BARTEC

# Junction & terminal boxes ESI, ESP, ESA, ESX, GWR, TNCN

## for Zone 1 and Zone 21

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## Note on instructions

When working in hazardous areas, the safety of personnel and equipment depends on compliance with the relevant safety regulations. The people in charge of installation and maintenance bear a special responsibility. It is essential that they have an exact knowledge of the applicable rules and regulations. The instructions provide a summary of the most important safety measures and must be read by everyone working with the product so that they will be familiar with the correct handling of the product. The instructions have to be kept for future reference and must be available throughout the expected life of the product.

## Description

BARTEC junction and terminal boxes are available as enclosures with lid or as cabinets with door. The junction and terminal are used for connection with lights, devices and sensors. The walls of the enclosure, lid/door and base are made from GRP plastic or high-grade stainless steel (or Inox). The flange plates with tapped holes for the cable and conduit entries are at least 3 mm (0.12 in) thick. The IP protection class is realized by a seal in the lid or in the door. The junction and terminal are mounted with external mounting brackets. The junction and terminal are also suitable for intrinsically safe electric circuit connection, where special marking is required. BARTEC junction and terminal boxes can be used in hazardous areas of both zone 1 and 2 with certified explosion subgroups II and the temperature class from T6 to T3 and as well as in zone 21 and 22 with certified max. surface temperature. Enclosures and cabinets with windows shall only be used in conditions with low level mechanical risk. For more information see data sheet for a specific type of junction and terminal box.

## Safety Instructions

Junction and terminal boxes may be used within the specified temperature class and the temperature range indicated on type label. These are is not suitable for use in Zones 0/20. As for junction and terminal used in areas with flammable dust, the ignition temperature of the dust/air mixture and the glowing temperature of the dust concerned must be greater than the maximum surface temperature of the junction and terminal box, taking into account of the given safety factor specified in EN 60079-0. The junction and terminal may be operated only if it is clean and not damaged in any way. Dust deposits > 5 mm (> 0.2 in) must be removed. Utilization in areas other than those specified or the modification of the product by anyone other than the manufacturer is not permitted and will exempt BARTEC from liability for defects and any further liability. The generally applicable statutory rules and other binding directives relating to workplace safety, accident prevention and environmental protection must be observed.

Observe the applicable laws and directives when commissioning or restarting operations. Always follow the safety instructions on the operating equipment.

**WARNING**

- Observe instructions of components.
- Do not replace or add components on your own.
- Repair only after consultation with BARTEC
- Do not open when energized

### Technical data

| | |
|---|---|
| Material | Aluminium, glass-fibre reinforced polyester, stainless steel, sheet steel |

### Electrical data

| | |
|---|---|
| Ambient temperature | Dependent on installed components. Please pay attention to the information on the marking plate.<br>-60 °C to max. +80 °C (-76 °F to max. +176 °F) |
| Temperature Classes | T6, T5, T4, T3<br>T80°C, T95°C, T130°C |
| Voltage | max. 1000 V * |
| Nominal current | max. 690 A * |
| Maximal cross-section | max. 400 mm² * |

Other approvals and certificates, see www.bartec.com

* The rated values are maximum values. The respective built-in components cause the actual electrical values. The manufacturer specified the final rated values, within the limits of the maximum values, and depending on the supply conditions, mode of operation, equipment protection level and so on.
The circuits must be interconnected in accordance with the requirements of the current standard IEC 60079-14. For intrinsically safe circuits, the requirements of IEC 60079-25 also apply.

### Explosion protection

| | |
|---|---|
| Marking ATEX | Type 07-3T**-****/****<br>Ⓔx II 2G Ex eb ia ib IIA, IIB or IIC T6, T5, T4 or T3 Gb<br>Ⓔx II 2D Ex tb ia ib IIIA, IIIB or IIIC, T80 °C, T95 °C or T130°C Db |
| Marking IECEx | Typ 07-3T**-****/****<br>Ex eb ia ib IIA, IIB, or IIC T6, T5, T4, or T3 Gb<br>Ex tb ia ib IIIA, IIIB, or IIIC, T80 °C, T95 °C, or T130 °C Db |
| Certification | IBExU 12 ATEX 1099X<br>IECEx IBE 12.0031X<br>CSA: 2515401<br>NEPSI: GYJ20.1064<br>CCC: 2020322304001711<br>INMETRO: UL-BR 11.0118<br>PESO: A/P/HQ/UP/104/5577 (P470774)<br>ECASEx: 23-06-75816/E23-05-076028/NB000<br>EAC: KZ 7500525.01.01.02096 |

## Marking

### Serial Number Format – BARTEC FN

Y Y / S X X / Z Z Z Z / N . A

| | |
|---|---|
| YY | Year of manufacturing |
| SXX | Sales order site reference |
| ZZZZ | Sales order number |
| N | Sales order item number |
| A | Sequence number, depending on quantity of item (starting from 1 to NN) |

### Serial Number Format – BARTEC GmbH

Z Z Z Z / Y Y

| | |
|---|---|
| ZZZZ | Sequence number |
| YY | Year of manufacturing |

Particularly important points in these instructions are marked with a symbol:

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**NOTICE** is used to address practices not related to personal injury.

**NOTE** Important instructions and information on effective, economical and environmentally compatible handling.

## Standards conformed to

Please see EU Declaration of Conformity and IECEx certificate.

## Transport and storage

**NOTICE**

**Damage to the junction and terminal boxes through incorrect transport or incorrect storage.**

- The measuring, control and switchgear combination must be transported in its original packaging, be secured against vibrations, handled carefully and not allowed to fall.
- Storage of control and switchgear combination must be in dry ambient in original package.

**CAUTION**

**Risk of injury due to heavy loads.**

- Use suitable carrying aids or means of transport (e.g. lift trucks) with an adequate weight bearing capacity.
- Make sure that loads cannot tilt or slide off.

## Assembly/disassembly and installation

**DANGER**

**Death or risk of injury due to the absence of a PE conductor connection.**

- Metallic enclosures in hazardous areas require equipotential bonding with at least 4 mm².
- PE conductor connections must be secured against self-loosening.

**WARNING**

**Risk of serious injury due to incorrect proceedings.**

- Only qualified personnel who are authorized and trained to assemble electrical components in hazardous (potentially explosive) areas may do any of the assembly, disassembly, installation and commissioning work.
- The relevant installation and operating regulations must be observed when setting up or operating explosion-proof electric systems
- Follow the components mounting instructions/operating instructions.
- Before starting to work, ensure that the voltage supply has been isolated or take suitable protective measures.

## Assembly/disassembly

Check when assembling:

- Use suitable tools.
- Pay attention to the type of mounting required (for fitting into enclosure/attachment with junction and terminal box).
- For junction and terminal boxes placed in outdoors, steps must be taken to ensure smooth operation, for example rain protected roofs, and if necessary, sufficient enclosure protection.

**NOTICE** Metallic junction and terminal boxes for intrinsically safe facilities do not have to be attached to an equipotential bonding system, except if it is required by equipment documentation.

## Installation

**DANGER**

**Death or serious injury due to improper use.**

- Extensions or modifications to the junction and terminal boxes combination are only permissible if the manufacturer's approval is obtained first.
- The EN/IEC 60079-14 must be observed, in particular article 10, paragraphs 10.2, 10.4, and 10.7.

Connection of cables and conductors to equipment in hazardous areas require Ex-certified entries, which are suitable for re-spective cable and conductor types. They must possess the protection type e" and contain a suitable sealing gasket. Unused holes for cable entries must been sealed with Ex-certified plugs. Connection of cables and conductors of zone 21 and 22 equipment require at least the protection class IP66.

Observe during installation:

- When connecting cables and wires to equipment with type of protection "Ex e", use Ex certified cable entries that are suitable for the respective cable or wire type. The type of protection "Ex e" has to be maintained and the entries have to contain a suitable sealing element so that the protection class junction and terminal boxes is preserved.
- For intrinsically safe circuits, the specifications in the operating instructions for the intrinsic safety must be observed.
- Line entries out of metal must be connected to the grounding system.
- For plastic enclosures, use the BARTEC Earth-Loc or an earthing plate corresponding to the approval.
- Close unused openings for cable entries with Ex-certified closing elements.

Observe when connecting the conductor:

- Carry out conductor connection carefully.
- Crimp ferrules with a suitable crimping tool to ensure consistent crimping quality.

**NOTICE**

Take care not to damage the individual wires.

- Tighten all clamping points (also the unused ones).
- All connections must be secured against self-loosening.
- Remove approx. 6 mm (0.24 in) conductor insulation from the cores.
- Tight the terminals with a maximum permissible torque depending on the size of the screws. For information about tightening torque of the terminal screw, see manufacturer`s instructions.

**NOTE**

Tighten all terminal points securely (including those not in use).

**NOTE**

If necessary, safety temperature limiters (STB) are installed in junction and terminal boxes combinations. The normally open contact of the STB is wired on the STB terminal block. The normally open contact that is wired on the STB terminal block has to be connected with the power supply of the junction and terminal boxes combination in a way that the power supply is safely switched off (i.e. the junction and terminal boxes combination is switched voltage free). Once the temperature drops, the STB can be un-locked manually, see the Operating Instructions for the "Ex-d temperature switch 07-6D..-..../.... ".

# Operation

**DANGER**

**Death or serious injury through improper use.**

- The junction and terminal boxes combination may be operated only within the technical limits that apply to it (see page 2).

# Maintenance and Fault clearance

**WARNING**

**Risk of serious injury due to incorrect proceedings.**

- Only authorized qualified personnel are allowed to do any of the work relating to maintenance and fault clearance.
- EN/IEC 60079-17 must be observed. It is recommended to formulate a maintenance plan according to this standard.
- Before starting to work, ensure that the voltage supply has been isolated or take suitable protective measures.

## Maintenance

The owner/managing operator of the junction and terminal boxes combination must keep it in good condition, operate it correctly, monitor it and clean it regularly. The owner/managing operator must schedule maintenance intervals, which will suit the respective conditions of use.

- Check sealings for effectiveness.
- Replace old or damaged sealings with new original seals.

Check that the connecting terminals and cable and conductor entries are secure.

**NOTE**

**Take care not to damage the individual wires.**

- Tighten all terminal points securely (including those not in use).

**WARNING**

**Risk of serious injury from electrostatic charging.**

- Risk of electrostatic charging on surface with the resistance of >$10^9$ Ω (specifiy for relevant enclsoures). Only cleaning with a wet cloth is allowed.

## Fault Clearance

The junction and terminal box is defective if one of the components does not function any longer. In this case the defective component must be replaced or repaired with original parts. Defective windows cannot be replaced by the operator of the junction & terminal boxes. In this case contact BARTEC at the local service address.

**NOTE** Follow the components mounting instructions / operating instructions to replace or repair the components

# Disposal

Environmental damage can be caused by incorrect waste disposal. When in doubt, local authorities or specialist disposal companies can provide information on environmentally friendly disposal. The components in the junction and terminal boxes combination contain metal and plastic parts. Therefore, the statutory requirements for disposing of electronic scrap must be observed.

# Commissioning

Before commissioning,

- The junction and terminal boxes combination has been mounted and installed in compliance with regulations.
- The enclosure is not damaged.
- The connection has been established properly.
- The cables have been laid correctly.
- All screws have been tightened securely.
- The device functions perfectly.

# Accessories, Spare parts and disposal

See BARTEC catalogue Control and connection equipment.

# Service Address

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