Quick Installation Guide

RPI M30A_120
RPI M30A_121

Europe

This manual applies for solar inverter models:

- **RPI M30A_120 (with string fuses and with surge protection devices)**
- **RPI M30A_121 (without string fuses and without surge protection devices)**

with firmware version: DSP: 1.39 / RED: 1.21 / COM: 1.18

If you experience deviations between the descriptions in this quick installation guide and the information on the inverter display, please check www.solar-inverter.com for a quick installation guide that matches the firmware version on the inverter. The standard manual can also be downloaded from www.solar-inverter.com.

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This manual is included with our solar inverter and is intended for use by the installer and end user.

The technical instructions and illustrations in this manual are to be treated as confidential and no part of this manual may be reproduced without prior written permission from Delta Energy Systems. Maintenance technicians and end users may not release the information contained in this manual, and may not use it for purposes not directly associated with the proper use of the solar power inverter.

All information and specifications can be modified without prior notice.

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1 General safety instructions

DANGER

Risk of death by electrocution

Potentially fatal voltage is applied to the solar inverter during operation. This potentially fatal voltage is still present for some time after all power sources have been disconnected.

- ► Never open the solar inverter.
- ► Always disconnect the solar inverter from power before installation, open the AC/DC isolating switch and make sure neither can be accidentally reconnected.
- ► Wait 30 seconds until the capacitors have discharged.

DANGER

Risk of death or serious injury from electrocution

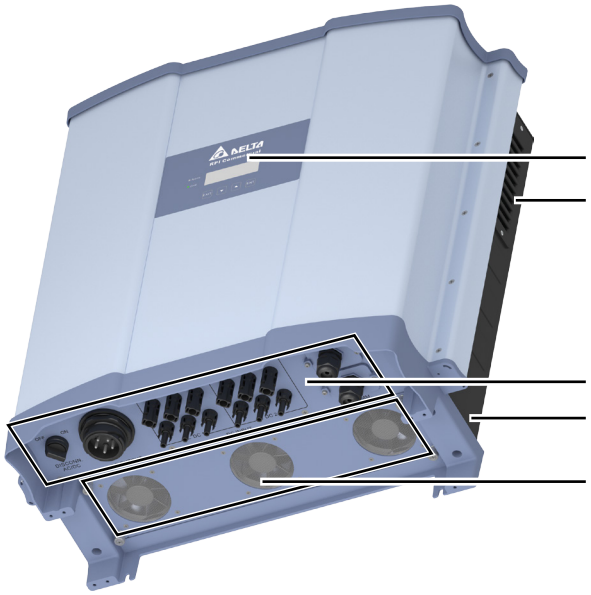
Potentially fatal voltage may be applied to the DC connections of the solar inverter. When light is falling on solar modules, they immediately start producing energy. They do so, even when the sun is not shining directly onto to solar modules.

- ► Never disconnect the solar modules when the solar inverter is powered.
- ► First switch off the grid connection so that the solar inverter cannot feed energy into the grid.
- ► Turn the AC/DC isolating switch to position **OFF**.
- ► Make sure the DC connections cannot be accidentally touched.

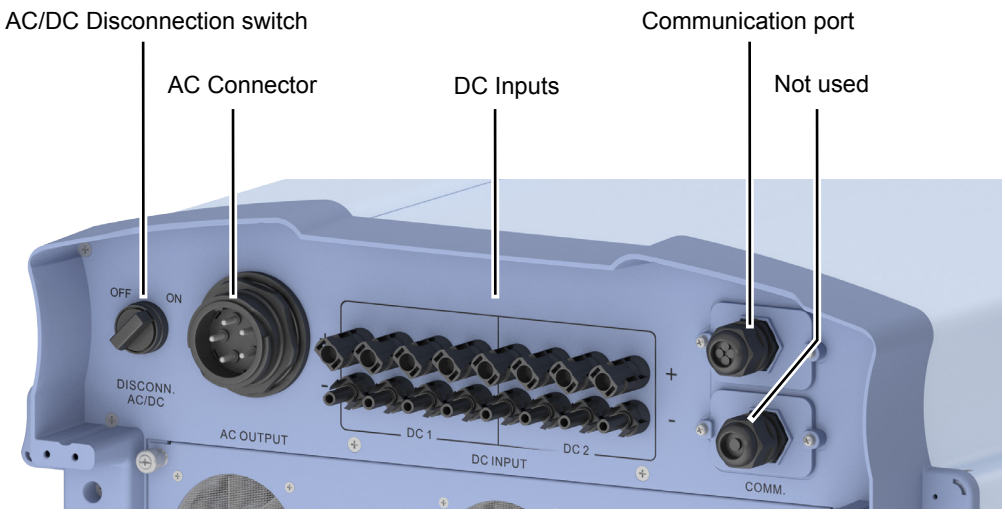
- The solar inverter can be safely and normally operated if installed and used in accordance with this manual (see IEC 62109-5.3.3). Delta Energy Systems is not responsible for damage incurred by failure to observe the installation and operating instructions in this manual. For this reason, be sure to observe and follow all instructions!
- Installation and commissioning may only be performed by qualified electricians using the installation and commissioning instructions found in this manual.
- The solar inverter must be disconnected from power and the solar modules before any work on it can be performed.
- The solar inverter has a high leakage current value. The ground wire **must** be connected before commissioning.
- Do not remove any warning signs that the manufacturer has installed on the solar inverter.
- Improper handling of the solar inverter may result in physical injury and damage to property. For this reason, observe and follow all general safety instructions and warnings.
- The solar inverter contains no components that must be maintained or repaired by the operator or installer. All repairs must be performed by Delta Energy Systems. Opening the cover will void the warranty.
- The housing must not be opened at all. If the inverter contains an internal section with string fuses and surge protection devices, only the cover of this section may be removed to check or replace fuses and/or surge protection devices.
- Do not disconnect any cables when the solar inverter is powered due to risk of a fault arc.
- To prevent lightning strikes, follow the relevant regulations applicable in your country.
- The surface of the solar inverter can become very hot during operation. Use safety gloves when working on the solar inverter.
- The solar inverter is very heavy. The solar inverter must be lifted and carried by at least two people.
- Only devices in compliance with SELV (EN 60950) may be connected to the RS485 interfaces.
- All connections must be sufficiently insulated in order to comply with the IP65 protection rating. Unused connections must be closed by placing cover caps on the solar inverter.

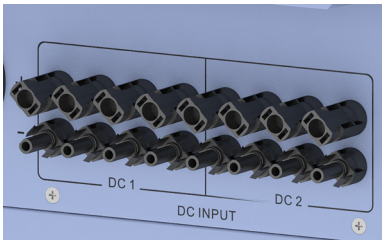
2 Components of the inverter

M30A_121

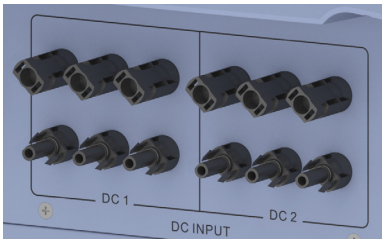


M30A_120





DC inputs M30A_120



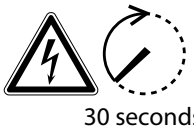
DC inputs M30A_121

Label	Designation	Usage
LEDs		
GRID	Grid	Green; lights up when the solar inverter feeds into the grid
ALARM	Alarm	Red; Indicates an error, fault, or warning
Buttons		
EXIT	Escape	Exit current menu. Cancel value setting.
▼	Move down	Move downwards in menu. Set value (decrease).
▲	Move up	Move upwards in menu. Set a value (increase).
ENT	Enter	Select menu item. Open configurable value for editing. Finish editing (adopt set value).

3 Information on the type label

Type label RPI M30A_120

Type label RPI M30A_121

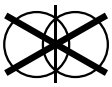


Risk of death by electrocution

Potentially fatal voltage is present when the solar inverter is in operation that remains for 30 seconds after being disconnected from power.

Never open the solar inverter. The solar inverter contains no components that must be maintained or repaired by the operator or installer. Opening the cover will void the warranty.

Read the manual delivered with the inverter before working with the solar inverter and follow the instructions contained in the manual.



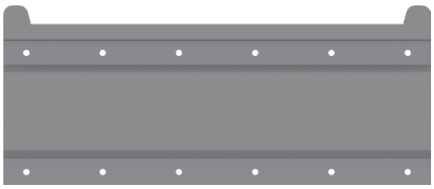
This inverter has no transformer.

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

Regulatory Compliance Mark (RCM mark): The inverter is compliant with the Australian Electrical Safety and EMC standards.

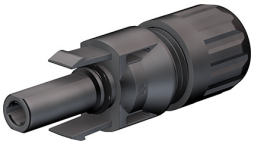
4 Scope of Delivery

1 x Inverter



1 x Mounting plate

Quick Installation Guide and General Safety Instructions

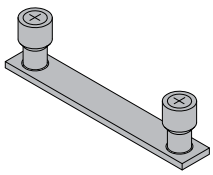


MC4 plugs for DC+ (M30A_120: 8x, M30A_121: 6x)

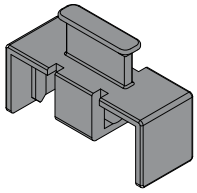
MC4 plugs for DC– (M30A_120: 8x, M30A_121: 6x)

1 x AC plug PVE5T50KP73

M30A_120 additionally contains



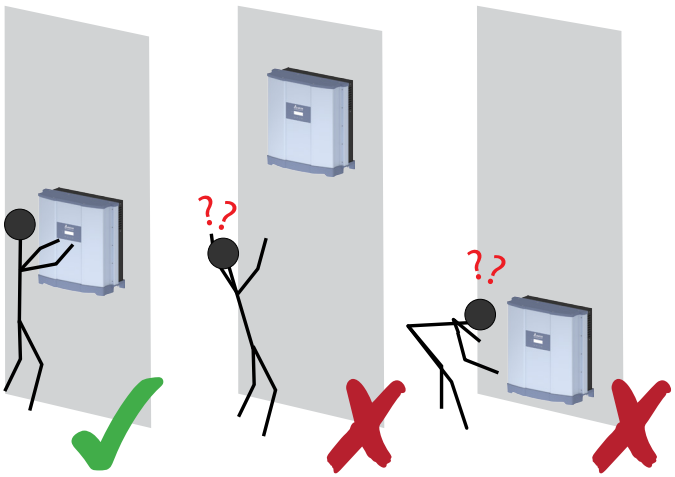
DC bus bar and screws; used when the solar modules have to be grounded and for connecting all DC inputs to one MPP tracker.



DC Fuse holder; used when the solar modules have to be grounded.

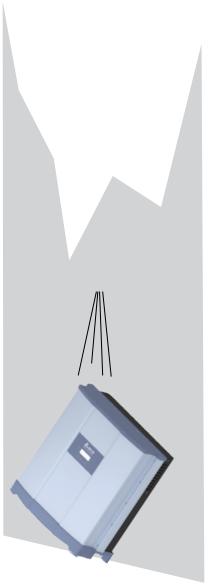
5 Planning the installation

Where to mount the inverter



► Mount the solar inverter so that the LEDs and display can be easily seen and that the buttons can be operated. Make sure the reading angle and installation height are sufficient.

► The solar inverter is very heavy, see “Technical data”, p. 22. The inverter must be lifted and carried by at least two people.



► Always use the mounting plate supplied with the solar inverter.

► Attach the mounting plate to a flat, even wall.

► Check that the wall is capable of bearing the heavy load of the device.

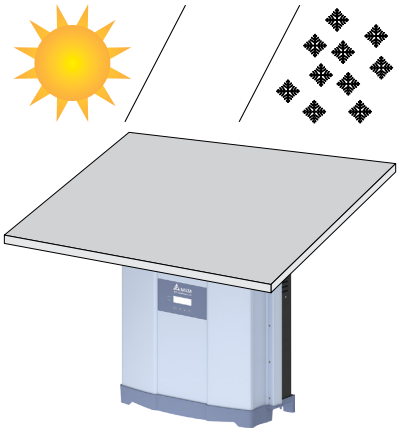
► Use dowels and screws that are suitable for the wall material and the heavy weight.

► Mount the solar inverter on a vibration-free wall to avoid disruptive vibrations.

► Possible noise emissions can be disruptive when the device is used in living areas or in buildings with animals. Therefore, choose your installation location carefully.

Outdoor installations

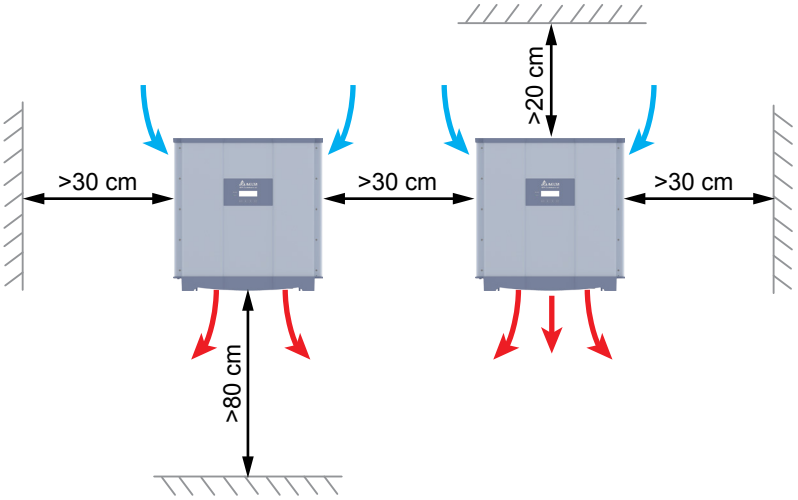
► The solar inverter has protection degree IP65 and can be installed indoors or in protected outdoor areas (that means outdoor but protected by a roof against direct sun, rain or snow).



Mounting orientation

► Mount the solar inverter vertically.

Ambient temperature and air circulation



► Ensure adequate air circulation. Hot air must be able to dissipate upward. Keep enough space around each inverter.

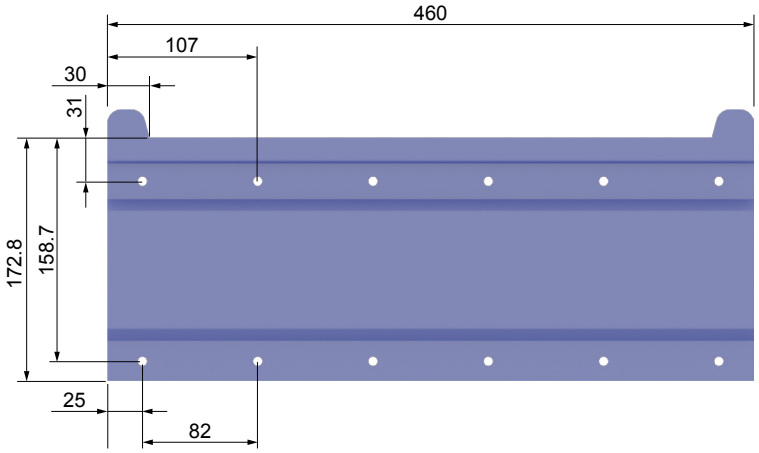
► Do not install inverters directly above one another. Otherwise, the upper inverter is warmed up by the lower one.

► Consider the **operating temperature range** (see “Technical data”, p. 22).

When the operating temperature range is exceeded, the solar inverter reduces the amount of power generated.

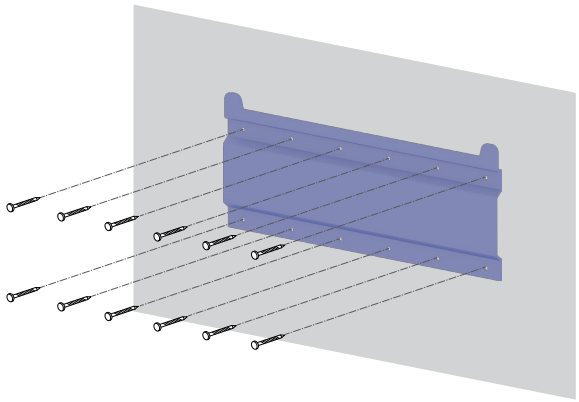
6 Mounting the inverter

1

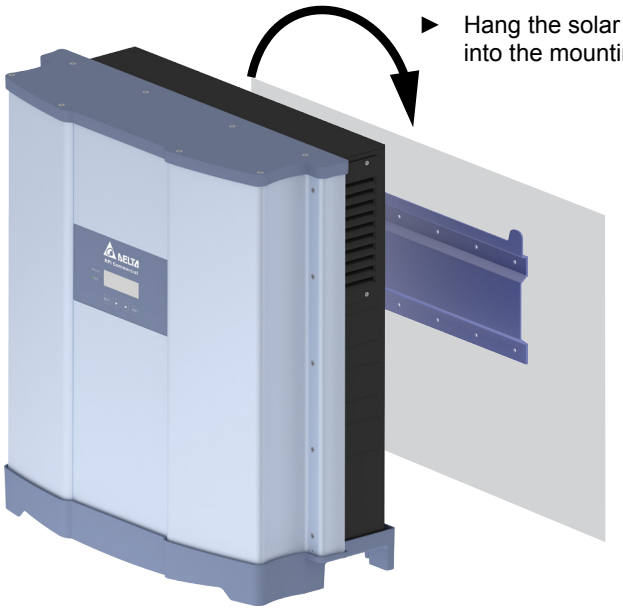


2

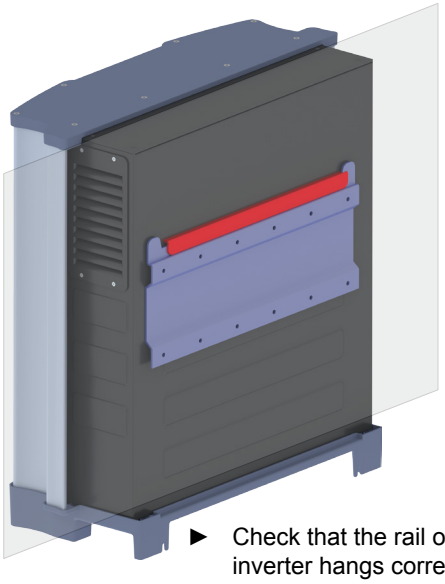
► Fasten the mounting plate with 6 to 12 M6 screws to the wall. Distribute the screws evenly on both rows.



3



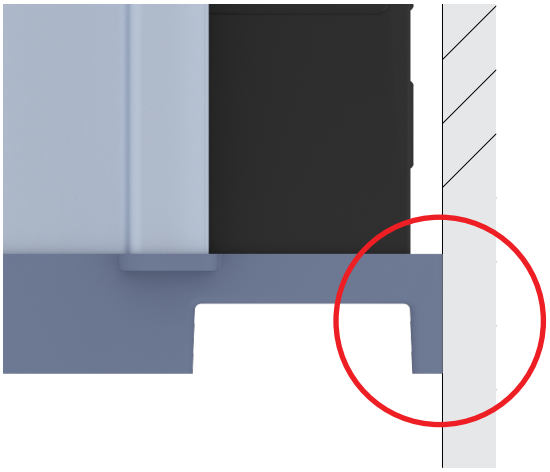
► Hang the solar inverter into the mounting plate.



► Check that the rail of the solar inverter hangs correctly in the mounting plate.

4

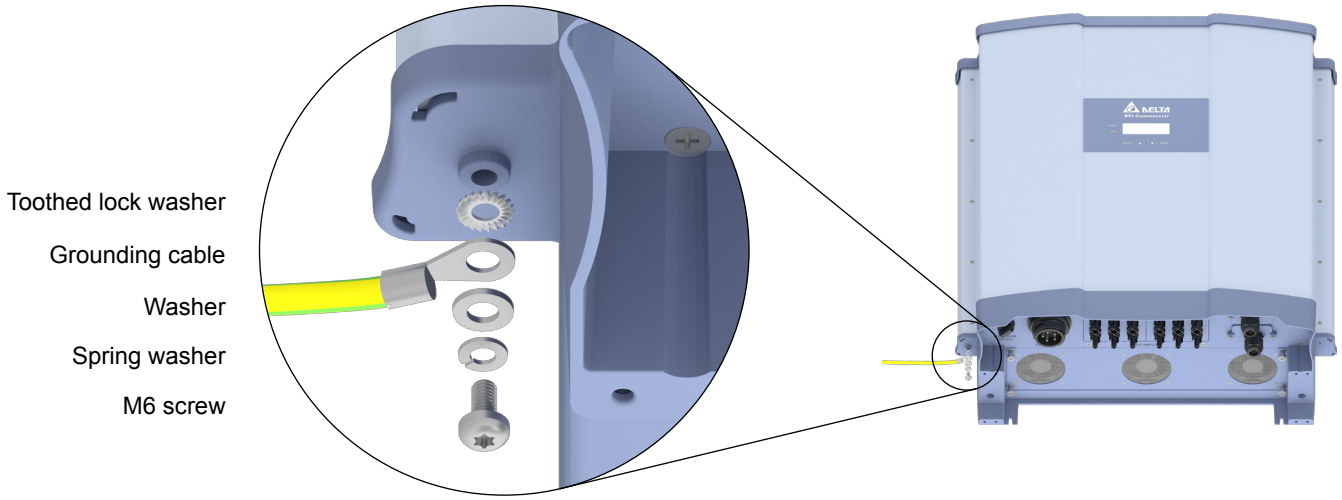
► Check that the bottom of the inverter is firmly positioned against the wall or the mounting system. Also check that the inverter hangs vertically in all directions.



6 Mounting the inverter (continued)

5

► On the left side, ground the solar inverter housing. Screw, washer spring, washer and toothed lock washer are part of the delivery and already mounted to the inverter.



Perform a continuity check for the grounding connection. If the test fails, scratch the paint off the inverter housing below the tooth lock washer to get a better electrical connection.

7 Connecting to the grid (AC)

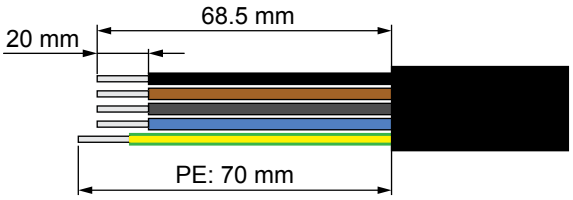
DANGER

Risk of death or serious injury from electrocution

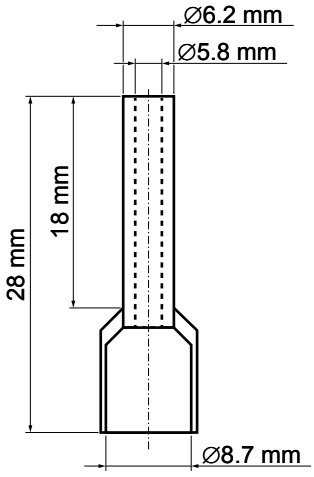
► Set the **AC/DC disconnection switch** to position **OFF** before connecting or disconnecting the AC plug.

► For a description how to set the AC connection type on the display, see "Setting AC connection type", p. 19.

The AC Plug is included in the delivery box.

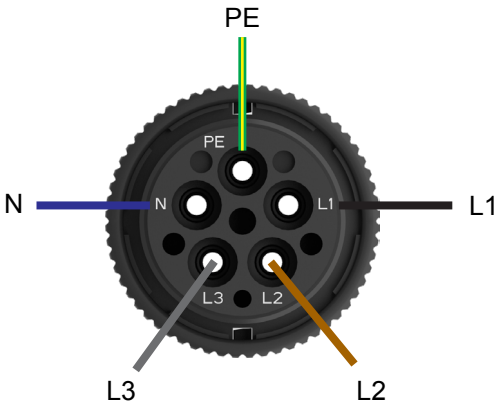


► Remove the cable sheath as shown and remove 20 mm of insulation from each wire end

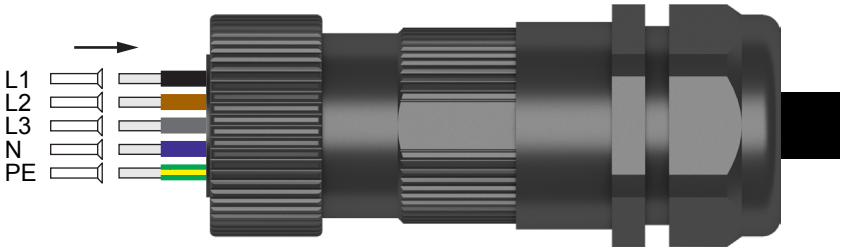


Dimensions of the bootlace pins for wire size 16 mm²

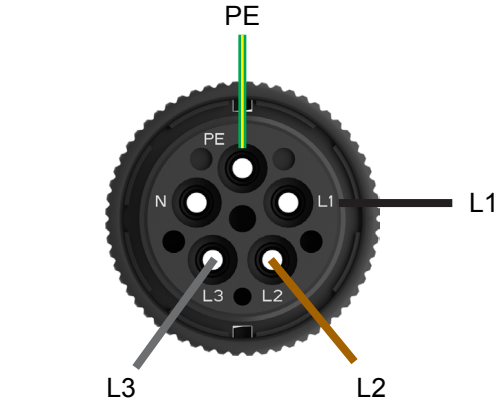
Wiring for 3P4W grid systems: 3 phases with 5 wires (L1, L2, L3, N) + PE



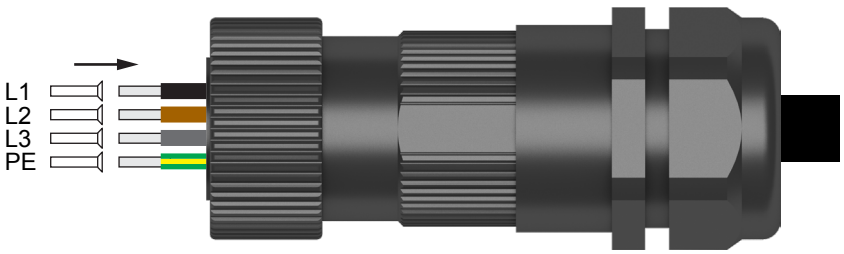
Use wire end sleeves on each wire.



Wiring for 3P3W grid systems: 3 phases with 4 wires (L1, L2, L3) + PE



Use wire end sleeves on each wire.



Permitted earthing systems

Earthing system	TN-S	TN-C	TN-C-S	TT	IT
Permitted	Yes	Yes	Yes	Yes	No

TT is not recommended. The voltage of N has to be very close to PE (difference < 20 V_{rms})

AC grid voltage requirements

3P3W		3P4W	
L1-L2	400 V_{AC} ± 20%	L1-N	230 V_{AC} ± 20%
L1-L3	400 V_{AC} ± 20%	L2-N	230 V_{AC} ± 20%
L2-L3	400 V_{AC} ± 20%	L3-N	230 V_{AC} ± 20%

7 Connecting to the grid (continued)

Important information regarding safety

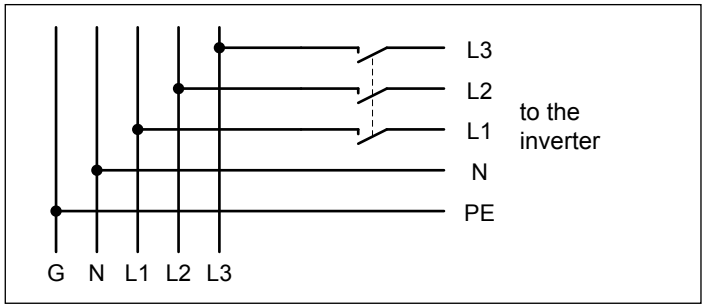
Always adhere to the specific regulations applicable in your country or region.

Always adhere to the specific regulations defined by your grid operator.

For the safety of the user and for the security of your installation, install required safety and protection devices that are applicable for your installation environment (example: automatic circuit breaker and/or overcurrent protection equipment).

Use the proper upstream circuit breaker to protect the inverter:

Upstream circuit breaker	63 A



Due to its design, the inverter is not capable of feeding DC residual current back into the grid. It fulfils this requirement in accordance with DIN VDE 0100-712.

When examining these possible fault situations in terms of the currently valid installation standards, Delta has come to the conclusion that there is no danger when operating the inverter in combination with a type A upstream residual-current device (RCD).

Therefore faults that would otherwise require the use of a type B residual-current device due to the inverter can be excluded.

The integrated all-pole sensitive RCMU is certified according VDE 0126 1-1/A1:2012-02 §6.2.2 for a tripping current of 300 mA. RCD Type A can be used for this inverter, according to the following table.

Minimum tripping current of the RCD	≥300 mA

NOTE

The value of the tripping current mainly depends on the quality of the solar modules, the size of the PV array and environmental conditions (e.g. humidity). The tripping current of the residual current device must not be less than the specified minimum tripping current.

AC cable requirements

Use properly sized wire to connect to the correct poles (see table)

AC connector	China Aviation Optical-Electrical Technology Co.
	PVE5T50KP73
Current rating	65 A
Min. / max. cable diameter	14 ... 26 mm
Min. / Max. wire size	16 mm^2
Recommended torque for terminal screws	2.5 Nm

AC plug delivered with the inverter can only be used with stranded copper cable.

When calculating the cross section of the cable, consider:

- material used
- thermal conditions
- cable length
- type of installation
- AC voltage drop
- power losses in cable

Read and follow the instructions delivered with the AC plug.

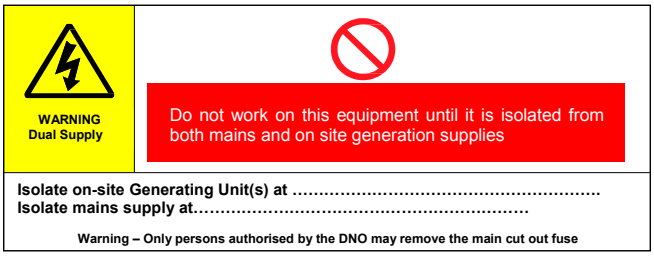
Always follow the system installation requirements defined for your country!

Grounding the inverter

The inverter must be grounded via the AC connector's PE conductor. To do this, connect the PE conductor to the designated terminal of the AC plug.

Markings on the inverter

In some countries, the following labels have to be applied on the front of each micro inverter. Please check applicable national and local standards and regulations.



Warning
Two sources of voltage present
- distribution network
- photovoltaic panels

Isolate both sources before carrying out any work

8 Connecting to the solar modules (DC)

DANGER

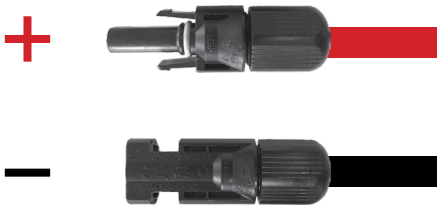
Risk of death or serious injury from electrocution

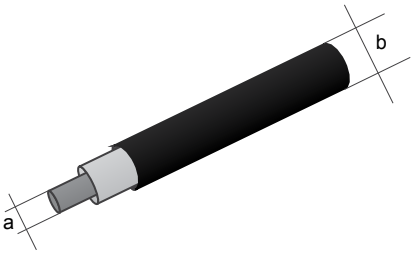
Potentially fatal voltage may be applied to the DC connections of the solar inverter. When light is falling on solar modules, they immediately start producing energy. They do so, even when the sun is not shining.

- ► Never disconnect the solar modules when the solar inverter is powered.
- ► First switch off the grid connection so that the solar inverter cannot feed energy into the grid.
- ► Turn the AC/DC isolating switch to position **OFF**.
- ► Make sure the DC connections cannot be accidentally touched.

► Check the polarity of the DC voltage before you connect the solar modules.

DC cable specification





DC connectors on the inverter		Plugs for DC cable			
			a	b	Multi-Contact
			mm²	mm	
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

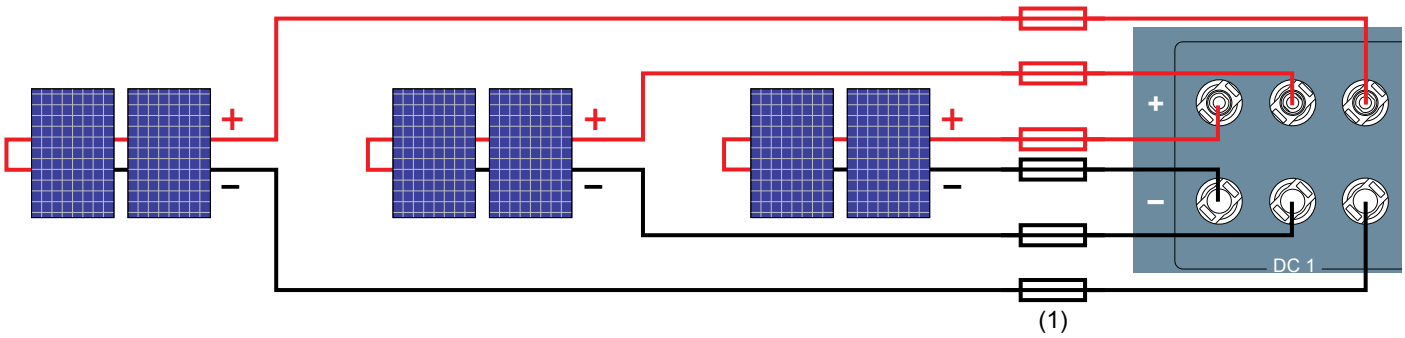
[1] Delivered with the inverter

Use a special open-end spanner for the MC4 DC connectors if you need to disconnect MC4 DC connectors from the inverter. Otherwise you might destroy the DC connectors and void the warranty.

► To ensure protection degree IP65, cap all unused connectors with the caps delivered with the inverter.

8 Connecting to the solar modules (continued)

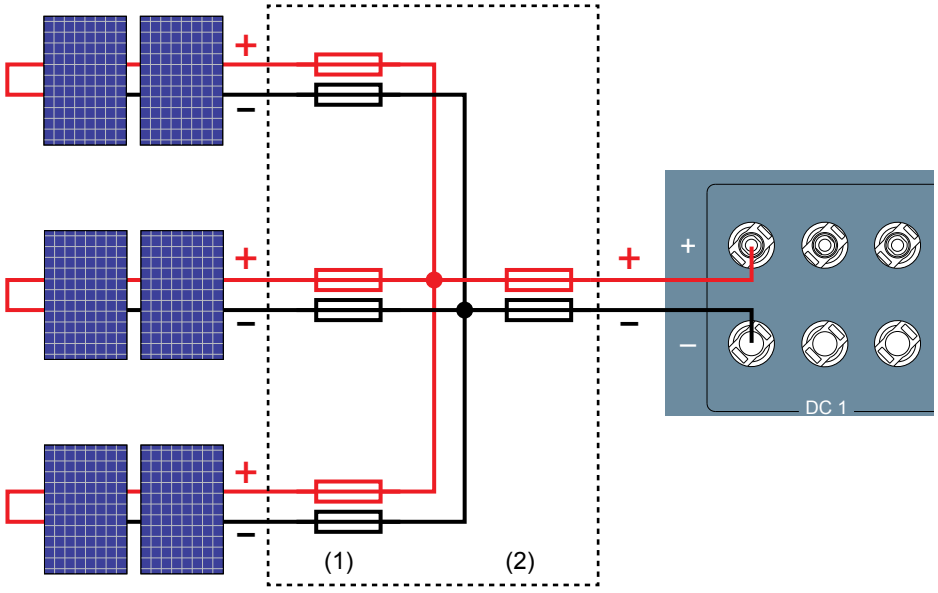
Use of safety equipment like string fuses



(1) Check **Maximum Reverse Current Capability** of your modules for required safety equipment like fuses.

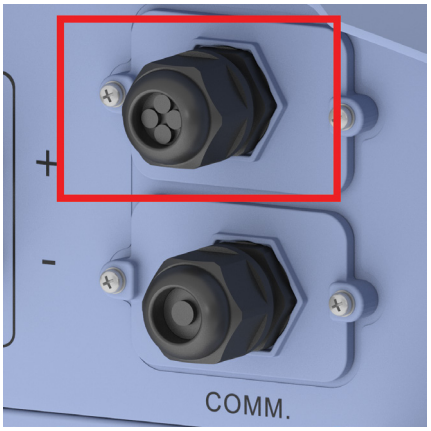
Connecting three DC strings to one pair of DC connectors (M30A_121 only)

► The description in this section applies only to the M30A_121. You **cannot** do this on an M30A_120!



Usually, one DC string is connected to one pair of DC connectors. On a M30A_121 you can alternatively connect three DC strings to one pair of DC connectors and not use the other two pairs of DC connectors. But you have to consider the **Maximum DC current**, see “Technical data”, p. 22.
(1) Check **Maximum Reverse Current Capability** of your modules for required safety equipment like fuses.
(2) Consider local safety regulations.

9 Connecting to a datalogger or PC via RS485

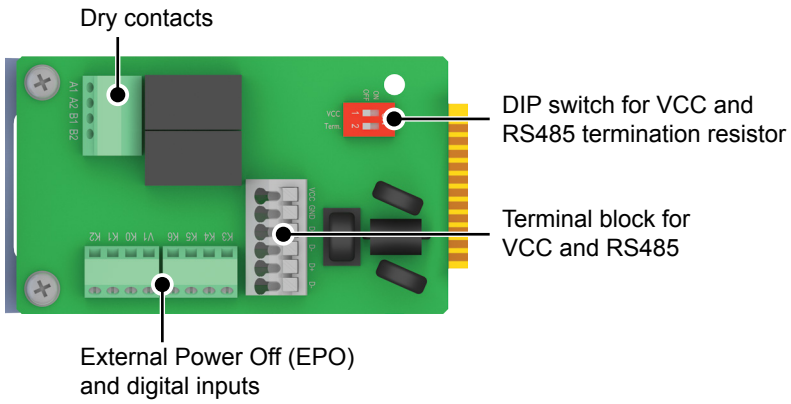


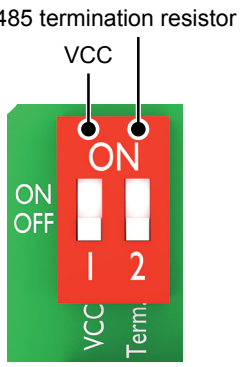
Communication port (top)

Cable and wire requirements

- Twisted and shielded cables with 2 solid wires.
- Cable diameter: 5 mm
- Wire cross-section: 1 mm²
- The cables should kept separate from the AC cable and the DC cables to avoid interferences.

General information





The RS485 connector is used to connect the inverters of the PV plant to a monitoring system.

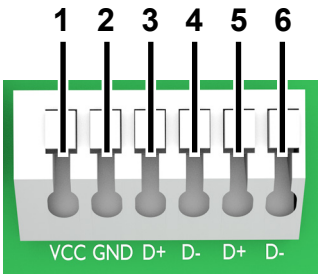
For connecting RS485, Pins 3 to 6 are used. For connecting RS485, terminals 3/4 or 5/6 are used. It does not matter which pair of terminals you use. The second pair you only need when you connect multiple inverters via RS485.

Do not switch on VCC, unless you want to use it, e.g. for an external relais.

If you want to use SOLIVIA Monitor the Internet based monitoring from Delta, you will also need a SOLIVIA M1 G2 Gateway.

Default baud rate is 19200 which can be changed on the inverter, see “Setting the baud rate for RS485”, p. 17.

Data format	
Baud rate	9600, 19200, 38400; Default: 19200
Data bits	8
Stop bit	1
Parity	N/A



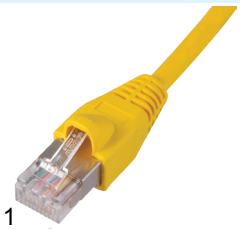
Pin	Designation
1	VCC (+12 V; 0.5 A)
2	GND
3	D+ (DATA+)
4	D– (DATA–)
5	D+ (DATA+)
6	D– (DATA–)

9 Connecting to a datalogger or PC via RS485 (continued)

Connecting to a Delta SOLIVIA Gateway M1 G2

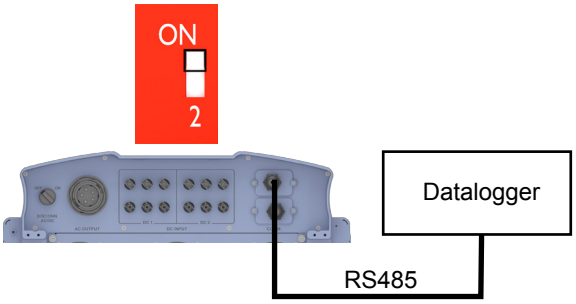
On the inverter you connect individual wires, on the gateway you have to use a RJ45 plug.

Connect the pins according to following table:

	Inverter	SOLIVIA Gateway M1 G2
		
DATA+	Terminal 3 or 5	Pin 7
DATA–	Terminal 4 or 6	Pin 6 or 8

Connecting a single inverter to a datalogger

Termination resistor = ON



Connecting a PC to RS485

If you want to use a PC with the Delta Service Software to set up the inverter, you need a USB/RS485 adapter to connect the PC to the RS485 terminal block of the inverter. The USB/RS485 adapter is available from Delta.

Connect the pins according to the following table:

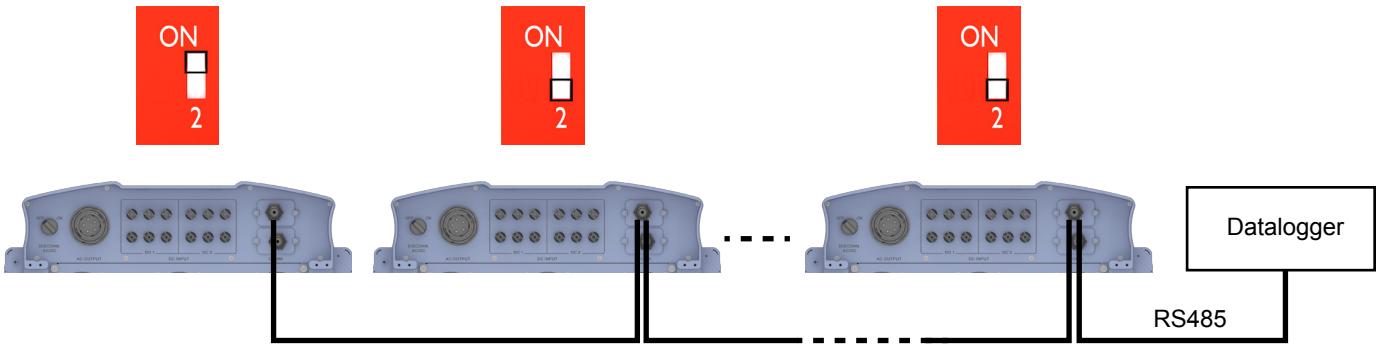
	Inverter	USB/RS485 adapter
		
DATA+	Terminal 3 or 5	Pin 4
DATA–	Terminal 4 or 6	Pin 5

Connecting multiple inverters to a datalogger

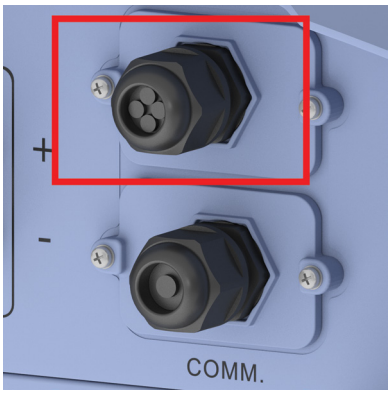
► If you connect multiple inverters via RS485, set a different Inverter ID for each inverter (see “Setting the inverter ID”, p. 18).

If your datalogger has no integrated termination resistor, switch on the termination resistor on the first inverter in the RS485 line.

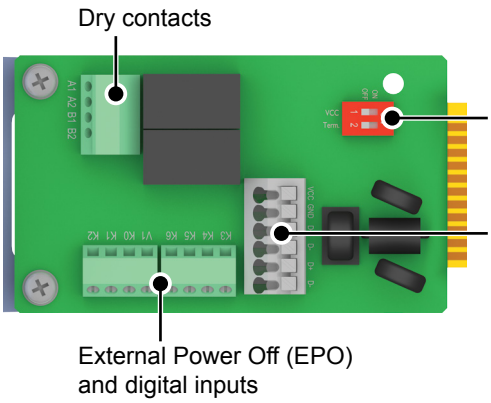
Termination resistor = ON | Termination resistor = OFF | Termination resistor = OFF



10 Connecting digital inputs, EPO and dry contacts (optional)



Communication port (top)

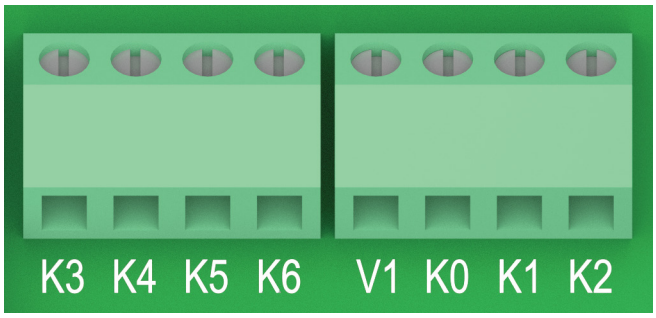


Cable and wire requirements

- Twisted and shielded cables with 2 solid wires.
- Cable diameter: 5 mm
- Wire cross-section: 1 mm^2
- The cables should kept separate from the AC cable and the DC cables to avoid interferences.

Digital inputs and EPO (External Power Off)

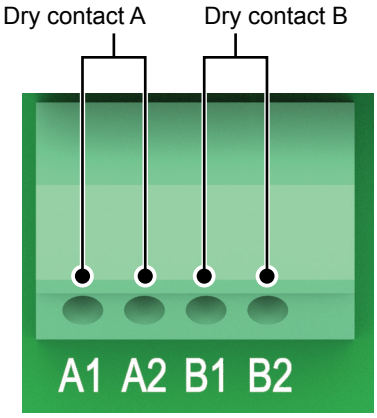
The digital inputs can be used to connect an external ripple control receiver to control the active power.



Pin	Designation	Short	Assigned action
1	V1	-	-
2	K0	V1 + K0	External Power Off
3	K1	V1 + K1	Set maximum active power to 0%
4	K2	V1 + K2	Set maximum active power to 30%
5	K3	V1 + K3	Set maximum active power to 60%
6	K4	V1 + K4	Set maximum active power to 100%
7	K5	V1 + K5	Reserved
8	K6	V1 + K6	Reserved

The relay for EPO can be set on the display to “normally open” or “normally closed”, see “Setting EPO (External Power Off)”, p. 19.

Dry contacts



On the display (see “Connecting digital inputs, EPO and dry contacts (optional)”, p. 15), the dry contacts can be connected to one of the following events:

Event	Description
Disable	The functionality for the dry contacts is switched off.
On Grid	The inverter has connected to the grid.
Fan Fail	The fans are defective.
Insulation	Insulation test failed.
Alarm	An error, fault, or warning message occurred.
Error	An error message occurred.
Fault	A fault message occured.
Warning	A warning message occured.

Default setting for both dry contacts is “Disabled”.

11 Commissioning - basic settings

To commission the inverter, it needs to be powered by AC (the grid) and by DC on both DC inputs (the solar modules).

After powering up the inverter for the first time, the *Select language* dialog is shown.

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

1. Use the buttons ▼ and ▲ to select language ***English***.

   To confirm your selection, press the button ENT.

```
 CHINA MV
►UK G59-3 230
 FRA-Is 50HZ
 FRA-Is 60HZ
```

2. Use the buttons ▼ and ▲ to select your country or grid type.

   To confirm your selection, press the button ENT.

```
Are you sure to
set country:
    UK G59-3 230
     ►YES / NO
```

3. If the selected country is correct, use the buttons ▼ and ▲ to select the entry ***YES***.

   To confirm your selection, press the button ENT.

   If you want to change your selection, press the button EXIT.

   → The inverter starts a self-test which takes approximately 2 minutes. A countdown shows the remaining time on the display.

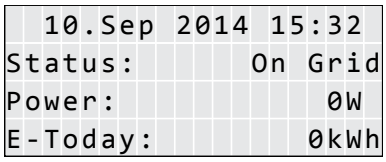
```
  10.Sep 2014 15:32
Status:       On Grid
Power:             0W
E-Today:         0kWh
```

☑ The basic setup is finished. The standard menu is shown.

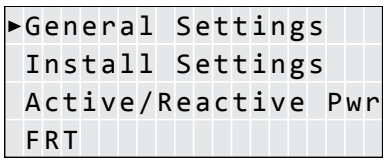
► Check the next chapter of this quick installation guide whether you need to adjust addtional settings.

12 Commissioning - further settings (optional)

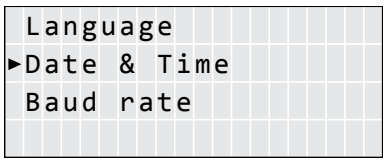
Setting date and time



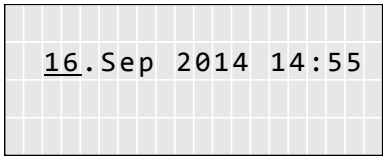
1. When the default information is displayed, press any button to open the main menu.
   Otherwise, repeatedly press the button EXIT until the main menu is displayed.



2. Use the buttons ▼ and ▲ to select ***General Settings***.
   To confirm your selection, press the button ENT.



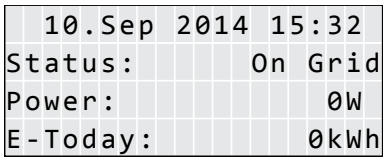
3. Use the buttons ▼ and ▲ to select ***Date & Time***.
   To confirm your selection, press the button ENT.



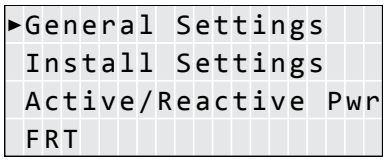
4. Use the buttons ▼ and ▲ to change a value. The currently set value is underlined.
   To confirm your setting, press the button ENT.
   The selection moves to the next value which you can set now. To move back to previous value, press the button EXIT.

Setting the baud rate for RS485

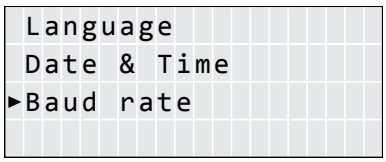
For a description of the RS485 connection, see “Connecting to a datalogger or PC via RS485”, p. 13.



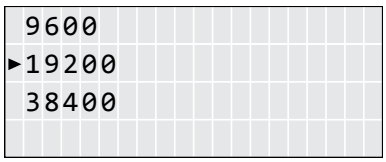
1. When the default information is displayed, press any button to open the main menu.
   Otherwise, repeatedly press the button EXIT until the main menu is displayed.



2. Use the buttons ▼ and ▲ to select ***General Settings***.
   To confirm your selection, press the button ENT.



3. Use the buttons ▼ and ▲ to select ***Baud rate***.
   To confirm your selection, press the button ENT.

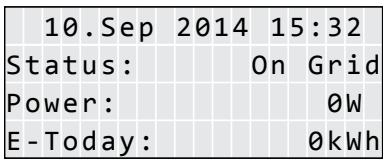


4. Use the buttons ▼ and ▲ to select a value.
   To confirm your setting, press the button ENT.

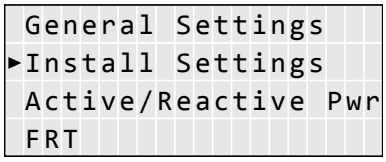
12 Commissioning - further settings (continued)

Setting the inverter ID

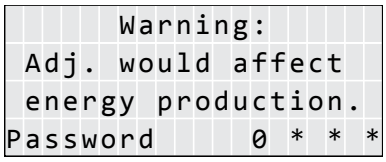
If your PV plant contains multiple inverters, for each of the inverters a different inverter ID has to be set. The inverter ID is needed to identify each inverter. For a description of the RS485 connection, see “Connecting to a datalogger or PC via RS485”, p. 13.



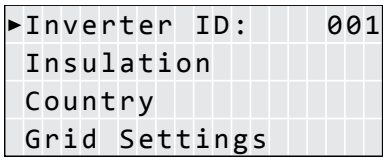
1. When the default information is displayed, press any button to open the main menu.
   Otherwise, repeatedly press the button EXIT until the main menu is displayed.



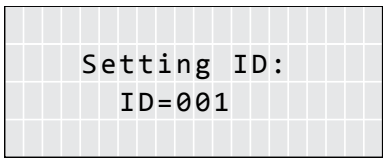
2. Use the buttons ▼ and ▲ to select ***Install Settings***.
   To confirm your selection, press the button ENT.



3. The menu is protected by password 5555. Use the buttons ▼ and ▲ to set each digit.
   To confirm a digit, press the button ENT.



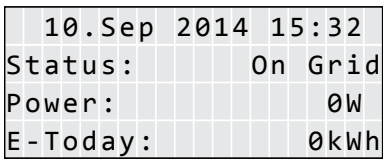
4. Use the buttons ▼ and ▲ to select ***Inverter ID***.
   To confirm your selection, press the button ENT.



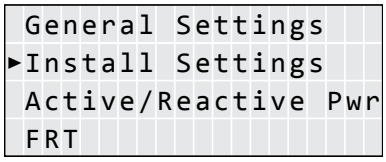
5. Use the buttons ▼ and ▲ to change the value.
   To confirm your setting, press the button ENT.

Setting AC connection type

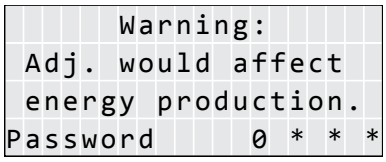
Per default, the AC connection type is set to 3P4W (3 phases + N + PE). Only if you use an AC connection with 3 phases + PE (3P3W), you need to change this setting. For a description of the AC connection, see “Connecting to a datalogger or PC via RS485”, p. 13.



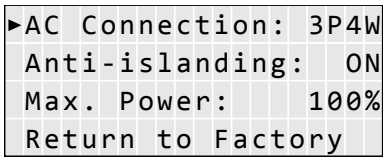
1. When the default information is displayed, press any button to open the main menu.
   Otherwise, repeatedly press the button EXIT until the main menu is displayed.



2. Use the buttons ▼ and ▲ to select ***Install Settings***.
   To confirm your selection, press the button ENT.



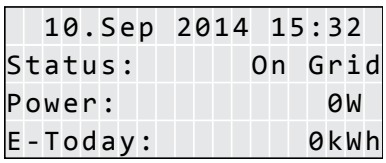
3. The menu is protected by password 5555. Use the buttons ▼ and ▲ to set each digit.
   To confirm a digit, press the button ENT.



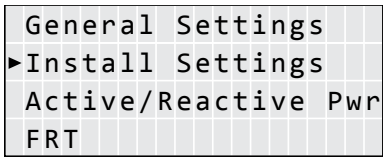
4. Use the buttons ▼ and ▲ to select ***AC Connection*** and press the button ENT.
   Use the buttons ▼ and ▲ to select ***3P3W***, and press the button ENT to confirm.

Setting EPO (External Power Off)

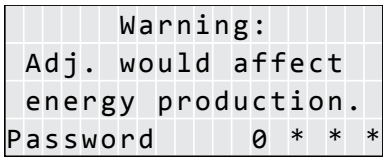
For a description of EPO (External Power Off), see “Connecting digital inputs, EPO and dry contacts (optional)”, p. 15.



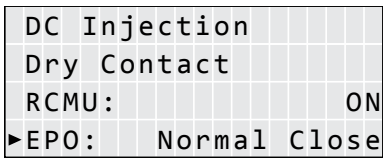
1. When the default information is displayed, press any button to open the main menu.
   Otherwise, repeatedly press the button EXIT until the main menu is displayed.



2. Use the buttons ▼ and ▲ to select ***Install Settings***.
   To confirm your selection, press the button ENT.



3. The menu is protected by password 5555. Use the buttons ▼ and ▲ to set each digit.
   To confirm a digit, press the button ENT.

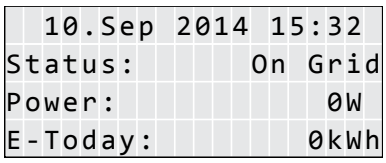


4. Use the buttons ▼ and ▲ to select ***EPO*** and press the button ENT.
   Use the buttons ▼ and ▲ to select an option. To confirm your selection, press the button ENT.

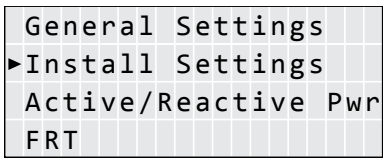
12 Commissioning - further settings (continued)

Setting dry contacts

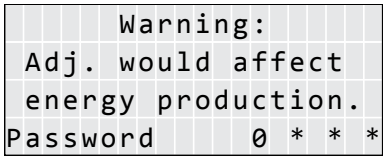
For a description of the dry contacts, see “Connecting digital inputs, EPO and dry contacts (optional)”, p. 15.



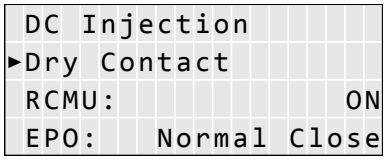
1. When the default information is displayed, press any button to open the main menu. Otherwise, repeatedly press the button EXIT until the main menu is displayed.



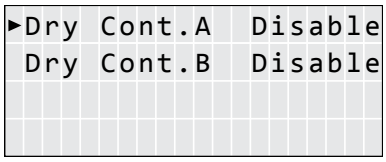
2. Use the buttons ▼ and ▲ to select ***Install Settings***.
   To confirm your selection, press the button ENT.



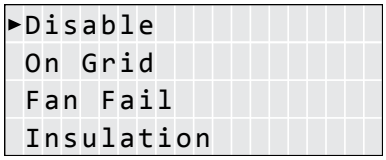
3. The menu is protected by password 5555. Use the buttons ▼ and ▲ to set each digit.
   To confirm a digit, press the button ENT.



4. Use the buttons ▼ and ▲ to select ***Dry Contact***.
   To confirm your selection, press the button ENT.



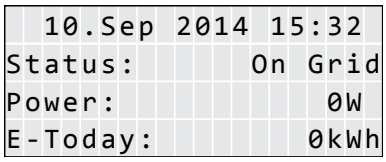
5. Use the buttons ▼ and ▲ to select the dry contact for which you want to change the setting. The current setting is shown behind the name of the dry contact. Default setting is ***disable***.
   To confirm your selection, press the button ENT.



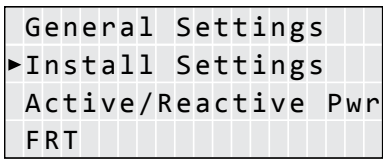
6. Use the buttons ▼ and ▲ to select an option.
   To confirm your selection, press the button ENT.

Setting a fixed power limitation

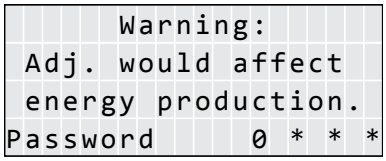
Because a power limitation reduces your yield, you should set a power limitation only when requested by country regulations, authorities or your grid operator.
This setting is protected by a special password. To get the password, please call the Delta Support hotline in your country. You can find the telephone number on the last page of this quick installation guide.



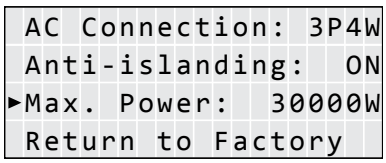
1. When the default information is displayed, press any button to open the main menu.
   Otherwise, repeatedly press the button EXIT until the main menu is displayed.



2. Use the buttons ▼ and ▲ to select ***Install Settings***.
   To confirm your selection, press the button ENT.



3. Type in the password you received from Delta Support. Use the buttons ▼ and ▲ to set each digit.
   To confirm a digit, press the button ENT.



4. Use the buttons ▼ and ▲ to select ***Max. Power*** and press the button ENT.

5. Use the buttons ▼ and ▲ to change the value.
   To confirm the value, press the button ENT.
   To cancel the setting, press the button EXIT.

13 Technical data

Input (DC)	RPI M30A_120	RPI M30A_121
Maximum recommended PV power		
Symmetrical load	42 kW_P	
Asymmetrical load	38 kW_P	
Maximum input power	35 kW	
Nominal power	31.5 kW	
Voltage range	200 ... 1100 V_{DC} [1)]	200 ... 1000 V_{DC}
Nominal voltage	600 V_{DC}	
Startup voltage	250 V_{DC}	
Startup power	40 W	
MPP operating voltage range	200 ... 1000 V_{DC}	
MPP operating voltage range with 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 current; total (DC1 / DC2)	60 A (30 A / 30 A)	
Maximum short circuit current in case of a failure	36 A (15 A per string)	36 A
Number of MPP trackers	Parallel inputs: 1 MPP tracker; Separate inputs: 2 MPP trackers	
Number of DC inputs; total (DC1 / DC 2)	8 (4 / 4)	6 (3 / 3)
Galvanic isolation	No	
Overvoltage category [2)]	II	
String Fuse Protection	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 [3)]	
Nominal apparent power [3)]	30 kVA	
Nominal voltage [5)]	230 ± 20 % / 400 V_{AC} ± 20%; 3 phase + PE or 3 phase + N + PE	
Nominal current	43.5 A	
Maximum current	50 A	
Inrush current	150 A / 100 µs	
Nominal frequency	50 / 60 Hz	
Frequency range [5)]	45 ... 65 Hz	
Power factor adjustable	0.8 cap ... 0.8 ind	
Total harmonic distortion	<3%	
DC Current injection	<0.5% at rated current	
Night-time loss	<3.0 W	
Overvoltage category [2)]	III	
Surge Protection Devices	Type 2, replaceable	Type 3, not replaceable

Mechanical Design	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 Connector type	China Aviation Optical-Electrical Technology Co. PVE5T50KP73	
DC Connector type	Multi-Contact MC4	
Communication interfaces	2 x RS485, 2 x Dry contacts, 1 x EPO (External Power Off), 6 x Digital inputs	

General Specification	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	
Maximum operating altitude	2000 m above sea level	

Standards and Directives	RPI M30A_120	RPI M30A_121
Protection degree	IP65	
Safety class	I	
Pollution degree	II	
Overload behavior	Current limitation; power limitation	
Safety	IEC 62109-1 / -2, CE compliance	
EMC	EN 61000-6-2, EN 61000-6-3	
Immunity	IEC 61000-4-2 / -3 / -4 / -5 / -6 / -8	
Harmonics	EN 61000-3-2	
Variations and flicker	EN 61000-3-3	
Grid interfaces	You can find the up-to-date list on www.solar-inverter.com.	

[1] Inverter stops feeding into the grid at 1000 V_{DC}
[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 will be programmed according to the individual country requirements.
[6] Full nominal power available 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 (free call)
Belgium	support.belgium@solar-inverter.com	0800 711 35 (free call)
Bulgaria	support.bulgaria@solar-inverter.com	+421 42 4661 333
Czech Republic	podpora.czechia@solar-inverter.com	800 143 047 (free call)
Denmark	support.danmark@solar-inverter.com	8025 0986 (free call)
France	support.france@solar-inverter.com	0800 919 816 (free call)
Germany	service.deutschland@solar-inverter.com	0800 800 9323 (free call)
Greece	support.greece@solar-inverter.com	+49 7641 455 549
Israel	supporto.israel@solar-inverter.com	800 787 920 (free call)
Italy	supporto.italia@solar-inverter.com	800 787 920 (free call)
Netherlands	ondersteuning.nederland@solar-inverter.com	0800 022 1104 (free call)
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Portugal	suporte.portugal@solar-inverter.com	+49 7641 455 549
Slovakia	podpora.slovensko@solar-inverter.com	0800 005 193 (free call)
Slovenia	podpora.slovenija@solar-inverter.com	+421 42 4661 333
Spain	soporto.espana@solar-inverter.com	900 958 300 (free call)
Switzerland	support.switzerland@solar-inverter.com	0800 838 173 (free call)
Turkey	support.turkey@solar-inverter.com	+421 42 4661 333
United Kingdom	support.uk@solar-inverter.com	0800 051 4281 (free call)
Other European countries	support.europe@solar-inverter.com	+49 7641 455 549

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