

Photovoltaics

Solutions for Photovoltaic Utility Scale Systems

Operate large-scale PV systems more efficiently



Weidmüller 

Solutions for your PV value chain

Weidmüller is a solution provider for connectivity cabinets and communication infrastructure

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Tested & proven

Our PV boxes are designed and tested to withstand extreme climate fluctuations. See for yourself in our video straight from our lab.



Our offering



Connection & Combination

Connection & Combination of PV strings from field or array



Protection

Protection against surges and touching



Monitoring

Monitoring of string performance and component status

Your benefits at a glance



Standard models available in stock

Tailor-made solutions with only 4 weeks of delivery time



5 years warranty

We increase the warranty period due to the high quality of our combiner boxes



Spare parts on stock

Easy supply for O&M companies



Easy commissioning & maintenance

Products designed to reduce installation time and cost as well as future maintenance



Logistic savings

Global production locations allow cost- and time-optimised production and supply



Online selection tool

Online tool to choose the best model for each application



1.1

PV DC Combiner Boxes Central Inverter Concept

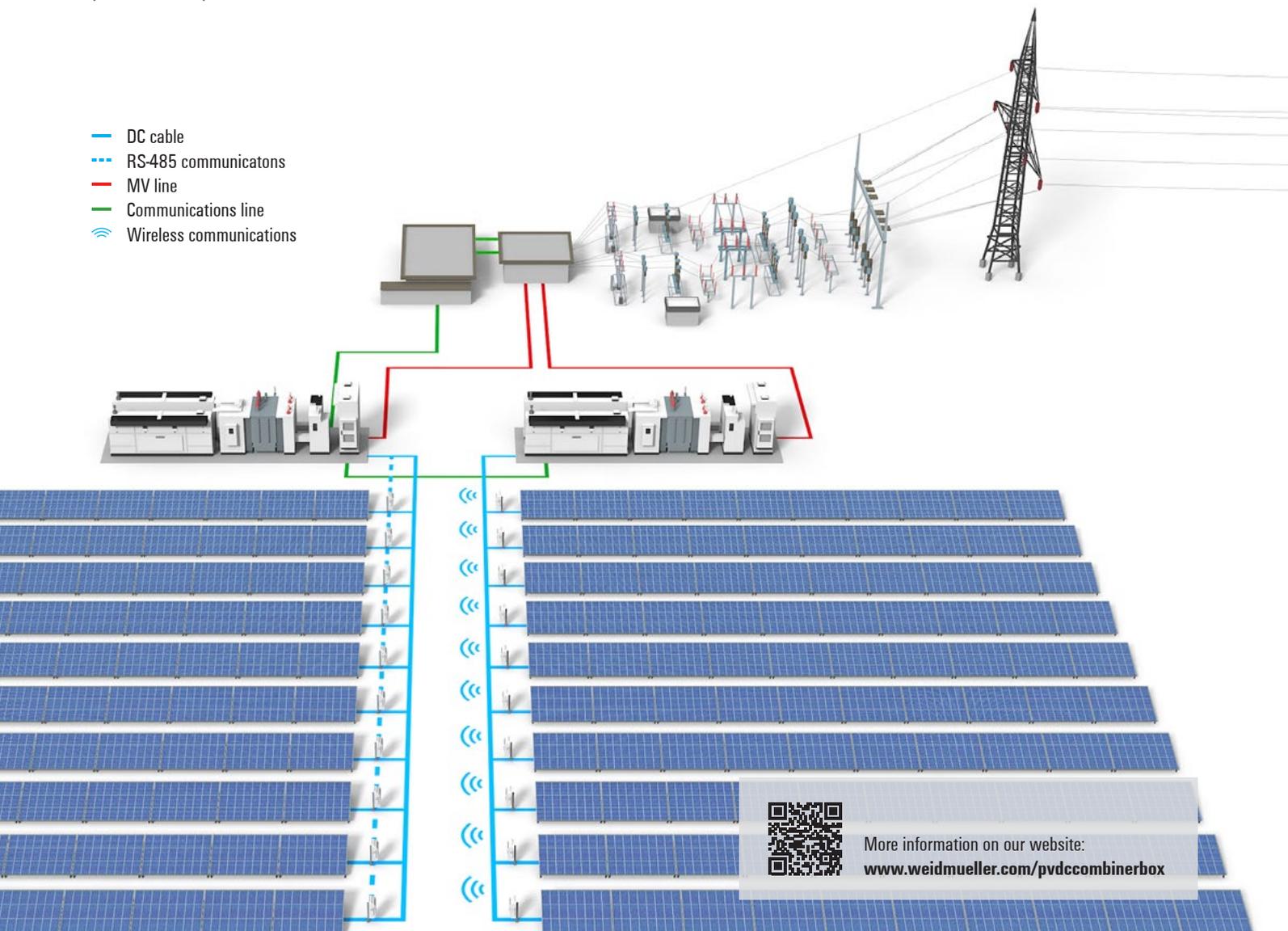
Bundle, protect and combine PV strings efficiently

Our DC combiner boxes offer users the possibility to integrate short-circuit and overvoltage protection, as well string monitoring solutions (I, V, T and SPD and switch isolator status), for PV systems using central inverters with PV panels in trackers and fix tilt systems.

Weidmüller offers a trackrecord of DC combiner boxes higher than 250.000 units sold in all climate regions of the planet for more than 15 years. The experience and expertise in the DC engineering is used to provide high-end solutions covering the CAPEX and OPEX needs of the customer. Models equipped with string monitoring provide additional performance with voltage, current and temperature measurement as well as SPD health and DC switch status. This helps to improve PR of plants and optimises the ROI.



- DC cable
- - - RS-485 communicatons
- MV line
- Communications line
- ⊞ Wireless communications



More information on our website:
www.weidmueller.com/pvdccombinerbox

Key features & benefits

- **Optimised design** – By using advanced simulation 3D softwares, the product variants have been designed and tested to operate at the maximum mechanical and thermal efficiency in the most compact housing size.
- **All technical data available online with 1-click** – Weidmüller offers web tools to support on the selection of the best model for your application. Technical data and certifications are available in the Weidmüller online catalogue.
- **Cost-optimised variants** – With the new product line cost optimised models with special accessories were designed which cover the most common applications in PV power plants.
- **Longer lifetime** – DC engineering expertise implemented in designs to allow longer lifetime and higher performance under extreme climatic conditions.
- **Better LCOE and ROI** – Product trackrecord, bankability and reputation of our solutions simplify product due diligences, insurance contracts and even to increase value of the asset in case it is sold in the future.

Technical data: PV DC Combiner Boxes

Main application features	
Inputs	from 8 to 32
Outputs	1-2
Operating ambient temperature	-20°C up to 50°C
DC earthing system	Floating, negative grounded or positive grounded
Installation location	Protected outdoors
Altitude above the sea level	up to 2000m (standard) higher altitude on demand
Main electrical features	
Rated DC voltage	from 1000 V DC up to 1500 V DC
Rated DC current per input	up to 48 A
Maximum fuse size	up 35 A for 10x85 mm up 75 A for 22x58 mm
Protection against overcurrent	gPV fuses according to IEC 60269-6
Fuses	On both poles or on one pole
Switch disconnecter	Yes
Switch disconnecter rating	up to 500 A (other options on demand)
Enclosure	
Enclosure material	GFRP (Glass Fiber Reinforced Polyester)
Enclosure shape	Portrait or Landscape
Enclosure fixing system	Wall mounted, pedestal or piling fixation
Degree of protection	IP65
Form factor	Cabinet with hinged door
Polycarbonate protection plate	Yes (optional)
Surge protections	
Surge protection device	Type I+II or Type II
Auxiliary contacts	Yes (optional)
Surge protection on RS-485 ports	Yes (optional)
String monitoring	
String monitoring device	Yes (optional)
Main monitored parameters	Voltage, current, temperature, SPD status, switch isolator status and auxiliary alarms
Voltage measurement	from 200 V DC up to 1500 V DC
Current measurement	up to 50 A per string/input
Communication port	RS-485 or wireless (LoRAWAN)
Protocol	Modbus/RTU
Power supply for string monitoring device	DC/DC converter (self powered string monitoring)
Others	
Input connectors	WM4 C PV connectors or cable glands (other options on demand)
Standards	
Standards	IEC 61439-2 ED 3 / EN61439-2:2021

1.2 PV Floating DC Combiner Boxes

Floating Solar Installations

Collect, protect and monitor DC strings in extreme environments

The lack of land requires the development of new locations for PV systems. In this case, water surfaces are particularly suitable because of the low shading and the cooling effect of the water. However, the ambient conditions place high demands on the generator connection boxes.

Our PV DC Floating Combiner Boxes are designed for use in floating PV systems on freshwater surfaces and equipped with central inverters. They comply with IEC-61439 (ed. 2) and withstand high humidity, corrosive atmosphere and exposure to sunlight. We offer a wide range of plug & play variants from 8 to 24 inputs - with comprehensive protection and suitable covering solutions and DC switch status. This helps to improve PR of plants and optimises the ROI.



Key features & benefits

- **Absorbing aluminum alloy sunshade** – The specially developed aluminum 5457 (with magnesium) sunshade absorbs incident solar radiation and heat. Its surface finishing increases the reflection index and efficiently deflects the incident radiation. This reduces the temperature inside the combiner box very effectively.
- **Reliable sealing function** – The aluminum cover is fixed to the enclosure door with stainless steel blind rivets. The rivets are located outside the area of the door seal, so that the sealing function according to IP65 is reliably guaranteed at all times.
- **Ensured ventilation** – An air gap between the door housing and the aluminum alloy cover ensures constant air convection. In this way, the combiner box and its components are reliably cooled.
- **Optimum watertightness** – Multivita cable glands ensure optimum watertightness. They reduce the number of mechanical parts and make the entire construction more robust.



More information on our website:
www.weidmueller.com/pvfloating



Ensured quality

Watch our video and see how our PV Floating DC Combiner Boxes are manufactured.



Easy connection - low maintenance

Due to the pre-assembled Aluminium cover, our combiner boxes do not require any additional preparation work during installation. The innovative PV connection makes the entire solution plug-and-play. Our combiner boxes are made of GFRP and therefore do not need to be repainted regularly. A decisive advantage over metal housings.



Suitable for high humidity

PV-DC floating combiner boxes are specially designed for Severity Class B environments according to IEC 61439 (ed. 2). Therefore, they are suitable for operation in extremely humid and corrosive environments.



Suitable for direct sunlight

PV-DC floating combiner boxes can be operated in direct sunlight without the need to install an additional sunshield. The pre-mounted aluminum cover improves the performance of the system.



Suitable for PV systems in freshwater

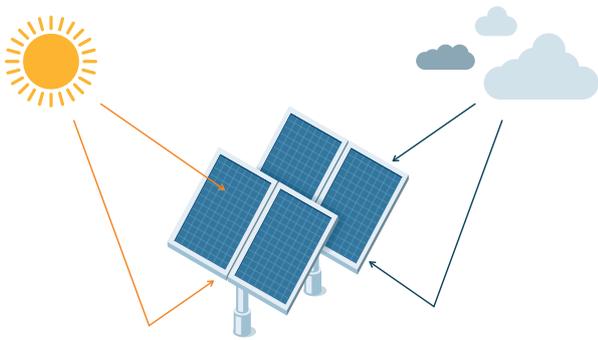
The PV DC Floating Combiner Boxes can be operated in floating PV systems on freshwater surfaces. They have been extensively tested and are certified for long-term operation under these specific environmental conditions.

1.3

PV DC Combiner Boxes for High Power Panels Central Inverter Concept & High voltages

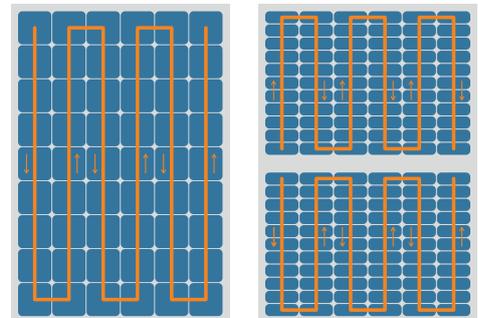
Compact and durable solutions for bifacial half-cell modules

Bifacial solar panels have solar cells on both the front and the back of the panel. This allows the solar energy to be collected on the back of the panel and increases the energy yield of the solar energy system. Our four new PV-DC combination boxes for bifacial half-cell modules allow a higher current consumption due to the fuse holders used.



Space optimized and higher reliability

Increasing the power of PV panels (mono and bifacial) with half-cut cells leads to a rise of current in the strings. The need for higher rated fuses is then mandatory and requires a new approach to system design. Our new designs of PV DC high current combiner boxes offer easy adaptation and time saving for new developments.



Key features & benefits

- **Standard options in stock ready to order** – A wide range of solutions, available for immediate order from stock to fit into the installation concepts with the brands of PV modules presented above. Variants: With 6 and 8 inputs, with fuse protection in (+/-) poles and with gPV fuses from of 22x58 mm format and a rated current per fuse between 35 A up to 75 A.
- **Overvoltage protections** – With several configurations, Weidmüller offers the VPU surge protection series for 1500 V DC systems with up to 11 kA I_{sc} and Type I+II or Type II variants.
- **Optimised design** – Through the use of advanced 3D simulation software, the product variants have been designed and tested to operate with maximum mechanical and thermal efficiency in the most compact enclosure possible.
- **Special Fuse protection** – Weidmüller fuses (WSFL) and fuse holders (WSFH) have been specially developed for this new architecture. Rated currents of 35 to 75 A per input enable the connection of single and double strings.

Ordering data for DC Combiner Boxes

PV DC Combiner Boxes

Type	Inputs	Fuse Protection	Max Fuse Rate	Max Isc	Fuse Included	String Monitoring	Type of enclosure	Enclosure Size	Max Oper. Temp	Order No.
PV 212SOF3CXXV000TXPX15PWW	12	Both Poles	30 A	17 A	No	No	Portrait	747 x 536 x 300 mm	45°C	8000112693
PV 212SOF3CXXV000TA1PA15PWW	12	Both Poles	30 A	17 A	No	Yes	Portrait	847 x 636 x 300 mm	45°C	8000115422
PV 214SOF3CXXV000TXPX15PWW	14	Both Poles	32 A	20 A	No	No	Portrait	847 x 636 x 300 mm	45°C	8000124304
PV 216SOF4CXXV000TXPX15LWW	16	One Pole	25 A	16 A	No	No	Landscape	536 x 747 x 300 mm	40°C	8000078885
PV 216SOF3CXXV000TXPX15PWW (*)	16	Both Poles	32 A	19.5 A	No	No	Portrait	835 x 635 x 300 mm	45°C	8000124309
PV 216SOF3CXXV000TXPX15LWW	16	Both Poles	30 A	18 A	No	No	Landscape	636 x 847 x 300 mm	45°C	8000119547
PV 216SOF3CXXV000TAPX15LWW (*)	16	Both Poles	25 A	14 A	No	Yes	Landscape	636 x 847 x 300 mm	45°C	8000093503
PV 216SOF3CXXV000TXPX15PWW	16	Both Poles	25 A	14 A	No	No	Portrait	747 x 536 x 300 mm	45°C	8000078118
PV 218SOF3CXXV000TXPX15PWW	18	Both Poles	30 A	18 A	No	No	Portrait	835 x 635 x 300 mm	45°C	8000124306
PV 220SOF4CXXV000TXPX15PWW	20	One Pole	25 A	14 A	No	No	Portrait	747 x 536 x 300 mm	45°C	8000078883
PV 220SOF4CXXV000TAPX15PWW	20	One Pole	30 A	18 A	No	Yes	Portrait	835 x 635 x 300 mm	45°C	8000093501
PV 220SOF3CXXV000TXPX15LWW	20	Both Poles	30 A	17 A	No	No	Landscape	636 x 847 x 300 mm	45°C	8000119548
PV 220SOF3CXXV000TXPX15PWW (*)	20	Both Poles	30 A	17 A	No	No	Portrait	835 x 635 x 300 mm	45°C	8000124332
PV 220SOF3CXXV000TA1PA15LWW (*)	20	Both Poles	25 A	15 A	No	Yes	Landscape	636 x 847 x 300 mm	45°C	8000119550
PV 224SOF3CXXV000TXPX15LWW	24	Both Poles	25 A	14 A	No	No	Landscape	636 x 847 x 300 mm	45°C	8000078884
PV 224SOF3CXXV000TXPX15PWW (*)	24	Both Poles	25 A	14 A	No	No	Portrait	847 x 636 x 300 mm	45°C	8000078882
PV 224SOF3CXXV000TAPX15PWW	24	Both Poles	25 A	13 A	No	Yes	Portrait	847 x 636 x 300 mm	45°C	8000093500
PV 224SOF3CXXV000TAPX15LWW (*)	24	Both Poles	25 A	14 A	No	Yes	Landscape	636 x 847 x 300 mm	45°C	8000093502
PV 224SOF4CXXV000TXPX15PWW	24	One Pole	25 A	14 A	No	No	Portrait	847 x 636 x 300 mm	45°C	8000068263
PV 224SOF3CXXV000TXPX15PWW	24	Both Poles	30 A	17.5 A	No	No	Portrait	1056 x 852 x 350 mm	45°C	8000124311
PV 224SOF3CXXV000TA1PA15PWW	24	Both Poles	30 A	17.5 A	No	Yes	Portrait	1056 x 852 x 350 mm	45°C	8000124310
PV 232SOF4CXXV003TXPX15PWW	32	One Pole	20 A	10 A	No	No	Portrait	847 x 636 x 300 mm	50°C	8000060710

PV Floating DC Combiner Boxes

Type	Inputs	Fuse protection	Rated voltage	String monitoring	Type of enclosure	Enclosure size	Qty.	Order No.
PV 216SOF3CXXV003T7P015PFJP	16	Both Poles	1500 V DC	Integrated Monitoring System	Portrait	847 x 636 x 300 mm	1	8000057079
PV 216SOF3CXXV003TXPX15PFJP	16	Both Poles	1500 V DC	No	Portrait	847 x 636 x 300 mm	1	8000057080
PV 218SOF0C15V003TXPX15PFWW	18	Both Poles	1500 V DC	No	Portrait	847 x 636 x 300 mm	1	8000057083
PV 220SOF3CXXV003TXPX15PFJP	20	Both Poles	1500 V DC	No	Portrait	847 x 636 x 300 mm	1	8000057081
PV 224SOF1C15V003TXPX15PFWW	24	One Pole	1500 V DC	No	Portrait	847 x 636 x 300 mm	1	8000057088
PV 224SOF1C15V003T7P015PFWW	24	One Pole	1500 V DC	Integrated Monitoring System	Portrait	847 x 636 x 300 mm	1	8000057085
PV 224SOF3CXXV003TXPX15PFJP	24	Both Poles	1500 V DC	No	Portrait	847 x 636 x 300 mm	1	8000057077

PV DC Combiner Boxes for High Power Panels

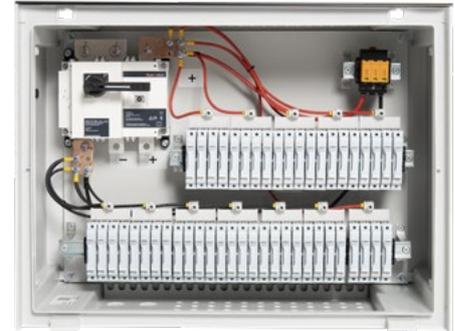
Type	Inputs	Rated voltage	Max Isc per input	String monitoring	Enclosure size	Qty.	Order No.
PV 206SOF3CXXV000TXPX15LWW	6	1500 V DC	22 A	No	636 x 847 x 300 mm	1	8000081269
PV 208SOF3CXXV000TXPX15LWW	8	1500 V DC	21 A	No	747 x 536 x 300 mm	1	8000081271
PV 208SOF3CXXV000TXPX15LWW	8	1500 V DC	32 A	No	636 x 847 x 300 mm	1	8000081272
PV 206SOF3CXXV000TAPA15LWW	6	1500 V DC	25 A	Integrated Monitoring System	636 x 847 x 300 mm	1	8000101211
PV 208SOF3CXXV000TAPA15LWW	8	1500 V DC	25 A	Integrated Monitoring System	636 x 847 x 300 mm	1	8000101212
PV 210SOF3CXXV000TAPA15LWW	10	1500 V DC	25 A	Integrated Monitoring System	636 x 847 x 300 mm	1	8000101213
PV 212SOF3CXXV000TAPA15PWW	12	1500 V DC	25 A	Integrated Monitoring System	1056 x 852 x 350 mm	1	8000101214
PV 210SOF3CXXV000TAPA15PWW	10	1500 V DC	48 A	Integrated Monitoring System	1056 x 852 x 350 mm	1	8000101215

1.4

PV DC Combiner Boxes variants for 1 MPPT inverters String Inverter Concepts with 1 MPPT

Efficient and optimized solution for 1 MPPT string inverters

1 MPPT solar string inverters are being rapidly adopted as an efficient solution for large rooftop or utility scale projects. Under constant and even sunlight conditions 1 MPPT string inverters perform as efficiently as multi MPPT inverters. PV DC Combiner boxes for 1 MPPT inverters provide a compact solution to combine, protect and monitor all strings providing power to inverter DC side.



Reduced number of MPPT's

Under the competitive landscape of the PV Solar industry new string inverter solutions have appeared. Single MPPT's string inverters provide a robust and reliable solution with reduced electronic components and complexity needed for multiple MPPT inverters. Our new PV DC Combiner boxes, allow different inverter manufacturers to introduce a complete solution with an optimized design with Weidmüller's quality standards.

Inverter Brands



Key features & benefits

- **Standard options in stock ready to order** – A wide range of solutions, available for immediate order from stock to fit into the installation concepts with 1 MPPT string inverter. Variants: With from 7 to 20 inputs, with fuse
- **Solutions for 1000 V DC and 1500 V DC**
- **Overvoltage protection** – With several configurations, Weidmüller offers the VPU surge protection series for 1500 V DC systems with up to 11 kA I_{sc} and Type I+II or Type II variants.
- **Optimized design** – Through the use of advanced 3D simulation software, the product variants have been designed and tested to operate with maximum mechanical and thermal efficiency in the most compact enclosure possible.
- **Special Fuse protection** – Weidmüller fuses (WSFL) and fuse holders (WSFH) have been specially developed for this new architecture.

Ordering data for DC Combiner Boxes variants for 1 MPPT inverters

PV DC Combiner Boxes for Kaco/Sungrow/Ingeteam (1500 V DC)

Type	Inputs	Fuse Protection	Max Fuse Rate	Isc	Fuse included	String monitoring	Type of enclosure	Enclosure size	Max oper. temp	Qty.	Order No.
PV 212SOF3CXXV100TXPX15LWW	12	Both Poles	30 A	19 A	No	No	Landscape	636 x 847 x 300 mm	45°C	1	8000096019
PV 212SOF3CXXV100T9P015LWW	12	Both Poles	30 A	19 A	No	Yes	Landscape	636 x 847 x 300 mm	45°C	1	8000096020
PV 215SOF3CXXV100TXPX15LWW	15	Both Poles	30 A	19 A	No	No	Landscape	636 x 847 x 300 mm	45°C	1	8000096023
PV 215SOF3CXXV100T9P015LWW	15	Both Poles	30 A	19 A	No	Yes	Landscape	636 x 847 x 300 mm	45°C	1	8000096024
PV 216SOF3CXXV100TXPX15LWW	16	Both Poles	25 A	14 A	No	No	Landscape	636 x 847 x 300 mm	45°C	1	8000096025
PV 216SOF3CXXV100T9P015LWW	16	Both Poles	25 A	14 A	No	Yes	Landscape	636 x 847 x 300 mm	45°C	1	8000096026
PV 220SOF3CXXV100TXPX15LWW	20	Both Poles	25 A	14 A	No	No	Landscape	636 x 847 x 300 mm	45°C	1	8000096027
PV 220SOF3CXXV100T9P015LWW	20	Both Poles	25 A	14 A	No	Yes	Landscape	636 x 847 x 300 mm	45°C	1	8000096028

PV DC Combiner Boxes for Fronius (1000 V DC)

Type	Inputs	Fuse Protection	Max Fuse Rate	Isc	Fuse Included	String monitoring	Type of enclosure	Enclosure size	Max oper. temp	Qty.	Order No.
PV 207SOF3CXXV100TXPX10PDE	07	Both Poles	32 A	19 A	No	No	Portrait	747 x 536 x 300 mm	50°C	1	8000111135
PV 207SOF3CXXV100TA1PA10PDE	07	Both Poles	32 A	19 A	No	Yes	Portrait	847 x 636 x 300 mm	50°C	1	8000111136
PV 211SOF3CXXV100TXPX10PDE	11	Both Poles	32 A	19 A	No	No	Portrait	747 x 536 x 300 mm	50°C	1	8000111137
PV 211SOF3CXXV100TA1PA10PDE	11	Both Poles	32 A	19 A	No	Yes	Portrait	847 x 636 x 300 mm	50°C	1	8000111138

1.5

Enclosure Accessories

Enhanced protection and durability for PV Combiner Boxes

Secure Mounting & Environmental Protection

Fixation accessories and protective canopies are essential for photovoltaic (PV) installations, ensuring that PV DC Combiner Boxes are securely mounted and protected against dust, moisture, and harsh environmental conditions. These durable, weather-resistant components safeguard critical electrical parts, helping to reduce maintenance needs and extend the overall system lifespan. With Weidmüller's deep expertise in solar PV, these solutions are designed to optimise system efficiency while meeting strict safety and performance standards.



Key features & benefits

- **Secure mounting** – Fixation accessories ensure stable and reliable installation of PV DC Combiner Boxes in various site conditions.
- **Environmental protection** – Protective canopies shield against dust, rain, UV exposure, and other challenging environmental factors.
- **Extended system lifetime** – Durable materials and weather-resistant construction reduce wear on components and minimise maintenance over time.
- **Optimised efficiency** – All accessories are developed with Weidmüller's solar engineering standards to enhance overall system reliability and performance.
- **High safety standards** – Designed and tested to comply with demanding safety and operational requirements in PV applications.

Ordering data for Enclosure Accessories

Enclosure Accessories

Accessory Name	Type of Accessory	Material	Type of enclosure	Enclosure Brand	Enclosure Size	Order No.
PK FIXATION KIT NSYPLM108 M8	Mounting kit for pile	St-235 Zn Plated	Portrait	Schneider Electric	1056 x 852 x 350 mm	8000127909
PK FIXATION KIT NSYPLM75 M8	Mounting kit for pile	St-235 Zn Plated	Portrait	Schneider Electric	747 x 536 x 300 mm	8000127908
PK FIXATION KIT NSYPLM86 M8	Mounting kit for pile	St-235 Zn Plated	Portrait	Schneider Electric	847 x 636 x 300 mm	8000107421
PK FIXATION KIT NSYPLM810 M8	Mounting kit for pile	St-235 Zn Plated	Landscape	Schneider Electric	852 x 1056 x 350 mm	8000127907
PK FIXATION KIT NSYPLM57 M8	Mounting kit for pile	St-235 Zn Plated	Landscape	Schneider Electric	536 x 747 x 300 mm	8000127906
PK FIXATION KIT NSYPLM68 M8	Mounting kit for pile	St-235 Zn Plated	Landscape	Schneider Electric	636 x 847 x 300 mm	8000127905
SUNLIGHT COVER SCH86 ALU	Cover for floating PV DC CB	AL-5754	Portrait	Schneider Electric	847 x 636 x 300 mm	4000004848
SUNLIGHT COVER SCH108 ALU	Cover for floating PV DC CB	AL-5754	Portrait	Schneider Electric	1056 x 852 x 350 mm	4000004854
SUN CANOPY 68/108 1.5MM DX51D	Canopy for ground-mounted PV DC CB	DX51D+Z275	Both	Schneider Electric	636x847 / 1056 x 852 x 350 mm	4000009126
SUN CANOPY 57/86 1.5MM DX1D	Canopy for ground-mounted PV DC CB	DX51D+Z275	Both	Schneider Electric	536x747/ 847 x 636 x 300 mm	4000010116
SUN CANOPY 75 1.5MM DX1D	Canopy for ground-mounted PV DC CB	DX51D+Z275	Portrait	Schneider Electric	747 x 536 x 300 mm	4000010117
SUN CANOPY 810 1.5MM DX1D	Canopy for ground-mounted PV DC CB	DX51D+Z275	Landscape	Schneider Electric	1056 x 852 x 350 mm	4000010118
PK KIT PEDESTAL PEM86	Pedestal for ground-mounted PV DC CB	GFRP	Portrait	Schneider Electric	847 x 636 x 300 mm	8000036664
PK KIT PEDESTAL PEM108	Pedestal for ground-mounted PV DC CB	GFRP	Portrait	Schneider Electric	1056 x 852 x 350 mm	8000041457



1.6

Cable Ties and Cable Support for Trackers

Secure and reliable cable management for solar installations

Securing Solar Power for the Future

In solar farms, where exposure to sun and wind challenge every connection, cable management becomes crucial. With miles of cables carrying energy across the installation, the focus isn't just on organization –it's on long-term security. Weidmüller's cable management solutions ensure that cables are securely fastened, resilient to extreme weather, and optimized for durability, providing peace of mind throughout the life of the system.

Key features & benefits

- **UV-resistant plastic cable ties** – Designed to securely hold cables ranging from 25mm to 380mm in diameter, these ties withstand harsh UV exposure, ensuring lasting reliability and durability.
- **Robust stainless steel cable ties** – For tougher environments, these ties manage cables between 50mm and 370mm in diameter, offering secure and durable performance where plastic solutions fall short.
- **Advanced cable support for solar trackers** – Specialized solutions for securing cables to torque tubes in solar trackers. Built for dynamic environments, these supports maintain long-term performance even in challenging conditions.



Ordering data for Cable Ties and Cable Support for Trackers

Weather-resistant plastic Cable Tie (UV resistant) – black color

Material: PA 66 with UV-resistant additives. Flammability: UL94 V2. Operating temperature: -40°C to 85°C.

Description	Maximum bundling diameter (mm)	Minimum breaking tension (N)	QTY	Order No.
Cable ties, 2.5 x 98 mm	21	80N	100	2659370000
Cable ties, 3.5 x 140 mm	32	130N	100	2659320000
Cable ties, 4.8 x 200 mm	50	220N	100	2659340000
Cable ties, 4.5 x 290 mm	78	220N	100	2659350000
Cable ties, 7.5 x 365 mm	100	540N	100	2659360000



Uncoated stainless-steel clamp

Material: Stainless Steel AISI 316L. Operating temperature: -80°C to 538°C.

Description	Maximum bundling diameter (mm)	Minimum breaking tension (N)	QTY	Order No.
Cable ties, 4.6 x 200 mm	50	778	100	2791400000
Cable ties, 4.6 x 360 mm	100	778	100	2791410000
Cable ties, 4.6 x 520 mm	150	778	100	2791420000
Cable ties, 4.6 x 680 mm	200	778	100	2791430000
Cable ties, 4.6 x 840 mm	250	778	100	2791440000
Cable ties, 7.9 x 200 mm	50	1112	100	2791450000
Cable ties, 7.9 x 360 mm	100	1112	100	2791460000
Cable ties, 7.9 x 680 mm	150	1112	100	2791480000
Cable ties, 7.9 x 840 mm	200	1112	100	2791490000



Polyester Coated stainless steel clamp

Material: Stainless Steel AISI 316L. Operating temperature: -80°C to 538°C.

Description	Maximum bundling diameter (mm)	Minimum breaking tension (N)	QTY	Order No.
Cable ties, 4.6 x 259 mm	50	445	100	1015250000
Cable ties, 4.6 x 521 mm	150	445	100	1015280000
Cable ties, 4.6 x 681 mm	200	445	100	1015290000
Cable ties, 4.6 x 840 mm	250	445	100	1015300000
Cable ties, 7.9 x 201 mm	50	1112	100	1015310000
Cable ties, 7.9 x 362 mm	100	1112	100	1015320000
Cable ties, 7.9 x 681 mm	150	1112	100	1015340000



Tracker cable support

Description	Support thickness	Coating	Tracker	Order No.	Max Op. Temp	Order No.
Tracker Cable Support MT-303-3 GEO	3 mm	Geomet 800 B	NextTracker	4000010681	+45 °C	8000157248
Tracker Cable Support MT-303-3 ELEC	3 mm	ZN CS3	NextTracker	4000010682	+45 °C	8000157249
Tracker Cable Support MT-303-4 GEO	4 mm	Geomet 800 B	NextTracker	4000010683	+45 °C	8000157254
Tracker Cable Support MT-303-4 ELEC	4 mm	ZN CS3	NextTracker	4000010684	+45 °C	8000112715
Tracker Cable Support MT-305 ELEC	4 mm	ZN CS3	Soltec - STI	4000010685	+45 °C	8000157250



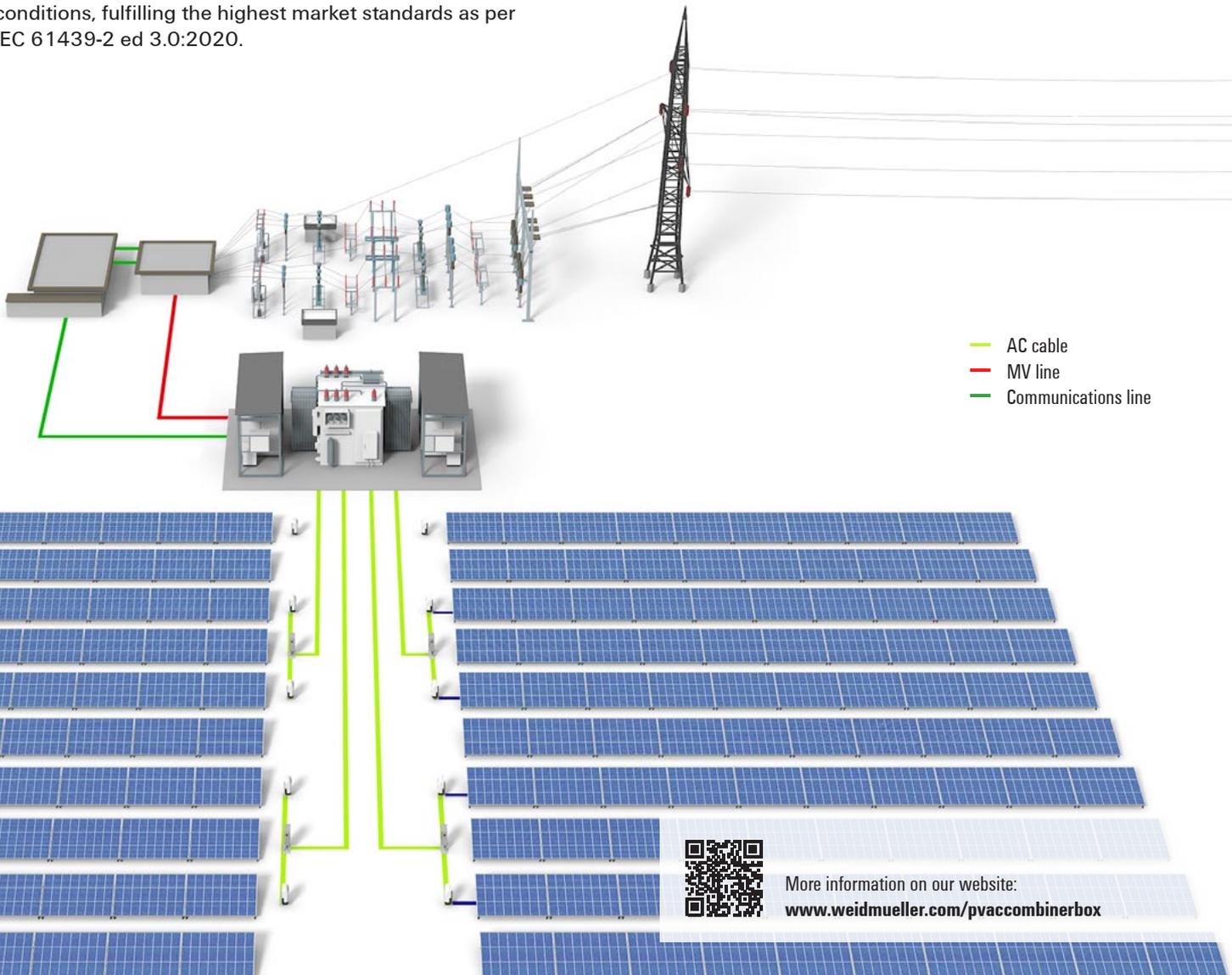
1.7 PV AC Combiner Boxes

String Inverter Concept

Bundle and protect PV string inverters in utility-scale systems reliably and economically

For solar installations in the PV industry, reliability and availability are paramount. In systems with string inverters, our AC combiner boxes provide optimal short-circuit and overvoltage protection. Furthermore, each string inverter can be easily isolated from the system to do maintenance tasks.

The new PV AC Combiner boxes have been designed for PV systems with string inverters in trackers or fix tilt systems. The product portfolio is suitable for inverters from 60 kW up to 200 kW and support voltages of 400 V, 690 V or 800 V AC. The combiner boxes allow to collect from 2 up to 6 string inverters in one single cabinet. They withstand ambient temperatures from -20 up to +50°C to operate in hardest climate conditions, fulfilling the highest market standards as per IEC 61439-2 ed 3.0:2020.



More information on our website:
www.weidmueller.com/pvaccombinerbox

Key features & benefits

- **Optimised design** – By using advanced simulation 3D softwares, the product variants have been designed and tested to operate at the maximum mechanical and thermal efficiency in the most compact housing size.
- **Technical data available online with 1-click** – We offer web tools to support the selection of the best model for the application. Technical data and certifications are available in the Weidmüller online catalogue.
- **Very resistant to short-circuits** – Designed to operate in solar power plants with high requirements of short circuit current.

Technical data: PV AC Combiner Boxes

Application data	
Installation location	Protected outdoors
Altitude above the sea level	up to 2000m (standard) higher altitude on demand
Operating ambient temperature	-20°C up to 50°C
Electrical characteristics	
Rated voltage	400V AC - 690 V AC - 800 V AC
Number of inputs (inverters)	from 2 up to 6
Rated current per Input (Inc)	85 A up to 200 A
Rated frequency (Hz)	50Hz
Short circuit strenght	120kA
Fuse link factir form	NH-00 / NH-01
Fuse link rating	85 A up to 250 A
Number of outputs	1
Protection class	Class II
Overvoltage protection	Type II or Type I+II
Earthing system	TN-S / TN-C
Enclosure	
Enclosure material	Glass Fiber Reinforced Polyester
Enclosure IP rating	IP65
Enclosure fixing system	Wall mounted or pedestal
Form factor	Cabinet with hinged door
Polycarbonate protection cover	Yes
Inputs	
Input cable	4x70mm ² or 4x95mm ²
Input cable gland	M50
Outputs	
Output cable	1 x 240mm ²
Output cable gland	M40
Others	
Main switch disconnecter	Yes (optional)
Standards	
Compliant standards	IEC 61439-2 ED 3

Ordering data: PV AC Combiner Boxes

Type	Inputs	Outputs	Rated voltage	Fuse-link rated current	Monitoring	Type of enclosure	Enclosure size	Qty.	Order No.
PV 40601S2V1C0A1ES	6	1	400 V AC	100 A	No	Landscape	850 x 1000 x 350 mm	1	8000069105
PV 40301S2V1C2A1ES	3	1	400 V AC	160 A	No	Portrait	1000 x 800 x 300 mm	1	8000069106
PV 40401S2V1C1A1ES	4	1	400 V AC	125 A	No	Portrait	1000 x 800 x 300 mm	1	8000069107
PV 40401S2V3C0A0ES	4	1	690 V AC	100 A	No	Portrait	800 x 600 x 300 mm	1	8000069108
PV 40201S2V3C1A0ES	2	1	690 V AC	125 A	No	Portrait	800 x 600 x 300 mm	1	8000069109
PV 40201S2V4C0A0ES	2	1	800 V AC	100 A	No	Portrait	800 x 600 x 300 mm	1	8000069110
PV 40201S2V4C2A0ES	2	1	800 V AC	160 A	No	Portrait	800 x 600 x 300 mm	1	8000069111

1.8

PV AC SWITCH Boxes

Essential Protection for Utility-Scale Solar Inverters

Role of AC Switch Boxes in Solar Installations

AC Switch Boxes play a critical role in utility-scale solar photovoltaic (PV) systems, ensuring both operational efficiency and safety. Specifically designed for use with utility-scale string inverters, these boxes provide a reliable means of isolating the AC output from the inverter. This isolation is essential during maintenance, emergency shutdowns, or grid disconnections, enabling operators to perform tasks without risking damage to the system or electrical hazards. By enabling safe and efficient AC disconnection, AC Switch Boxes help protect both the equipment and the personnel working on the system. Their functionality is key to ensuring that utility-scale PV systems operate smoothly, with minimal downtime, and in compliance with stringent safety standards.



Key features & benefits

- **Reliability and safety features** – Integrated load-break switches or circuit breakers capable of handling high voltage and current, ensuring compliance with electrical safety standards and enhancing system flexibility.
- **Durable and weather-resistant design** – Housed in rugged enclosures with IP-rated protection, these switch boxes are built to endure harsh environmental conditions, making them ideal for outdoor use.
- **Enhancing maintenance and grid stability** – Providing a secure and centralized AC disconnection point, these boxes streamline maintenance, minimize downtime, and contribute to grid stability and operational efficiency in large solar projects.

Type	Rated Voltage	Rated Current	# of poles	Compatible Inverters	Type of enclosure	Enclosure Size (mm)	Max Oper. Temp	Order No.
PV 403SXV4NHXXC5S01VXA0PWW	800 V AC	315 A AC	3	Huawei SUN2000 175 KTL-H0 Huawei SUN2000 185 KTL-INH0 Huawei SUN2000 185 KTL-INH1 Huawei SUN2000 190 KTL Huawei SUN2000 196 KTL-H0 Huawei SUN2000 200 KTL -H2 Huawei SUN2000 215 KTL - H0 SunGrow SG 125CX SunGrow SG 250HX	Portrait	747 x 536 x 300 mm	45°C	8000145928
PV 403SXV4NHXXC6S01VXA0PWW	800 V AC	400 A AC	3	Huawei SUN2000 250 KTL Huawei SUN2000 280 KTL Huawei SUN2000 300 KTL Huawei SUN2000 330 KTL SunGrow SG 285HX SunGrow SG 320HX SunGrow SG 333HX SunGrow SG 350HX	Portrait	847 x 636 x 300 mm	45°C	8000145929

2.1 PV String Monitoring System

Monitoring solutions

Modular PV string monitoring system for up to 32 strings

In ground-mounted photovoltaic systems, the electrical parameters of the PV strings must be constantly monitored. This is the only way owners and operators can maintain the performance and yield of their systems in the long term. The new PV String Monitoring System is integrated into the DC combiner boxes of plants with central inverters. It is designed to monitor the current and voltage of the individual strings as well as the current SPD and breaker status in the combiner box. Due to its modular design, the system can monitor up to 32 strings and measure up to 50 A per string. It is powered by plant current, can communicate wirelessly, and has low heat emission. All versions of the system can be powered either by 1500V DC or 24V DC, regardless of the selected communication method. Additionally, fiber optic communication options are available alongside the standard configurations.



Compact and powerful

It can monitor up to 32 strings and measure up to 50 A per string.



Wireless communication capability

The system can transmit data either via RS-485 cable or wirelessly to the SCADA system.



Modular design

It allows monitoring of up to 3-string inputs as well as high-power and bifacial solar panels.

Key features & benefits

- PV String Monitoring System (SMS) allows to control & monitor major string parameters, enhancing solar production of a solar plant
- Monitoring of major combiner box variables (string current & voltage, switch & SPD status, temperature, etc.)
- Monitor up to 32 strings (single, double or triple)
- String current monitoring up to 50 A for new high-power and bifacial solar panels
- Voltage string monitoring up to 1500 V (also suitable for 1000 V PV solar systems)
- Flexible power supply: Can be powered by 1500V DC or 24V DC
- Hall effect sensor monitoring with low power/heat dissipation, ensuring long-term performance of PV DC Combiner Box components
- 99% measurement accuracy for all monitored variables
- Multiple communication options: RS-485, fiber optic, and optional wireless LoRaWAN® (for complete PV DC combiner box solutions only)

Technical data: PV String Monitoring System

Application data	
Installation location	Protected outdoors
Altitude above the sea level	up to 2000m (standard) higher altitude on demand
Operating ambient temperature	-20°C up to 70°C
Electrical characteristics	
Operating voltage	1000V DC to 1500V DC
Voltage supply	from 200V up to 1500V
Number of inputs	from 8 up to 32
Available modules	8 channels and 12 channels
String Current measurement range	up to 50 A
Measurement accuracy	1%
Power supply	integrated DC/DC converter
Measurement technology	Hall effect sensors
Number of digital inputs	2
Communications	
Communication technology	RS-485, Optic Fibre or wireless (LoRAWAN)
Communication protocol	Modbus RTU / LoRAWAN
Surge protection communication port	Yes
Overcurrent protection	Yes
BaudRate	19200 bps (default)
Modbus timeout	1 second
Measurement variables	Voltage, current, temperature, SPD status, switch isolator status and auxiliary alarms
Standards	
Standards	EN 61326-1:2013 EN 62311:2020 EN 62109-1:2010

Ordering data: PV String Monitoring System

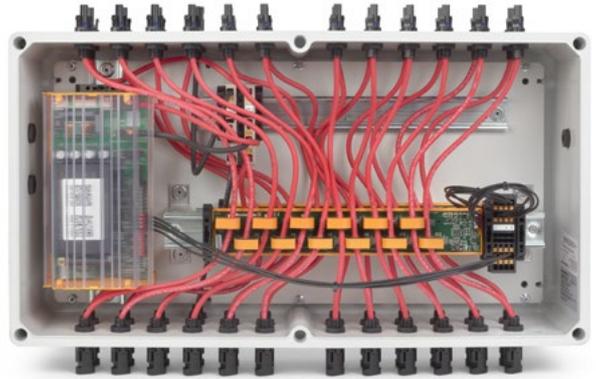
Type	Type of unit	Operating voltage	Communication type	Number of monitored channels	Max current/channel	Measurement technology	Number of digital inputs	Qty.	Order No.
SOLAR SMS MASTER	Master - main board	<1500 V DC	RS-485 / Modbus RTU	Controls up to 32 channels	-	N/A	2	1	4000002958
SOLAR SMS SLAVE 8IN25A	Slave - current sensor board	-	RS-485 / Modbus RTU	8 inputs	25 A	Hall effect	-	1	4000002959
SOLAR SMS SLAVE 12IN25A	Slave - current sensor board	-	RS-485 / Modbus RTU	12 inputs	25 A	Hall effect	-	1	4000002961
SOLAR SMS SLAVE 8IN50A	Slave - current sensor board	-	RS-485 / Modbus RTU	8 inputs	50 A	Hall effect	-	1	4000003982
SOLAR SMS SLAVE 12IN50A	Slave - current sensor board	-	RS-485 / Modbus RTU	12 inputs	50 A	Hall effect	-	1	4000003983
SOLAR SMS MASTER OPTIC FIBRE PRO	Master - main board	<1500 V DC	Fibre Optic/Modbus RTU	Controls up to 32 Channels	-	N/A	2	1	4000010509
SOLAR SMS MASTER 24VDC PRO	Master - main board	24 Vdc	RS-485/Modbus RTU	Controls up to 32 Channels	-	N/A	2	1	4000010651
SOLAR SMS MASTER LORAWAN PRO	Master - main board	<1500 V DC	LoRa/LoRaWAN	Controls up to 32 Channels	-	N/A	2	1	4000010652
SOLAR SMS MASTER LORAWAN 24VDC PRO	Master - main board	24 Vdc	LoRa/LoRaWAN	Controls up to 32 Channels	-	N/A	2	1	4000010653

2.2

PV Retrofit Boxes with LoRaWAN® Communication Smart monitoring solutions for existing PV power plants

Upgrade Monitoring without Major Modifications

Weidmüller’s PV Retrofit Boxes offer a smart solution to enhance string-level data acquisition in existing photovoltaic (PV) power plants without the need for expensive infrastructure changes or major system overhauls. These retrofit boxes are designed to integrate seamlessly with older PV systems, enabling modern, real-time monitoring and performance optimization without disrupting ongoing operations. By retrofitting older systems with Weidmüller’s advanced monitoring solutions, operators can gain valuable insights into the performance of individual strings, detect faults more effectively, and improve overall system efficiency – while avoiding the high costs and complexities of a full system upgrade.



Key features & benefits

- **Expertise in PV communication** – Built on Weidmüller’s extensive experience in both photovoltaic and industrial communication technologies, these retrofit boxes offer reliable, scalable solutions for improving monitoring and performance.
- **Seamless wireless data collection with LoRaWAN®** – LoRaWAN® technology ensures efficient data collection from PV strings, even from non-monitored combiner boxes, minimizing installation complexity and eliminating the need for extensive cabling.
- **Simplified deployment & lower maintenance costs** – By reducing the need for additional communication cabling, PV Retrofit Boxes streamline installation and lower long-term maintenance costs while improving fault detection, asset management, and system analytics.
- **Centralized data management with u-control** – The u-control data logger aggregates data via Modbus TCP, providing seamless integration with SCADA systems and offering advanced analytics for optimized plant performance.
- **A smart, future-ready upgrade** – Designed for long-term performance, Weidmüller’s PV Retrofit Boxes are cost-effective and scalable, making them a smart investment for enhancing the efficiency and reliability of your PV plant.



Description	Inputs	Max. Current Measurement	Cable input (*)	Enclosure Size	Max Op. Temp	Order No.
PV 208SXFCCXXVX00TA3PA15LWW	8	23 A	CG	558 x 302 x 210 mm	+45°C	8000157248
PV 208SXFCCXXVX01TA3PA15LWW	8	23 A	WM4 C	558 x 302 x 210 mm	+45°C	8000157249
PV 212SXFCCXXVX00TA3PA15LWW	12	19 A	CG	558 x 302 x 210 mm	+45°C	8000157254
PV 212SXFCCXXVX01TA3PA15LWW	12	25 A	WM4 C	558 x 302 x 210 mm	+45°C	8000112715
PV 216SXFCCXXVX00TA3PA15LWW	16	16 A	CG	558 x 302 x 210 mm	+45°C	8000157250
PV 216SXFCCXXVX01TA3PA15LWW	16	16 A	WM4 C	558 x 302 x 210 mm	+45°C	8000112718
PV 224SXFCCXXVX00TA3PA15LWW	24	13 A	CG	558 x 302 x 210 mm	+45°C	8000157251
PV 224SXFCCXXVX01TA3PA15LWW	24	13 A	WM4 C	558 x 302 x 210 mm	+45°C	8000122018
PV 232SXFCCXXVX01TA3PA15LWW	32	11 A	WM4 C	558 x 302 x 210 mm	+45°C	8000157252
PV 232SXFCCXXVX00TA3PA15LWW	32	11 A	CG	558 x 302 x 210 mm	+45°C	8000157253

2.3

Advanced DC Harnessing

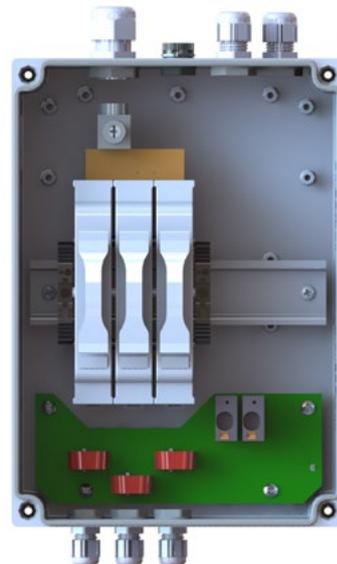
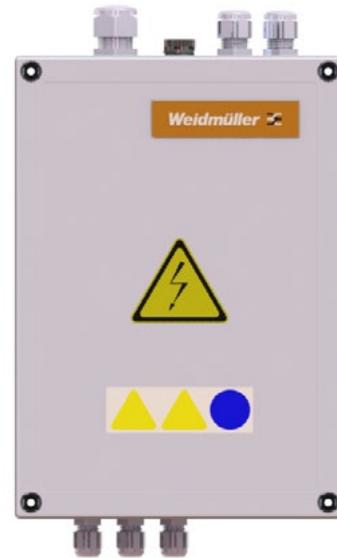
Smart string monitoring for central inverter systems

The Challenge

In large-scale solar farms utilizing central inverters, DC harnesses are crucial for collecting energy from multiple PV strings. However, the absence of real-time monitoring at the string level can lead to undetected issues, such as blown fuses or cable degradation. These problems, if left unchecked, can cause significant energy losses, system inefficiencies, and potentially costly repairs. Without visibility into the performance of each individual string, operators may face unanticipated downtime and increased operational costs. Ensuring early detection and resolution of such issues is vital for maintaining system performance and maximizing energy yield in these large-scale installations.

Key features & benefits

- **String-level monitoring** - Provides detailed insights into individual string performance, detecting issues such as fuse failures to prevent energy losses.
- **LoRaWAN wireless communication** - Ensures secure, long-range data transmission without the need for complex wiring, simplifying the installation process.
- **Faster fault detection** - Minimizes downtime by enabling rapid identification of issues, ensuring that the system operates at peak efficiency.
- **Easy integration** - Fully compatible with both new and retrofitted harness systems, making it a versatile solution for a range of PV installations.
- **Improved O&M efficiency** - Supports predictive maintenance, helping to reduce the need for site visits and enhancing overall operational efficiency.



2.4 PV Communication Boxes

Plant Communication

Connecting photovoltaic power plants through reliable and safe industrial communications

We combine extensive experience with photovoltaic projects and industrial communication to create a complete portfolio of PV communication cabinets for PV power plants.

Our portfolio offers certified and ready-to-use cabinets for PV power plants that meet the specific environmental, electrical and data transmission requirements according to customer specifications. Weidmüller can customise the communication infrastructure requirements of the PV power plant, enabling perfect data collection for the plant owner, ultimately improving the long-term investment.

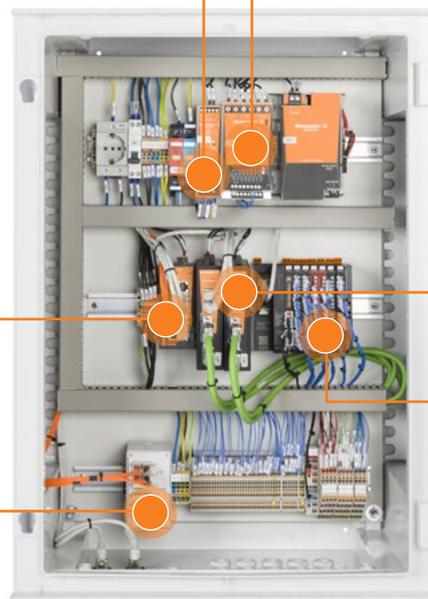
Key features & benefits

- Safe function due to optimal protection
- Maximum availability due to integrated energy backup
- Highly reliable industry standard with built-in communication protocols
- High cost-effectiveness through modular designs based on standard references
- TCP/RS cards for RS485 field buses
- IP certification for outdoor or indoor use

Power supply
24 VDC @ 3 ADC

RJ-45 Switch & Fibre-optic Converter
IE managed switch 6x RJ-45 ports
2x SC Multi-mode ports

Fibre-optic patch panel box
6x SC Multi-mode fibre-optic ports



Battery & UPS
Battery 24 VDC @ 3.4 Ah
UPS 24 VDC @ 20 A/10 A

2 x Serial / Ethernet converter
Serial / Ethernet converter
2x RJ45
2x DB9 for RS-485

u-control with multiple I/O
u-control controller
16x Digital inputs
4x Analogue inputs
8 GB data storage



Other designs on request

Simply contact us and describe the application and the requirements for the PV Communication Box. We will then provide you with a custom-fit design and quote:

www.weidmueller.com/pvcommunicationbox

2.5 PV Weather Boxes

Plant Communication

Increase your energy production, monitor your system output

To ensure optimal performance of photovoltaics systems, continuous and precise monitoring is essential. Environmental factors directly influence the efficiency of solar modules, which is why real-time data collection is crucial to maximising energy output and identifying potential system efficiencies early on.

Our PV weather stations provide reliable and accurate measurements of all critical meteorological parameters, including ambient and module temperature, solar radiation (global horizontal and module field level). Wind speed and direction, precipitation level, relative humidity and air pressure. These high-precision sensors provide a comprehensive analysis of weather conditions that affect PV performance, enabling proactive system adjustments and performance optimisation. Our weather stations are designed to meet customer-specific requirements. They have certified enclosures that can withstand even harsh environmental conditions. Flexible integration with SCADA systems and various data acquisition platforms is achieved using industry-standard communication protocols such as Modbus RTU and TCP. Advanced data transfer options, including wireless connectivity, guarantee seamless remote monitoring.



We use the best-known brands of weather sensors

The PV weather stations from Weidmüller integrate the best-known weather sensors on the market. The systems are extremely robust and protected against all weather conditions.



Key features & benefits

- Reliable function due to optimal protection
- Maximum availability due to integrated power backup
- High cost-effectiveness through modular designs based on standard references
- IP certification for outdoor or indoor use
- Connection of the required weather sensors via modular I/O cards
- Robust construction and protection against all weather conditions
- Sensors are included in the scope of delivery

PV Weather Boxes

Plant Communication

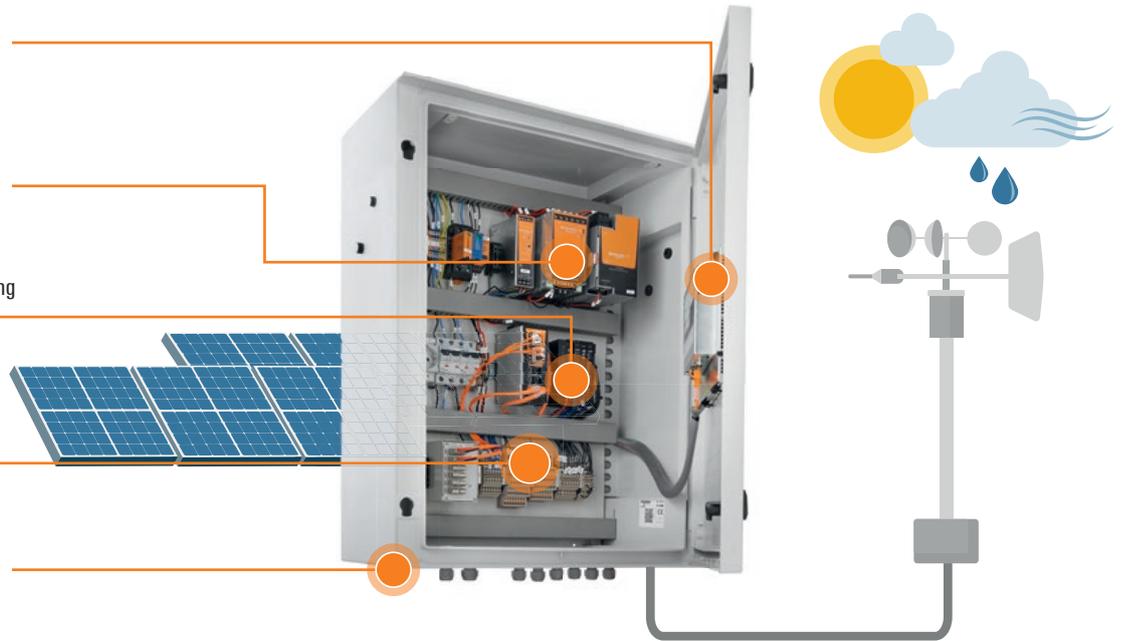
Robust and durable capacitive multi-touch panel monitor for data visualisation and HMI

Safe switching, protection and integrated energy back-up

Modular I/O cards for connecting sensors to manage digital/ analogue signals

Modular designs based on standard references

IP degree certified for outdoor or indoor solutions



PREMIUM Versions On Grid

Specification	8000094711 PV WC111RXPXG1SXM2S6WW	8000157322 PV WC11XRXPXG1SXM2S6WW
Controller Web-based	●	
IE Network Managed Switch 6x RJ45 / 2x SC Multi-mode	●	●
Serial/Ethernet converter and Modbus TCP/RTU gateway	●	●
UPS control unit 24V 20 A/10 A	●	●
Battery 24 V 3,4 AH	●	●
AC Single-phase Type I SPD		●
Ethernet Data Interface SPD	●	●
RS-485 Data Interface SPD	●	●
Enclosure Shape	Portrait	Portrait
Enclosure Size (mm)	747 x 536 x 300	747 x 536 x 300
IP Degree	IP66	IP66
Operating Ambient Temperature	-20 °C .. +50°C	-20 °C .. +50°C

Premium Version Hybrid On Grid - Off Grid

Specification	8000144152 PV WC11XRXPXG1SXM4S6WW
Controller Web-based	●
Serial/Ethernet converter and Modbus TCP/RTU gateway	
Battery Regulator (*)	●
AC Single-phase Type I SPD	
Ethernet Data Interface SPD	●
RS-485 Data Interface SPD	
Enclosure Shape	Portrait
Enclosure Size (mm)	847 x 636 x 300
IP Degree	IP66
Operating Ambient Temperature	-20 °C .. +50°C

- On-grid/off-grid behaviour with battery and PV panel support (battery and PV panel not included).
- Battery solar charger is compatible with several common lead-based battery technologies such as AGM, Gel, OPzS, OPzV, traction batteries, lithium and other battery chemistries.
- Weather station autonomy of 60 hours (with a limitation of 5 sensors connected) can be achieved with a standard battery of lithium 100AH and 100W PV panel (available PN 8000148396).
- Different battery capacity and PV panels configuration are possible to achieve longer battery autonomy (with PV panel support).

LITE Versions

Specification	8000113427 PV WC11XRXPXG1SXMXS6WW	8000113428 PV WC11XRXPXG2SXMXS6WW
Controller Web-based	●	●
Serial/Ethernet converter and Modbus TCP/RTU gateway	●	●
AC Single-phase Type I SPD	●	●
Ethernet Data Interface SPD	●	●
RS-485 Data Interface SPD	●	●
Enclosure Shape	Portrait	Portrait
Enclosure Size (mm)	530 x 430 x 200	530 x 430 x 200
IP Degree	IP66	IP66
Operating Ambient Temperature	- 20 °C .. +50°C	- 20 °C .. +50°C

Ordering data: PV Weather Boxes

Description	Type	Order No.
PYRANOMETER SMP10A KIPP-ZONEN	PYRANOMETER	4000007576
PYRANOMETER SR30-M2-D1-05 HUKSEFLUX	PYRANOMETER	4000005453
PYRANOMETER SPN1 DELTA-T	PYRANOMETER	4000007575
PYRANOMETER SMP12 KIPP-ZONEN	PYRANOMETER	4000007577
PYRANOMETER SUN-E 2ND STD LAMBRECHT	PYRANOMETER	4000006021
AMBIENT TEMPERATURE RK330-01ADA2500 RIKA	AMBIENT TEMPERATURE	4000007572
AMBIENT TEMPERATURE TAMBSI IMT-SOLAR	AMBIENT TEMPERATURE	4000007659
AMBIENT TEMP TAEXTRS485MB IMT-SOLAR	AMBIENT TEMPERATURE	4000005459
MODULE TEMPERATURE RK220-01CEA25000 RIKA	MODULE TEMPERATURE	4000007574
MODULE TEMPERATURE TMODULSI IMT-SOLAR	MODULE TEMPERATURE	4000007660
MODULE TEMP TMRS485MB IMT-SOLAR	MODULE TEMPERATURE	4000005452
SOILING MONITOR DUSTIQ KIPP-ZONEN	SOLAR IRRADIANCE/SOILING	4000007578
SOLAR IRRADIANCE SIRS485TC3TMB IMT-SOLAR	SOLAR IRRADIANCE/SOILING	4000007661
SOLAR IRRADIANCE SIRS485TC3TMB IMT-SOLAR	SOLAR IRRADIANCE/SOILING	4000007580
TOTAL UV RADIOMETER SUV5 KIPP-ZONEN	UV RADIOMETER	4000007582
COMBINED WIND SENSOR ARCO LAMBRECHT	WIND	4000007581
RAIN GAUGE RAIN-E-ONE LAMBRECHT	RAIN GAUGE	4000005450
AIO WEATHER STATION WS601-UMB LUFFT	AIO WEATHER STATION	4000005458
CABLE 10M-8WIRE SMP/CVF/SUV KIPP-ZONEN	CABLE	4000007771
CABLE 25M-8WIRE SMP/CVF/SUV KIPP-ZONEN	CABLE	4000007772
CABLE 50M-8WIRE SMP/CVF/SUV KIPP-ZONEN	CABLE	4000007773
CABLE 10M-8WIRE DUSTIQ KIPP-ZONEN	CABLE	4000007774
CABLE 25M-8WIRE DUSTIQ KIPP-ZONEN	CABLE	4000007775
CABLE 50M-8WIRE DUSTIQ KIPP-ZONEN	CABLE	4000005457
CABLE 10M-8WIRE CLIMASENSOR-US THIES	CABLE	4000007588
CABLE 5M-5WIRE SR30-M2-D1-05 HUKSEFLUX	CABLE	4000007589
CABLE 10M-5WIRE SR30-M2-D1-05 HUKSEFLUX	CABLE	4000007590
CABLE 20M-5WIRE SR30-M2-D1-05 HUKSEFLUX	CABLE	4000007571
CABLE 12M-4WIRE LAMBRECHT	CABLE	4000007591
TELESCOPIC MAST AL 3M LAMBRECHT	FIXATION ELEMENTS	4000007592
TRIPOD 3-LEG BASE AL LAMBRECHT	FIXATION ELEMENTS	4000007593
TRAVERSE SET AL PYRANOMETER LAMBRECHT	FIXATION ELEMENTS	4000007594
POLE BASE SS RAIN-E LAMBRECHT	FIXATION ELEMENTS	4000007595
BRACKET LARGE PYRANOMETER LAMBRECHT	FIXATION ELEMENTS	4000007675
POST FIXING PLM75 NSYSFP500 SE	FIXATION ELEMENTS	4000007719
LIGHTNING ROD LAMBRECHT	FIXATION ELEMENTS	4000005454
VENTILATION UNIT CVF4 KIPP-ZONEN	ACCESSORIES	4000005455
GLARE SCREEN KIT KIPP-ZONEN	ACCESSORIES	4000007579
SOLAR RADIATION SHIELD TAMBSI IMT-SOLAR	ACCESSORIES	4000007573
CABLE EXTENSION BOX JB-01 IMT-SOLAR	ACCESSORIES	4000007776

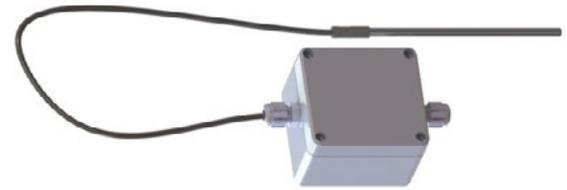
2.6

MeteoSense

Precision Monitoring for Solar Power Optimization

The Importance of Environmental Monitoring in Solar Plants

In utility-scale solar plants, environmental monitoring plays a crucial role in optimizing efficiency and preventing energy losses. Weidmüller's MeteoSense, a specialized sensor family, provides real-time data on ambient and module temperatures, allowing operators to make informed decisions. These insights not only help in maximizing energy production but also extend the lifespan of the equipment by ensuring the system operates within optimal conditions. With MeteoSense, operators can adapt to environmental changes, thereby improving the performance of photovoltaic (PV) installations and increasing overall system reliability.



Key features & benefits

- **Real-time temperature measurements** – Enhances Maximum Power Point Tracking (MPPT) efficiency and enables predictive maintenance by continuously monitoring ambient and module temperatures.
- **Detects hot spots** – Identifies potential thermal issues, mitigating risks and ensuring safe, reliable operation of the system.
- **High-precision performance** – Delivers accurate temperature readings even in harsh industrial and outdoor environments, making it ideal for utility-scale solar applications.
- **Precision leads to power** – With MeteoSense, every degree counts in optimizing the energy production of the solar plant.
- **MeteoSense Sensor Variants:**
 - ATS PT100 RS485** – Ambient temperature monitoring for weather forecasting and system optimization.
 - MTS PT100 RS485** – PV module temperature monitoring to prevent thermal degradation and enhance energy yield.

Description	Application	Recommended Mounting	Max Altitude (m)	Protection	Order No.
MeteoSense MTS PT100 RS485	PV module temperature measurement	Rear side of the module	2000	IEC 62208	8000161015
MeteoSense ATS PT100 RS485	Ambient temperature in PV fields	Ventilated radiation shield	2000	IEC 62208	8000161014

3.0 PV Components for an effective running system

Plant Equipment

PV Connectors



PV-Stick with SNAP IN connection

No crimping tool, no lost time, no extra effort - the unique PV-Stick uses tried-and-tested SNAP IN technology. The fastest, easiest and safest way to wire up photovoltaic plants – literally in no time.

WM4 C with crimp connection

Outstanding quality and ease of handling due to modern crimp connection. The WM4 C is suitable for automated assembly as well as for manual installation in the field.

PV-Stick - Photovoltaic connectors - SNAP IN connection

Type	Rated voltage (IEC) Rated current	Connection cross-section min. / max.	Continuous operating temperature min. / max.	Qty.	Order No.
Socket					
PV-STICK+ Qty.10	1500 V DC / 30 A	4 / 6 mm ²	-40 °C...+85 °C	10	1303450000
PV-STICK+ Qty.50	1500 V DC / 30 A	4 / 6 mm ²	-40 °C...+85 °C	50	1303460000
PV-STICK+ Qty.200	1500 V DC / 30 A	4 / 6 mm ²	-40 °C...+85 °C	200	1303470000
Pin					
PV-STICK- Qty.10	1500 V DC / 30 A	4 / 6 mm ²	-40 °C...+85 °C	10	1303490000
PV-STICK- Qty.50	1500 V DC / 30 A	4 / 6 mm ²	-40 °C...+85 °C	50	1303500000
PV-STICK- Qty.200	1500 V DC / 30 A	4 / 6 mm ²	-40 °C...+85 °C	200	1303510000
PV-Stick Set					
PV-STICK SET	1500 V DC / 30 A	4 / 6 mm ²	-40 °C...+85 °C	1	1422030000



WM4 C - Crimp connectors

Type	Rated voltage / current	Conductor cross-section	Connection	Qty.	Order No.
Box connectors - housing					
SFGH BOX WM4 C BT	1500 V DC (IEC) / 35 A	4 / 6 mm ²	M 12 housing cable gland	100	1530640000
BUGH BOX WM4 C BT	1500 V DC (IEC) / 35 A	4 / 6 mm ²	M 12 housing cable gland	100	1530630000
Field connector housing					
SFGH WM4 C BT	1500 V DC (IEC) / 35 A	4 / 6 mm ²	M 16 housing cable gland	100	1530700000
BUGH WM4 C BT	1500 V DC (IEC) / 35 A	4 / 6 mm ²	M 16 housing cable gland	100	1530690000
Crimp contacts					
BUKO WM4 C BT	Socket contact	4 and 6 mm ² cables	Loose goods for crimping tools	100	1530670000
BUKO WM4 C RL	Socket contact	4 and 6 mm ² cables	Reel packaged goods for automated crimping	1500	1530770000
SFKO WM4 C BT	Pin contact	4 and 6 mm ² cables	Loose goods for crimping tools	100	1530680000
SFKO WM4 C RL	Pin contact	4 and 6 mm ² cables	Reel packaged goods for automated crimping	1500	1530780000



Accessories

Type	Description	Qty.	Order No.
SAFETY-CLIP WM4 Qty.10	Locking clip for PV-Stick prevents opening without tools	10	1328150000
VSSO WM4 C	Sealing cap for protecting PV connectors that are not mated (all connectors)	100	1254870000



PV AC output connectors (suitable for Huawei / Sungrow / SMA)

Type	Description	Rated voltage / current	Clamping range min. / max.	Qty.	Order No.
PV BSS VAPM 5P M	Box coupling 5 pole	600 V AC / 60 A	0.2mm ² - 16mm ²	1	2920100000
PV PS VAPM 5P F	Field connector 5 pole	600 V AC / 60 A	0.2mm ² - 16mm ²	1	2920110000
PV BSS DL	Cover	-	-	1	2920120000
PV PS ULTA	Lock	-	-	1	2920130000



PV Tools



Reliable photovoltaic installation tools

When installing a photovoltaic system, the installer depends on reliable and smooth-running tools. Weidmüller offers a range of professional tools for this purpose.

Stripping tools

Type	Cutting	Stripping	Qty.	Order No.
MULTI-STRIPAX PV	2,5, 4.0 and 6 mm ²	2,5, 4.0 and 6 mm ²	1	1190490000



Crimping tools

Type	Crimping	Description	Qty.	Order No.
CTF PV WM4	2,5...6 mm ²	Crimping tool for Weidmüller photovoltaic connector WM4 C and identical connectors	1	1222870000



Cutting tools

Type	Maximum cutting performance	Copper finely stranded	Aluminium stranded	Qty.	Order No.
KT 12	25 mm ²	35 mm ²	16 mm ²	1	9002660000



Multitool

Type	Description	Qty.	Order No.
MULTITOOL PV SET	Screw PV-Stick; Check cable diameter for PV-Stick; Put on smart lock for PV-Stick; Open cover for PV Next; Replace SPD cartridge for PV Next; Operate PUSH IN connection; Open control cabinet	1	2771530000



PV Tool bag

Type	Description	Qty.	Order No.
PV TOOL STICK SET	Tool bag with belt; 30 pcs. PV-Stick + (crimpless PV connector); 30 pcs. PV-Stick - (crimpless PV connector); KT 8 cutting tool; SLICER cable knife; multi-stripax® PV; Multitool for PV sticks; 2 Mammut bags for carrying your PV sticks	1	2936970000



PV Fuses



gPV cylindrical fuse cartridges

The gPV cylindrical fuse cartridges are designed to provide compact, safe and economical protection of photovoltaic modules. They provide protection against both overload and short circuit.

gPV fuse cartridges silver-plated contacts for PV applications

Type	Voltage / Current	Switching capacity	Qty.	Order No.
Fuse 1500V GPV - 10x85				
FUSE WSFL 10X85 15A 1K5V GPV	1500 V DC / 15 A	50 kA	1	4000002597
FUSE WSFL 10X85 16A 1K5V GPV	1500 V DC / 16 A	50 kA	1	4000002609
FUSE WSFL 10X85 20A 1K5V GPV	1500 V DC / 20 A	50 kA	1	4000002610
FUSE WSFL 10X85 25A 1K5V GPV	1500 V DC / 25 A	50 kA	1	4000002611
FUSE WSFL 10X85 30A 1K5V GPV	1500 V DC / 30 A	50 kA	1	4000005431
FUSE WSFL 10X85 32A 1K5V GPV	1500 V DC / 32 A	50 kA	1	4000002612
FUSE WSFL 10X85 35A 1K5V GPV	1500 V DC / 35 A	50 kA	1	4000010512
Fuse 1500V GPV - 22x58				
FUSE WSFL 22X58 30A 1k5V GPV	1500 V DC / 30 A	30 kA	1	2873880000
FUSE WSFL 22X58 35A 1k5V GPV	1500 V DC / 35 A	30 kA	1	2865970000
FUSE WSFL 22X58 40A 1k5V GPV	1500 V DC / 40 A	30 kA	1	4000003732
FUSE WSFL 22X58 50A 1k5V GPV	1500 V DC / 50 A	30 kA	1	4000003733
FUSE WSFL 22X58 65A 1k5V GPV	1500 V DC / 65 A	30 kA	1	4000003734
FUSE WSFL 22X58 70A 1k5V GPV	1500 V DC / 70 A	30 kA	1	2873890000
FUSE WSFL 22X58 75A 1k5V GPV	1500 V DC / 75 A	30 kA	1	2870900000



Fuseholder

Type	Voltage / Current	Form factor	Qty.	Order No.
FUSEHOLDER WSFH 10X85 1K5V	1500 V DC / 32 A	10 x 85 mm	10	4000002613
FUSEHOLDER WSFH 10X85 1K5V LED	1500 V DC / 35 A	10 x 85 mm	10	4000010511
FUSEHOLDER WSFH 22X58 1K5V	1500 V DC / 80 A	22 x 58 mm	6	4000003740



Lightning and Surge Protection



VARITECTOR PU PV for more safety

PV systems are directly exposed to environmental influences because they are always installed in exposed locations. Therefore the probability of lightning strikes and resulting overvoltage is high. The components of unprotected PV systems are again and again considerably damaged.

VPU I+II / VPU II - lightning and surge protection for PV systems

Type	Rated voltage / discharge current	Version	Network	Qty.	Order No.
Requirements class: Type I+II					
VPU PV I+II 3 1000	1000 V / 40 kA	without remote signalling contact	2 horizontal pitches	1	2530610000
VPU PV I+II 3 R 1000	1000 V / 40 kA	with remote signalling contact	2 horizontal pitches	1	2530620000
VPU PV I+II 3 1500	1500 V / 30 kA	without remote signalling contact	3 horizontal pitches	1	2530580000
VPU PV I+II 3 R 1500	1500 V / 30 kA	with remote signalling contact	3 horizontal pitches	1	2530590000
Requirements class: Type II					
VPU II 2 PV 600V DC	600 V / 40 kA	without remote signalling contact	2 horizontal pitches	1	1351340000
VPU II 2 R PV 600V DC	600 V / 40 kA	with remote signalling contact	2 horizontal pitches	1	1351370000
VPU PV II 3 1000	1100 V / 40 kA	without remote signalling contact	3 horizontal pitches	1	2530550000
VPU PV II 3 R 1000	1100 V / 40 kA	with remote signalling contact	3 horizontal pitches	1	2530180000
VPU PV II 3 1500	1500 V / 30 kA	without remote signalling contact	3 horizontal pitches	1	2530640000
VPU PV II 3 R 1500	1500 V / 30 kA	with remote signalling contact	3 horizontal pitches	1	2530650000



VPU AC I - lightning protection for PV systems

Type	Continuous current / lightning impulse current (I_{imp})	Version	Network	Qty.	Order No.
Type I arrester - 275 V AC / 25 kA - S-line					
VPU AC I 3+1 275/25 LCF S 2PE	275 V AC / 25 kA	without remote signalling contact, leakage current free	TN-C-S, TN-S, TT	1	2726760000
VPU AC I 3+1 R 275/25 LCF S 2PE	275 V AC / 25 kA	with remote signalling contact, leakage current free	TN-C-S, TN-S, TT	1	2726770000



VPU AC II - surge protection for PV systems

Type	Continuous current / discharge current (I_{max})	Version	Network	Qty.	Order No.
Type II arrester - 300 V AC / 50 kA					
VPU AC II 3+1 300/50	300 V AC / 50 kA	without remote signalling contact	TN-C-S, TN-S, TT	1	2591080000
VPU AC II 3+1 R 300/50	300 V AC / 50 kA	with remote signalling contact	TN-C-S, TN-S, TT	1	2591090000



4.0

Tested quality

Standard tests and services guaranteeing a long service life

Trust in approved quality

Our laboratory is accredited according to international standards. It operates independently and is recognised by institutions, registration services, and other institutions and authorities. As a member of the CTD program, Weidmüller is regularly audited by UL, especially about test methods, quality management and documentation.

All combiner boxes are tested according to IEC-61439-ed-2 and are constructed on the basis of the test results as well as assembled for the specific application. This ensures that each of the requirements of the target application is fully met.

Your benefits at a glance

- ✓ 5 years warranty
- ✓ Laboratory testing
- ✓ Commissioning Services
- ✓ On-Site Inspection



Tested & proven

Our PV boxes are designed and tested to withstand extreme climate fluctuations. See for yourself in our video straight from our lab.



5.0

Proven competence

Reference projects around the globe

The best proof of the quality of our solutions is their worldwide use. More than 250,000 of our photovoltaic combiner boxes are installed in over 100 countries worldwide. They connect 120 million photovoltaic modules. Our reference project database provides an overview.



Floating dynamic solar park

Dynamic solar islands

- 📍 Location: Andijk, Netherlands
- 💡 Performance: 22 MWp
- 📅 Start-up: 2021
- 🔌 Solution: 21 PV Floating DC Combiner Boxes



Suria Sungai Petani

PV Utility Park

- 📍 Location: Kuala Muda, Malaysia
- 💡 Performance: 116 MW
- 📅 Start-up: 2021
- 🔌 Solution: 437 DC Combiner Boxes



Droogfontein

PV Utility Park

- 📍 Location: South Africa
- 💡 Performance: 80 MWp
- 📅 Start-up: 2019
- 🔌 Solution: 450 Combiner Boxes



Sol do Sertão

PV Utility Park

- 📍 Location: Oliveira dos Brejinhos, Brazil
- 💡 Performance: 474 MWp
- 📅 Start-up: 2021
- 🔌 Solution: 2,318 DC Combiner Boxes



Discover more reference projects on our website:
www.weidmueller.com/pv-references

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As experienced experts we support our customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. We are at home in their industries and markets and know the technological challenges of tomorrow. We are therefore continuously developing innovative, sustainable and useful solutions for their individual needs. Together we set standards in Smart Industrial Connectivity.

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