



Quick Installation Guide

Solar Inverter
RPI M30A_120
RPI M30A_121



United Kingdom



Europe



- This quick installation guide applies for the following inverter models:
- **RPI M30A_120 with string fuses and surge protection devices (Delta part number RPI303FA0E1000)**
 - **RPI M30A_121 without string fuses and without surge protection devices (Delta part number RPI303FA0E1100)**

with firmware versions:
DSP: 1.56 / RED: 1.24 / COM: 1.38 or higher

The Delta part number can be found on the type plate of the inverter. The Product Version is shown by the last letters of the serial number, which is also located on the type plate. The firm-ware versions are listed on the display in the **Inverter Info.** menu.

The Delta manuals undergo continuous revision in order to provide you with complete information regarding the installation and operation of our inverters. Therefore, before starting installation work, **always** consult www.solar-inverter.com to check whether a newer version of the Quick Installation Guide or of the comprehensive Installation and Operation Manual is available.

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All information and specifications can be modified without prior notice.
All translations of this manual not authorized by Delta Electronics (Netherlands) B.V. must include the annotation: "Translation of the original operation manual".

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Basic safety instructions

DANGER



Electric shock

Potentially fatal voltages are present at the inverter during operation. When the inverter is disconnected from all power sources, this voltage remains in the inverter for up to 30 seconds.

Therefore, always carry out the following steps before working on the inverter

1. Turn the AC/DC disconnecter to the **OFF** position.
2. Disconnect the inverter from all AC and DC voltage sources and make sure that none of the connections can be accidentally restored.
3. Wait at least 30 seconds until the internal capacitors have discharged.

- To comply with the IEC 62109-5.3.3 safety requirements and avoid injury or material damage, the inverter must be installed and operated in accordance with the safety and operating instructions set out in this manual. Delta Energy Systems is not responsible for damage resulting from failure to follow the safety and operating instructions set out in this manual.
- The inverter may only be installed and commissioned by installers who have been trained and certified for the installation and operation of mains-based solar inverters.
- All repair work on the inverter must be carried out by Delta Energy Systems. Otherwise, the warranty will be void.
- Warning instructions and warning symbols attached to the inverter by Delta Energy Systems must not be removed.
- The inverter has a high leakage current value. The grounding cable **must** be connected before commencing operation.
- Do not disconnect any cables while the inverter is under load due to risk of a fault arc.
- To prevent damage due to lightning strikes, follow the provisions that apply in your country.
- The surface of the inverter can get very hot during operation. Wear safety gloves when you touch the inverter (apart from at the display).
- The inverter is very heavy. The inverter must be lifted and carried by at least three people.
- Only equipment in accordance with SELV (EN 60950) may be connected to the RS485 interfaces.
- All connections must be sufficiently insulated in order to ensure the IP65 degree of protection. Unused connections must be closed using cover caps.

DANGER



Electric shock

Potentially fatal voltages are present at the inverter DC connections. When light falls on the solar modules, they immediately start to generate electricity. This also happens when light does not fall directly on the solar modules.

- ▶ Never disconnect the inverter from the solar modules when it is under load.
- ▶ Turn the AC/DC disconnecter to the **OFF** position.
- ▶ Disconnect the connection to the mains so that the inverter cannot supply energy to the mains.
- ▶ Disconnect the inverter from all AC and DC voltage sources. Ensure that none of the connections can be restored accidentally.
- ▶ Ensure that the DC cables cannot be touched accidentally.

WARNING



Electric shock

When the cover is removed from the fuse box, this exposes live parts and protection conforming to IP65 is no longer guaranteed.

- ▶ Remove the cover only when absolutely necessary.
- ▶ Do not remove the cover if water might enter the inverter.
- ▶ After work is completed, ensure that the cover is properly replaced and screwed in. Check that the cover is properly sealed.

Product overview

Components – M30A_120

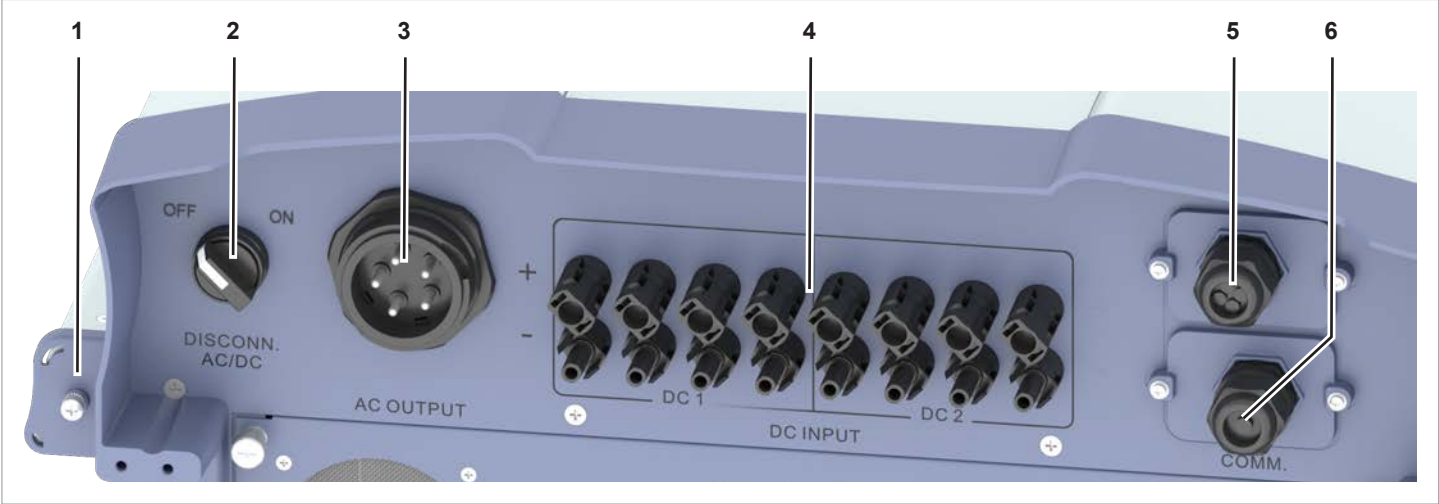


Components – M30A_121

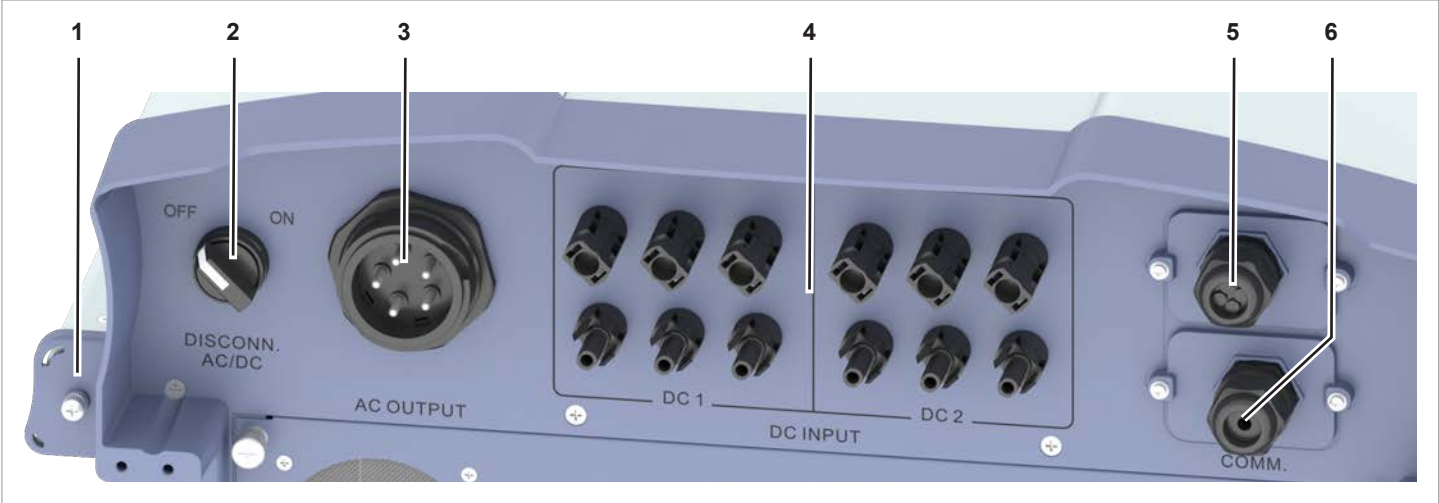


- | | | | |
|---|---|---|------------------------|
| 1 | Display, buttons, status LEDs | 4 | Electrical connections |
| 2 | Replaceable surge protection devices and string fuses | 5 | Fans |
| 3 | Electrical connections | 6 | Type plate |
| | | 7 | Mounting holes |

Electrical connections – M30A_120



Electrical connections – M30A_121



- 1

Grounding connection
- 2

AC/DC disconnect
- 3

AC connection
- 4

DC connections
- 5

Communication connection
- 6

Communications port 2 (not used)



GRID	Grid	Green LED. Lights up when the inverter is supplying electricity to the mains grid.
ALARM	Alarm	Red LED. Indicates an error, a failure or a warning.

EXIT	EXIT	Exit the current menu. Cancel the setting for a parameter. Changes are not adopted.
▼	Down	Move downwards in the menu. Reduce the value of a configurable parameter.
▲	Up	Move upwards in the menu. Increase the value of a configurable parameter.
ENT	ENTER	Select menu item. Open a configurable parameter for editing. Cancel the setting for a parameter. Changes are adopted.

Information on the type plate



30 seconds

Danger to life through electric shock

Potentially fatal voltage exists within the inverter during operation. This voltage persists even 30 seconds after disconnection of the power supply.

Never open the inverter housing. The inverter contains no components that must be maintained or repaired by the operator or installer.



Before working on the inverter, read the supplied manual and follow the instructions contained therein.



Hot surfaces.

The inverter housing can get very hot during operation.



The housing of the inverter must be grounded if this is required by local regulations.



The inverter satisfies the Australian standard for electrical safety and the EMC standard. Applies only to Australia and New Zealand.



WEEE

The inverter may not be disposed of in the normal household waste. Always follow the waste disposal regulations for electrical appliances in your country or region.

Scope of supply



1 x inverter



Quick installation guide and basic safety instructions



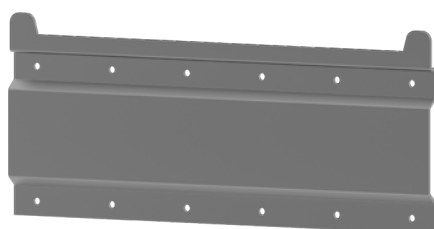
MC4 plugs for DC+
(M30A_120: 8 x,
M30A_121: 6 x)



MC4 plugs for DC-
(M30A_120: 8 x,
M30A_121: 6 x)



1 x AC plug



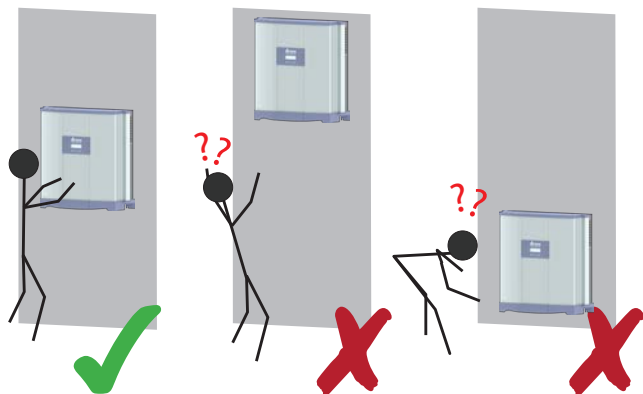
1 x mounting plate

Planning the installation

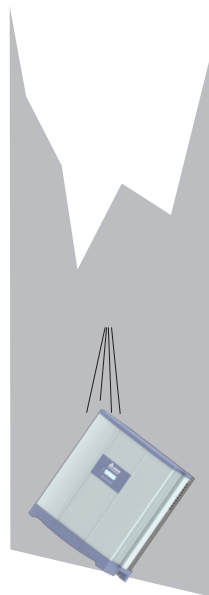
Installation location of the inverter



- The inverter is very heavy. The inverter must be lifted and carried by at least two people.



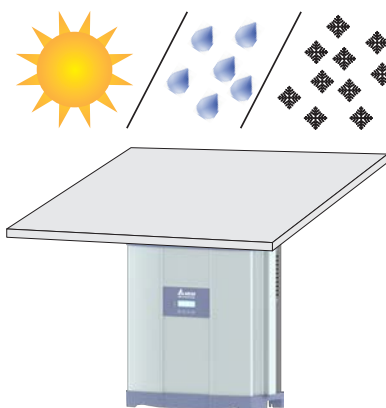
- Attach the inverter so that the information on the display can be read and the buttons can be operated without any problems.



- The inverter is very heavy. The wall has to be able to bear the heavy weight of the inverter.
- Always use the mounting plate supplied with the inverter.
- Use mounting materials (dowels, screws etc.) that are suitable for the wall or the mounting system, as well as the heavy weight of the inverter.
- Mount the inverter on a vibration-free wall to avoid disruptions.
- When using the inverter in residential areas or in buildings with animals, possible noise emissions can be disturbing. Therefore, carefully choose the place of installation.
- Mount the inverter on a fireproof wall.

Outdoor installations

- The inverter has a protection degree of IP65 and can be installed indoors and outdoors. Despite this, the inverter should be protected by a roof against direct solar irradiation, rain and snow. For example, the power of the inverter will be reduced if it is too heavily heated by solar radiation. This is normal operating behavior for the inverter and is necessary to protect the internal electronics.

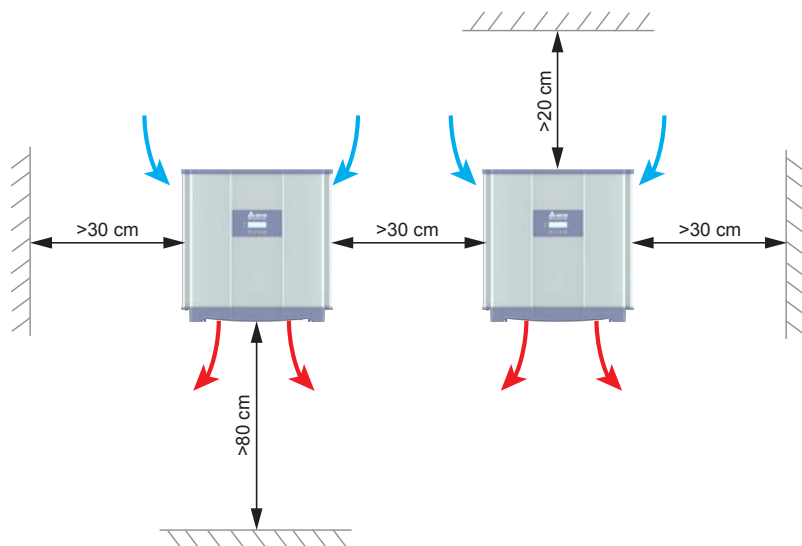


Mounting alignment

- Mount the inverter vertically.

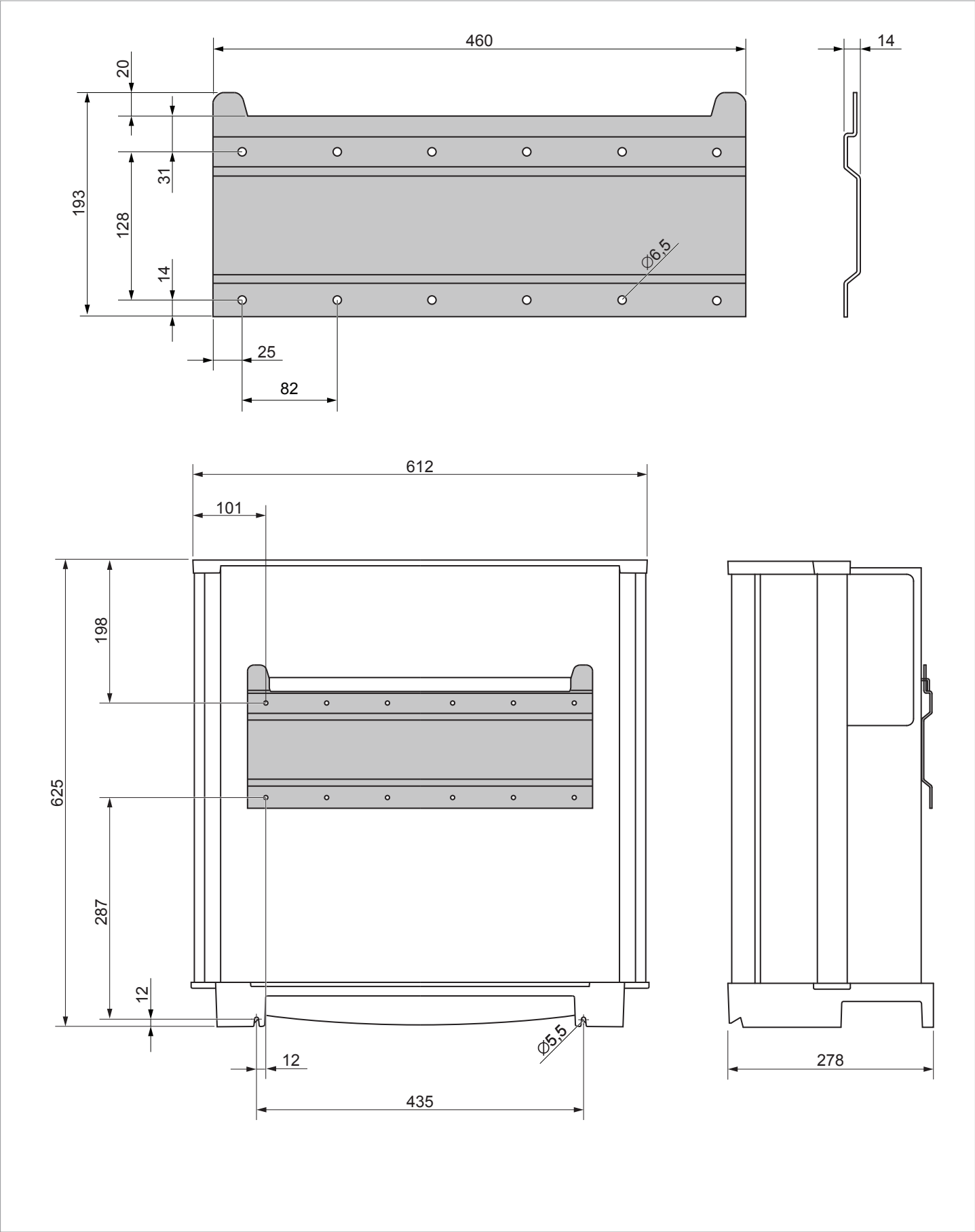


Ambient temperature and air circulation



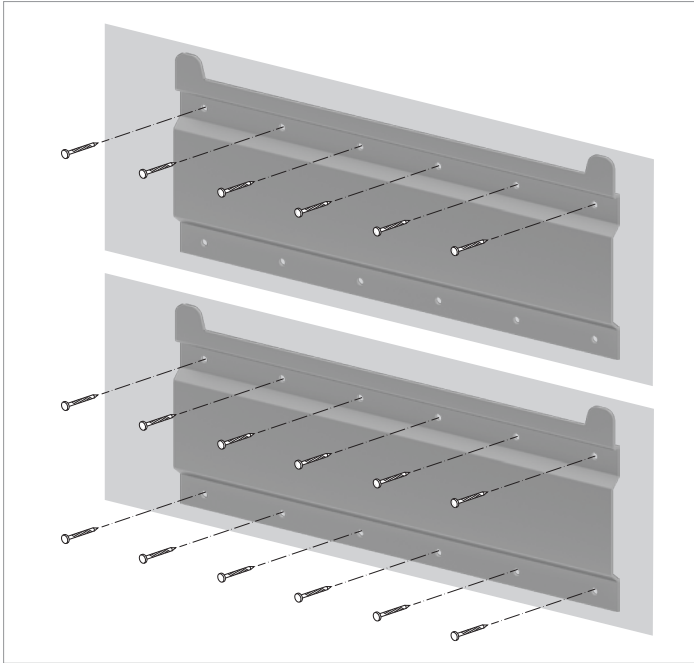
- Ensure sufficient air circulation. Hot air must be able to dissipate upwards. Leave enough space around each inverter.
- Do not install inverters above one another so that they do not heat each other.
- Note the *Operating temperature range without derating* and the *Operating temperature range*. When the *Operating temperature range without derating* is exceeded the inverter reduces the AC power fed into the mains grid. When the *Operating temperature range* is exceeded the inverter stops feeding AC power into the grid. This is normal operating behavior for the inverter and is necessary to protect the internal electronics.
- In areas with many trees or fields, pollen can clog the air inlets and outlets, hindering the air flow.

Mounting the inverter

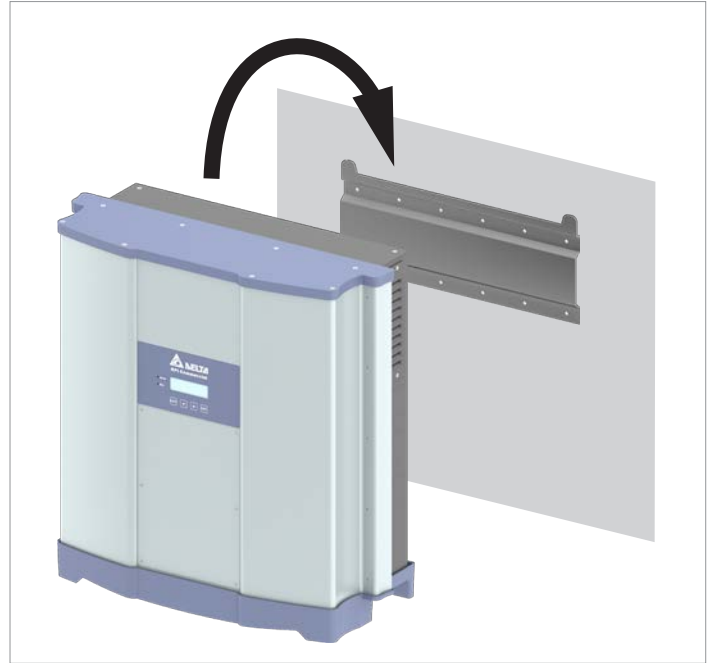


Mounting the inverter

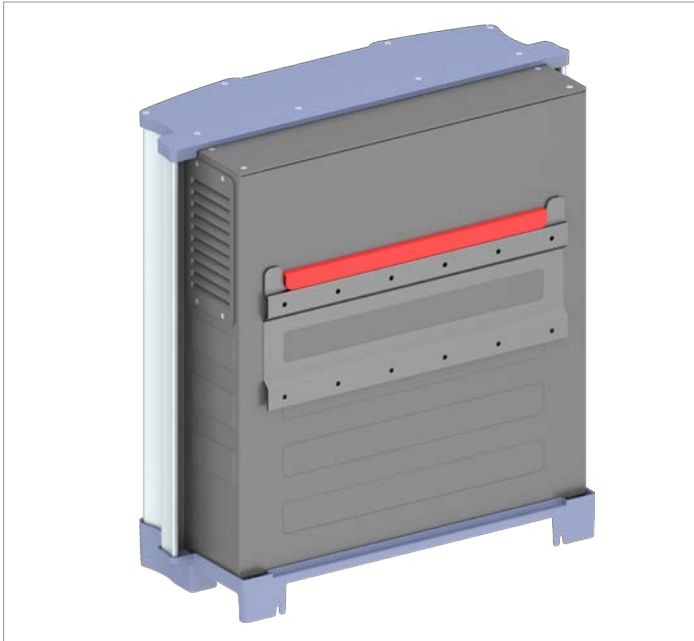
1. Attach the mounting plate to the wall / the mounting system with 6 or 12 M6 screws.



2. Mount the inverter on the mounting plate.

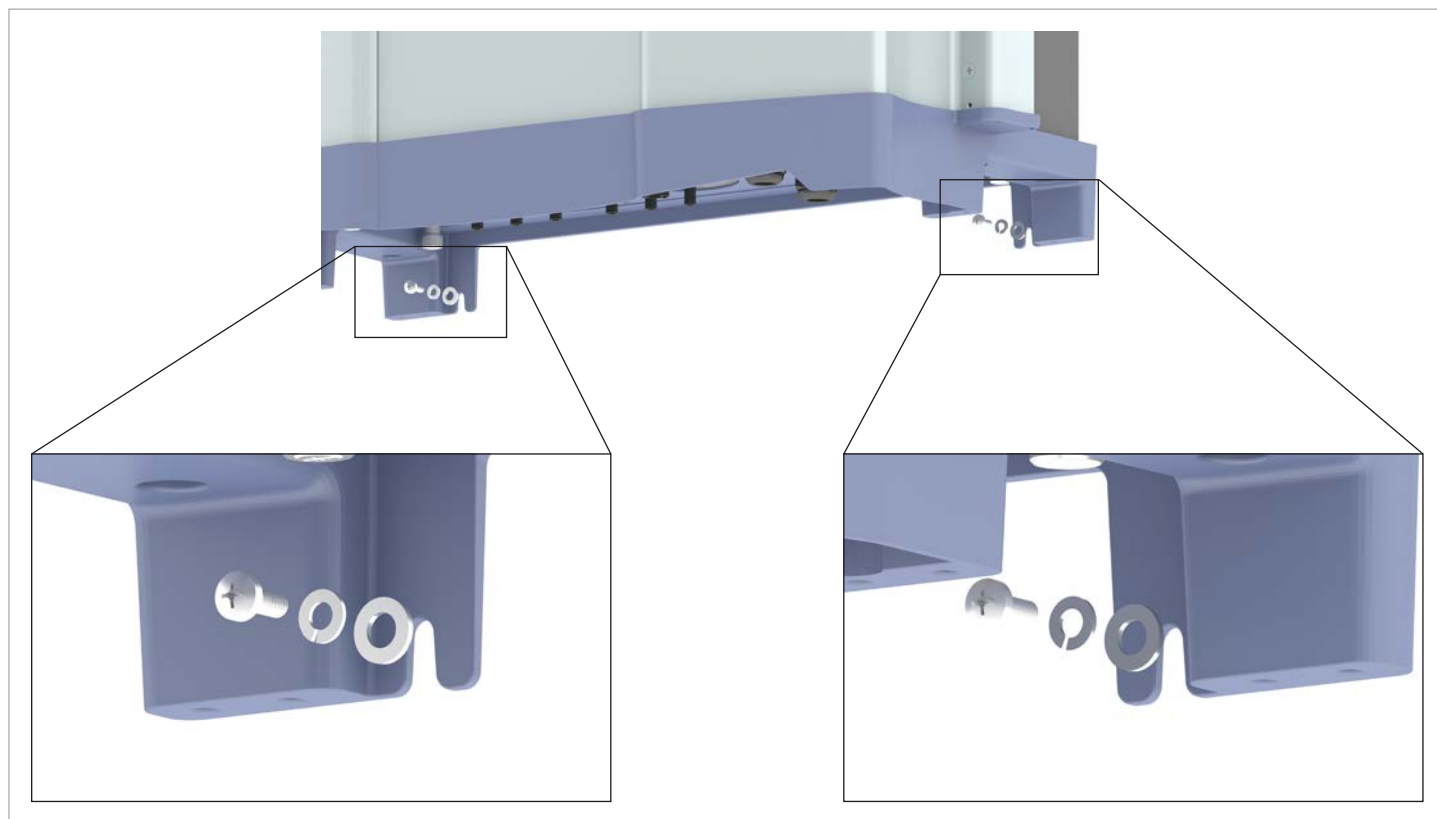


3. Check that the inverter hangs correctly on the mounting plate.



Mounting the inverter

- Secure the inverter to the wall or the mounting system.



Grounding the inverter housing

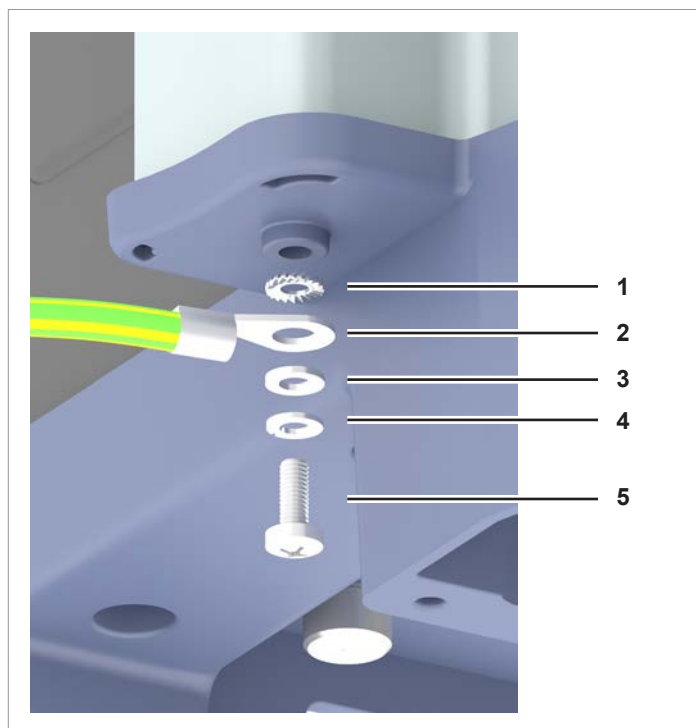
WARNING



High current

- ▶ Always observe the local regulations relating to grounding cable requirements.
- ▶ To increase the safety of the system, the inverter housing should always be grounded even when this is not required by the local regulations.
- ▶ Always ground the inverter housing before connecting the inverter to the grid and solar modules.

1. Bolt the grounding cable onto the inverter. M4 screw, spring washer, washer, and lock washer are already mounted on the inverter.
2. Perform a continuity check of the grounding connection. If there is insufficient conductive connection, scratch away the paint from the inverter housing under the toothed lock washer to achieve a better electrical contact.



- 1 Lock washer
- 2 Grounding cable with cable lug
- 3 Washer
- 4 Spring washer
- 5 M4 screw

Connecting the mains (AC)

DANGER



Electric shock

- ▶ Turn the DC isolating switch to the **OFF** position.
- ▶ First connect the AC cable to the inverter and then to the grid.



The inverter can be connected to 3-phase grids without neutral conductors (3P3W, 3 phases + PE) and 3-phase grids with neutral conductors (3P4W, 3 phases + N + PE).

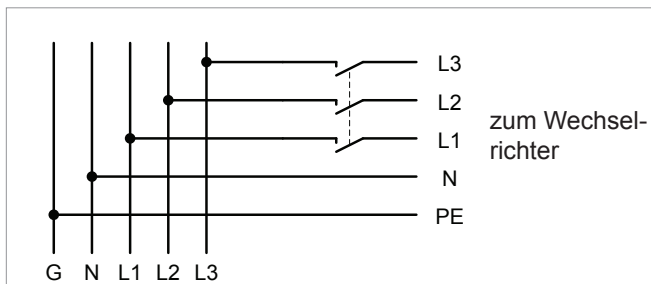
- ▶ If the inverter is connected to a grid without a neutral conductor, the AC connection must be changed via the display to 3P3W after commissioning, see [“AC connection type”](#), page 26.



Important safety information

- ▶ Always follow the specific regulations of your country or region.
- ▶ Always follow the specific regulations of your energy provider.
- ▶ Install all stipulated safety and protective devices (such as automatic circuit breakers and/or surge protection devices).
- ▶ Protect the inverter with a suitable upstream circuit breaker:

Upstream circuit breaker	63 A
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AC cable requirements

The AC plug provided with the inverter has the following technical characteristics:

AC plug	China Aviation Optical-Electrical Technology Co., Ltd. PVE5T50KP73-01
Nominal current	≤65 A
Min./max. Cable diameter	10.8 to 41.3 mm
Min./max. Wire cross-section	6 to 25 mm ²

- ▶ The AC plug supplied with the inverter can be used with flexible or multi-wire solid-core copper cables.
- ▶ Consider the following factors when calculating the cable diameter:
 - Cable material
 - Temperature conditions
 - Cable length
 - Installation type
 - Voltage drop
 - Loss of power in the cable
- ▶ Always follow the installation regulations for AC cables applicable in your country.
- ▶ Germany: Follow the installation regulations of VDE 0100-712. This standard contains the requirements for minimum cable diameters and for avoiding overheating due to high currents.

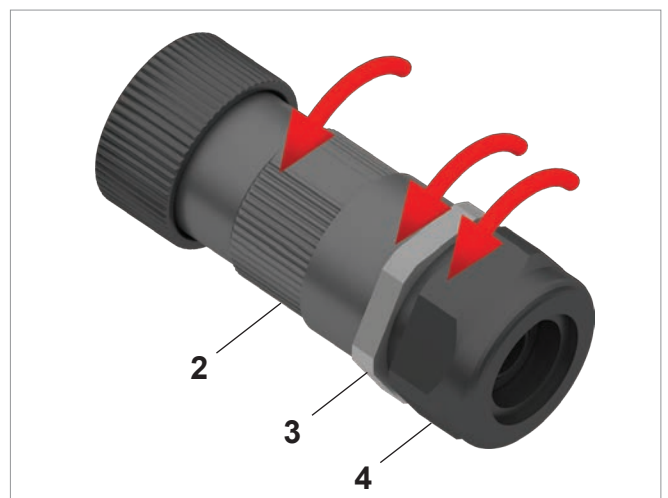
Mounting the AC cables

NOTICE



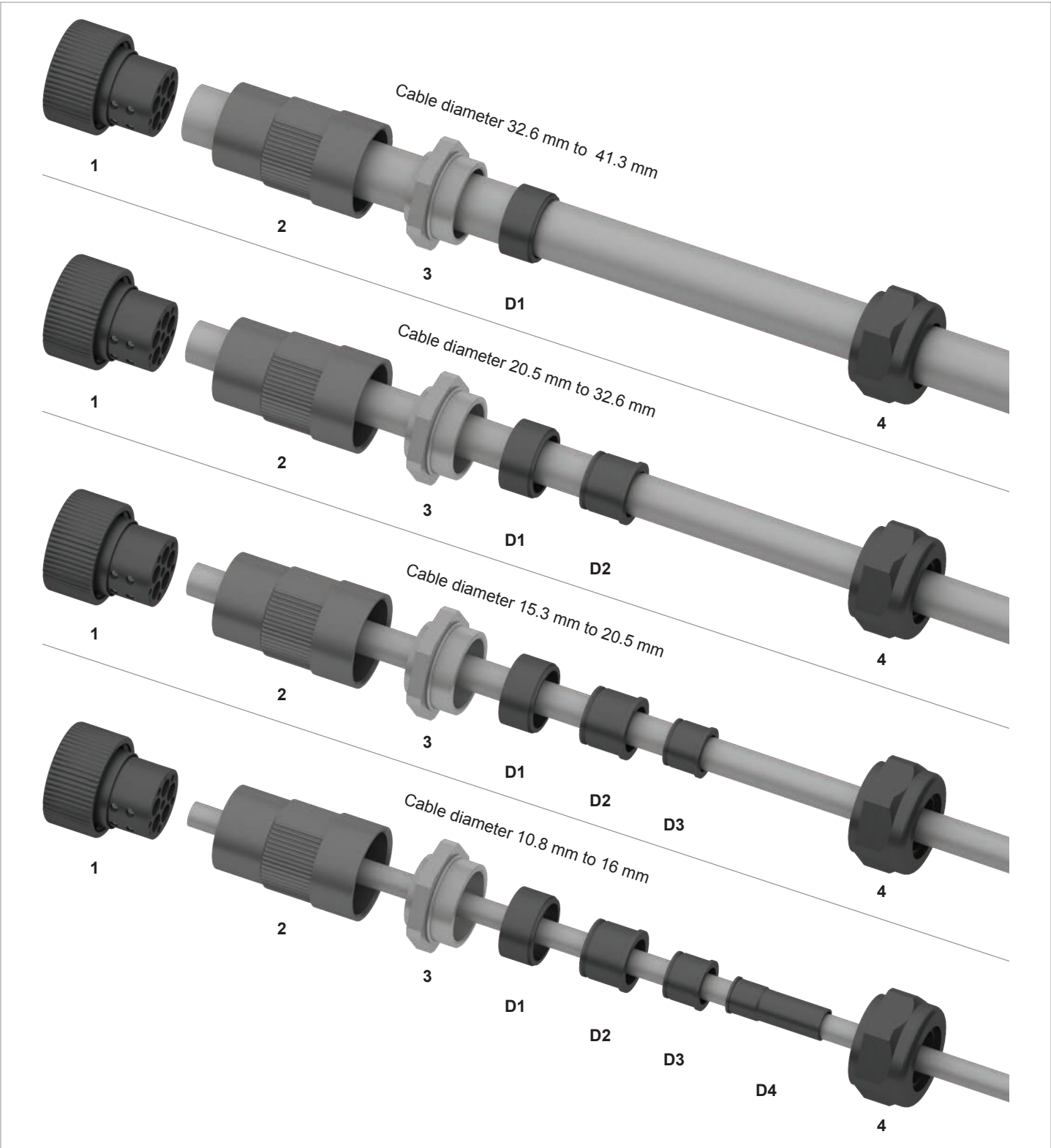
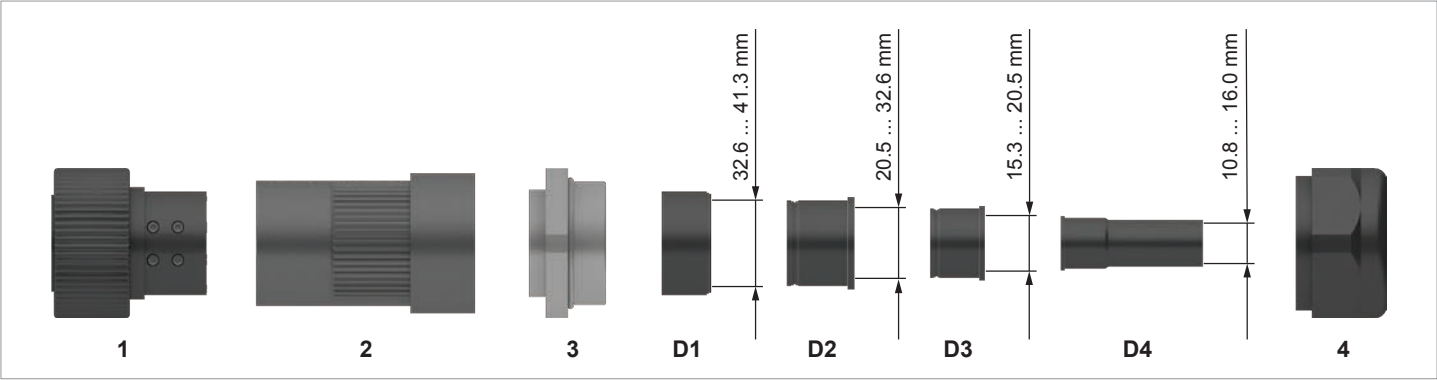
- ▶ Pay attention to the correct phase assignments when connecting the AC cable to the AC plug. Incorrect wiring can destroy the inverter.

1. Unscrew the nut (2), washer (3) and housing (4) of the AC plug.



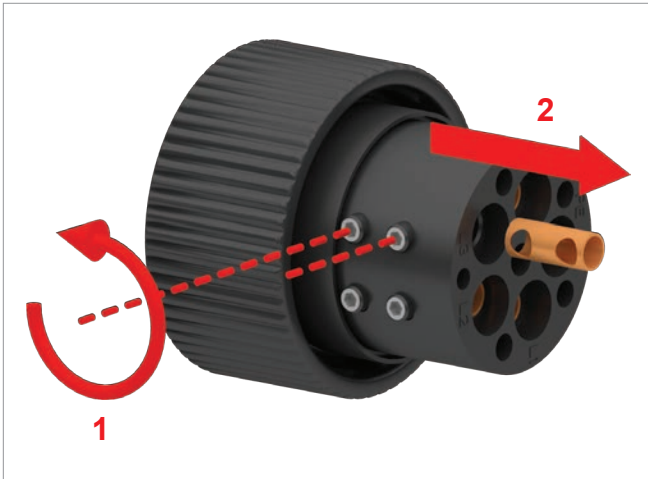
2. Pull all necessary parts of the AC plug over the cable. The parts required depend on the cable diameter, see figure on the following page.

Connecting the mains (AC)

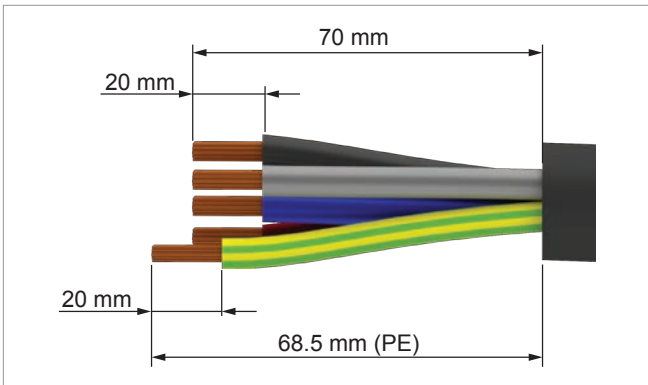


Connecting the mains (AC)

3. For wire cross-sections from 14 to 25 mm², remove the sleeves from the connection terminals.

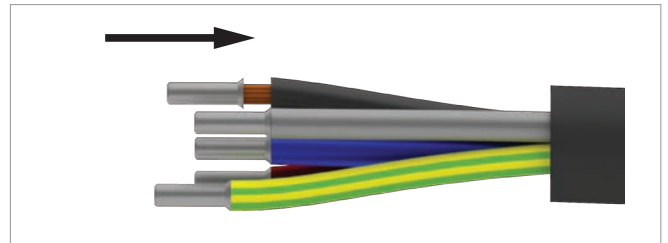


4. Remove the insulation from the cable and wires. Do not twist the wire ends because this reduces the contact surface area with the wire end sleeves.

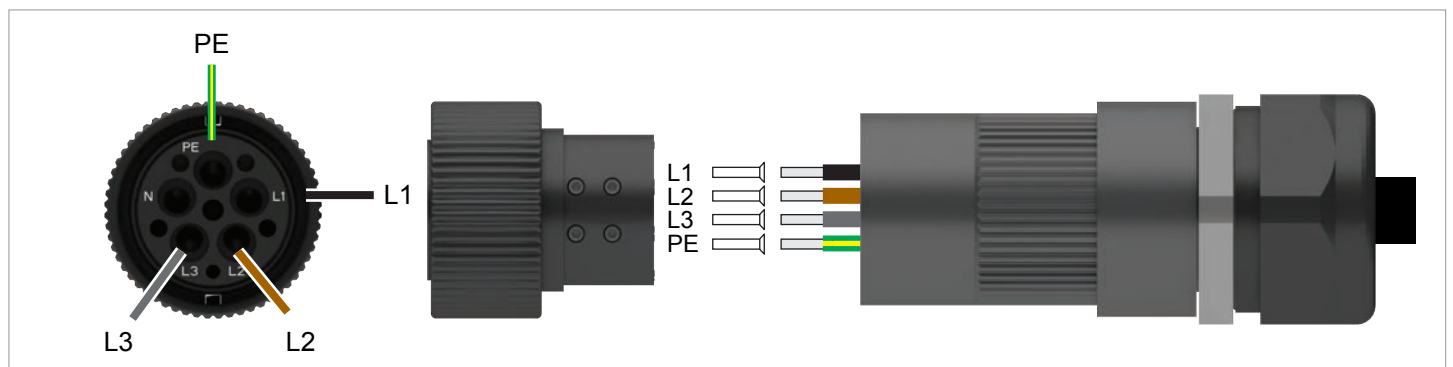
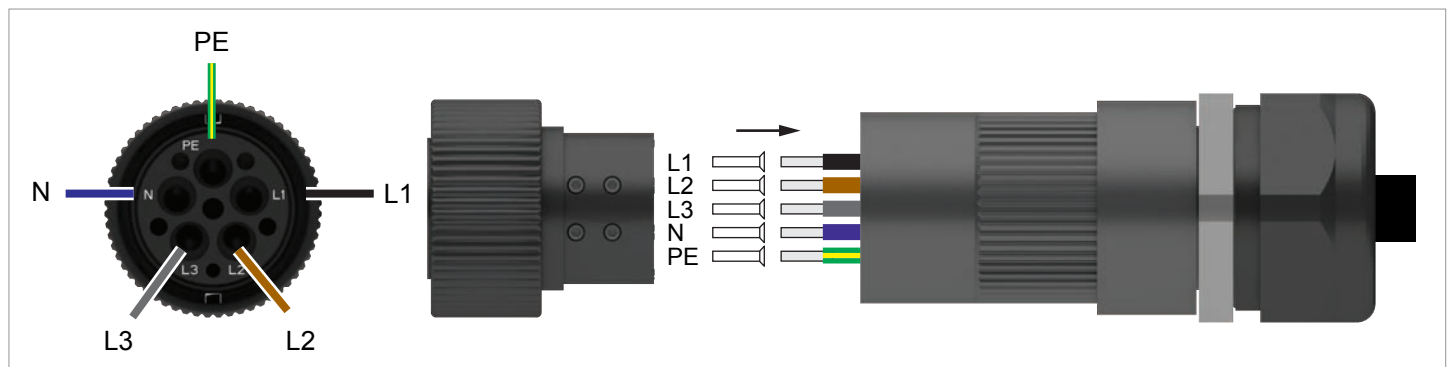


5. Wire end sleeves must be used with some wire cross-sections, see the following table.

Conductor cross-section	Use wire end-sleeves?
6 mm ² ; 16 mm ²	Yes
10 mm ² ; 25 mm ²	No

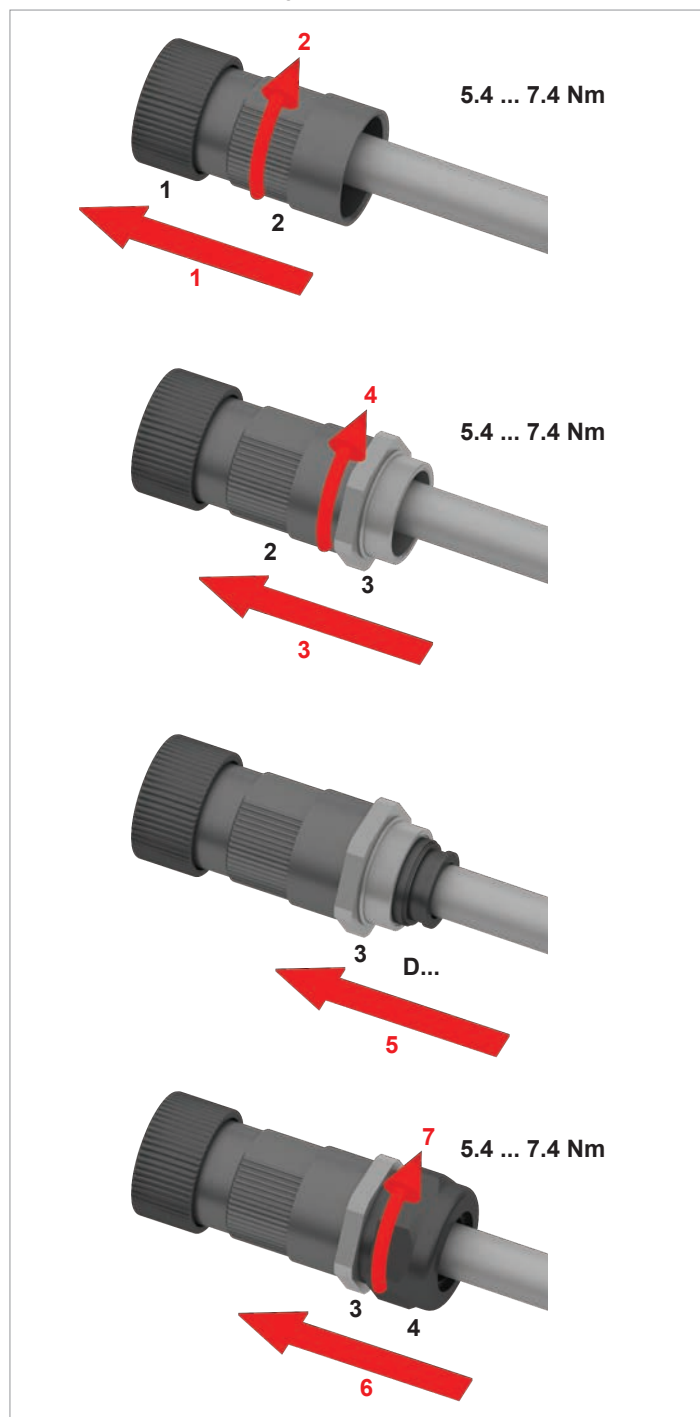


6. There are two connecting screws per conductor. **Always** fasten all wires with both connecting screws.



Connecting the mains (AC)

7. Assemble the AC plug.



Residual current circuit breaker

Due to its design, the inverter cannot supply the grid with DC residual current. This means that the inverter meets the requirements of DIN VDE 0100-712.

Possible error events were assessed by Delta in accordance with the current installation standards. The assessments showed that no hazards arise from operating the inverter in combination with an upstream, type A residual current circuit breaker (FI circuit breaker, RCD). There is no need to use a type B residual current circuit breaker.

Minimum tripping current of the type A residual current circuit breaker $\geq 300 \text{ mA}$



The required tripping current of the residual current circuit breaker depends first and foremost on the quality of the solar modules, the size of the PV system, and the ambient conditions (e.g. humidity). The tripping current must not, however, be less than the specified minimum tripping current.

Integrated residual current monitoring unit

The integrated, universal current-sensitive residual current monitoring unit (RCMU) is certified in accordance with VDE 0126 1-1/ A1:2012-02 §6.6.2.

Grounding the inverter

The inverter must be grounded via the ground conductor of the AC connection. To do this, connect the ground conductor to the AC plug connection provided for that purpose.

Attaching warning labels to the inverter

- Attach all necessary warning labels to the inverter. Always follow the local regulations.

Some examples of warning labels are listed below.

 VORSICHT Zweiseitige Speisung	 Nicht an diesem Betriebsmittel arbeiten, bevor es sowohl vom Netz als auch von der örtlichen Erzeugungseinheit getrennt ist.
Örtliche Erzeugungseinheit trennen am Punkt _____ Netzversorgung trennen am Punkt _____	



Warning
Two voltage sources are present
- Distribution network
- PV modules



Prior to any work, disconnect both sources

Connecting the solar modules (DC)

DANGER



Electric shock

Potentially fatal voltages are present at the inverter DC connections. When light falls on the solar modules, they immediately start to generate electricity. This also happens when light does not shine directly on the solar modules.

- ▶ Never disconnect the inverter from the solar modules when it is under load.
- ▶ Turn the AC/DC isolating switch to the **OFF** position.
- ▶ Disconnect the connection to the mains so that the inverter cannot supply energy to the mains.
- ▶ Disconnect the inverter from all AC and DC voltage sources. Ensure that none of the connections can be restored accidentally.
- ▶ Ensure that the DC cables cannot be touched accidentally.

NOTICE



Maximum power at the DC connections.
Exceeding the maximum current can cause overheating of the DC connections.

- ▶ Always take into account the maximum current of the DC connections when planning the installation.

NOTICE



Incorrectly dimensioned solar system.
An solar system of the wrong size may cause damage to the inverter.

- ▶ When calculating the module string, always pay attention to technical specifications (input voltage range, maximum current and maximum input power), see chapter "Technical data".

NOTICE



Ingress of moisture.

Moisture can enter via open DC connections.

- ▶ To ensure protection degree IP65, close unused DC connections with the rubber plugs that are attached to the DC connections.



In order to start the inverter, DC voltage must run through both DC inputs!

Tools

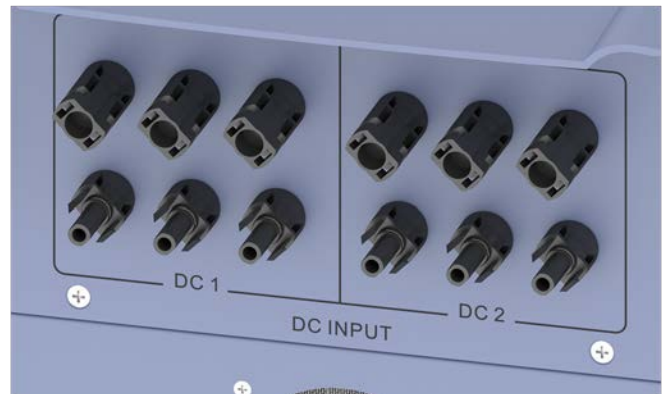


The protective caps lock the DC plug so that it can only be disconnected from DC connections using the mounting tool.

- ▶ Observe the local regulations with regards to the protective caps.
France: The protective caps must be used.



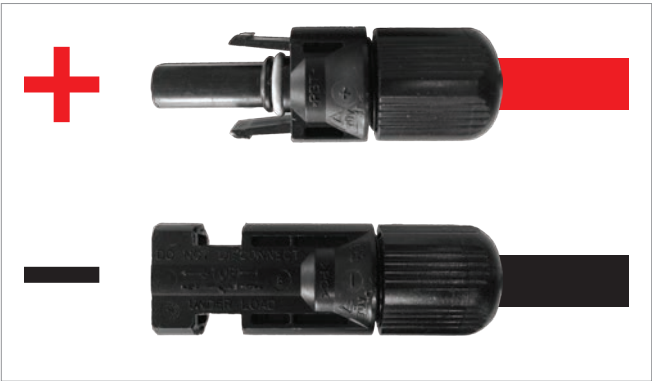
Mounting tool for disconnecting the DC plug and the protective caps from the DC connections. Available from Multi-Contact.



Connecting the solar modules (DC)

Polarity of the DC voltage

- Check the polarity of the DC voltage of the DC strings before connecting the solar modules.



Safety notice

- Before connecting the solar modules turn the AC/DC isolating switch to the **OFF** position.



DC cable requirements

The DC plugs for all DC connections are supplied with the inverter.
If you want to order more or need a different size, see the information in the following table.



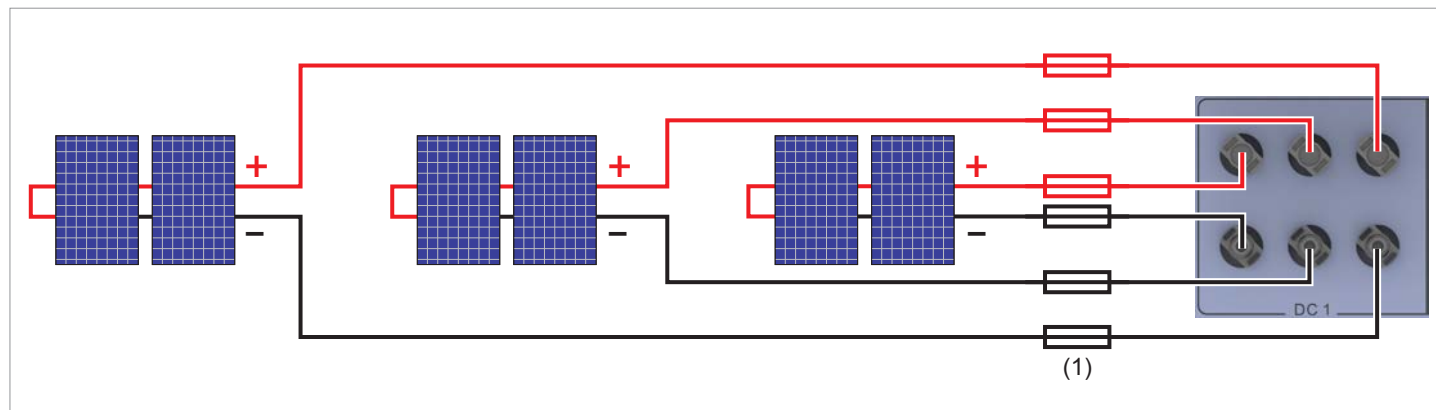
DC connections on the inverter		Plugs for DC cables		
		a mm ²	b mm	Multi-contact
DC-		4/6	3-6	32.0014P0001-UR
			5.5-9	32.0016P0001-UR ¹⁾
		10	5.5-9	32.0034P0001
DC+		4/6	3-6	32.0015P0001-UR
			5.5-9	32.0017P0001-UR ¹⁾
		10	5.5-9	32.0035P0001

¹⁾ Supplied along with the inverter

Connecting the solar modules (DC)

Connecting the DC strings

The installation variant described in this section is the standard installation for the M30A_120 and the M30A_121.



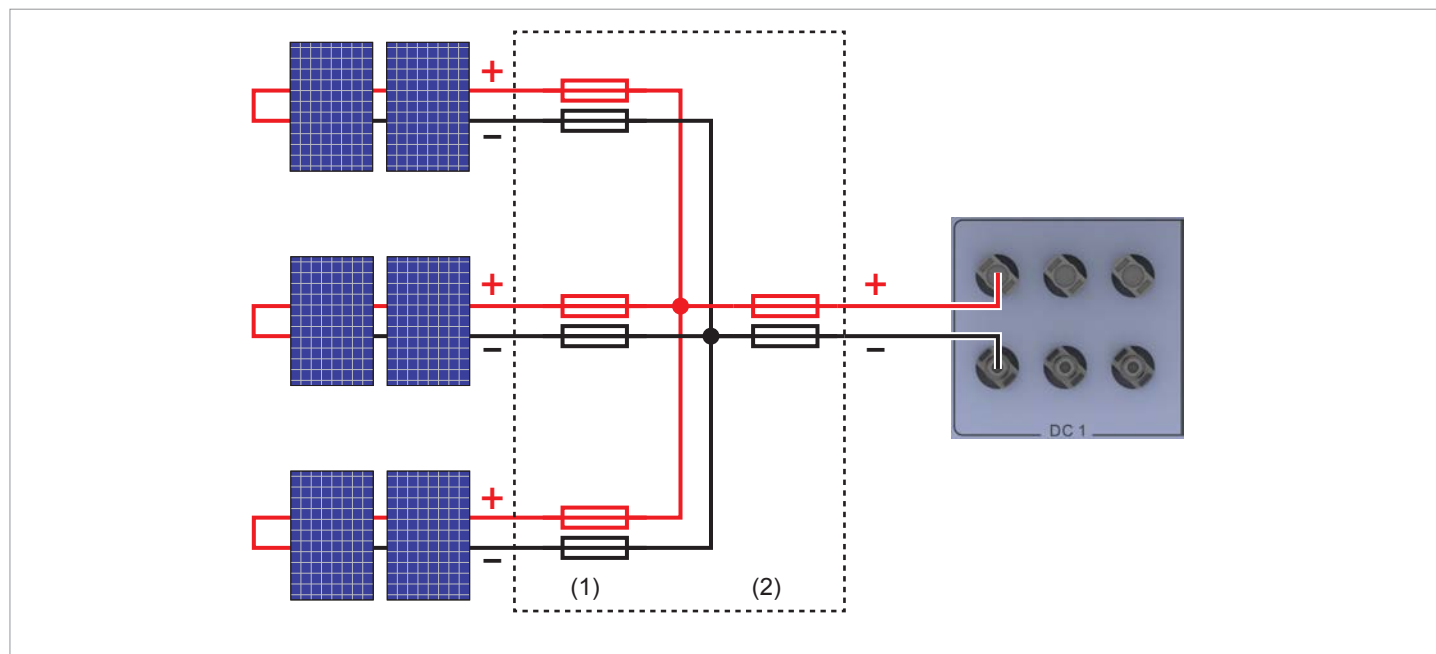
- 1 When selecting protective devices (such as fuses), always cater for the **maximum current rating** of the solar modules.

Connecting three DC strings to a DC input (M30A_121 only)



- The installation variant described in this section can only be used with the M30A_121. This is **not** possible with an M30A_120!

Alternatively for the M30A_121, three DC strings can be connected to a single DC input. The two other DC inputs remain unused. Always take into account the **maximum DC current strength**, see “Technical data”, page 30.

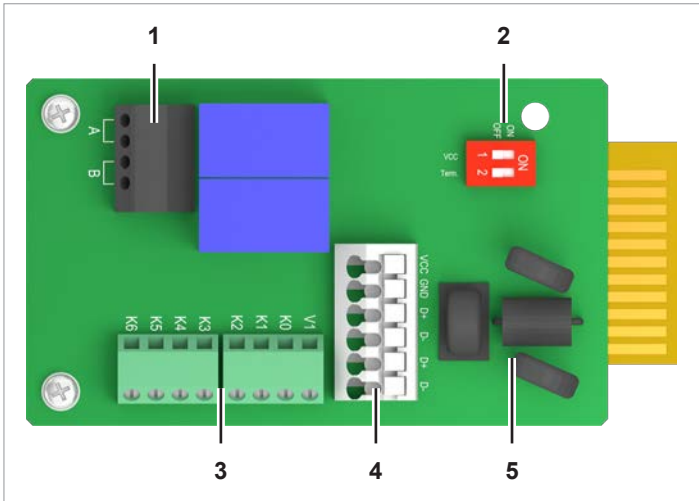
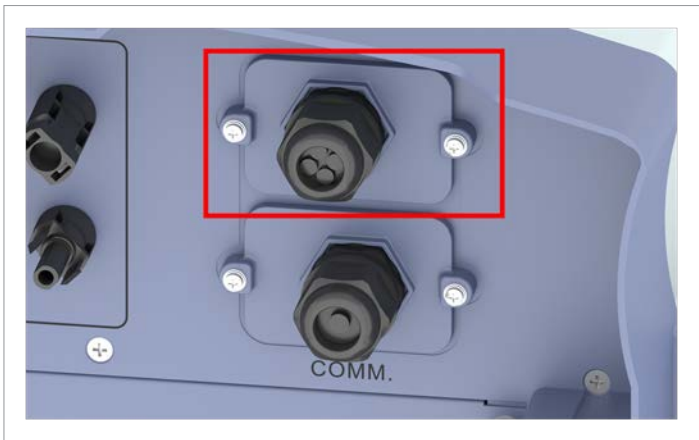


- 1 When selecting protective devices (such as fuses), always cater for the **maximum current rating** of the solar modules.
- 2 When selecting protective devices, always observe the local safety regulations.

Communication card



The connections for RS485, the digital inputs, the dry contacts and the external power-off (EPO) are all on the communication card. This means that the installation work can be combined.

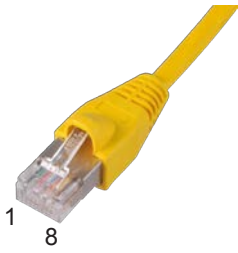
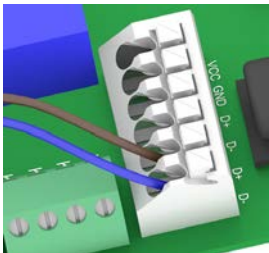


- 1 Dry contacts (terminal block)
- 2 DIP switch for the RS485 termination resistor
- 3 Digital inputs and external power-off (terminal block)
- 4 RS485 and VCC (terminal block)
- 5 Protection against electromagnetic interference (EMI)

Connecting a Delta SOLIVIA Gateway M1 G2

Requirements include a CAT5 cable with RJ45 plugs on one side and an open end on the other side.

Inverter	SOLIVIA Gateway M1 G2
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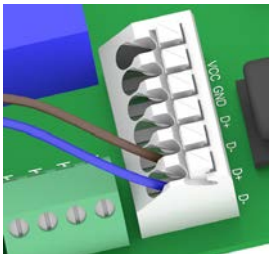


DATA+	Terminal 3 or 5	Pin 7
DATA-	Terminal 4 or 6	Pin 6 or 8

Connecting a PC via RS485

If you wish to use a PC with the Delta Service Software for setting up the inverter you will need a USB/RS485 adapter in order to connect the PC to the inverter.

Inverter	USB/RS485 adapter
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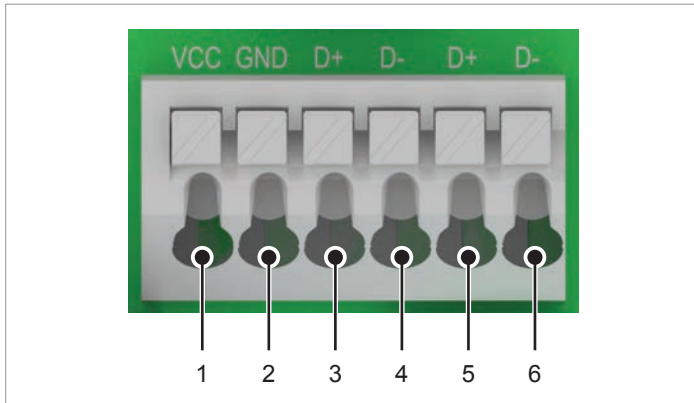
DATA+	Terminal 3 or 5	D+
DATA-	Terminal 4 or 6	D-

Cable and wiring requirements

- Shielded twisted-pair cable with solid conductors.
- Cable diameter: 5 mm
- Wire cross-section: 1 mm²
- The cable should be separated from the AC cable and DC cables to prevent interference.

Connecting a data logger via RS485

RS485 terminal block



- 1 VCC (+12 V; 0.5 A)
- 2 GND
- 3 DATA+ (RS485)
- 4 DATA- (RS485)
- 5 DATA+ (RS485)
- 6 DATA- (RS485)

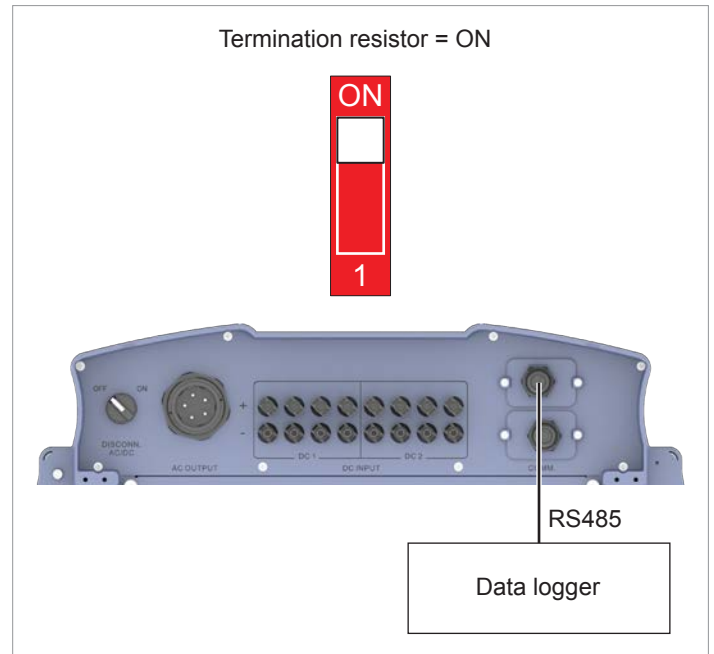
Terminal pairs 3/4 or 5/6 can be used. The second terminal pair is only required when connecting several inverters via RS485.

Data format

Baud rate 9600, 19200, 38400; standard: 19200
 Data bits 8
 Stop bit 1
 Parity Not applicable

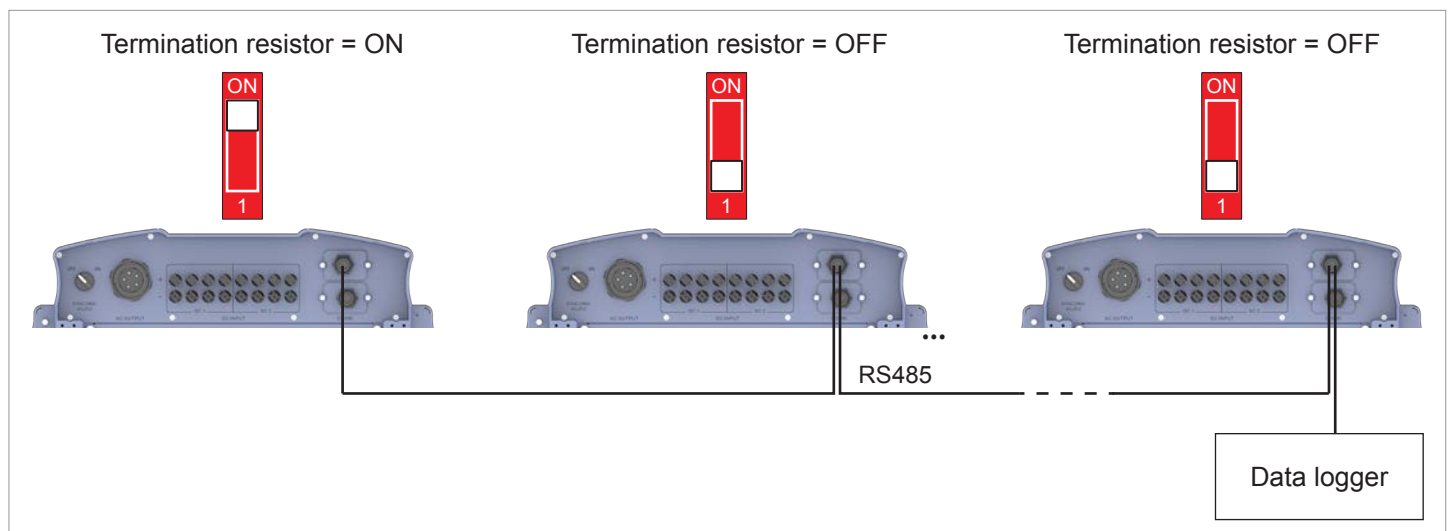
The baud rate can be set on the inverter display after commissioning, see [“Baud rate for RS485”, page 24](#).

Connecting a single inverter to a data logger



Connecting multiple inverters to a data logger

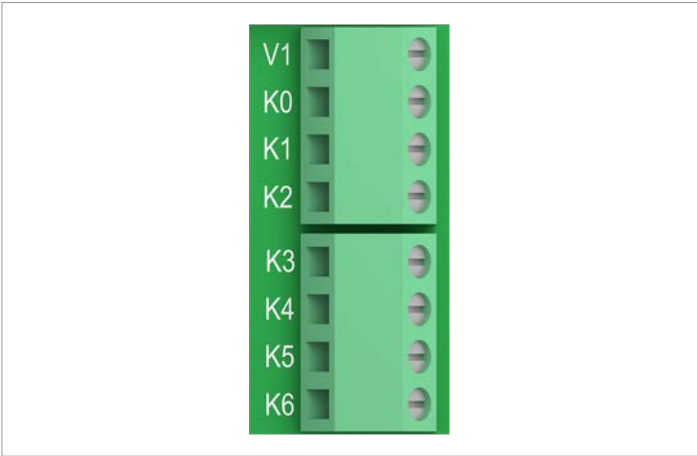
- If the data logger does not have an integrated RS485 termination resistor, switch on the RS485 termination resistor on the first inverter.
- Set a different inverter ID at each inverter during commissioning, see [“Inverter ID”, page 25](#).



Connecting the digital inputs, dry contacts and external power-off (optional)

Digital inputs and external power-off (EPO)

To control the active power, an external ripple control receiver can be connected to the digital inputs.

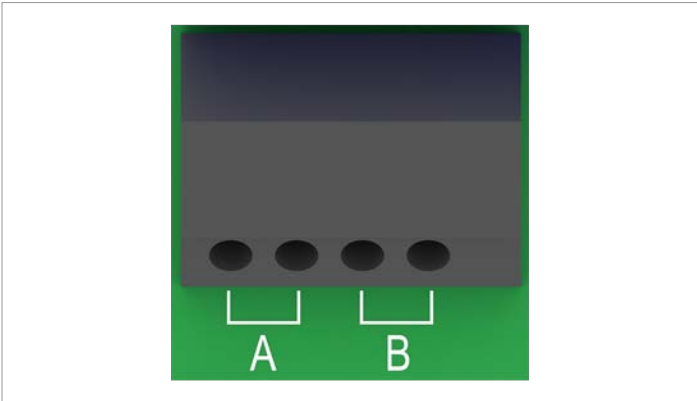


Pin	Short circuit	Assigned action
V1	-	-
K0	V1 + K0	Emergency off switch
K1	V1 + K1	Max. active power 0%
K2	V1 + K2	Max. active power 30 %
K3	V1 + K3	Max. active power 60 %
K4	V1 + K4	Max. active power 100 %
K5	V1 + K5	Reserved
K6	V1 + K6	Reserved

After commissioning, the relays can be defined as make-contact or break-contact for the external shutdown on the display.

Dry contacts

The inverter has two dry contacts. The contacts are closed when the relays energize.



Event	Description
Disabled	The functions for the dry contacts are switched off.
On Grid	Inverter is connected to the mains grid.
Fan failure	The fans are defective.
Insulation	Insulation test failed.
Alarm	An error, failure or warning message is present.
Error	An error message is present.
Fault	A failure message is present.
Warning	A warning message is present.

An event can be assigned to the dry contacts can be set on the inverter display after commissioning.

The default setting for both contacts is "Disabled".

Commissioning – basic settings



To perform the commissioning steps described in this section the inverter must be supplied with either AC power (grid) or DC power at both DC inputs (solar modules).



1. Turn the AC/DC disconnecter to the **ON** position.

```
Select language
►English
Deutsch
Français
```

2. Use the ▼ and ▲ buttons to select the **English** language and then press the ENT button.

```
DK TR3.2.2 CatB,C,D
►UK G59-3 230
FRA-Is 50HZ
FRA-Is 60HZ
```

3. Use the ▼ and ▲ buttons to select your country or mains type and then press the ENT button.

```
Are you sure to
set country:
UK G59-3 230
►Yes / No
```

4. Check that the correct country or mains type is selected.

If the correct country is selected, use the ▼ and ▲ buttons to select the **Yes** entry and then press the ENT button.

To change the selection, press the EXIT button.

→ The inverter starts a self-test lasting approx. 2 minutes. The remaining time is shown on the display.

```
►Delta/SOLIVIA prot.
SUNSPEC prot.
```

NOTICE

Select the SOLIVIA protocol when using a SOLIVIA Gateway M1 G2.

Select the SUNSPEC protocol when using a different gateway that supports the SUNSPEC protocol.

5. Use the ▼ and ▲ buttons to select an RS485 protocol option and then press the ENT button.

```
Are you sure to
set protocol:
Delta/SOLIVIA prot.
►Yes / No
```

6. Check that the correct protocol is selected.

If the protocol is selected, use the ▼ and ▲ buttons to select the **Yes** entry and then press the ENT button.

Press the EXIT button to change the selection

NOTICE

If multiple inverters are connected to the PV system then a different inverter ID must be set for each inverter. For example, the inverter ID is used by monitoring systems to uniquely identify each inverter.

```
Setting ID:
ID=001
```




7. Use the ▼ and ▲ buttons to set the individual digits and then press the ENT button.

Commissioning – basic settings

```
Are you sure to set
ID: 1
    ▶Yes / No
```

12.Jun 2016 15:32
Status: On Grid
Power: 0W
E-Today: 0kWh

- 8.** Check that the correct inverter ID is set.

If the correct inverter ID is selected, use the  and  buttons to select the **Yes** entry and then press the .

Press the button to change the selection

- ☒ The basic settings are now complete. The standard menu is displayed.

Commissioning – further settings (optional)

Date and time

12.Jun 2016 15:32
Status: On Grid
Power: 0W
E-Today: 0kWh

►General Settings
Install Settings
Active/Reactive Pwr
FRT

Language
►Date & Time
Baud rate
Protocol

► 12.Jun 2016 14:55

1. If the default information is displayed, press the **EXIT** button to open the main menu.
Otherwise, press the **EXIT** button repeatedly until the main menu is displayed.
2. Use the **▼** and **▲** buttons to select the **General Settings** entry and then press the **ENT** button.
3. Press the **▼** and **▲** buttons to select the entry **Date & Time** and press the **ENT** button.
4. Use the **▼** and **▲** buttons to configure the value and then press the **ENT** button.
Repeat the procedure for the other settings.

Commissioning – further settings (optional)







Baud rate for RS485

12.Jun 2016 15:32
Status: On Grid
Power: 0W
E-Today: 0kWh

►General Settings
Install Settings
Active/Reactive Pwr
FRT

Language
Date & Time
►Baud rate
Protocol

9600
►19200
38400

1. If the default information is displayed, press the **EXIT** button to open the main menu.
Otherwise, press the **EXIT** button repeatedly until the main menu is displayed.
2. Use the  and  buttons to select the **General Settings** entry and then press the **ENT** button.
3. Use the buttons  and  to select the entry **Baud Rate** and press the **ENT** button.
4. Use the  and  buttons to configure a value and then press the **ENT** button.
Repeat the procedure for the other settings.

Commissioning – further settings (optional)

Inverter ID



If multiple inverters are connected to the PV system then a different inverter ID must be set for each inverter. For example, the inverter ID is used by monitoring systems to uniquely identify each inverter.

12.Jun 2016 15:32
Status: On Grid
Power: 0W
E-Today: 0kWh

General Settings
►Install Settings
Active/Reactive Pwr
FRT

Warning:
Adj. would effect
energy production
Password: * * * *

►Inverter ID: 001
Insulation
Country
Grid Settings

Setting ID:
ID=001

1. If the default information is displayed, press the **EXIT** button to open the main menu.
Otherwise, press the **EXIT** button repeatedly until the main menu is displayed.
2. Use the **▼** and **▲** buttons to select the **Install Settings** entry and then press the **ENT** button.
3. This function is protected with password 5555.
Use the **▼** and **▲** buttons to set the individual numerals.
Press the **ENT** button to confirm a numeral.
4. Use the buttons **▼** and **▲** to select the entry **Inverter ID** and press the **ENT** button.
5. Use the **▼** and **▲** buttons to configure the value and then press the **ENT** button.

Commissioning – further settings (optional)

AC connection type



By default, the AC connection type is set to 3P4W (3 phases + N + PE). You only need to change this setting if you are using an AC system with 3 phases + PE (3P3W).

12.Jun	2016	15:32
Status:	On	Grid
Power:	0W	
E-Today:	0kWh	

General Settings
►Install Settings
Active/Reactive Pwr
FRT

Warning:
Adj. would effect
energy production
Password: * * * *

EPO	Normal	Open
►AC Connection	3P4W	
Anti-islanding	ON	
Max. Power	33000W	

EPO	Normal	Open
►AC Connection	3P3W	
Anti-islanding	ON	
Max. Power	33000W	

1. If the default information is displayed, press the **EXIT** button to open the main menu.
Otherwise, press the **EXIT** button repeatedly until the main menu is displayed.

2. Use the **▼** and **▲** buttons to select the **Install Settings** entry and then press the **ENT** button.

3. This function is protected with password 5555.
Use the **▼** and **▲** buttons to set the individual numerals.
Press the **ENT** button to confirm a numeral.

4. Use the buttons **▼** and **▲** to select the entry **AC connection** and press the **ENT** button.

5. Use the **▼** and **▲** buttons to select the **3P3W** entry and then press the **ENT** button.

Commissioning – further settings (optional)

External power-off (EPO)



12.Jun 2016 15:32
Status: On Grid
Power: 0W
E-Today: 0kWh



General Settings
►Install Settings
Active/Reactive Pwr
FRT



Warning:
Adj. would effect
energy production
Password: * * * *



►EPO	Normal	Open
AC Connection	3P3W	
Anti-islanding	ON	
Max. Power	33000W	

1. If the default information is displayed, press the **EXIT** button to open the main menu.
Otherwise, press the **EXIT** button repeatedly until the main menu is displayed.

2. Use the  and  buttons to select the **Install Settings** entry and then press the **ENT** button.

3. This function is protected with password 5555.
Use the  and  buttons to set the individual numerals.
Press the **ENT** button to confirm a numeral.

4. Use the buttons  and  to select the entry **EPO** and press the **ENT** button.

5. Use the  and  buttons to select an option and then press the **ENT** button.

Available options

Nrm. open (normally open): The relay operates as a normally open device.

Nrm. closed (normally closed): The relay operates as a normally closed device.

Commissioning – further settings (optional)

Dry contacts

12.Jun 2016 15:32
Status: On Grid
Power: 0W
E-Today: 0kWh

General Settings
►Install Settings
Active/Reactive Pwr
FRT

Warning:
Adj. would effect
energy production
Password: * * * *

DC Injection
►Dry Cont.
PID Function
RCMU ON

►Dry Cont.A Disable
Dry Cont.B Disable

►Disable
On Grid
Fan Fail
Insulation

1. If the default information is displayed, press the **EXIT** button to open the main menu.
Otherwise, press the **EXIT** button repeatedly until the main menu is displayed.

2. Use the **▼** and **▲** buttons to select the **Install Settings** entry and then press the **ENT** button.

3. This function is protected with password 5555.
Use the **▼** and **▲** buttons to set the individual numerals.
Press the **ENT** button to confirm a numeral.

4. Use the buttons **▼** and **▲** to select the **Dry Cont.** entry and press the **ENT** button.

5. Use the buttons **▼** and **▲** to select a dry contact and press the **ENT** button. The current setting is shown after the name of the dry contact.

6. Use the **▼** and **▲** buttons to select an option and then press the **ENT** button.
See “[Connecting the digital inputs, dry contacts and external power-off \(optional\)](#)”, [page 20](#) for the available options.

Commissioning – further settings (optional)

Active power limitation



Change this setting only after consultation with Delta customer service.



To change this setting, you need a special password that you receive from Delta customer service. You can find the contact information on the back of this document.

12.Jun	2016	15:32
Status:	On	Grid
Power:	0W	
E-Today:	0kWh	

General Settings
►Install Settings
Active/Reactive Pwr
FRT

Warning:			
Adj. would effect			
energy production			
Password:	*	*	*

EPO	Normal	Open
AC Connection	3P3W	
Anti-islanding	ON	
►Max. Power	33000W	

1. If the default information is displayed, press the **EXIT** button to open the main menu.
Otherwise, press the **EXIT** button repeatedly until the main menu is displayed.
2. Use the **▼** and **▲** buttons to select the **Install Settings** entry and then press the **ENT** button.
3. Enter the password provided by Delta customer service.
Use the **▼** and **▲** buttons to set the individual numerals.
Press the **ENT** button to confirm a numeral.
4. Use the **▼** and **▲** buttons to select the **Max. Power** entry and then press the **ENT** button.
5. Use the **▼** and **▲** buttons to configure a value and then press the **ENT** button.

Technical data

Input (DC)	RPI M30A_120	RPI M30A_121
Recommended maximum PV power		
Symmetrical load	42 kW _p	
Asymmetrical load	38 kW _p	
Max. input power	35 kW	
Rated power	31.5 kW	
Voltage range	200 ... 1100 V _{DC} ¹⁾	200 ... 1000 V _{DC}
Nominal voltage	600 V _{DC}	
Cut-in voltage	250 V _{DC}	
Cut-in power	40 W	
MPP operating voltage range	200 ... 1000 V _{DC}	
MPP operating voltage range at full power		
Symmetrical load	520 ... 800 V _{DC}	
Asymmetrical load (67%)	700 ... 800 V _{DC}	
Asymmetrical load (33%)	350 ... 800 V _{DC}	
Asymmetrical load	67/33%; 33/67%	
Maximum input power, total (DC1/DC2)	60 A (30 A / 30 A)	
Maximum short circuit power upon fault	36 A (15 A per string)	36 A
Number of MPP trackers	Parallel inputs: 1 MPP tracker, separate inputs: 2 MPP tracker	
Number of DC inputs, total (DC 1 / DC 2)	8 (4/4)	6 (3/3)
Electrical isolation	No	
Overvoltage category ²⁾	II	
String fuses	15 A	None
Surge protection devices	Type 2, replaceable	Type 3, not replaceable
Output (AC)	RPI M30A_120	RPI M30A_121
Maximum apparent power ³⁾	33 kVA ⁴⁾	
Rated apparent power ³⁾	30 kVA	
Nominal voltage ⁵⁾	230 ± 20%/400 V _{AC} ± 20%, 3 phases + protective ground conductor (PE) or 3 phases + N + protective ground conductor (PE)	
Nominal current	43.5 A	
Max. current	50 A	
Switch-on current	150 A / 100 µs	
Nominal frequency	50/60 Hz	
Frequency range ⁵⁾	45 ... 65 Hz	
Configurable power factor	0.8 cap. ... 0.8 ind.	
Total harmonic distortion	< 3 %	
DC injection	< 0.5% at nominal current	
Power loss in night mode	< 3.0 W	
Overvoltage category ²⁾	III	
Surge protection devices	Type 2, replaceable	Type 3, not replaceable

Mechanical details	RPI M30A_120	RPI M30A_121
Dimensions (W x H x D)	612 x 625 x 278 mm	
Weight	50.5 kg	48.5 kg
Cooling	3 fans	
AC connection type	China Aviation Optical-Electrical Technology Co. PVE5T50KP73	
DC connection type	Multi-Contact MC4	
Communication interfaces	2 x RS485, 2 x dry contact, 1 x EPO (E-Power off), 6 x digital inputs	

General specifications	RPI M30A_120	RPI M30A_121
Delta model name	RPI M30A_120	RPI M30A_121
Delta part number	RPI303FA0E1000	RPI303FA0E1100
Maximum efficiency	98.5 %	
EU efficiency	98.2 %	
Operating temperature range	-25 ... +60 °C	
Operating temperature range without derating	-25 ... +40 °C ⁶⁾	
Storage temperature range	-25 ... +60 °C	
Relative humidity	0 ... 100%, non-condensing	
Max. geographical operating height	2000 m above sea level	

Standards and guidelines	RPI M30A_120	RPI M30A_121
Safety class	IP65	
Safety class	I	
Pollution degree	II	
Overload behavior	Current limit, power limit	
Safety	IEC 62109-1/-2, CE-compliance	
EMC	EN 61000-6-2, EN 61000-6-3	
Fault-free operation	IEC 61000-4-2/-3/-4/-5/-6/-8	
Harmonic distortion	EN 61000-3-2	
Fluctuations and fibrillations	EN 61000-3-3	
Grid interfaces	You can find the updated list at www.solar-inverter.com .	

¹⁾ Inverter stops supply into grid at 1000 VDC

²⁾ IEC 60664-1, IEC 62109-1

³⁾ For cos phi = 1 (VA = W)

⁴⁾ Possible with: DC input voltage > 580 V; symmetrical load; ambient temperature < 40°C

⁵⁾ AC voltage and frequency range are programmed using the corresponding country specifications.

⁶⁾ Full nominal current available at up to 49°C with nominal voltage (AC and DC) and cos phi = 1.0.

Service - Europe

Austria	service.oesterreich@solar-inverter.com	0800 291 512 (toll free)
Belgium	support.belgium@solar-inverter.com	0800 711 35 (toll free)
Bulgaria	support.bulgaria@solar-inverter.com	+421 42 4661 333
Czech Republic	podpora.czechia@solar-inverter.com	800 143 047 (toll free)
Denmark	support.danmark@solar-inverter.com	8025 0986 (toll free)
France	support.france@solar-inverter.com	0800 919 816 (toll free)
Germany	service.deutschland@solar-inverter.com	0800 800 9323 (toll free)
Greece	support.greece@solar-inverter.com	+49 7641 455 549
Israel	supporto.israel@solar-inverter.com	800 787 920 (toll free)
Italy	supporto.italia@solar-inverter.com	800 787 920 (toll free)
Netherlands	ondersteuning.nederland@solar-inverter.com	0800 022 1104 (toll free)
Poland	serwis.polska@solar-inverter.com	+48 22 335 26 00
Portugal	suporte.portugal@solar-inverter.com	+49 7641 455 549
Slovakia	podpora.slovensko@solar-inverter.com	0800 005 193 (toll free)
Slovenia	podpora.slovenija@solar-inverter.com	+421 42 4661 333
Spain	soporto.espana@solar-inverter.com	900 958 300 (toll free)
Switzerland	support.switzerland@solar-inverter.com	0800 838 173 (toll free)
Turkey	support.turkey@solar-inverter.com	+421 42 4661 333
United Kingdom	support.uk@solar-inverter.com	0800 051 4281 (toll free)
Other European countries	support.europe@solar-inverter.com	+49 7641 455 549



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