



Quick Installation Guide

RPI H4A_120

RPI H5A_120



This manual applies for solar inverters models:

- **RPI H4A_120**
- **RPI H5A_120**

mit den Delta part numbers:

RPI402N55E0000, RPI502N55E0000

and

with firmware versions:

DSP: 2.02 / RED: 2.00 / COMM: 2.05

The model number can be found on the type plate of the inverter.
The firmware versions are listed on the display in the main menu.

If you notice discrepancies between the descriptions in this installation guide and the information on the inverter display, to www.solar-inverter.com and download the version of the installation guide that matches the model number and the firmware version of your inverter.

On the website, you will also find the installation and operating instructions with detailed information on the inverter.

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This manual is intended for installers.

The information in this manual is to be treated as confidential and no part of this manual may be reproduced without prior written permission from Delta Energy Systems. The information in this manual may not be used for any purpose not directly connected to use of the inverter.

All information and specifications can be modified without prior notice.

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1 General Safety Instructions

DANGER



Electrical shock

Potentially fatal voltage is applied to the inverter during operation. When the inverter is disconnected from all power sources, this voltage remains in the inverter for up to 5 minutes. Therefore, always carry out the following steps before working on the inverter.

1. Place the AC/DC disconnecter in 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 for at least 5 minutes until the internal capacitors have discharged.

- Read this quick installation guide **before** you start installing the inverter.
- To comply with the IEC 62109-5.3.3 safety requirements and avoid injury or damage to property, 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 started by installers who have been trained and certified for the installation and operation of grid-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. Only touch the inverter (outside of the display) with safety gloves.
- 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 protection class. Unused connections must be closed using cover caps.

DANGER

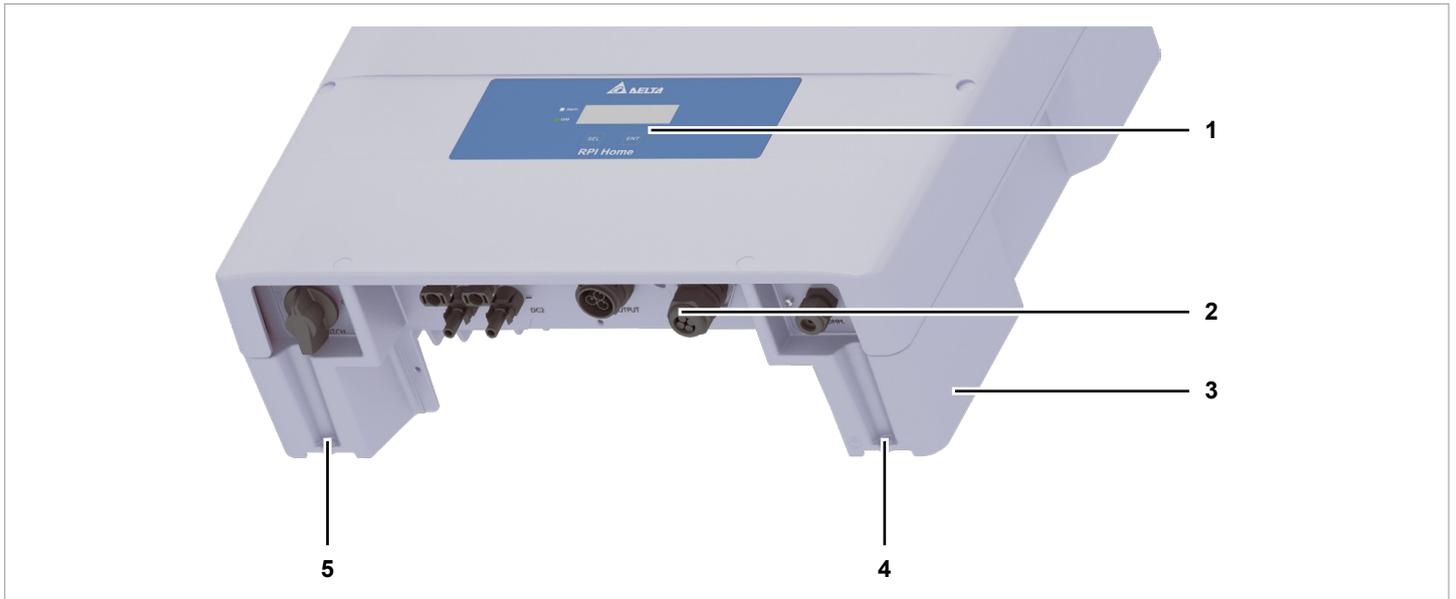


Electrical shock

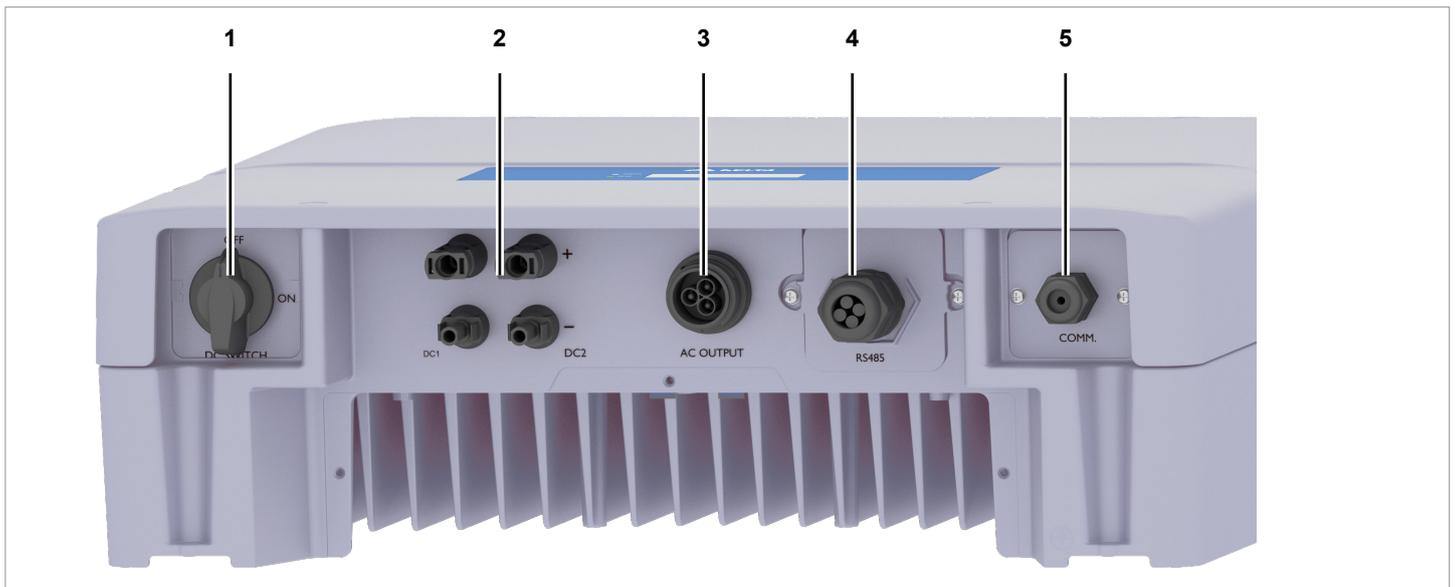
Potentially fatal voltage is applied to the inverter's DC connections during operation. When light falls on the solar modules, they immediately start to generate electricity. This also happens when light does not fall directly on the solar modules.

- ▶ Never disconnect the inverter from the solar modules when it is under load.
- ▶ Place the AC/DC disconnecter in the **OFF** position.
- ▶ Uncouple the connection to the grid so that the inverter cannot supply energy to the grid.
- ▶ 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.

2 Components of the inverter



- 1 Display, buttons, LEDs
- 2 Electrical connectors
- 3 Type label
- 4 Hole for mounting and grounding
- 5 Hole for mounting



- 1 DC disconnector
- 2 DC inputs
- 3 AC connector
- 4 RS485 port
- 5 Communication port



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		
SEL	Select	Move to the next menu entry. Change a value. Cancel value setting.
ENT	Enter	Select menu item. Open configurable value for editing. Finish editing (adopt set value).

3 Information on the type label



Risk of death by electrocution

Potentially fatal voltage is present when the solar inverter is in operation that remains for 5 minutes 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.



Risk of injury from hot surfaces.

When in operation, the housing of the solar inverter can become very hot.



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. Applies only to Australia and New Zealand.



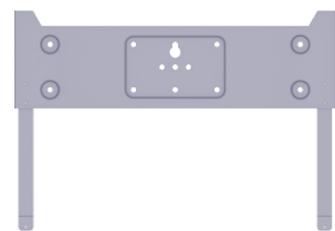
WEEE marking

The inverter must not be disposed of as standard household waste, but in accordance with the applicable electronic waste disposal regulations of your country or region.

4 Scope of delivery



Inverter



Mounting plate



*Quick Installation Guide and
General Safety Instructions*



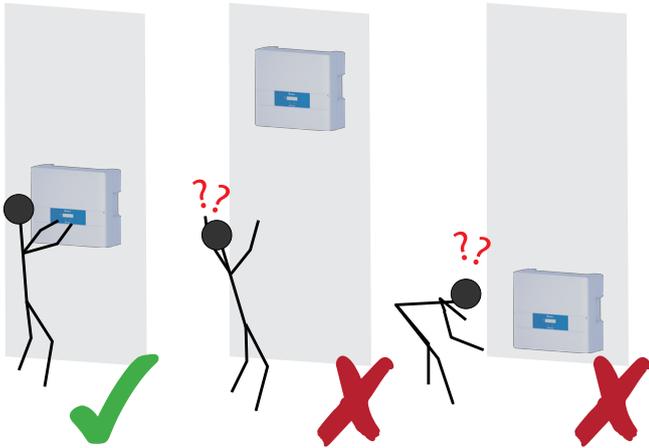
AC Plug Amphenol C16-3



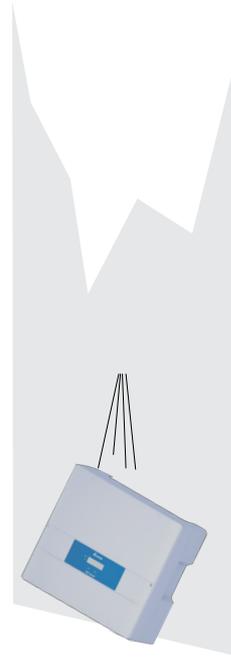
*2 mounting screws to fasten the
inverter to the mounting plate*

5 Planning the installation

Where to mount the inverter



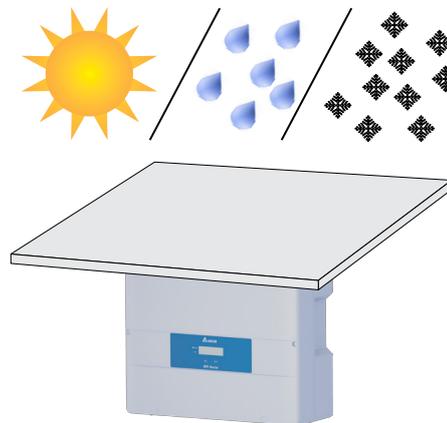
- ▶ Attach the inverter so that the information on the display and the buttons can be read without any problems.



- ▶ Always use the mounting plate supplied with the inverter.
- ▶ The inverter is heavy. The wall has to be able to bear the weight of the inverter.
- ▶ Use mounting material (dowels, screws etc.) that are suitable for the wall or the mounting system, as well as the heavy weight.
- ▶ Mount the inverter on a vibration-free wall to avoid disruptive vibrations.
- ▶ Mount the inverter on a fireproof wall.
- ▶ Mount the inverter on a flat wall only. Brick walls can cause problems if they are too bumpy.
- ▶ 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.

Outdoor installations

- ▶ The inverter is designed in accordance with protection class IP65 and can be installed indoors or in protected outdoor areas (i.e. outside but protected by a roof from direct sun, rain and snow).

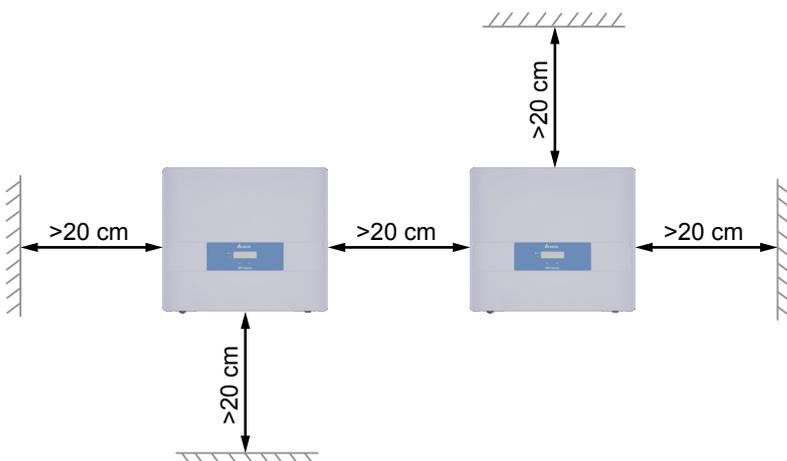


Mounting orientation

- ▶ Mount the inverter vertically.



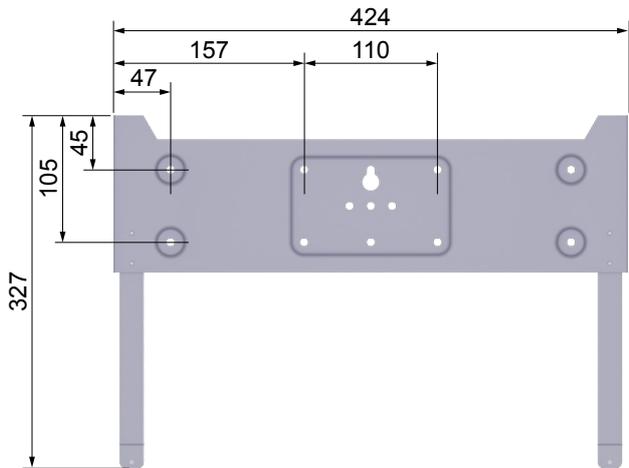
Ambient temperature and air circulation



- ▶ Ensure sufficient air circulation. Warm air must be able to escape from below. Leave enough space around each inverter.
- ▶ Do not mount the inverters one above the other. This would result in the upper inverter heating the lower inverter.
- ▶ Note the *Operating temperature range without derating* and the *Total operating temperature range*. When the *Temperature range without derating* is exceeded, the inverter reduces output. When the *Total operating temperature range* is exceeded, the inverter switches off. This is normal operating behavior for the inverter and is necessary to protect the internal electronics.

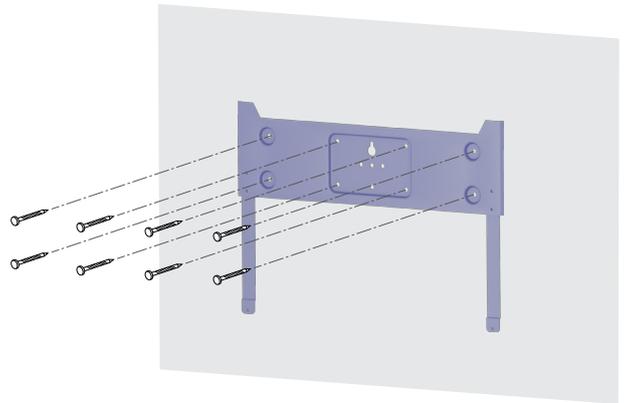
6 Mounting the inverter

1



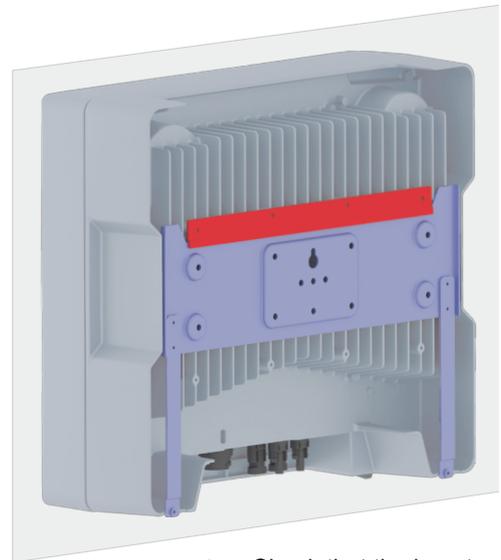
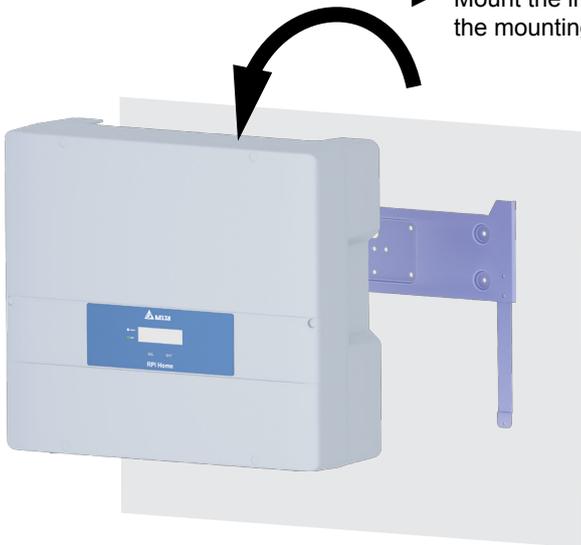
2

▶ Attach the mounting plate to the wall / the mounting system with 8 M6 screws.



3

▶ Mount the inverter on the mounting plate.

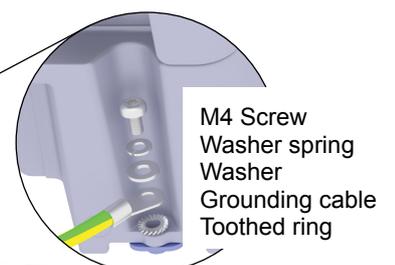
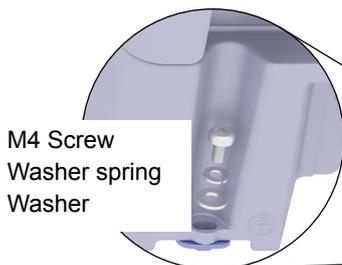


▶ Check that the inverter is correctly mounted on the mounting plate.

4

▶ On the left side, fasten the inverter with one mountain screw to the mounting plate.

▶ On the right side, fasten the inverter with one mounting screw to the mounting plate and additionally ground the inverter housing.



4. Perform a continuity check of the grounding connection. If there is no sufficient conductive connection, scratch away the paint from the inverter housing under the lock washer to achieve a better electrical contact.

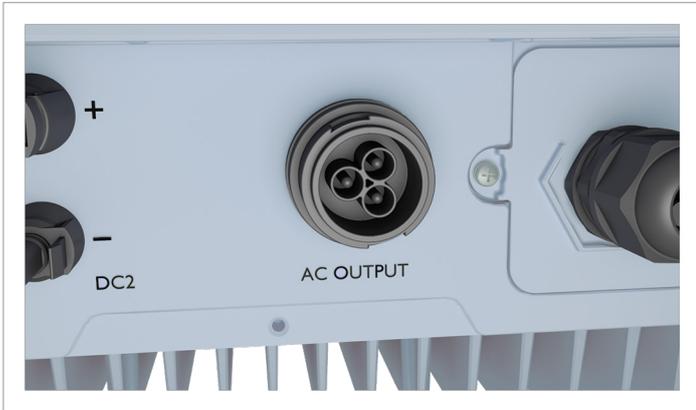
7 Connecting to the grid (AC)

! DANGER



High electrocution

- ▶ Turn the DC disconnecter to **OFF** position.
- ▶ First connect the AC cable to the inverter than to the grid.



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.

AC cable requirements

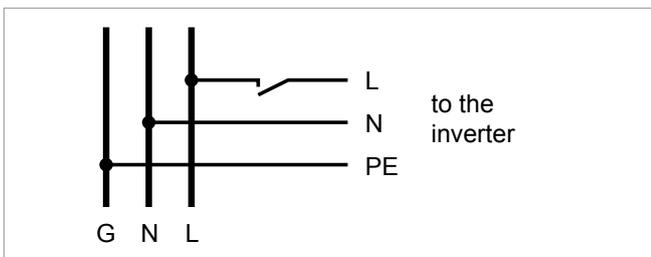
The AC plug provided with the inverter has the following technical characteristics:

AC connector	Amphenol C16-3 2 + PE (C016 20E002 800 1)
Current rating	≤ 25 A
Min. / max. cable diameter	10 ... 12 mm
Min. / Max. wire diameter	2,5 ... 6 mm ²
Recommended torque for terminal screws	0.7 Nm

Important information regarding safety

- ▶ 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 (e.g. automatic circuit breakers and/or surge protection devices).
- ▶ Protect the inverter with a suitable upstream circuit breaker:

Upstream circuit breaker	25 A
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Read and follow the instructions delivered with the AC plug.

The AC plug delivered with the inverter can be used with flexible or rigid 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

Always follow the system installation requirements defined for your country!

Grounding the inverter

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

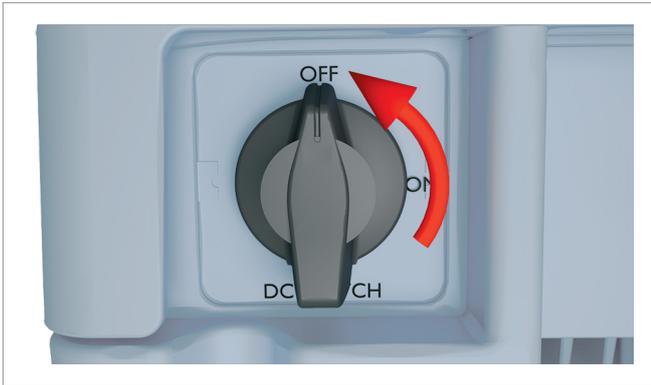
Residual current circuit breaker

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.

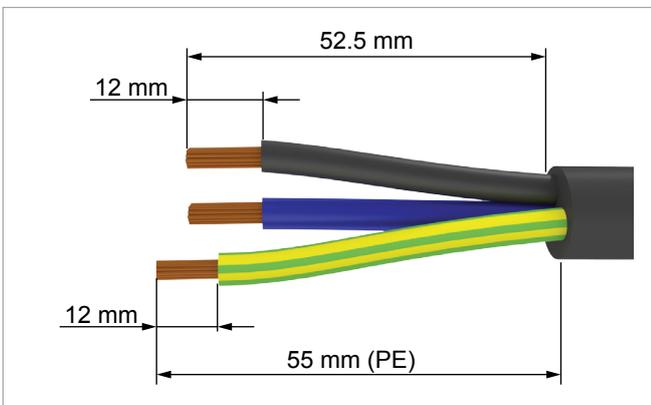
Possible error events were assessed by Delta in accordance with the current installation standards. The assessments showed that no hazards arise from operating the inverter in combination with an upstream, type A residual current circuit breaker (FI circuit breaker, RCD). There is no need to use a type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

Minimale Auslösestromstärke des Fehlerstrom-Schutzschalters Typ A	30 mA
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1. Turn the DC disconnecter to **OFF** position.



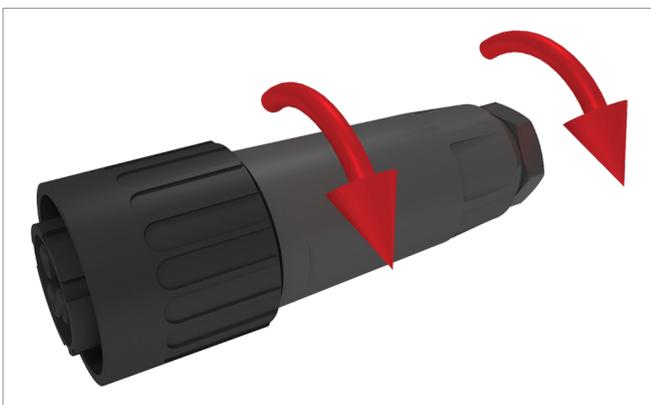
2. Remove the cable sheath as shown and remove 12 mm of insulation from each wire end. Do not twist wire ends as this reduces the surface contact area with the wire end sleeve (bootlace pin).



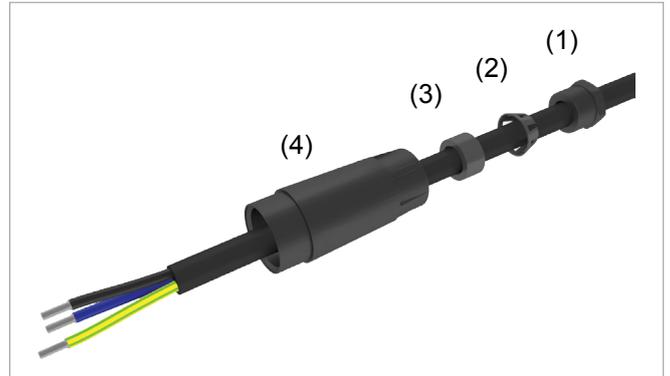
3. Place a wire end sleeve on each wire end and crimp them on tightly.



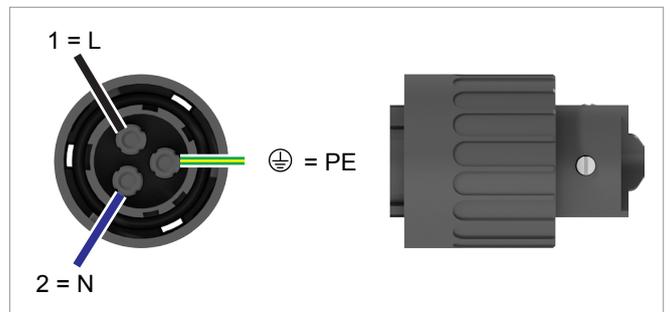
4. Unscrew cable nut and cable housing from the socket inset.



5. Slide cable nut (1), clamping ring (2), sealing gasket (3) and cable housing (4) onto the AC cable in the given order.

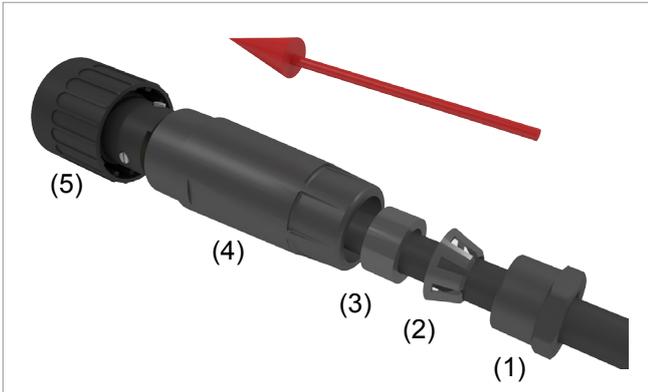


6. Slide the wires of the AC cable into the connections in the pin insert and screw them tightly (torque 0,7 Nm). Observe the correct phase sequence when wiring the AC plug.

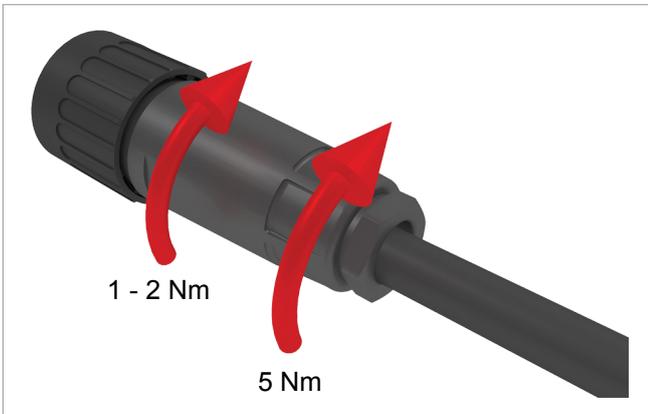


7 Connecting to the grid (continued)

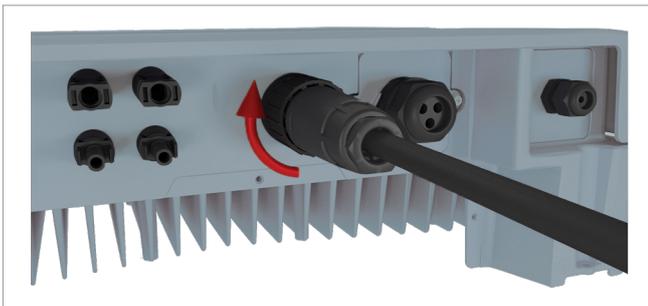
7. Slide cable housing (4), sealing gasket (3), clamping ring (2) and cable nut (1) into the socket insert (5).



8. Screw cable housing (torque 1 to 2 Nm) and cable (torque 5 Nm recommended) and pin insert together.



9. Insert the AC plug into the AC connector on the inverter and tighten the locking ring.



10. We recommend using a strain-relief clamp directly behind the AC plug.

Attaching warning notices to the inverter

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

Some examples of warnings are listed below.

 WARNING Dual Supply	 <div style="background-color: red; color: white; padding: 5px; text-align: center;"> Do not work on this equipment until it is isolated from both mains and on site generation supplies </div>
Isolate on-site Generating Unit(s) at Isolate mains supply at..... Warning – Only persons authorised by the DNO may remove the main cut out fuse	



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



Electrical shock

Potentially fatal voltage is applied to the inverter's DC connections during operation. 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.
- ▶ Place the AC/DC disconnecter in the **OFF** position.
- ▶ Uncouple the connection to the grid so that the inverter cannot supply energy to the grid.
- ▶ 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.

NOTE



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.

NOTE



Incorrectly dimensioned solar plant.

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 input current and Maximum input power, see "Technical data", p. 22*).

NOTE



Ingress of moisture.

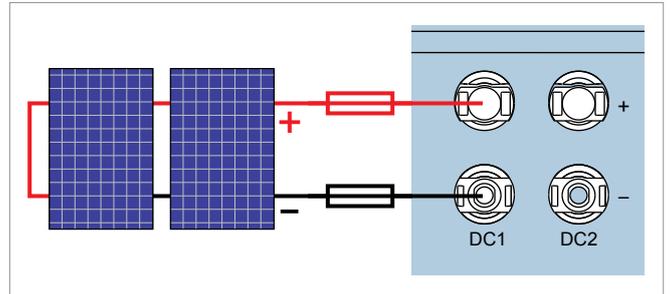
Moisture can enter via open DC connections.

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

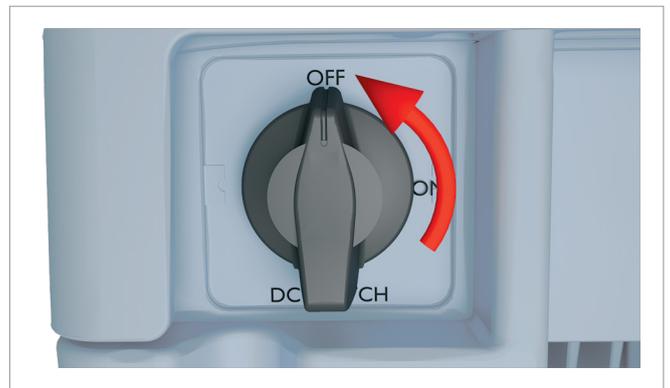


Protective devices

- ▶ When selecting the necessary protective devices (e.g. fuses) take into account the **Maximum reverse current** of the solar modules.



- ▶ Before connecting the solar modules turn the DC connection switch to the **OFF** position.



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



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.

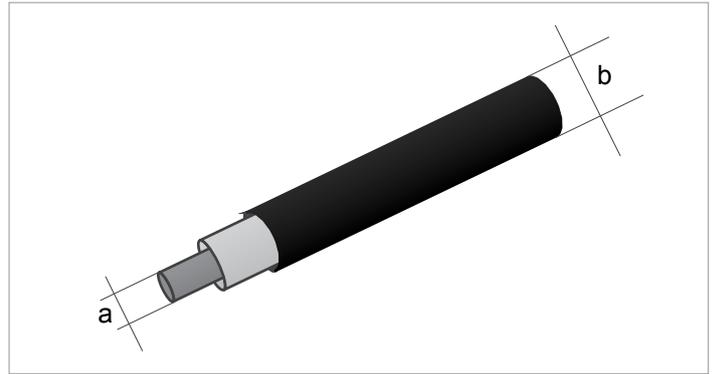


Mounting tool for disconnecting the DC plug and the protective caps from the DC connections. Available from multi-contact.

DC plugs and DC cables

The DC plugs for all DC connections are provided along with the inverter.

If you want to order more or need a different size, see the information in the following table.

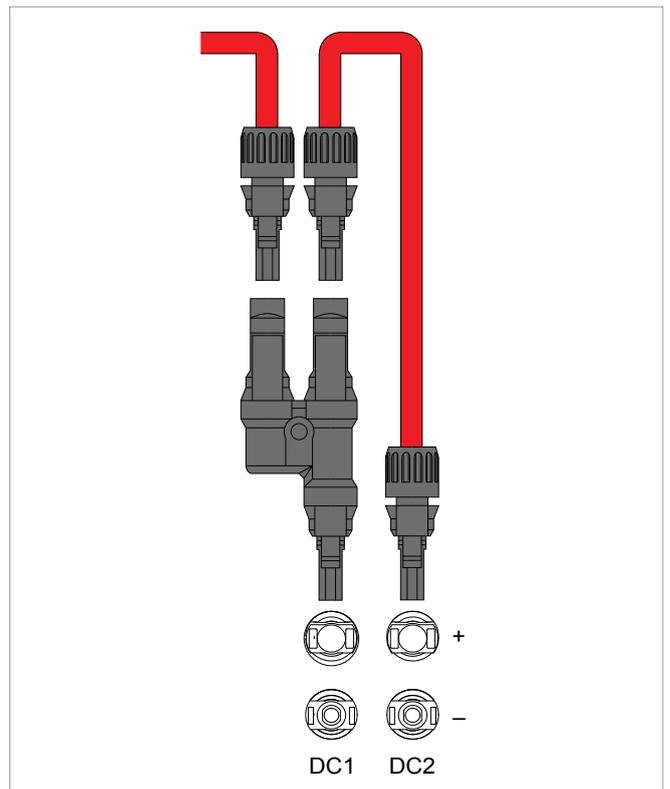


DC connectors on the inverter		DC plugs for DC cable		
		a mm ²	b mm	Multi-Contact
DC-		1,5/2,5	3-6	32.0010P0001-UR
			5,5-9	32.0012P0001-UR
		4/6	3-6	32.0014P0001-UR
			5,5-9	32.0016P0001-UR
DC+		1,5/2,5	3-6	32.0011P0001-UR
			5,5-9	32.0013P0001-UR
		4/6	3-6	32.0015P0001-UR
			5,5-9	32.0017P0001-UR

Using DC1 and DC with one MPP tracker (optional)

- ▶ When you want to use both DC inputs in parallel on one MPP tracker, you need Y-connectors on DC+ **and** DC-.

When you have only one DC string, you have to use Y-connectors on DC+ **and** DC-, too. The inverter does not start when the second DC input is not connected.



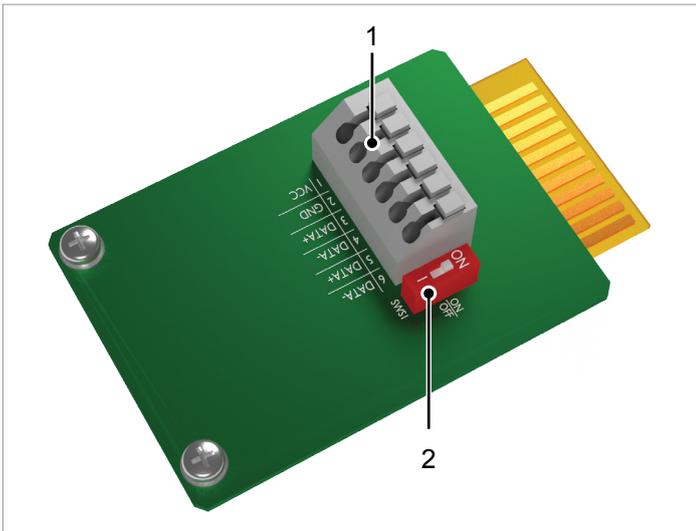
9 Connecting to a datalogger via RS485



If you need to wire dry contacts, digital inputs or RS485, it is recommended to do this in a dry environment and before you hang the inverter onto the wall.

Reasons for this are:

- ▶ You will have to remove the covers from the connection ports. Water could leak into the inverter.
- ▶ The terminal blocks inside are not easily accessible.

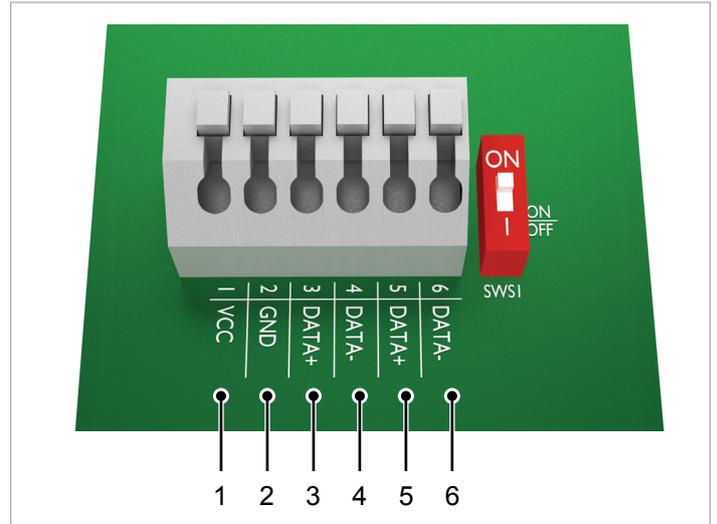


- 1 RS485 terminal block
- 2 Switch for RS485 termination resistor

Terminal pairs 3/4 or 5/6 can be used. It doesn't matter which terminal pair is used. The second terminal pair is only required when connecting several inverters via RS485.

If you want to use SOLIVIA Monitor, Delta's Internet-based monitoring system, you also need a SOLIVIA Gateway M1 G2.

Terminal assignments of the RS485 terminal block



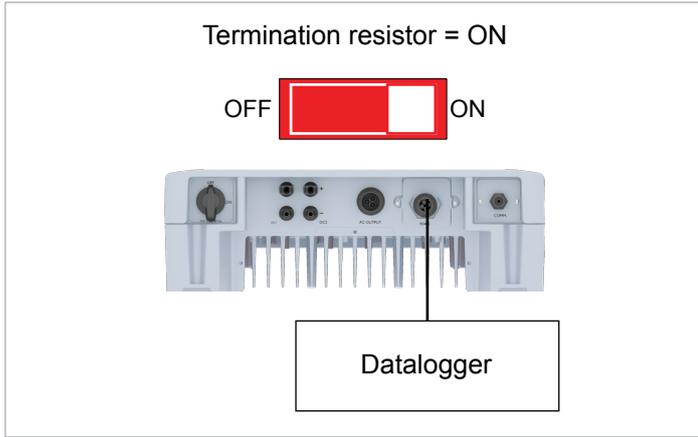
- 1 VCC
- 2 GND
- 3 DATA+ (RS485)
- 4 DATA- (RS485)
- 5 DATA+ (RS485)
- 6 DATA- (RS485)

The baud rate can be set on the inverter display after startup, see „Setting the baud rate“, p. 21.

Data format

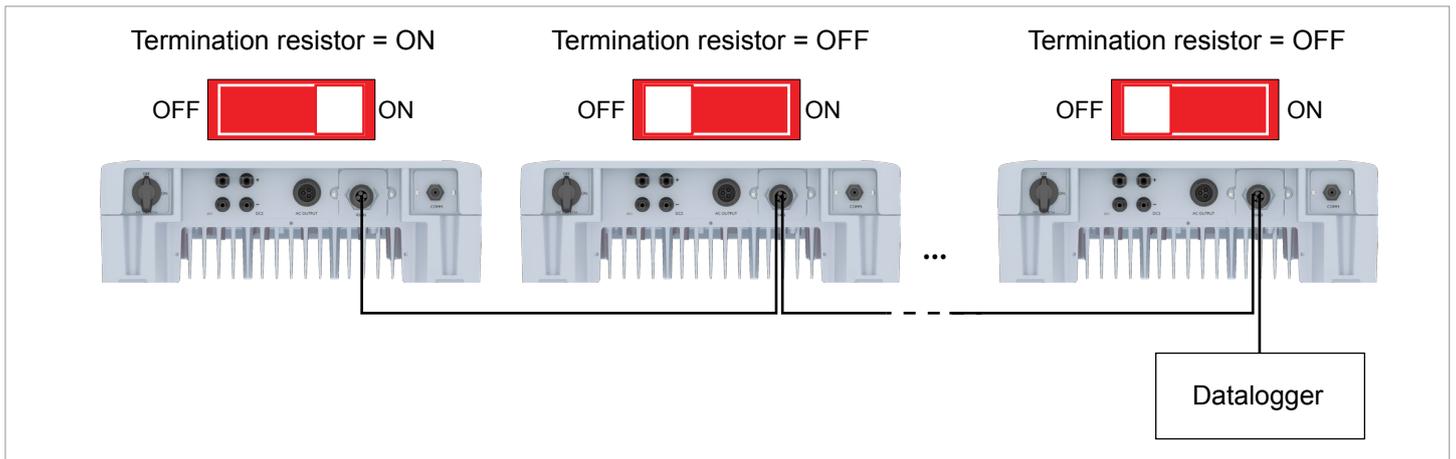
Baud rate	9600, 19200, 38400; Standard: 19200
Data bits	8
Stop bit	1
Parity	not applicable

Connecting a single inverter to a datalogger



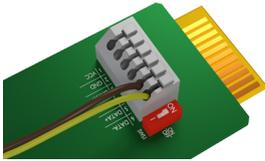
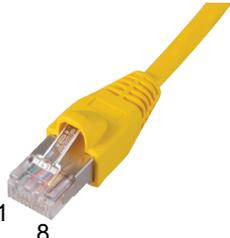
Connecting multiple inverters to a datalogger

- ▶ If the datalogger does not have an integrated RS485 termination resistor, switch on the RS485 termination resistor on the first inverter.
- ▶ After commissioning, configure a different inverter ID on each inverter, see [“Setting the inverter ID”](#), p. 19.



Connection to a Delta SOLIVIA Gateway M1 G2

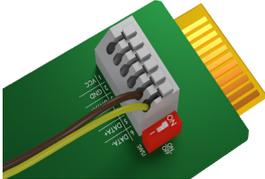
Requirements include a CAT5 cable with RJ45 plugs on one side and an open end on the other side.

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

Connecting a PC via 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.

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

10 Connecting digital inputs and dry contacts (optional)



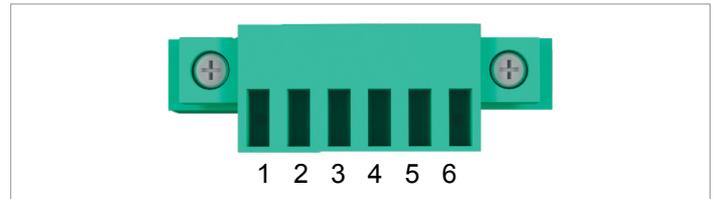
When your grid operator wants you to set a power limitation, e.g. for the 70% regulation in Germany, you need the Delta Service Software, which is available from Delta.



If you need to wire dry contacts, digital inputs or RS485, it is recommended to do this in a dry environment and before you hang the inverter onto the wall. Reasons for this are:

- ▶ You will have to remove the covers from the connection ports. Water could leak into the inverter.
- ▶ The terminal blocks inside are not easily accessible.

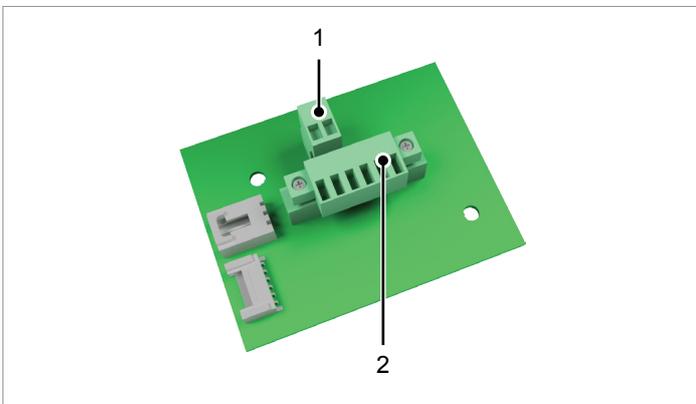
Digital inputs



- 1 Digital input 1 (DI 1)
- 2 Digital input 2 (DI 2)
- 3 Digital input 3 (DI 3)
- 4 Digital input 4 (DI 4)
- 5 Output 1 (DO 1)
- 6 Output 1 (DO 2)

Dry contacts

When the inverter is feeding into the grid, the dry contact is closed.



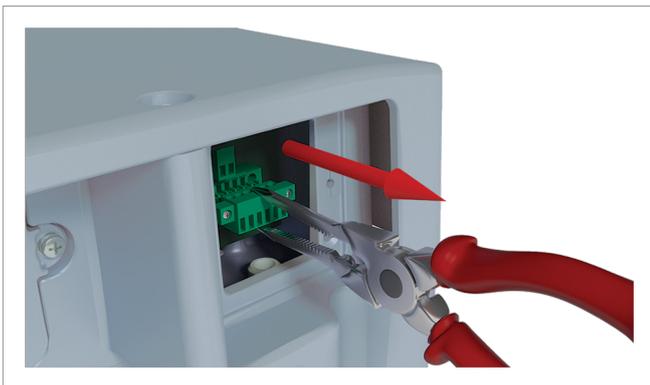
- 1 Dry contacts
- 2 Digital inputs and outputs

Tips for wiring

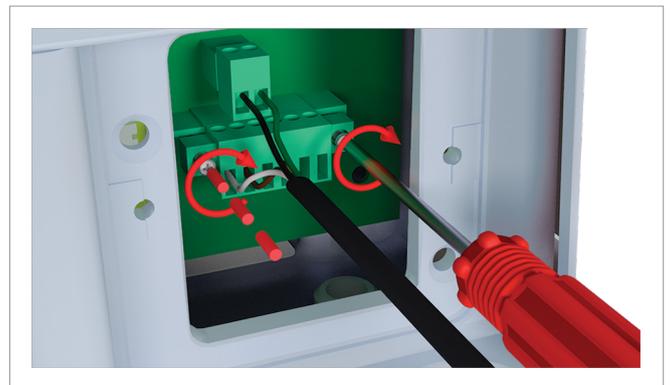
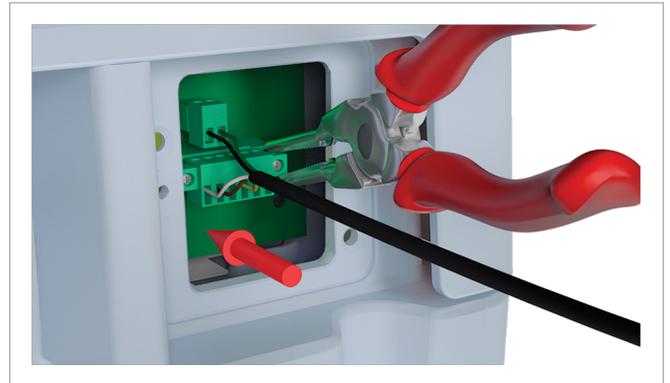
- ▶ Carefully pull out the terminal block of the dry contacts.



- ▶ Unscrew and carefully pull out the terminal block of the digital inputs.



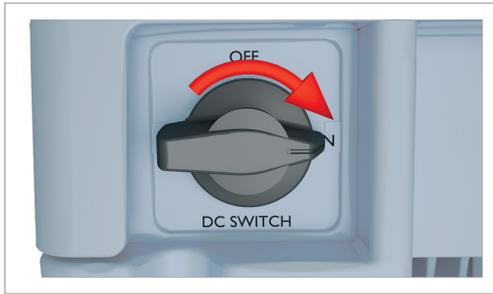
- ▶ Carefully put in the terminal block of the digital inputs and tighten the screws.



- ▶ Carefully put in the terminal block of the dry contacts.



11 Commissioning - basic settings



To execute the basic settings, the inverter needs to be powered either by AC (the grid) or DC (the solar modules)

UK G83-2
Next / Enter

Exit ?
N / Y

Inverter
5.0 kVA

1. Use the button **SEL** to select your country or grid.

To confirm your selection, press the button **ENT**.

2. To finish the country selection, press the button **ENT**.

To select another country or grid, press the button **SEL** and repeat step 1.

- The basic setup is finished. The main menu is shown.

12 Commissioning - Further settings (optional)

Setting the language

```
Country
UK G83-2
```

1. In the main menu, use the button **SEL** to select **Country**.
2. Press the buttons **SEL** and **ENT** at the same time and hold them for at least 10 seconds.
→ For a few seconds the following message is displayed.

```
Inverter
Shut down
```

```
Language
English
```

```
Deutsch
Next / Enter
```

```
Deutsch
N / Y
```

3. Use the button **SEL** to select **Language** and press the button **ENT**.
4. Use the button **SEL** to select another language.
To accept the selection, press the button **ENT**.
5. To finally confirm your selection, press the button **ENT**.
→ The new language is used.

```
Die Sprache
Deutsch
```

```
Exit ?
N / Y
```

6. Use the button **SEL** to select **Beenden ?** and press the button **ENT** to finish.

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 via RS485. For a description of the RS485 connection, see "Connecting to a datalogger via RS485", p. 14.

```
Inverter
ID : 1
```

1. In the main menu, use the button **SEL** to select **Inverter ID**.
2. Press the buttons **SEL** and **ENT** at the same time and hold them for at least 3 seconds.
→ The menu to change the inverter ID is shown.

```
Setting ID:
ID = 1 ?
```

```
Setting ID:
ID = 2 ?
```

3. Use the button **SEL** to change the inverter ID.
4. To confirm the value, press the button **ENT**.
→ The new inverter ID is shown in the main menu.

```
Inverter
ID : 2
```

12 Commissioning - Further settings (continued)

Setting date and time

Country
UK G83-2

1. In the main menu, use the button **SEL** to select **Country**.

2. Press the buttons **SEL** and **ENT** at the same time and hold them for at least 10 seconds.

→ For a few seconds the following message is displayed.

Inverter
Shut down

26/11/2014
14:05

3. Use the button **SEL** to select the entry with time and date.

To change the setting, press the button **ENT**.

→ The day is flashing.

26/11/2014
14:05

4. Use the button **SEL** to change the value.

To confirm your setting, press the button **ENT**.

→ The month is flashing.

26/11/2014
14:05

5. Repeat step 3 and 4 for each value.

→ After changing the value for the minutes, the flashing stops.

Exit ?
N / Y

6. Use the button **SEL** to select **Exit ?** and press the button **ENT** to finish.

Setting the baud rate

```
Country
UK G83-2
```

1. In the main menu, use the button **SEL** to select **Country**.

2. Press the buttons **SEL** and **ENT** at the same time and hold them for at least 10 seconds.

→ For a few seconds the following message is displayed.

```
Inverter
Shut down
```

```
Baud rate
19200
```

3. Use the button **SEL** to select **Baud rate** and press the button **ENT**.

```
9600
Next / Enter
```

4. Use the button **SEL** to select another baud rate.

To accept the selection, press the button **ENT**.

```
9600
N / Y
```

5. To confirm your selection, press the button **ENT**.

→ The new baud rate is shown.

```
Baud rate
9600
```

```
Exit ?
N / Y
```

6. Use the button **SEL** to select **Exit ?** and press the button **ENT** to finish.

13 Technical data

Input (DC)	RPI H4A	RPI H5A
Maximum recommended PV power ¹⁾	5000 W _P	6300 W _P
Maximum input power	4320 W	5280 W
Nominal power	4200 W	5250 W
Maximum power for each MPP tracker ²⁾	3200 W	3500 W
Input voltage range	100 ... 550 V _{DC}	
Maximum input voltage	600 V _{DC}	
Nominal voltage	350 V _{DC}	
Startup voltage	100 V _{DC}	
MPP operating voltage range	100 ... 550 V _{DC}	
MPP operating voltage range with maximum power		
Symmetrical load	180 ... 500 V _{DC}	220 ... 500 V _{DC}
Asymmetrical load	266 ... 500 V _{DC}	291 ... 500 V _{DC}
Max. ratio for asymmetrical load	80/20% ; 20/80%	70/30% ; 30/70%
Maximum input current; total (DC1 / DC2)	24 A (12 A / 12 A)	24 A (12 A / 12 A)
Maximum short circuit current in case of a failure	16.7 A	16.7 A
Number of MPP trackers	Parallel inputs: 1 MPP tracker; Separate inputs: 2 MPP trackers	
Number of DC inputs; total (DC1 / DC 2)	2 (1 / 1)	
Galvanic isolation	No	
Overvoltage category ³⁾	II	
Output (AC)	RPI H4A	RPI H5A
Maximum apparent power ⁴⁾	4000 VA	5000 VA
Nominal apparent power	4000 VA ⁵⁾	5000 VA ⁶⁾
Voltage range ⁷⁾	230 -20%/+22%, 1-phase (L, N, PE)	
Nominal current	17.3 A	21.7 A
Maximum current	18.2 A	23.2 A
Inrush current	30 A / 1 ms	
Maximum output fault current (rms)	20 A	32 A
Nominal frequency	50 / 60 Hz	
Frequency range ⁷⁾	50 ± 5 Hz / 60 ± 5 Hz	
Power factor adjustable	0.8 cap ... 0.8 ind	
Total harmonic distortion	<3%	
DC current injection	<0.25% at rated current	
Night-time consumption	<1 W	
Overvoltage category ³⁾	III	

¹⁾ When operated with symmetrical load (50/50%)

²⁾ At **MPP input voltage range with maximum power** for asymmetrical load

³⁾ IEC 60664-1, IEC 62109-1

⁴⁾ The maximum AC apparent power indicates the power an inverter is able to deliver. This maximum apparent power may not necessarily be reached.

⁵⁾ 3680 W for United Kingdom

⁶⁾ 4600 W for Germany

⁷⁾ AC voltage and frequency range will be programmed according to the individual country requirements.

Mechanical Design	RPI H4A	RPI H5A
Dimensions (W x H x D)	414 x 475 x 155 mm	
Weight	21 kg	
Cooling	Natural convection	
AC Connector type	Amphenol C16-3 2 + PE (C016 20E002 800 1)	
DC Connector type	Multi-Contact MC4	
Communication interfaces	2 x RS485, 1 x Dry contacts, 4 x Digital inputs	

General Specification	RPI H4A	RPI H5A
Delta model name	RPI H4A_120	RPI H5A_120
Delta part number	RPI402N55E0000	RPI502N55E0000
Maximum efficiency	97.5%	97.5%
EU efficiency	97.0%	96.8%
Total operating temperature range	-25 ... +60 °C	
Operating temperature range without derating	-25 ... +40 °C	
Storage temperature range	-25 ... +60 °C	
Relative humidity	0 ... 95 %, non-condensing	
Maximum operating altitude	2000 m above sea level	

Standards and Directives	RPI H4A	RPI H5A
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	EN 61000-3-12
Variations and flicker	EN 61000-3-3	EN 61000-3-11
Grid interfaces	See www.solar-inverter.com	

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France	support.france@solar-inverter.com	0800 919 816 (free call)
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