

OPERATING INSTRUCTIONS

TERMINAL BOX JBE (ATEX)



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APPLICATION

Terminal boxes type JBE is explosion-protected and suitable for fixed mounting. They distribute electrical energy in hazardous areas.

They are manufactured from sheet or stainless steel in a range of sizes. They can be combined to provide more extensive distribution systems.

PURPOSE OF THESE INSTRUCTIONS

Working in hazardous areas, the safety of personnel and plant depends on complying with all relevant safety regulations.

Assembly and maintenance staff working on installations therefore have a particular responsibility. They require precise knowledge of the applicable standards and regulations.

These instructions give a brief summary of the most important safety measures. They supplement the corresponding regulations which the staff responsible must study.

Subject to alteration.

1 SAFETY INSTRUCTIONS

Use the terminal box only for its permitted purpose.

Incorrect or impermissible use or non-compliance with these instructions invalidates our warranty provision.

Any alterations and modifications to the box impairing its explosion protection are not permitted.

Use the terminal box only if it is clean and undamaged.

Observe the following during setting-up and operation:

- national safety regulations;
- national accident prevention regulations;
- national installation regulations;
(e.g. IEC 60079-14)
- generally recognized technical regulations;
- safety guidelines in these operating instructions;
- characteristic values and rated operating conditions on the rating and data plates;
- additional instruction plates fixed directly to the device.

Any damage can invalidate the Ex-protection.

The inactive metal parts are insulated in accordance with EN 60439 Part 1 (IEC 60439-1) and are not linked to the earthing system (PE).



If required, we will provide a copy of the EC Type-Test Certificate with the relevant annex.



The fitting of additional terminals, isolating terminals, fuses or cables gland is only permitted when the individual components are certified to Directive 94/9/EC and thus, have an EC prototype test certificate. When carrying out this type of modification to the terminal box the type and data plates must be observed!

1.1 CONFORMITY TO STANDARDS

Each box complies with the following standards and regulations:

Directive 94/9/EC

EN 50014, EN 50018, EN 50019,

EN 50020, EN 50028

EN 60947-1/A11

EMC Directive No.: 89/336/EC

Terminal boxes type JBE is suitable for use in hazardous areas zones 1, 2, 21 and 22.

2 TECHNICAL DATA

2.1 EXPLOSION PROTECTION

Test certificate:

KEMA 02 ATEX 2272

Material:

Sheet or stainless steel

a. fitted with terminals

 II 2G EEx e II bzw. / or / ou


 II 2G EEx e [ia] IIC T

b. fitted with isolating terminals

 II 2G EEx ed IIC T bzw. or / ou

 II 2G EEx ed [ia] IIC T


c. fitted with terminals and fuses

 II 2G EEx em II T bzw. /or / ou

 II 2G EEx em [ia] IIC T

d. fitted with terminals, isolating terminals and fuses

 II 2G EEx edm IIC T bzw. /or / ou

 II 2G EEx edm [ia] IIC T

Working temperature range:

Standard

- 20 °C ... + 40 °C

Special

- 20 °C ... + 55 °C

Ambient temperature range for terminal boxes without fuses fitted

T6: - 20 °C ... + 40 °C

T5: - 20 °C ... + 55 °C

If your application requires the ambient temperature range to be extended at the lower end, Electromach can supply special designs.



When fitting fuses, the ambient temperature values for the following temperature classes apply:

- Fuse current value ≤ 4 A corresponds to T6
- 4 A > fuse current value ≤ 5 A corresponds to T5
- 5 A > fuse current value $\leq 6,3$ A corresponds to T4

Degree of protection to IEC/CEI 60529: max. \geq IP 66

Terminal box EEx e type JBE

Rated operating voltage max. 11 kV
 Cross-section for connection max. 300 mm²

Terminal box EEx i type JBE

The electrical data depend on the rated operating values of the intrinsically safe circuits installed.



The devices fitted to type JBE enclosures differ according to customers' requirements. Please also observe the operating instructions for these.

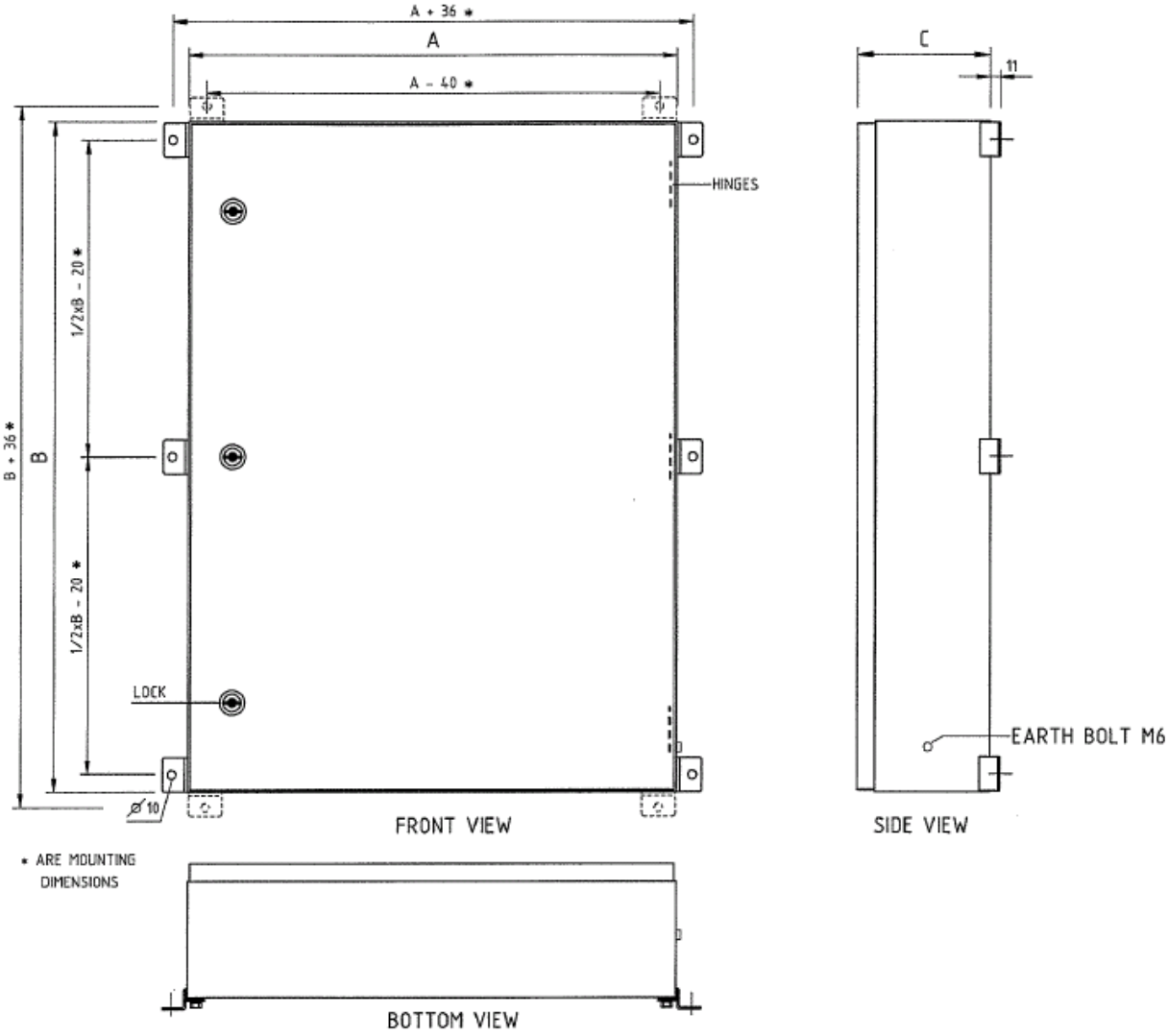


Please consult the manufacturer if there are other non-standard operating conditions.

2.2 FITTINGS IN TERMINAL BOX TYPES JBE

See additional attachment

3 DIMENSION SKETCH



- A : MIN. 200mm MAX. 800mm
- B : MIN. 200mm MAX. 1600mm
- C : MIN. 100mm MAX. 800mm

- 1) BLIND RIVETED NUTS M6 ON REAR SIDE CAN ALSO BE USED FOR FRAME MOUNTING.
- 2) ALTERNATIVE : WELDED MOUNTING STRIPS.
- 3) LOCK DOUBLE BEARD (3mm)

When explosion-protected equipment is exposed to the weather, it is advisable to provide a protective cover or wall.

1) WELDSTUDS M8x15 ON REAR SIDE CAN BE USED FOR FRAME MOUNTING.

4 INSTALLATION

4.1 MAINS CONNECTION

- The conductors must be carefully connected.
- The conductor insulation must reach to the terminal. The conductor itself must not be damaged (nicked) when removing the insulation.
- Ensure that the maximum permissible conductor temperatures are not exceeded by suitable selection of cables and means of running them.
- Please also refer to the terminal details in the technical data.

4.2 EARTH CONNECTION

The earth connection must be made in all circumstances.

The external earth connection accepts a cable lug. The cable must be run and fixed near to the enclosure to prevent movement of the cable.

5 COMMISSIONING

Before commissioning device, ensure that

- it has been correctly installed;
- it is not damaged;
- it contains no foreign bodies;
- the connection chamber is clean;
- the connection is correctly made;
- the cables have been correctly brought in;
- all screws and nuts are fully tightened;
- the cable glands and stopping plugs are securely tightened;
- unused cable entries are sealed with plugs certified to Directive 94/9/EC, and unused holes are sealed by stopping plugs certified to Directive 94/9/EC.

6 REPAIRS AND MAINTENANCE



Do not open the box when supply is on!

Do not open when non-intrinsically safe circuits are energized!

Exception: boxes with intrinsically and non-intrinsically safe circuits having the sign „Non-intrinsically safe circuits protected by IP30 guard“ may be opened when energized.

Repairs and maintenance work on the devices may only be carried out by appropriately authorized and trained personnel. Before work commences the devices must be disconnected from the mains.



Observe the relevant national regulations for your country!

The following points must be tested during maintenance:

- clamping screw holding the cable is securely seated;
- compliance with permitted temperatures (to EN 50014);
- damage to the housing;
- damage to the gaskets.

7 ACCESSORIES / SPARE



Use only original spare parts as well as original accessories.



When fitting terminal blocks, please ensure that they comply with Directive 94/9/EC and have an EC-type test certificate.



To avoid build-up of condensation in the metal box, we recommend the use of a breathing gland. However, when using this breathing gland it should be noted that, depending on the location of the box a reduction in the level of protection to IEC 60529 results.

8 DISPOSAL

Observe the national standards for refuse disposal.



We are pleased to answer any special questions you may have.

Should you require the operating instructions in one of the other European Community languages, please feel free to contact Electromach.

9 EC-TYPE EXAMINATION CERTIFICATE



(1) EC-TYPE EXAMINATION CERTIFICATE

(2) **Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC**

(3) EC-Type Examination Certificate Number: **KEMA 02ATEX2272** Issue Number: **2**

(4) Equipment: **Terminal / Junction box, series JBE...**

(5) Manufacturer: **Electromach b.v., Member of the R. STAHL Technology Group**

(6) Address: **Jan Tinbergenstraat 193, 7559 SP Hengelo, The Netherlands**

(7) This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential test report number 212646600-2.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014 : 1997
EN 50281-1-1 : 1998

EN 50019 : 2000
EN 50020 : 2002

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:



II 2 GD

EEx e... II.. T6...T4 T 80 °C ... T 130 °C
or
EEx ia/ib II.. T6 T 80 °C

This certificate is issued on August 6, 2009 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.

C.G. van Es
Certification Manager



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KEMA Quality B.V. Utrechtseweg 310 6812 AR Arnhem P.O. Box 5185, 6802 ED Arnhem The Netherlands
T +31 26 3 56 20 00 F +31 26 3 52 58 00 customer@kema.com www.kema.com Registered Arnhem 09085396

Experience you can trust.



(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 02ATEX2272** Issue No. 2

(15) **Description**

Terminal / junction boxes series JBE..., for fixed installation, made of stainless or sheet steel, for mounting of separately certified terminal blocks for non-intrinsically and intrinsically-safe circuits, isolating terminals and/or fuses.
 The apparatus marking is completed by using the codes "m", "[ia]", "[ib]" and "d" as applicable, depending on the built-in apparatus and components. For intrinsically safe circuits, the area for the terminals is marked, e.g. by a light blue colour.

The standard ambient temperature range is -20 °C ... +40 °C (temperature class T6 ... T4). The JBE terminal / junction boxes are also available with an ambient temperature range of -20 °C to +55 °C, for temperature classes T5 and T4. JBE terminal / junction boxes in type of explosion protection "ia/ib" are available with an ambient temperature range of -20 °C to + 75 °C for temperature class T6.

The temperature class T4 ... T6 of the complete unit is based on the temperature (class) of the terminals and components mounted in the enclosure. The highest temperature class is normative.

The maximum surface temperature T 80 °C, T 95 °C or T 130 °C according to EN 50281-1-1 is related to the temperature class of the terminal/ junction box and based on a maximum ambient temperature of +55 °C.

Electrical data

The data are dependent on the built-in components and terminals used and are to be taken from the applicable certificates and manufacturers data.

Rated voltage.....	max. 11 kV
Rated current.....	max. 1250 A
Nominal conductor cross section.....	max. 300 mm ²
Degree of protection	IP 54 (gas) or IP 6X (dust) according to EN 60529

Installation instructions

The manual provided with the equipment shall be followed in detail to assure safe operation.

Routine tests

Each JBE terminal / junction box which is ready for use, shall be subjected to routine tests according to EN 50019, clause 7.1 and/or EN 50020, clause 11.2 as applicable, using the applicable test voltage and test time, without breakdown.

(16) **Test Report**

KEMA No. 212646600-2.

(17) **Special conditions for safe use**

None.



(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 02ATEX2272** Issue No. 2


(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 212646600-2.



10 DECLARATION OF CONFORMITY



ELECTROMACH member of the R.STAHL Technology Group

EC-Declaration Of Conformity (acc. 94/9/EC / ATEX 95)

We
electromach B.V., Jan Tinbergenstraat 193, 7559 SP Hengelo
 hereby declare in our sole responsibility, that the product: **Terminal Box Type JBE**
 which is the subject of this declaration, is in conformity with the following standard(s)
 or normative documents

Terms of the directive	Titel and/or No. and date of issue of the standard
94/9/EC: Equipment and protective systems intended for use in potentially explosive atmospheres	EN 50014 (1997) EN 50018 (2000) EN 50019 (2000) EN 50020 (2002) EN 50028 (1987) EN 50281-1-1 (1998)
89/336/EEC: Electromagnetic compatibility	EN 60947-1 (1999)
EC-Type Examination Certificate:	KEMA 02 ATEX 2272
Production Quality Assessment: issued by:	KEMA 01 ATEX Q3201 KEMA Quality, 6612 AR Arnhem Identification number: 0344
Hengelo, 22-10-2009 Place and date	<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  J.F.W. Wijnen Managing Director </div> <div style="text-align: center;">  C.L.L. Cameron Quality Manager </div> </div>

ELECTROMACH B.V.
 Jan Tinbergenstraat 193
 7559 SP Hengelo
 The Netherlands

T +31 (0)74 2 472 472
 F +31 (0)74 2 435 925
 info@electromach.nl
 www.electromach.com

Bank: ABN-AMRO 59.01.14.573
 IBAN: NL29ABNA090114573
 BIC: ABNANL2A
 VAT/BTW: NL 003579458B01

Bank: Fortis 24.25.24.439
 IBAN: NL07FTSB0243204439
 BIC: FTSBNL2RXXX
 KVK nr: 00040491

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