power inside.

Terminal boxes executions “Ex d” IIC and “Ex tb” IIC														
Junction box			Section (mm ²) and max. number of terminals admissible									Maximum dissipated power inside		
Size	Type	Inside volume (cm ³)	1,5	2,5	4	6	10	16	25	35	70	T _{amb} (°C)	Section (mm ²)	Power (W)
14, 24	S. 1	103	/	/	3	/	/	/	/	/	/	40	4	1,8
	S	126	/	/	3	/	/	/	/	/	/	65	4	0,9
												150	4	1,0
16, 26, 36	S. 1	286	8	8	6	/	/	/	/	/	/	40	4	2,8
	S	263	8	8	6	/	/	/	/	/	/	65	4	1,9
												GUA-EAH-GUFX	286	8
27, 37, 47	S. 1	447	10	10	8	6	5	/	/	/	/	40	4	4,1
	S	447	10	10	8	6	5	/	/	/	/	65	4	2,8
												150	4	3,2
19, 29, 39, 49, 59, 69	S. 1	1029	16	16	12	9	7	6	4	4	3	40	70	17,4
	S	1195	16	16	12	10	8	7	5	5	4	65	70	13,5
												GUA-EAH-GUFX	1055	16
Max. current (A)		T _{amb} at 40 °C	10	12,5	20	24	30	48	75	105	175	/	/	/
		T _{amb} at 65 °C	8	10,5	16	20	24	40	65	88	150	/	/	/
		T _{amb} at 150 °C	8	10,5	16	20	24	40	65	88	150	/	/	/
Density max of current (A/mm ²) for terminals and cables wiring)			6,6	5	5	4	3	3	3	3	2,5	/	/	/



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Via Aquileia, 12; I – 34070 Villesse (Go) - Italia
Terminal boxes, Series S, S.1**, GUA**, GUF**, EAH****

Electrical Apparatus:

Terminal blocks (follows):

Terminal boxes executions" Ex e" IIC and "Ex i" IIC												
Junction box			Section (mm ²) and max. number of terminals admissible							Maximum dissipated power inside		
Size	Type	Inside volume (cm ³)	1,5	2,5	4	6	10	16	25	T _{amb} (°C)	Section (mm ²)	Power (W)
14, 24	S. 1	103	/	/	3	/	/	/	/	40	4	1,0
	S	126	/	/	3	/	/	/	/	65	4	0,5
										80	4	0,5
16, 26, 36	S. 1	286	8	8	6	/	/	/	/	40	4	2,0
	S	263	8	8	6	/	/	/	/	65	4	1,1
										GUA-EAH-GUFX	286	8
27, 37, 47	S. 1	447	10	10	8	6	5	/	/	40	4	2,9
	S	447	10	10	8	6	5	/	/	65	4	1,6
										80	4	1,6
19, 29, 39, 49, 59, 69	S. 1	1029	16	16	16	9	7	6	4	40	70	6,6
	S	1195	16	16	16	10	8	7	5	65	70	3,6
										GUA-EAH-GUFX	1055	16
Max. current (A)		T _{amb} at 40 °C	8	10,5	17	20	24	40	65	/	/	/
		T _{amb} at 65 °C	5,5	7,5	12	14	17	29	47	/	/	/
		T _{amb} at 80 °C	5,5	7,5	12	14	17	29	47	/	/	/
Density max of current (A/mm ²) for terminals and cables wiring)			6,6	5	5	4	3	3	3	/	/	/

Note: The maximum number of suitable terminals can vary in function of the minimum surface and in the air distances, required by the standards.

Installation conditions

The operating temperature range of the terminals used shall be taken into consideration:

Ambient temperature	Terminals operating temperature	Temperature class
-20 °C ÷ +40 °C	≥80 °C	T6
-40 °C ÷ +40 °C	≥80 °C	T6
-20 °C ÷ +65 °C	≥100 °C	T5
-40 °C ÷ +65 °C	≥100 °C	T5
-20 °C ÷ +150 °C	≥180 °C	T3
-40 °C ÷ +150 °C	≥180 °C	T3

Ambient temperature	Terminals operating temperature	Temperature class
-20 °C ÷ +40 °C	≥80 °C	T6
-40 °C ÷ +40 °C	≥80 °C	T6
-20 °C ÷ +65 °C	≥100 °C	T5
-40 °C ÷ +65 °C	≥100 °C	T5
-20 °C ÷ +80 °C	≥130 °C	T4
-40 °C ÷ +80 °C	≥130 °C	T4

The characteristics of the terminals and of the other components (cables-cable glands – adaptors-etc.) must have the same operating temperature of terminals.

The maximum operating temperature for cables to use is indicated on the marking plate of the junction box. For boxes with "Ex i" circuits Warning can be present: "Contains intrinsically safe circuits" (where this warning is not present the boxes shall be externally painted in light blue color).