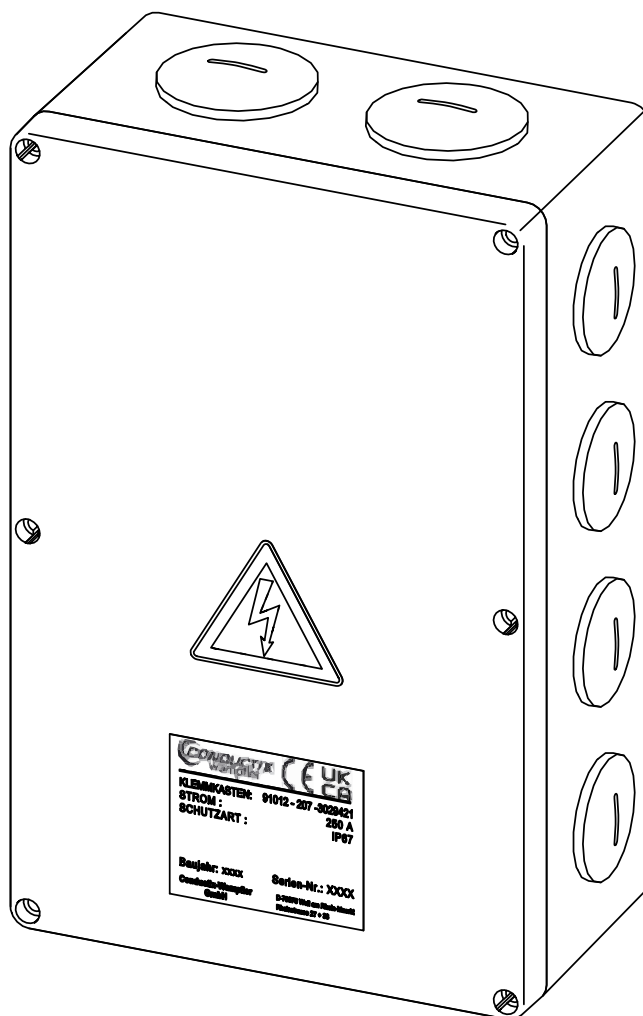


## Junction Box 80 A/125 A

### Part-Number

91012-207-3029421



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**This operating instructions based on the following IPT-Dokumentation-No.: OM9100-0144a-EN!**

Important:

Company names and trademarks mentioned in this operating instruction which are registered and protected trade names and marks by copyright remain the property of the companies themselves.

We reserve the right to carry out technical modifications of illustrations and statements in these operating instructions in order to improve the energy supply system and its function.

System related details please find in the system manuals. Refer always to the system documentation before starting any work on the system or components within the system or before operating the system.

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## Junction Box

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### 1 General Advice

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#### 1.1. Information to these Operating Instructions

These installation and operating instructions allow the safe and efficient handling of the equipment.

The installation and operating instructions are part of the equipment and must be stored close to the equipment and always available to the personnel. The personnel must have read carefully and understood these installation and operating instructions prior to starting work. The basic requirement for safe working is the observance of all safety advice and guidelines specified in these installation and operating instructions. Moreover you have to observe the local accident prevention guidelines and the general regulations for the application of the equipment.

Illustrations in this documentation are for basic comprehension and can deviate from the real design of the equipment.

All stated values are based on the metric system. If units of measurement have been omitted, millimeters (mm) apply.

Complementary instructions given in track installation manuals for specific applications, i.e. MV9100-0038 for EMS systems, must be observed at all times, if of relevance for the installation and operation of the equipment.

#### 1.2. Limitation of Liability

All information and instructions of this operating instruction have been compiled with due regard to the standards and regulations in force, best engineering practice and the findings and experience we have accumulated over many years.

The manufacturer does not accept liability for damage due to:

- Non-observance of the operating instructions
- Improper use
- Use by untrained personnel
- Unauthorized modifications
- Technical modifications
- Use of unauthorized spare parts and accessories
- Improper installation by unqualified installation personnel

The effective volume of delivery may deviate from these explanations and descriptions in case of special design, the utilization of additional order options or on account of the latest technical modifications.

The commitments of the supply contract, the general terms and conditions as well as the manufacturer's terms of delivery and the legal regulations at the time of the conclusion of contract have to be observed.

We reserve the right of technical modifications in the context of revision of useful properties and further developments.

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### 1.3. Copyright

These installation and operating instructions are subject to copyright and intended for customer internal use only.

Providing third parties with the installation and operating instructions, duplications in any form - even in extracts - as well as reuse and/or disclosure of the contents are not permitted without written approval of the manufacturer, except for customer internal purposes.

Violations will be subject to damages. This will not exclude additional claims. The manufacturer is the holder of the copyright. We reserve the right for technical modifications of illustrations and specifications in these operating instructions that serve for the improvement of the systems and their functions.

### 1.4. Spare Parts



#### **Safety risk due to wrong spare parts!**

The utilization of wrong or faulty spare parts may cause danger to persons as well as damage, malfunctions or total failure.

- Use only original spare parts of the manufacturer or spare parts approved by the manufacturer!
- If uncertain always contact the manufacturer.



The product warranty expires with the use of unauthorized spare parts. Spare parts must be ordered from your licensed dealer or directly from the manufacturer. Address see last page of these instructions.

### 1.5. Material Defect

The regulations about material defects are listed in the general terms and conditions of business.

### 1.6. Technical Support

For technical support please contact our staff from the Customer Support Department. For contact data, see last page of these instructions. Moreover, our staff is constantly interested in new information and experiences, which will arise from the application and which might be valuable for the improvement of our products. Please also contact our customer service in this context.

## Junction Box

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## 2 Safety Advice

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### 2.1. Definition of Symbols

Safety and hazard information is identified in these installation and operating instructions by symbols. Signal words are used to indicate the degree of hazard. Always observe safety and hazard information and work carefully to avoid accidents, bodily harm or property damage!



**DANGER!**

... indicates an imminent danger, which might cause deathly or serious injuries if not avoided.



**WARNING!**

... indicates a possibly dangerous situation, which might cause deathly or serious injuries if not avoided.



**CAUTION!**

... indicates a possibly dangerous situation, which if not avoided, may result in moderate or minor injury and property damage.



**ADVICE!**

**Advice and recommendations:**

... gives advice and recommendations as well as information for efficient and trouble-free operation.

#### Special safety notes

The following symbols are used to point out special risks:



**DANGER!**

This combination of symbol and signal word indicates an imminent dangerous situation caused by electrical power and/or electrical voltage. If a labelled hint like this is not observed this may result in heavy or deadly injuries.



**WARNING!**

This sign draws the attention to parts of the operating instructions, where special care must be taken on account of heating of surfaces or on account of inductive heating of ferromagnetic material and where other special measures have to be taken.



**WARNING!**

This sign warns of the risks of electrostatic discharges (ESD).

- Comply with the respective ESD measures before and during work at the open device, e.g. by means of a grounding bracelet.
- Connection to the ground must be assured at all times.

## Junction Box

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### 2.2. Requirements Regarding Personnel

#### 2.2.1. Qualification



**Risk of injury due to insufficient qualification!**

Incorrect handling can cause serious injuries to persons and heavy damage to property.

- All activities must be carried out by qualified staff!

The operating conditions indicate the following qualifications for the various fields of activity:

■ **Electrician**

When the cables have been terminated correctly by authorized personnel having received instruction exclusively from Conductix-Wampfler, further work may be performed by an electrician.

■ **Instructed personnel/operators**

have been instructed by the operator about the tasks assigned to them and the possible dangers in case of improper behavior.

■ **Specialized staff**

is able to carry out the work assigned to them and realize and avoid any dangers in this regard, based on their training, knowledge, experiences and knowledge of the respective regulations.

- Only those persons are authorized for these works, who are expected to do their work properly. Persons with restricted responsiveness, e.g. due to drugs, alcohol or medication, are not permitted.

- For the selection of personnel observe the age-specific and job-related prescriptions effective at the place of installation.

#### 2.2.2. Unauthorized Persons



**Danger caused by unauthorized personnel!**

Unauthorized personnel, who do not meet the requirements described hereunder, are not familiar with the dangers that might occur within the working area.

- Keep unauthorized personnel away from the working area.
- In case of doubt clarify authorization and qualification and dismiss unauthorized persons from the working area in case there are any doubts remaining regarding authorization and qualification.
- Interrupt the work as long as there are unauthorized persons within the working area.

### 2.3. Application in Accordance with the Regulations

The equipment has been exclusively designed and constructed for the intended purpose.



**Danger caused by application not in accordance with regulations!**

Each application of the equipment not in accordance with and/or different from the regulations can result in dangerous situations.

Only use the equipment in accordance with the regulations.

Any details of these operating instructions must be strictly observed.

The following applications of the equipment are prohibited. Applications not in accordance with regulations are as follows:

- Application of the equipment with accessories not permitted or authorized by the manufacturer.
- Operation of the equipment by not instructed personnel.
- Operation of the equipment outdoors.
- Operation of the equipment with installation on an improper foundation/subsurface.

Any claims due to improper application are excluded.

The operator is responsible for any damage due to improper application.



## Junction Box

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### 3 Technical Data



The data specified in this section are valid only if the requirements regarding the environment of the device (position, ambient temperature etc....) are respected.

#### 3.1. Mechanical Data Junction Box

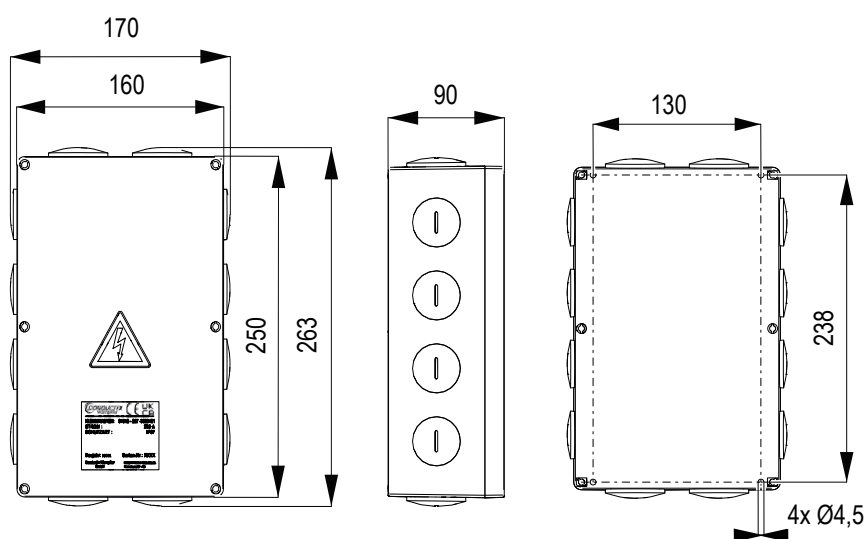


Fig. 1: Junction Box Dimensions

■ Weight: 1,4 kg



#### Installation area

Be aware that the above drawings show solely the Junction Box. The required installation area is bigger when applying a shielding plate (see 4.2 Shielding plate).

## Junction Box

80 A/125 A

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### 3.2. Environmental Data

■ Storage temperature	-20°C to +60°C
■ Transport temperature	-40°C to +80°C
■ Permanent ambient temperature	+0°C to +40°C
	Air temperature as measured in immediate vicinity of working device.
■ Operation	For indoor operation only.
■ Humidity	< 95%, non-condensing
■ Environmental conditions	dry and clean
■ Chemical resistance	For industrial use without special conditions.
	Any specific influences of chemicals must be checked.
■ Protection rating	IP54 when cables are mounted or blind plugs are in place
■ Flammability Class	DIN 53453, UL94-V2

The use in explosion-proof areas or in areas where the device is exposed to harmful oils, acids, vapors, dust, gases, radiation, humidity etc. is explicitly forbidden.



#### **Local regulations must be taken into account**

If necessary apply the local regulations when they go beyond or differ from these requirements.  
Check the suitability of the device.

## Junction Box

80 A/125 A

### 4 Installation

#### 4.1. General Advice for the Installation



After receipt of the components and prior to starting the installation work:

- Unpack the components and check carefully for damage that may have occurred during transport or storage (damage to housings and insulation, missing parts etc.).
- Check completeness of the documents and conformity with the delivered components.



Unused holes in the case must always be closed with dummy plugs.

Cable glands are no suitable to close holes not used! Cables shall not be inserted into the Junction Box without using matching cable glands.

#### 4.2. Shielding plate



In IPT systems higher frequency currents are run through the Litz cables. Therefore a magnetic field is generated around the cables. To prevent eddy currents induced by those fields in metal structures in the close proximity, the use of shielding plates is strictly recommended.

The case must not be mounted directly on steel, it must be mounted on an aluminium plate (e.g. 450 mm x 360 mm x 2 mm) in order to ensure sufficient shielding (See figure below).

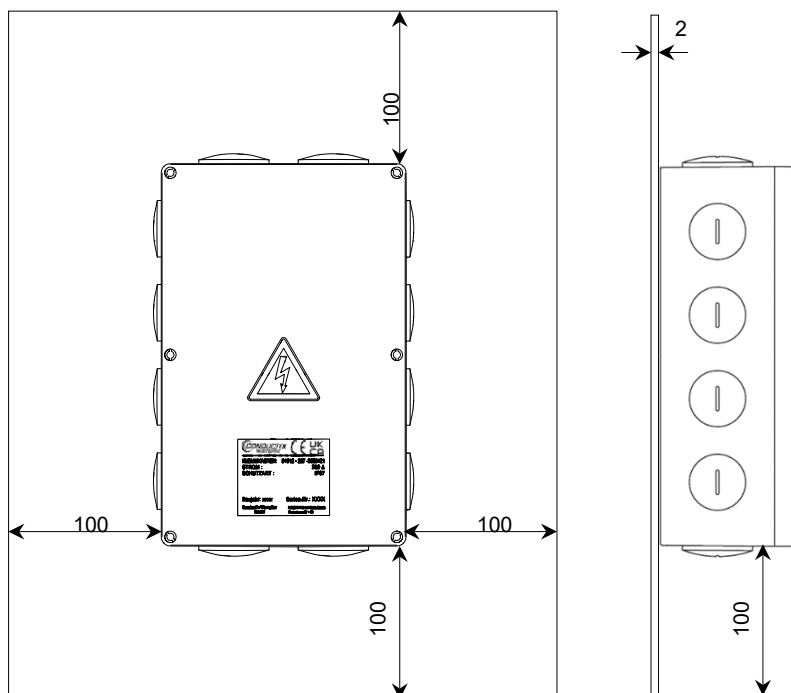


Fig. 2: Minimum dimensions of the aluminium plate

## Junction Box

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**ADVICE!**

When running cables outside the junction box, tie together matching cable pairs at the earliest point possible (see 4.4 Configuration).

### 4.3. Attachment points to Shielding Plates

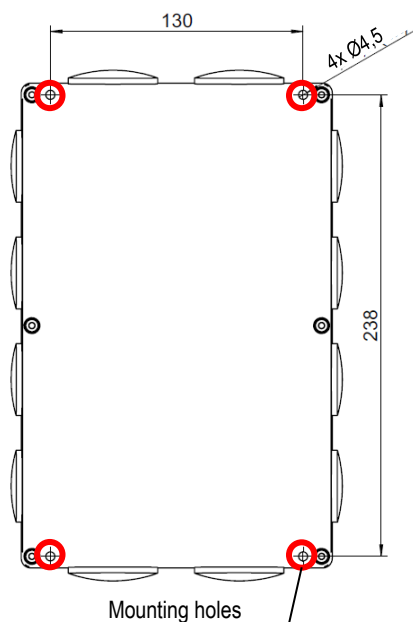
During commissioning the Junction Box has to be configured. Depending on the specific application, the sets of A4 stainless steel screws have to be mounted in the appropriate holes of the mounting plate.



**WARNING!**

#### **Danger of inadequate heating up!**

Components made of galvanized steel will heat up inadequately and are not allowed for use!  
Use A4 stainless steel screws only!



**ADVICE!**

Not included in the scope of delivery  
Shielding plate as well as fixing screws are not included in the scope of delivery!



**ADVICE!**

For attachment, we recommend self-tapping screws.

- recommended length: 10 mm
- Diameter: 4 mm
- Head diameter: max. 7.1 mm!

## Junction Box 80 A/125 A

### 4.4. Configuration

When configuring the Junction Box, several rules need to be applied:

- The cables have to be wired directly to the mounting stud without forming any loops (see Fig. 3: Configuration examples).

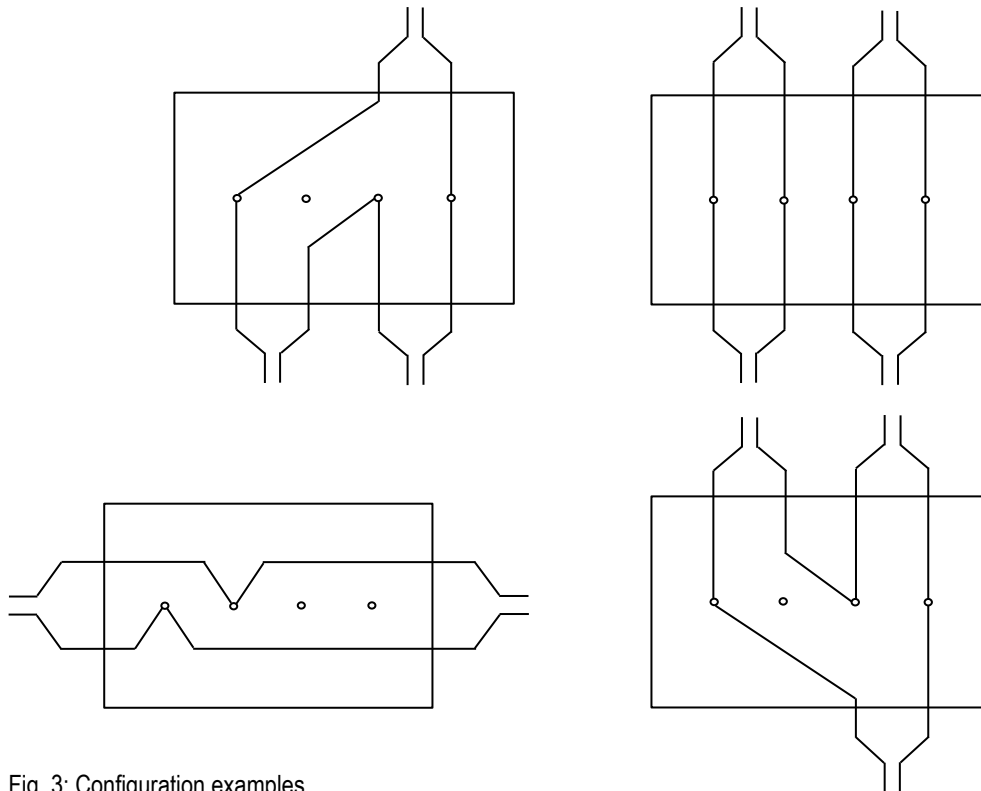


Fig. 3: Configuration examples



#### Danger of inadequate heating up!

In IPT systems higher frequency currents are run through the Litz cables. Therefore a magnetic field is generated around the cables. Do only use the supplied stainless steel bolts, washers, nuts etc.! Components made of galvanized steel will heat up inadequately and are not allowed for use!



Mixing cables of different cross section should be avoided where possible!



To minimize magnetic stray fields, bring the cables of opposite current direction together outside the box as soon as possible and lay them out in pairs (see Fig. 4: Example Junction Box with cables laid out in pairs).

## Junction Box 80 A/125 A

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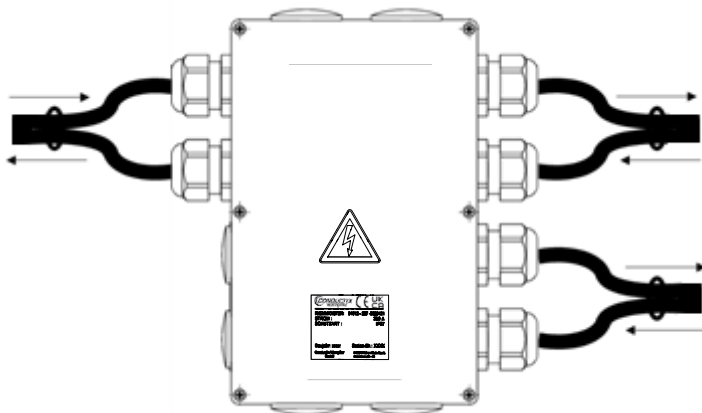


Fig. 4: Example Junction Box with cables laid out in pairs

- When choosing a cross section, sufficient current carrying capacity (at 20 kHz!) must be ensured!
- Only IPT Litz cables 20 mm<sup>2</sup>, 35 mm<sup>2</sup> from Conductix-Wampfler may be used. There is no suitability test for other cables. Other cables shall not be used!
- Litz cables must always be terminated with copper cable shoes soldered to the Litz cables in accordance to our instructions (MV9100-0038). In case of doubt do ask for a Conductix-Wampfler specialist terminating the cables.
- When selecting the cable glands to use, make sure the sealing of the cable gland is sitting tightly around the cable.
- Never leave holes open! Do always close holes not used with dummy plugs.

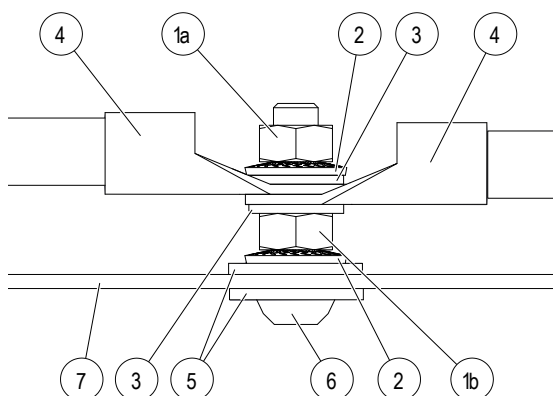
### Connection of the cables:

The box can be used for 80 A and 125 A IPT systems. M8 screw sets must be used for 80 A and 125 A systems.

The sequence of washers and nuts must be observed (See Fig. 5: Fixing cables on the mounting plate).

Depending on the configuration to be realized, different holes in the mounting plate have to be used.

## Junction Box 80 A/125 A



Position	Designation	Remarks
1	Nut DIN934 M8	1a: 18 Nm 1b: 21 Nm
2	Detent-edged washer M8	
3	Washer DIN 125 M8	
4	Cable lug M8	
5	Washer DIN 9021 M8	
6	Carriage bolt DIN EN ISO 7380-1 M8x35	
7	Mounting plate	

Fig. 5: Fixing cables on the mounting plate

### Steps:

1. In order to take the mounting plate out of the box, the dummy plugs/cable glands must be screwed out far enough to leave room for the plate extraction.
2. Remove the mounting plate, insert the carriage bolt (6) with a wide washer (5) into the provided hole in the mounting plate.
3. Screw the carriage bolt (6) to the mounting plate using a wide washer (5), Detent-edged washer (2) and nut (1b) (tightening torque 21Nm).
4. Mount cables lugs (4), nut (1a) and DIN parts (2,3) as shown in Fig. 5 and tighten nut (1a) to a tightening torque of 18 Nm.
5. Place 4 plastic washers between the housing and the mounting plate and screw the mounting plate to the housing using self-tapping screws.

The sequence of washers and nuts must be observed.

## Junction Box

80 A/125 A

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### 5 Operation

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**DANGER!**

**Danger to life from improper use!**

The box must be closed at all times during operation!



**DANGER!**

**Risk of damage going unnoticed!**

Do include the boxes in regular inspections of the IPT system. In case of any mechanical or thermal damage or starting damage do stop operation of the IPT system immediately.

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### 6 Service and Maintenance

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#### 6.1. Safety



**WARNING!**

**Risk of injury due to improper maintenance work!**

Improper maintenance work may cause heavy injuries to persons and damage to properties.

- Prior to starting work make sure that the conditions to start the mounting are fulfilled.
- Ensure that the workplace is clean and tidy! Loose components and tools lying around may cause accidents.
- If components have been removed, ensure that they are mounted correctly, reinstall all fasteners and observe the screw tightening torques.

#### 6.2. Maintenance Schedule

The Junction Box must be checked regularly for e.g. discoloration, stains and burn marks. Re-tighten the screws regularly (for the torque see chapter 4.4 Configuration). We recommend intervals of at least every 6 months.

The realized maintenance work must be recorded in writing. If signs of stronger abrasion are found during regular controls, reduce the maintenance intervals in accordance with the actual signs of wear.

For questions concerning maintenance work and intervals contact the manufacturer, see service address on the last page.



## Junction Box

80 A/125 A

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## 7 Transport, Packing and Storage

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### 7.1. Transport

#### 7.1.1. Safety Advice for Transport



##### **Damage from improper transport!**

Improper transport can result in substantial property damage.

- Act with care when unloading the packaged unit as well as during internal transport and observe the symbols and the hazard information on the packaging.
- Use only the attachment points provided.
- Remove packaging only shortly before installation.
- Pay attention to product specifications.

#### 7.1.2. Transport Inspection

Delivered goods must be checked immediately after arrival for completeness and transport damage.

If any transport damage is recognizable from the outside, proceed as follows:

- Do not accept the delivery or only with reservation.
- Note extent of damage on the transport documents or on the delivery note of the carrier.
- Initiate complaint.



**ADVICE!**

Complain about each fault, as soon as you have noted it. Claims for damages can only be raised within the respective terms.

### 7.2. Packing

The individual packages have been packed according to the expected transport conditions. We have used environmentally sound packing material only.

The packing shall protect the individual components up to the assembly from transport damage, corrosion and other kind of damage. This is the reason why the packing material should not be destroyed and only be removed immediately before starting with the assembly.

#### **Handling of packing material:**

Dispose of packing material according to the respective legal regulations and local prescriptions.



**Damage caused to the environment by faulty disposal!**

## Junction Box

80 A/125 A

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### 7.3. Storage

Store packages under the following conditions:

- Do not store in the open air.
- Keep in a dry and dust-free atmosphere.
- Do not expose to aggressive media.
- Protect from solar radiation.
- Avoid mechanical vibration.
- Before use, make sure the device is still in perfect condition.



**ADVICE!**

In case goods are delivered with specific storage instructions or specific hints on the package, those must be observed. They may overrule the above requirements if they are more demanding than the above requirements.

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## 8 Fault Diagnosis

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**WARNING!**

### **Risk of injury due to improper fault clearance!**

Improper fault clearance may cause heavy injuries or damage to property.

- In case of disturbance contact the manufacturer.
- Fault clearance must only be carried out by workers of the manufacturer or by personnel authorized by the manufacturer.

Typical fault indicators are:

- Plastic components getting brown or black or showing signs of melting.

In case of any such fault recognized, do stop operation immediately.

## Junction Box

80 A/125 A

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## 9 Disassembly and Disposal

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### 9.1. Safety



#### **Risk of injury due to improper disassembly!**

Stored residual energy, angular components, tips or corners at or in the device or at the required tools may cause injuries.

- Make sure the system does not carry any current anymore!
- It needs at least an electrician to switch off the system!
- Make sure there is enough room prior to starting work.
- Be careful with open, sharp-edged components.
- Ensure that the workplace is clean and tidy! Loose components or tools lying around may cause accidents.
- Dismount components properly.
- Secure components, so that they cannot fall down or turn over.
- In case of questions, consult the manufacturer.

### 9.2. Disassembly

When the device has reached the end of its useful life, disassemble it and dispose of it in an environmentally compatible way. If in doubt, contact Conductix-Wampfler or your supplier.

Clean assemblies and components properly and dispose of them with regard to the valid local instructions for operational safety and environmental protection.

### 9.3. Disposal

If return or disposal arrangements have not been made, use decomposed components for recycling:

- Scrap metals.
- Provide plastic elements for recycling.
- Dispose of remaining components separately according to the material composition.



#### **Environmental damage due to incorrect disposal!**

Electronic scrap, electronic components, lubricants and other auxiliary material are considered as hazardous waste and may only be disposed of by authorized specialized service centers!

The local authority or specialized service centers for disposal give advice as to environmentally compatible disposal.

## Junction Box

80 A/125 A

### 10 Tools



Description	Size/ specification	Remarks
Hex key	AF5	For screw M8
Wrench	13	For M8
Torque wrench	-	Nut M8 used Torques applied: 18 and 21 Nm
2 x wrench or equivalent	42 mm	For cable gland M32
2 x wrench or equivalent	53 mm	For cable gland M40

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