



“ It's all
in a stick

Solarnative PV System Balcony

Installation and operating instructions

Legal requirements

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Specifications are subject to change without notice.

Every effort has been made to prepare this document with the greatest care and to keep it up to date.

The latest version can be found at WWW.SOLARNATIVE.COM

Warranty

The warranty conditions at the time of purchase of the Solarnative PV system or Solarnative PV system components apply.

The current warranty conditions can be found at WWW.SOLARNATIVE.COM

Disclaimer

The Solarnative PV system was developed, produced and tested in compliance with all current norms and standards.

Great care has been taken in the preparation of this documentation. Nevertheless, errors cannot be ruled out. Solarnative GmbH accepts no liability or warranty for the compilation of the texts and illustrations in this document.

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1. Note on this document

1.1 Scope of validity

- Solarnative PowerStick Balcony 350 (PSB-350-xx)
- Solarnative IntelliGate Balcony (IGB-xx)
- Solarnative Connection Cable Balcony 0.8/2.0/5.0/10.0/15.0m (CCB-0.8-xx...CCB-15.0-xx)
- Solarnative Termination Cap (TC-xx)

1.2 Target group

This document is intended for specialists and end users.

The relevant national standards, regulations and technical rules apply to installation and operation.

1.3 Content and structure of the document

This document describes the installation, configuration, operation, troubleshooting, decommissioning and disposal of the system.

1.4 Warning levels

The following warning levels may occur when handling the Solarnative PV system Balcony.

⚠ DANGER

Indicates a warning which, if ignored, will lead directly to death or serious injury.

⚠ WARNING

Indicates a warning which, if ignored, could result in death or serious injury.

⚠ CAUTION

Indicates a warning which, if ignored, may result in minor or moderate injury.

ATTENTION

Indicates a warning that can lead to material damage if ignored.

1.5 Product names in the document

Complete name	Name in this document
Solarnative PowerStick Balcony	PowerStick Balcony
Solarnative IntelliGate Balcony	IntelliGate Balcony
Solarnative PV System Balcony	System
Solarnative Connection Cable Balcony	Connection Cable
Solarnative Termination Cap	Termination Cap
Solarnative App	App

1.6 Further information

Title	Description/Content
WP_NS-Protect_EN	Network and system protection (NS protection) in the Solarnative PowerStick Balcony
MD_P-Limit-Balcony_EN	Manufacturer's declaration on the power limitation of the Solarnative Balcony System
LD_SN-Warranty_EN	Solarnative Limited Warranty
LD_ToU_SN-App_EN	Terms of Use Solarnative App
CERT_EU-Conformity_EN	EU Declaration of Conformity

2. Safety

Important safety instructions!

This document contains important instructions for installing and operating the system.

2.1 Intended use

The PowerStick Balcony is a PV inverter that converts the direct current of a PV module into grid-compliant alternating current.

The PowerStick Balcony may only be operated with PV modules of Class II protection pursuant to IEC 61730, application Class A. The PV modules used must be suitable for use with the PowerStick Balcony.

The IntelliGate Balcony connects the PowerStick Balcony to the public grid and enables the system to be configured and monitored.

The system is suitable for indoor and outdoor use.

The permitted operating range and the installation requirements of all system components must be observed at all times.

The system may only be used in countries for which it is approved.

The information in this document must be observed. In addition, the respective applicable laws, regulations, provisions and standards at the installation site apply.

Modifications and conversions to the system that are not described in this document are expressly prohibited and will void the guarantee and warranty claims. Solarnative GmbH accepts no liability for such modifications. Any operation of the system other than the described intended purpose is considered improper use.

2.2 Safety instructions

DANGER

Danger to life due to electric shock! Use the system only in the manner specified by the manufacturer. Otherwise there is a risk of serious or fatal injury or damage to the equipment.

DANGER

Danger to life due to electric shock! Do not open any system components. Non-compliance could cause an electric shock.

DANGER

Danger to life due to electric shock! Do not loosen the screws on the system components. Non-compliance could cause an electric shock.

DANGER

Danger to life due to electric shock! Fire hazard! Do not attempt to repair the PowerStick Balcony or other system components. They do not contain any user-serviceable parts. In the event of a malfunction, contact Solarnative Customer Service. Non-compliance will invalidate the warranty.

DANGER

Danger to life due to electric shock! The installation instructions for the system must be observed. Non-compliance could cause an electric shock.

⚠ DANGER

Danger to life due to electric shock! Fire hazard! Do not leave the connectors on the PowerStick Balcony exposed and unprotected for long periods of time.

⚠ DANGER

Danger to life due to electric shock! The connection cable is not designed for installation in the ground or in permanently damp environments.

⚠ DANGER

Danger to life due to electric shock! Fire hazard! Ensure that all AC and DC wiring is free of defects and that no AC or DC cables are pinched or damaged.

⚠ DANGER

Danger to life due to electric shock! Ensure that all PowerStick Balcony connectors are closed with a connection cable or termination cap before connecting the mains plug. Open connectors are live when the system is connected to the mains.

⚠ DANGER

Danger to life due to electric shock! The system must only be operated from an earthed socket with a PE conductor. If in doubt, do not connect the system and consult a qualified electrician.

⚠ DANGER

Danger to life due to electric shock! Before working on the system, disconnect the mains plug and secure it against accidental reconnection. The DC connections must never be disconnected when mains voltage is present.

⚠ DANGER

Danger to life due to electric shock! Do not install the termination cap when the mains voltage is connected.

⚠ DANGER

Danger to life due to electric shock! The DC conductors for the PV system are not earthed and may be live.

⚠ WARNING

Before installing or using the system, read all instructions and warnings in this document, on the system components and other components for the PV system.

⚠ CAUTION

When light hits the PV modules, the connected PowerStick Balcony is supplied with energy.

⚠ CAUTION

Risk of burns from hot enclosure parts! Enclosure parts may become hot during operation. Touching hot enclosure parts can cause burns.

⚠ CAUTION

The PV module's maximum open-circuit voltage must not exceed the PowerStick Balcony's specified maximum DC input voltage.

⚠ CAUTION

When installing the connection cable, secure excess cable, e.g. with a cable tie, to minimise the risk of tripping.

ATTENTION

All system components must be installed in accordance with the instructions in this document to ensure safe operation and to fulfil the warranty conditions.

ATTENTION

All electrical installations must be carried out in accordance with the applicable laws, regulations, rules and standards at the installation site.

ATTENTION

Risk of damage to equipment! The system components must only be connected with the appropriate connectors.

ATTENTION

Risk of damage to equipment! Install the PowerStick Balcony under the PV module to protect it from rain, UV light and other weather conditions. Do not expose the AC and DC connectors to moisture before closing the connection.

ATTENTION

Risk of damage to equipment! The PowerStick Balcony is not protected against damage caused by moisture in the cable system. Never connect PowerStick Balcony units to connection cables that have been exposed to moisture in an unconnected state. Non-compliance will invalidate the warranty.

ATTENTION

Risk of damage to equipment! The PowerStick Balcony is only suitable for operation with technically compatible standard PV modules. Operation with deviating devices/systems could damage the PowerStick Balcony and make the operation of the system potentially dangerous. Non-compliance will invalidate the warranty.

ATTENTION

Risk of damage to equipment! If possible, install the IntelliGate Balcony in a dry and shaded location.

ATTENTION

Please observe the following when installing connection cables and accessories:

- No pressurised liquid may be directed at cable connections, plug connections or the termination cap.
- Cable connections, plug connections or the termination cap must not be permanently immersed in liquid.
- Cable and plug connections must not be subjected to continuous tensile stress (pulling or bending the cable near the plug/connector).
- The connection cable must be relieved of tension every 35 cm for horizontal installation and every 45 cm for vertical installation.
- Use only the system's connectors and cables.
- Only use system connectors and cables if they are undamaged.
- Do not install or operate the system in a potentially explosive environment.
- Avoid exposing the system components to open fire.
- It is mandatory to use the termination cap to seal the unused connector on the last PowerStick Balcony. No other method is permitted.

ATTENTION

If you roll up the connection cable into loops, the loops must be at least 10 cm in diameter.

ATTENTION

All installation procedures must be completed before connecting the system to the mains.

ATTENTION

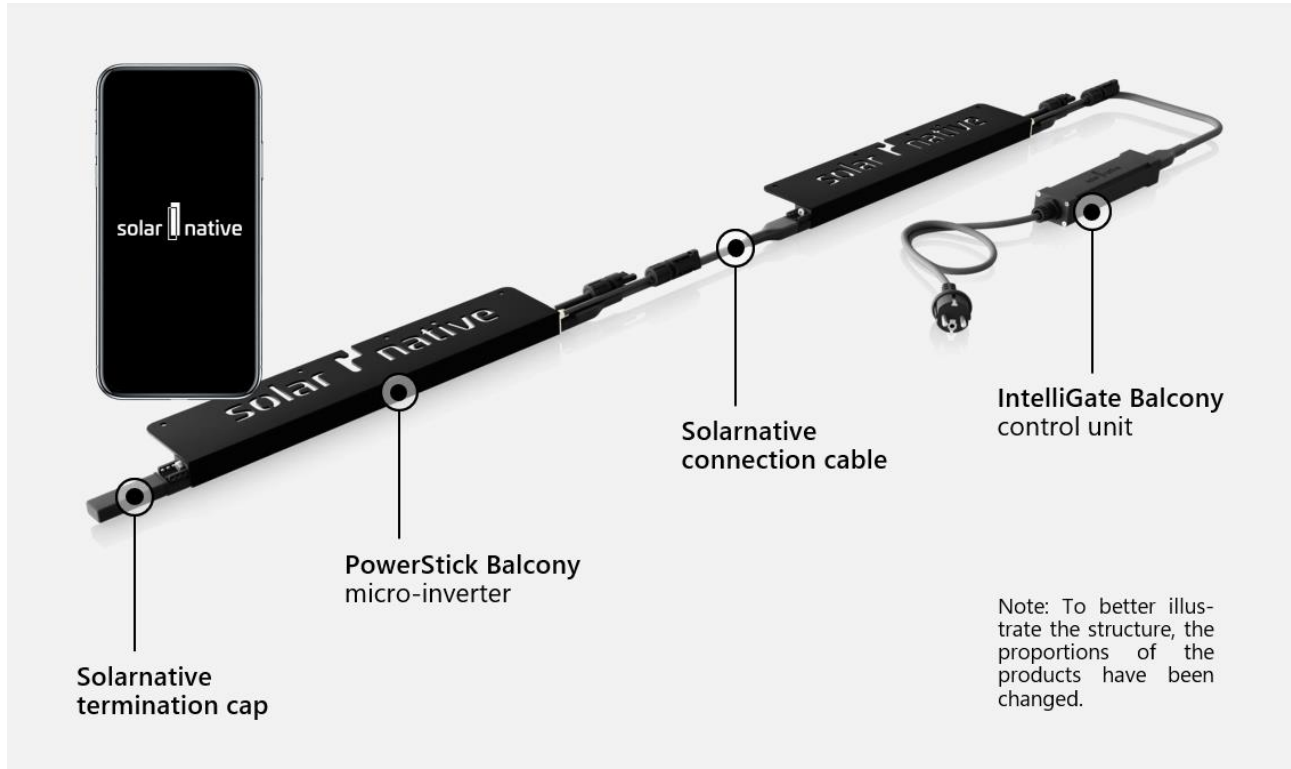
The system can be set to the grid parameters valid at the connection location via the app. Before commissioning the system, the country parameter set valid for the installation location and the maximum generation output must be set.

ATTENTION

Protection against lightning strikes and resulting overvoltage must comply with local standards.

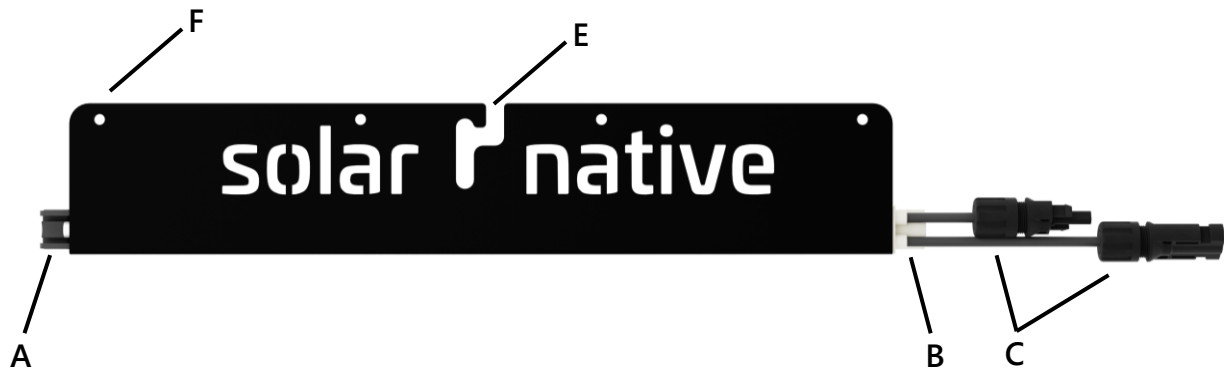
3. System overview

3.1 System description



Item	Description
PowerStick Balcony (PSB-350-xx)	Micro-inverter
IntelliGate Balcony (IGB-xx)	Control unit for recording, configuration and data visualisation of the PowerStick Balcony
Connection Cable Balcony (CCB-0.8-xx...CCB-15.0-xx)	Connection cable between two PowerStick Balcony or between PowerStick Balcony and IntelliGate Balcony
Termination Cap (TC-xx)	Termination cap for the last PowerStick Balcony in the system
App	App for commissioning and visualising the system

3.2 Product description: PowerStick Balcony



Position	Description
A	Connector (black) for connecting the connection cable (J, K) or the termination cap (L)
B	Connector (black) for connecting the connection cable (J, K) or the termination cap (L)
C	Stäubli MC4 plug connector (+/-) for connecting the PV module
E	Z-hole for mounting the PowerStick Balcony with an M8 screw (or similar)
F	Holes (4x) for mounting the PowerStick Balcony, e.g. with screws

3.3 Product description: IntelliGate Balcony



Position	Description
G	Connector for connecting the connection cable (J, K)
H	Schuko plug for connection to a socket outlet

3.4 Product description: Connection Cable Balcony



Position	Description
J + K	Connector for attaching to the PowerStick Balcony (A, B) or to the IntelliGate Balcony (G)

3.5 Product description: Termination Cap

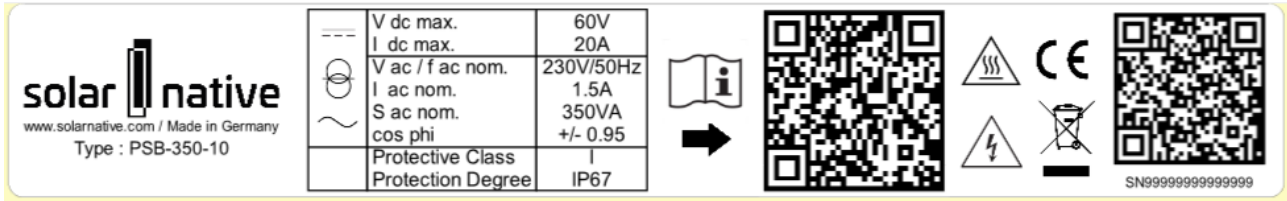


Position	Description
L	Connector for attaching to the PowerStick Balcony (A, B)

3.6 Symbols on the system products

Labels and markings are attached to the housing of the PowerStick Balcony and the IntelliGate Balcony. These labels and markings must not be changed or removed.

PowerStick Balcony:



IntelliGate Balcony:



Symbol	Description
	Transformer / Galvanic isolation
	Direct current
	Alternating current
	Danger from electric shock and electrical discharge
	Danger from burns
	Observe and read the installation and operating instructions. The installation and operating instructions are provided in digital form. Please scan the corresponding QR code.
	The appliance should not be disposed of with household waste. Observe the applicable regional regulations for disposal.
	CE marking: The product complies with the applicable EU requirements.

4. Preparation

4.1 General

- Please read and follow all instructions and warnings in this manual before installing the system.

4.2 Solarnative App

- Before installing a system for the first time, install the Solarnative App
- Register and set up your user account
- To download the app, scan the appropriate QR code or visit the Apple App Store or Google Play Store



Solarnative App for iOS



Solarnative App for Android

4.3 Module compatibility

The PowerStick Balcony 350 can be operated with the following PV modules:

Model	DC plug connector	Compatible modules
PSB-350-xx	MC4	All commercially available PV modules with: <ul style="list-style-type: none"> • max. open-circuit voltage (Uoc): 60 Vdc • max. short-circuit current (Isc): 20 Adc • max. module output (recommended): 440Wp

4.4 Number of PowerStick Balcony per IntelliGate Balcony

The maximum current-carrying capacity of the IntelliGate Balcony is 6 A (self-limiting). Depending on the maximum permitted feed-in power in consumer circuits, the IntelliGate Balcony limits the feed-in current to 2.6 A (600 W) or 3.5 A (800 W). We recommend the following system configuration:


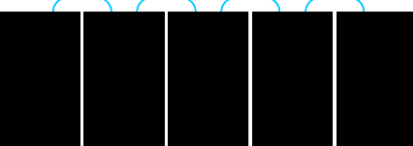
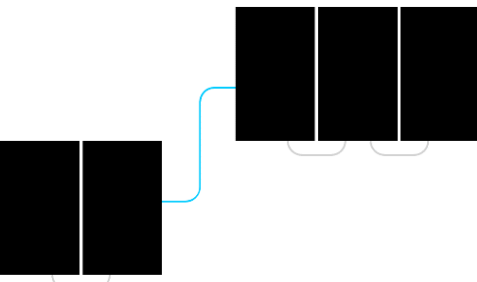
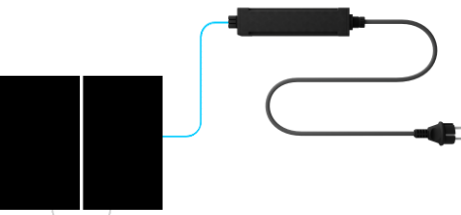
Model	Recommended maximum number of PowerSticks Balcony per IntelliGate Balcony according to module orientation	
	South	East/West/North
PSB-350-xx	3	5

4.5 Prepare Solarnative components

In addition to the PV modules and the mounting device, you will need the following Solarnative components:

Article	Article no.	Description
PowerStick Balcony	PSB-350-xx	One PowerStick Balcony per module
IntelliGate Balcony	IGB-xx	One IntelliGate Balcony per line → Keep the IntelliGate Balcony QR code in a safe place! → QR code is required to set up the system!
Termination Cap	TC-xx	A termination cap is required to terminate the last PowerStick Balcony per line (included with the IntelliGate Balcony)
Connection Cable Balcony	CCB-x.x-xx	See 'Correct selection of connection cables'

Correct selection of connection cables:

Module arrangement	Description of the	Article no.
	Connection of two PowerStick Balcony with modules arranged next to each other in landscape format → Connection Cable Balcony 2.00 m	CCB-2.0-xx
	Connection of two PowerStick Balcony with modules arranged next to each other in portrait format → Connection Cable Balcony 0.80 m	CCB-0.8-xx
	Bridging of obstacles or connection of PowerStick Balcony for other remote modules → Connection Cable Balcony 5.00 m → Connection Cable Balcony 10.00 m → Connection Cable Balcony 15.00 m	CCB-5.0-xx CCB-10.0-xx CCB-15.0-xx
	Connection of a PowerStick Balcony with the IntelliGate Balcony → Connection Cable Balcony 0.80 m → Connection Cable Balcony 2.00 m → Connection Cable Balcony 5.00 m → Connection Cable Balcony 10.00 m → Connection Cable Balcony 15.00 m	CCB-0.8-xx CCB-2.0-xx CCB-5.0-xx CCB-10.0-xx CCB-15.0-xx

4.6 Prepare other components

In addition to the Solarnative components listed above, we recommend the installation of the Solarnative Balcony System:

- Assembly tool (depending on the type of assembly)
 - Allen key set
 - Open-end or socket spanner set
 - Combination pliers + side cutters
- Optional: UV-resistant cable ties or metal cable ties for fastening the PowerStick Balcony, IntelliGate Balcony and Balcony Connection Cable

ATTENTION

For the installation and operation of the overall system, the instructions for the other system components and the instructions for the overall system must also be observed, if available.

4.7 Connecting the connection cable to the PowerStick Balcony and IntelliGate Balcony

- The connection cable must be plugged into the plug connectors on the PowerStick Balcony and IntelliGate Balcony in a defined direction (as shown).

<p>Connection cable to PowerStick Balcony (white connector)</p>	
<p>Connection cable to PowerStick Balcony (black connector)</p>	
<p>Connection cable to IntelliGate Balcony</p>	

- Make sure that the connection cable is engaged when plugged in. This can be checked by means of a counter-tension test.

ATTENTION

The connection cable can be plugged into the connector easily and without great force until it clicks into place. If this is not the case, check the plug-in direction.

ATTENTION

The plug connection is not protected against the ingress of dust and moisture if it is plugged in in the wrong direction. This can lead to malfunctions or irreversible damage to the device.

5. Installation and commissioning

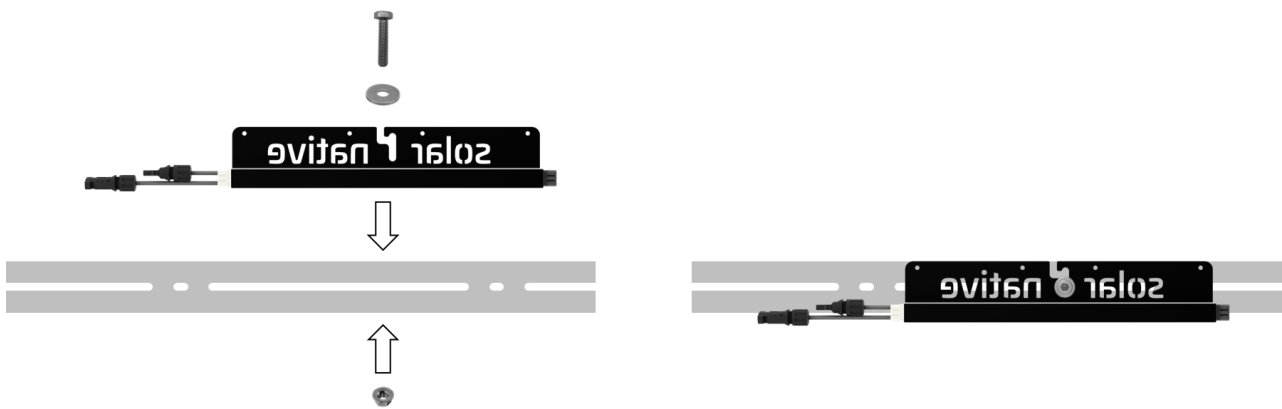
5.1 Mounting options for the PowerStick Balcony

ATTENTION

The housing body of the PowerStick Balcony must never touch the back of the PV module.

■ Substructure

The PowerStick Balcony can be attached to all standard substructure systems using an M8 screw and the corresponding system-specific adapter if required.



■ Construction elements of the balcony

The PowerStick Balcony can be attached to all structural elements of the balcony using a screw connection (M8 or other screws) or by using UV-resistant cable ties or metal cable ties.

■ **Module frame**

The PowerStick Balcony can be attached to the frame of the PV module using an M8 screw. There are different mounting options, depending on the height of the module frame.

Module frame height (measured outside)	Variant A	Variant B
Less than 35 mm	☑	☒
35 mm or higher	☑	☑

Variant A: PowerStick Balcony Housing body facing away from the PV module	Variant B: PowerStick Balcony housing body facing the PV module

5.2 Connection of the PV modules

- **When mounting the PowerStick Balcony on the module frame or the substructure**
 1. Mount the PowerStick Balcony on the module frame or the substructure on which the PV module was pre-mounted.
 2. Connect the MC4 connectors of the PV module to the matching MC4 connectors of the pre-assembled PowerStick Balcony.
 3. Attach the PV module to the balcony in accordance with the installation instructions for your PV system.
- **When mounting the PowerStick Balcony on structural elements of the balcony**
 1. Attach the PV module to the balcony in accordance with the installation instructions for your PV system.
 2. Mount the PowerStick Balcony on structural elements of the balcony. Ensure that the inverter is installed with maximum protection from the sun and other weather influences.
 3. Connect the MC4 plug connectors of the PV module to the matching MC4 plug connectors of the PowerStick Balcony.
- Proceed in the same way with the other PV modules.

⚠ DANGER

Danger to life due to electric shock! The DC conductors of the PV system are not earthed and may be live.

ATTENTION

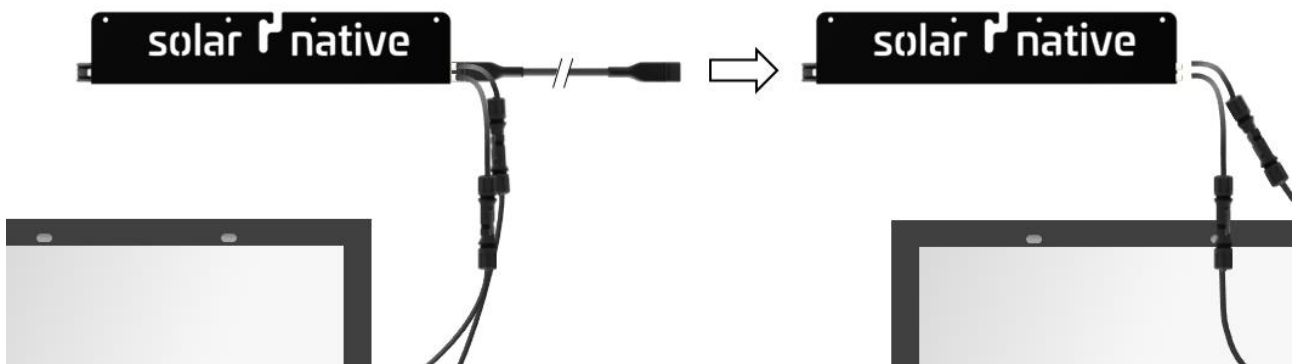
The MC4 plug connectors of the PowerStick Balcony may only be connected to the PV module with original MC4 plug connectors or plug connectors approved by Stäubli (e.g., MC4 Evo2).

ATTENTION

Always install the PowerStick Balcony so that it is protected from rain, UV light and other weather influences.

5.3 Connection PowerStick Balcony to PowerStick Balcony

- Connect two PowerStick Balcony units with a connecting cable of a suitable length.
- Always listen for the clicking sound when attaching the connectors.
- This step is not necessary for systems with only one PowerStick Balcony.



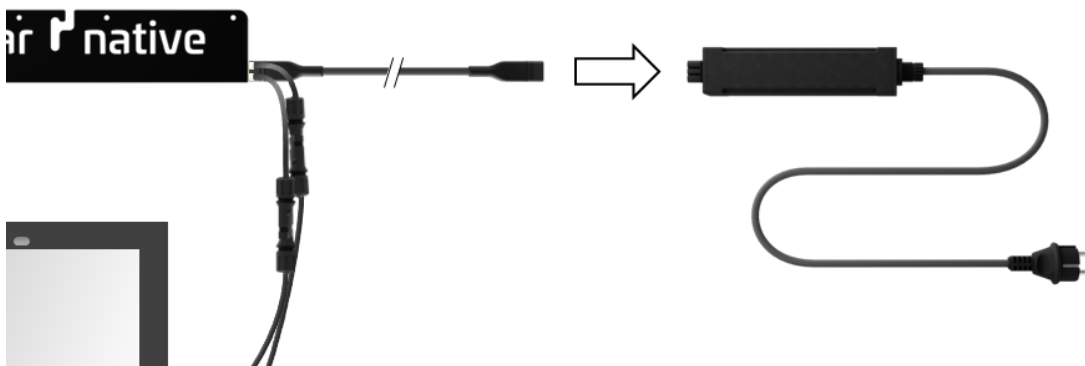
5.4 Termination of the strand

- Close the last PowerStick Balcony with a termination cap.
- Listen for the clicking sound when the cap clicks into place.



5.5 Connect IntelliGate Balcony

- Connect the first PowerStick Balcony in the string to the IntelliGate Balcony using a connecting cable of a suitable length
- Listen for the clicking sound when plugging in.



ATTENTION

At the end of the installation, check that all system plugs are closed by a cable or termination cap.

ATTENTION

Before connecting the IntelliGate Balcony to the load circuit, the power reserve of the load circuit must be determined. Please refer to 'Appendix A' to determine the power reserve.

ATTENTION

If circuit breakers are available: connect a maximum of 2.6 A (at 600 W) or a maximum of 3.5 A (at 800 W) per household to unlabelled sockets. The IntelliGate Balcony regulates the current of the system to the maximum permissible value depending on the set country parameters. If screw fuses are present: Replace the fuse according to the instructions.

ATTENTION

Always connect the IntelliGate Balcony to a permanently installed socket outlet! **Never connect to multiple sockets!**

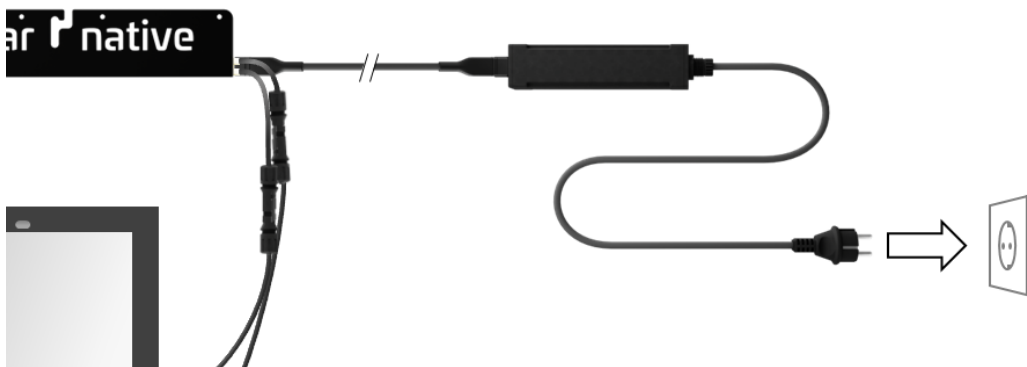
ATTENTION

Make sure that there is a sufficiently strong Wi-Fi signal at the connection point of the IntelliGate Balcony. If in doubt, choose a socket outlet for the IntelliGate Balcony connection that is in close proximity to your Internet router or use a Wi-Fi repeater.

ATTENTION

The system setup must be completed within 5 minutes of connecting the IntelliGate Balcony to the grounded socket. Otherwise, the setup process will be cancelled. The system setup process can be restarted at any time after cancellation. To do this, remove the IntelliGate Balcony from the grounded socket and reconnect it.

- Insert the grounded plug of the IntelliGate Balcony into the desired grounded socket.
- Ensure that the cables on the IntelliGate Balcony are not under tension (tensile load on the cable or bending of the cable near the plug/connector).

**ATTENTION**

When plugged in, the Schuko plug is protected against splashing water. Avoid direct water jets on the Schuko plug (hose, high-pressure cleaner, etc.).

5.6 Fixing the cables

- Secure loose cable sections or excess cable lengths to the substructure or balcony using cable ties.
- Lay and fix the connecting cables in such a way that the plug connectors are not subjected to any tensile stress or kinking.

5.7 Set up the system

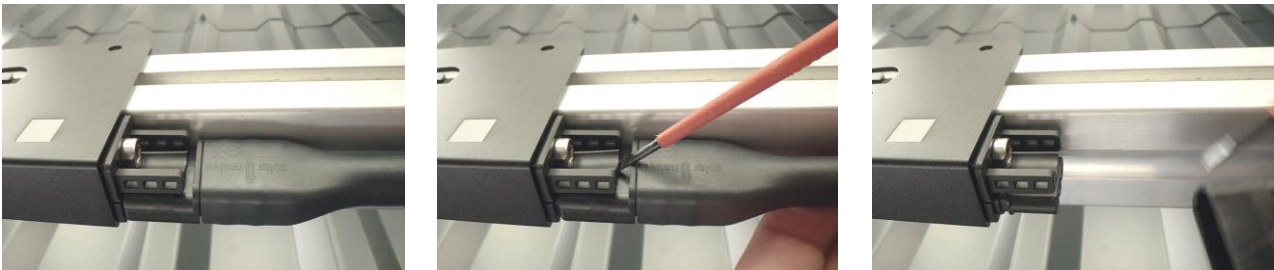
1. Open the Solarnative App and log in.
 2. Have the SSID and password for your Wi-Fi network ready.
 3. Tap the 'Add plant' button on the start screen.
 4. Create the system profile.
 5. Add the IntelliGate Balcony to the system.
 6. The app now opens the camera.
 7. Scan the QR code on the IntelliGate Balcony or on the sticker in the packaging of the IntelliGate Balcony.
 8. Follow the further steps to set up the system in the app.
- Further information on the app and its operation can be found at WWW.SOLARNATIVE.COM

5.8 Disconnecting a plug connection

A plug connection (connection cable, termination cap) can be disconnected using a flat-blade screwdriver or the Solarnative separating tool (PT-10, see right).



A: Disconnect the plug connection with a slotted screwdriver.



- To disconnect the connection, use a flat-blade screwdriver to slightly lift the latching lug on the PowerStick Balcony plug from the direction shown in the pictures.
- The flat-blade screwdriver rests against the connector housing on the connection cable or the termination cap.
- Once the latching lug has been lifted, the connection cable or termination cap can be removed.

ATTENTION

Lifting the latching lug too much can cause the latching lug to break off. In this case, the connection cable can no longer engage securely. A PowerStick Balcony with a broken latching lug must be replaced.

B: Disconnect the plug connection with the Solarnative separating tool (PT-10).



- To disconnect the connection, the flat, 4 mm wide tip of the separating tool must be inserted between the inserted cable/termination cap and the latching lug of the PowerStick Balcony plug.
- The separating tool can only be inserted in the direction shown in the pictures.
- If the separating tool can only be inserted with great resistance, the wrong side has been selected for insertion.
- After insertion, the connection cable or termination cap can be removed.
- Please keep the separating tool after installing the Solarnative Balcony System.
- The separating tool is included in every IntelliGate balcony package (beginning Q1/2024).
- Please check the packaging for the separating tool before disposing of it.

6. Decommissioning

- Pull the grounded plug on the IntelliGate Balcony out of the grounded socket.
- The system is de-energised after 0.2 seconds.

7. Re-Provisioning

- Delete the IntelliGate Balcony from the device list in the app.
- Pull the grounded plug on the IntelliGate Balcony out of the grounded socket and reconnect it.
- You now have 5 minutes to re-provision the IntelliGate Balcony. To do this, please start the process for adding a new device to a plant in the app.

8. Information on disposal and recycling

The symbol of the crossed-out wheeled bin means that this product must be disposed of separately from household waste. As the end user, you are obliged to dispose of the product separately in accordance with national regulations, such as by taking it to an official recycling centre.

It is also possible to return them to a retailer if the distributor offers to take them back voluntarily or is legally obliged to do so.

Separate collection makes a valuable contribution to protecting the environment and human health, as the proper treatment of old appliances avoids potentially negative effects caused by the presence of hazardous substances on the one hand and conserves raw materials by recovering them on the other.

Please also note that waste avoidance makes an even more valuable contribution to environmental protection. Therefore, if possible, in addition to continuing to use or repair the product yourself, handing it over to a second user is also an ecologically valuable alternative to disposal.

Solarnative WEEE-Reg.-No. DE 90568609



9. Troubleshooting

Information on the Solarnative Balcony System and troubleshooting support can be found in our knowledge database at WWW.SOLARNATIVE.COM/SERVICE

10. Technical Data

10.1 Solarnative PowerStick Balcony

Input (DC)	PSB-350-10
Recommended module power	Up to 440 Wp
DC connector	Stäubli MC4
MPP voltage range	25 V–60 V
Start input voltage	15 V
Max. voltage	60 V
Max. current	15 A

Output (AC)	PSB-350-10
Rated power (@ 230 V, 50 Hz)	350 W
Rated apparent power	350 VA
Nominal voltage / Grid frequency	230 V / 50 Hz
Max. current	1.5 A
Max. power factor	> 0.99
Adjustable power factor	0.95 overexcited to 0.95 underexcited
Overvoltage class	II
Feed-in phases / Connection phases	1 / 1
NS-protection	Integrated

Efficiency	PSB-350-10
Max. efficiency / European efficiency	> 96.5 % / > 96 %

General Data	PSB-350-10
Ambient temperature range	-40 °C to +65 °C
Dimensions incl. AC connectors / w/o DC connectors (length x width x height)	440 mm x 75 mm x 24 mm
Weight	530 g
Cooling	Natural convection
Degree of protection	IP67
Protection class	I
Noise emission	< 40 dB

Compliance	PSB-350-10
Certifications (pending)	CE, VDE-AR-N 4105:2018 / DIN VDE V 0124-100:2020

For an actual overview of the countries in which the Solarnative Balcony System can be used, see: WWW.SOLARNATIVE.COM/CERTIFICATIONS

10.2 Solarnative IntelliGate Balcony

Connections		IGB-10/-11
Inverters	Solarnative AC connector for Connection Cable Balcony	
Max. input current	6 A, self-regulated system, max. feed-in power adjustable	
Grid connection	Schuko plug, incl. 0.5 m cable	
Nominal grid voltage / frequency	230 V / 50 Hz	
Overvoltage Class	II	

Connectivity		IGB-10/-11
Inverter	Power-line communication	
Cloud server	Wi-Fi	

General Data		IGB-10/-11
Ambient temperature range	-40 °C to +85 °C	
Dimensions w/o cable / Schuko plug (length x width x height)	210 mm x 41.8 mm x 28.8 mm	
Weight	270 g	
Protection degree	IP67	
Protective class	II	
Own consumption	< 1 W	
Noise emission	< 40 dB	

Compliance		IGB-10/-11
Certifications (pending)	CE, EN IEC 62368-1:2020 + A11:2020	

For a current overview of the countries in which the Solarnative Balcony System can be used, see: WWW.SOLARNATIVE.COM/CERTIFICATIONS

10.3 Solarnative Connection Cable Balcony

General Data	CCB-x.x-10
Rated voltage	1,000 V
Ambient temperature range	-40 °C to +105 °C
Cable type	UL 2586 (CE certified)
Cable cross section	AWG 18 (3 x 0.82 mm ²)
Degree of protection	IP67
Flame rating	UL 1581 (VW-1)
UV resistance	Yes
Outer diameter	7.65 mm +/- 0.2 mm
Bending radius	Min. 50 mm
Conductor resistance	Max. 23.2 Ω/km @ +20 °C
Outer size AC connector (width x height)	23 mm x 14 mm
Compliance	EN 50525-1:2011, IEC 60227-1:2007, IEC 60227-2:2003, IEC 60227-3:1997, IEC 60227-5:2011, UL 9703, RoHS

Item number	Phases	Rated current (@ +25 °C)	Length	Weight
CCB-0.8-10	Single-phase	6 A	0.82 m +/- 20 mm	0.1 kg
CCB-2.0-10	Single-phase	6 A	2.02 m +/- 20 mm	0.2 kg
CCB-5.0-10	Single-phase	6 A	5.05 m +/- 50 mm	0.45 kg
CCB-10.0-10	Single-phase	6 A	10.08 m +/- 80 mm	0.9 kg
CCB-15.0-10	Single-phase	6 A	15.10 m +/- 100 mm	1.2 kg

For a current overview of the countries in which the Solarnative Balcony System can be used, see: WWW.SOLARNATIVE.COM/CERTIFICATIONS

10.4 Solarnative Balcony System

System	Solarnative Balcony System
Max. current per system	6 A
Number of inverters per system	Max. 4 inverters. Self-regulated system. Max. feed-in power adjustable according to local regulations. No minimum number of inverters.
System components	PowerStick Balcony, Connection Cable Balcony, Termination Cap, IntelliGate Balcony
Connectivity	IntelliGate Balcony to PowerStick Balcony: Power-line communication IntelliGate Balcony to Cloud Server: Wi-Fi

11. Accessories and spare parts

Name	Type designation	Description
Solarnative PowerStick Balcony 350	PSB-350-xx	Inverter
Solarnative IntelliGate Balcony	IGB-xx	Device for data acquisition and power control
Solarnative Termination Cap	TC-xx	Termination cap for PowerStick Balcony
Solarnative separating tool	PT-xx	Tool for disconnecting the Solarnative Connection Cable or the Solarnative Termination Cap
Solarnative Connection Cable Balcony 0.8 m	CCB-0.8-xx	0.8 m connection cable for attaching the PowerStick Balcony to the PowerStick Balcony/IntelliGate Balcony
Solarnative Connection Cable Balcony 2.0 m	CCB-2.0-xx	2.0 m connection cable for attaching the PowerStick Balcony to the PowerStick Balcony/IntelliGate Balcony
Solarnative Connection Cable Balcony 5.0 m	CCB-5.0-xx	5.0 m connection cable for attaching the PowerStick Balcony to the PowerStick Balcony/IntelliGate Balcony
Solarnative Connection Cable Balcony 10.0 m	CCB-10.0-xx	10.0 m connection cable for attaching the PowerStick Balcony to the PowerStick Balcony/IntelliGate Balcony
Solarnative Connection Cable Balcony 15.0 m	CCB-15.0-xx	15.0 m connection cable for connection cable for attaching the PowerStick Balcony to the PowerStick Balcony/IntelliGate Balcony

12. EU Declaration of Conformity

Within the meaning of the EU directives governing

- General product safety 2001/95/EC
- Low voltage 2014/35/EU (LVD)
- Electromagnetic compatibility 2014/30/EU (EMC)
- Radio equipment 2014/53/EU (22.5.2014 L 153/62) (RED)
- Restriction of the use of certain hazardous substances 2011/65/EU (08.06.2011 L 174/88) and 2015/863/EU (31.03.2015L 137/10) (RoHS)

Solarnative GmbH hereby declares that the Solarnative PV system described in this document complies with the essential requirements and other relevant provisions of the above-mentioned directives.

You can find the complete EU Declaration of Conformity at WWW.SOLARNATIVE.COM

13. Service

If you have technical problems with our products, please contact Solarnative Service:

WWW.SOLARNATIVE.COM/SERVICE

Appendix A: Determining the line reserve

Balcony PV systems feed into the existing consumer circuit. The maximum current-carrying capacity of the line may be exceeded on individual line sections.

Each line is protected by a circuit breaker. This switches off automatically as soon as a line overload occurs. Typically, several sockets and loads are protected by a common circuit breaker.

Due to the additional power of the balcony PV system, the currents from the public power supply network and the balcony PV system can add up. The current from the balcony PV system is not detected by the circuit breaker, which can lead to a line overload.

The following formula can be used to easily determine whether the existing line with the existing circuit breaker is sufficiently dimensioned:

$$I_z = I_n + I_g$$

I_z indicates the permissible current-carrying capacity of the line, which should be greater than the sum of the rated current of the protective I_n (circuit breaker) device and the I_g balcony PV system.

The following table shows an example use case:

Load capacity of copper cables and lines for fixed installations in buildings with a nominal cross-section of 1.5 mm ² at an ambient temperature of 25 °C and with 2 loaded cores.				
With a larger cross-section or a different type of cable, the permissible current-carrying capacity is different, so that this must be considered separately in accordance with DIN VDE 0298-4.				
Installation type	On thermally insulated walls	In electrical installations	On walls	In the air
Current-carrying capacity I_z	16.5 A	17.5 A	21 A	23 A
Line reserve ($I_z - I_n$) with a 16 A line circuit breaker	0.5 A	1.5 A	5 A	7 A
Line reserve ($I_z - I_n$) with a 13 A line circuit breaker	3.5 A	4.5 A	8 A	10 A
Solarnative PowerStick Balcony (PSB-350-xx)	1x (350 W)	2-4x (600 W limited)	2-4x (800 W limited)	
Max. rated current I_g	1.5 A	2.6 A	3.5 A	

In the example, the cable is designed for a continuous load of 16.5 A (in thermally insulated walls at 25°C). The cable reserve results from the difference between the current-carrying capacity (I_z) of the cable with 16.5 A, minus the circuit breaker with 16 A (I_n). The cable reserve in thermally insulated walls is therefore 0.5 A. If the rated current I_g of the balcony power station exceeds the line reserve of 0.5 A, the line circuit breaker should be replaced with a smaller one in order to comply with the requirements of the DIN VDE 2948-4 standard. By replacing the 16 A circuit breaker with a 13 A circuit breaker, only 13 A can now be drawn from the public power supply network, resulting in a line reserve of 3.5 A and a balcony power station with up to 800 W generation power can be connected to the consumer circuit.

