RUBICON

2019
Renewables
Catalogue

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PV Solar

☀️ CanadianSolar

HiKu CS3W-P Modules

Super High Power Poly Perc Module | 390W ~ 405W

Features

- 24% more power than conventional modules
- Low NMOT: 42 ± 3 °C
- Low temperature coefficient (Pmax): -0.37% / °C
- Innovative module design, better shading tolerance
- Lower internal current, lower hot spot temperature
- Cell crack risk limited in small region, enhance the module reliability
- Heavy snow load up to 5400Pa, wind load up to 3600Pa

CS3W-***P

Mechanical Data

Product Code	CS3W-390P | CS3W-395P | CS3W-400P | CS3W-405P
Cell Type	Poly-crystalline
Cell Arrangement	144 [2 x (12 x 6)]
Dimensions	2108 x 1048 x 40mm
Weight	24,9kg
Front Cover	3,2mm tempered glass
Frame Material	Anodised aluminium alloy, crossbar enhanced
J-Box	IP68, 3 bypass diodes
Connectors	T4 series

Ordering Information | STC*

Product Code	Nominal Max. Power	Opt. Operating Voltage	Opt. Operating Current	Open Circuit Voltage	Short Circuit Current	Max. Series Fuse Rating	Module Efficiency
CS3W-390P	390W	38.3V	10.19A	46.8V	10.74A	20A	17.65%
CS3W-395P	395W	38.5V	10.26A	47V	10.82A	20A	17.88%
CS3W-400P	400W	38.7V	10.34A	47.2V	10.90A	20A	18.11%
CS3W-405P	405W	38.9V	10.42A	47.4V	10.98A	20A	18.33%

* Under Standard Test Conditions (STC) of irradiance of 1000 W / m², spectrum AM 1,5 and Cell temperature of 25°C.

HiDM CS1H-MS Modules

High density MONO PERC module | 320W ~ 335W

Features

- Maximise the light absorption area, module efficiency up to 19.86%
- Low NMOT: 42 ± 3°C
- Low temperature coefficient (Pmax): -0.37% / °C
- Better shading tolerance
- Lower internal current, lower hot spot temperature
- Cell crack risk limited in small region, enhance the module reliability
- Heavy snow load up to 5400Pa, wind load up to 2400Pa

CS1H-***MS

Mechanical Data

Product Code	CS1H-320MS | CS1H-325MS | CS1H-330MS | CS1H-335MS
Cell Type	Mono-crystalline
Dimensions	1700 x 992 x 35mm
Weight	19,2kg
Front Cover	3,2mm tempered glass
Frame Material	Anodised aluminium alloy
J-Box	IP67, 3 bypass diodes
Connectors	T4 series

Ordering Information | STC*

Product Code	Nominal Max. Power	Opt. Operating Voltage	Opt. Operating Current	Open Circuit Voltage	Short Circuit Current	Max. Series Fuse Rating	Module Efficiency
CS1H-320MS	320W	35.6V	9A	43,3V	9,51A	20A	18.98%
CS1H-325MS	325W	35.8V	9,09A	43,4V	9,58A	20A	19.27%
CS1H-330MS	330W	36V	9,18A	43,5V	9,65A	20A	19.57%
CS1H-335MS	335W	36,2V	9,27A	43,6V	9,73A	20A	19.86%

* Under Standard Test Conditions (STC) of irradiance of 1000 W / m², spectrum AM 1,5 and Cell temperature of 25°C.

☀ **CanadianSolar**

KuMax CS3U-P Module

High Efficiency Poly Module | 1000V / 1500V

Features
- Low power loss in cell connection
- Low NMOT: 42 ± 3 °C
- Low temperature coefficient (Pmax): -0.37% / °C
- Better shading tolerance
- High PTC rating of up to: 92.64%

- Lower hot spot temperature
- Minimizes micro-cracks
- Heavy snow load up to 5400Pa, wind load up to 3600Pa*

Mechanical Data

Product Code	CS3U-350P	CS3U-355P	CS3U-360P
Cell Type	Poly-crystalline
Cell Arrangement	144 [2 x (12 x 6)]
Dimensions	2000 x 992 x 35mm
Weight	22,5kg
Front Cover	3,2mm tempered glass
Frame Material	Anodised aluminium alloy, crossbar enhanced
J-Box	IP68, 3 bypass diodes
Connectors	T4 series

Ordering Information | STC*

Product Code	Nominal Max. Power	Opt. Operating Voltage	Opt. Operating Current	Open Circuit Voltage	Short Circuit Current	Max. Series Fuse Rating	Module Efficiency
CS3U-350P	350W	39,2V	8,94A	46,6V	9,51A	30A	17,64%
CS3U-355P	355W	39,4V	9,02A	46,8V	9,59A	30A	17,89%
CS3U-360P	360W	39,6V	9,10A	47V	9,67A	30A	18,150%

*Under Standard Test Conditions (STC) of irradiance of 1000 W / m^2, spectrum AM 1,5 and Cell temperature of 25°C.

KuMax CS3U-MS Modules

High Efficiency Mono Perc Module | 1000V / 1500V

Features
- Low power loss in cell connection
- Low NMOT: 41 ± 3 °C
- Low temperature coefficient (Pmax): -0.37% / °C
- Better shading tolerance
- High PTC rating of up to: 93.13%

- Lower hot spot temperature
- Minimises micro-cracks
- Heavy snow load up to 5400Pa, wind load up to 3600Pa

Mechanical Data

Product Code	CS3U-370MS	CS3U-375MS	CS3U-380MS	CS3U-385MS	CS3U-390MS
Cell Type	Poly-crystalline
Cell Arrangement	144 [2 x (12 x 6)]
Dimensions	2000 x 992 x 35 mm
Weight	22,5kg
Front Cover	3,2mm tempered glass
Frame Material	Anodised aluminium alloy, crossbar enhanced
J-Box	IP68, 3 bypass diodes
Connectors	T4 series

Ordering Information | STC*

Product Code	Nominal Max. Power	Opt. Operating Voltage	Opt. Operating Current	Open Circuit Voltage	Short Circuit Current	Max. Series Fuse Rating	Module Efficiency
CS3U-370MS	370W	39.6V	9,35A	47,4V	9,85A	30A	18,65%
CS3U-375MS	375W	39,8V	9,43A	47,6V	9,93A	30A	18,90%
CS3U-380MS	380W	40V	9,50A	47,8V	10,01A	30A	19,15%
CS3U-385MS	385W	40,2V	9,58A	48,0V	10,09A	30A	19,41%
CS3U-390MS	390W	40,4V	9,66A	48,2V	10,17A	30A	19,66%

* Under Standard Test Conditions (STC) of irradiance of 1000 W / m^2, spectrum AM 1,5 and Cell temperature of 25°C.

RUBICON

PV Modules: Multi-crystalline Small Modules

Product Code	Power Watt Peak	Voltage	Amps	# Cells	Open - Circuit	Short Circuit Current	Module Dimension	Weight
RUBSD100WSOLAR	100Wp	18V	5,56A	36	22,2V	5,44A	1190 x 670 x 35mm	10kg
RUBSD120WSOLAR	120Wp	18V	6,67A	36	22,2V	7,84A	1480 x 68 0x 35mm	11,6kg
RUBSD145WSOLAR	145Wp	18V	8,06A	36	22,6V	8,72A	1480 x 680 x 35mm	11,6kg

Warranty: 30 years power output warranty and 10-year material & workmanship.

RUBSD

Jinko *Solar*

Poly-crystalline Module

JKM275P-60 | JKM330P-72, the best sold and competitively priced polycrystalline modules of this kind offers exceptional value, reliability and energy output while reducing overall system costs. With output up to 270Wp | 310-330Wp, superior low light performance as well as weather resistant reliability, it is renowned for its outstanding performance ratio and yield in kWh / kW (according to Photon Lab's Outdoor Module Test). It is a classic poly module suitable for all applications from residential rooftop, commercial, public building, agricultural and industrial flat roofs to large scale ground-mounted solar plants.
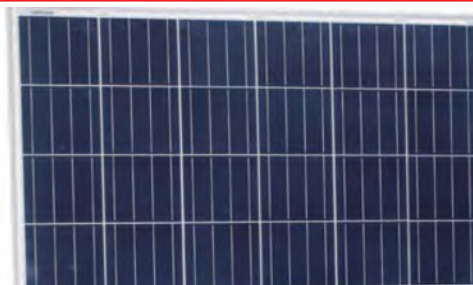
Mechanical Data

Product Code	JKM270P-60 | JKM275P-60	JKM325P-72 | JKM330P-72
Cell Type	Poly-crystalline 156 x 156mm	Poly-crystalline
Cell Arrangement	60 (6 x 10)	72 (6 x 12)
Dimensions	1650 x 992 x 5,8mm	1956 x 992 x 40mm
Weight	19,0kg	26,5kg
Front Glass	3,2mm, High Transmission, Low Iron, Tempered Glass	4,0mm, High Transmission, Low Iron, Tempered Glass
Frame Material	Anodised Aluminium Alloy	Anodised Aluminium Alloy
J-Box	IP67 Rated	IP67 Rated
Output Cables	TÜV 1×4,0mm², Length: 1200mm	TÜV 1×4,0mm², Length: 1200mm

JKM270P-60

Poly-Crystalline Module JKM270P-60 And JKM275P-60

Features

- **4 Busbar Solar Cell:** 4 busbar solar Cell adopts new technology to improve the efficiency of modules , offers a better aesthetic appearance, making it perfect for rooftop installation.
- **High Efficiency:** High module conversion efficiency (up to **16,50% for JKM270-60** and up to **16,80% for JKM275-60**), through innovative manufacturing technology.

- **Low-light Performance:** Advanced glass and solar Cell surface texturing allow for excellent performance in low-light environments.
- **Severe Weather Resilience:** Certified to withstand: wind load (2400 Pascal) and snow load (5400 Pascal).
- **Durability against extreme environmental conditions:** High salt mist and ammonia resistance certified by TÜV NORD.

Ordering Information

Product Code	Maximum Power	Maximum Power Voltage	Maximum Power Current	Open-Circuit Voltage	Short-Circuit Current	Module Efficiency STC
JKM270P-60	270Wp	31,7V	8,52A	8,66V	9,09A	16,50%
JKM275P-60	275Wp	32,0V	8,61A	39,1V	9,15A	16,80%

### Poly-Crystalline Module JKM325P-72 And JKM330P-72

Features

- **4 Busbar Solar Cell:** 4 busbar solar Cell adopts new technology to improve the efficiency of modules , offers a better aesthetic appearance, making it perfect for rooftop installation.
- **Low-light Performance:** Advanced glass and surface texturing allow for excellent performance in low-light environments.

- **Severe Weather Resilience:** Certified to withstand wind load (2400 Pascal) and snow load (5400 Pascal).
- **Durability against extreme environmental conditions:** High salt mist and ammonia resistance certified by TÜV NORD.

JKM325P-72

Ordering Information

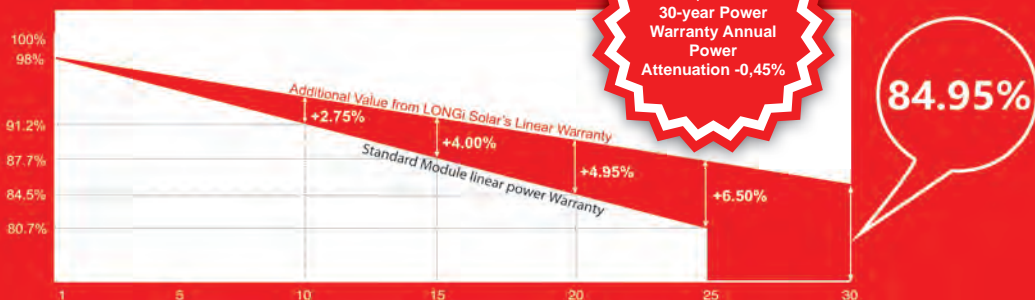| Product Code	Maximum Power	Maximum Power Voltage	Maximum Power Current	Open-Circuit Voltage	Short-Circuit Current	Module Efficiency STC
JKM325P-72	325Wp	37,6V	8,66A	46,7V	9,10A	16,75%
JKM330P-72	330Wp	37,8V	8,74A	46,9V	9,14A	17,01%

LONGi Solar
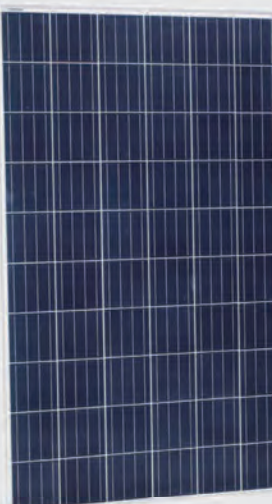
LR6-72BP 360-380M

Hi-MO2 High Efficiency
Low LID Bifacial PERC Technology

10-year Warranty for Materials and Processing;
30-year Warranty for Extra Linear Power Output

-0,45%
30-year Power Warranty Annual Power Attenuation -0,45%

84.95%
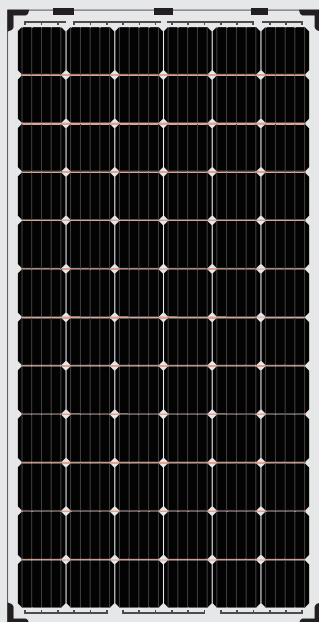
Front side performance equivalent to conventional low LID mono PERC
- High module conversion efficiency (up to 19,3%)
- Better energy yield with excellent low irradience performance and temperature coefficient
- First year power degradation <2%

Bifacial technology enables additional energy harvesting from rear side (up to 25%)
Glass/glass lamination ensures 30 year product lifetime, with annual power degradation <0,45%
Solid PID resistance ensured by cell process optimization and careful module BOM selection

LR6-72BP 360-380M

LR6-72BP 360-380M

Design (mm)

Units: mm
Tolerance:
Length: ±2mm
Width: ±2mm
Height: ±1mm
Pitch-row: ±1mm
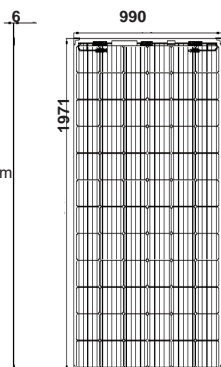
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Mechanical Parameters	Operating Parameters
CellOrientation:72 (6x12)	Operational Temperature
Junction Box IP67, three diodes	Power Output Tolerance:0~+5W
Output Cable: 4mm³,300mm in length, length can be customized	Voc and Isc Tolerance: ±3%
Weight: 25.5kg	Maximum System Voltage: DC1500V (IEC&UL)
Dimension: 1977x996x30mm	Maximum Series Fuse Rating: 20A
Packaging: 36pcs per pallet 180pcs per 20'GP 792pcs per 40'HC	Nominal Operating Cell Temperature: 45 ± 2°C
	Aplication class: Class ‖
	Fire Rating: UL type 6
	Bifaciality: ≥70%

Electrical Characteristics

Test uncertainty for Pmax: ±3%

Model Number	Maximum Power (Pmax/W)		Open Circuit Voltage (Voc/V)		Short Circuit Current (Isc/A)		Voltage at Maximum Power (Vmp/V)		Current at Maximum Power (Imp/A)		Module Efficiency (%)
LR6-72BP-360M	360	267,7	48,2	44,9	9,72	7,87	39,3	36,5	9,17	7,35	18,4
LR6-72BP-365M	365	271,4	48,3	45,0	9,84	7,96	39,5	36,7	9,25	7,41	18,7
LR6-72BP-370M	370	275,1	48,4	45,1	9,95	8,06	39,6	36,8	9,35	7,49	19,0
LR6-72BP-375M	375	278,8	48,6	45,3	10,03	8,12	39,8	36,9	9,43	7,56	19,2
LR6-72BP-380M	380	282,6	48,8	45,5	10,11	8,18	40,0	37,1	9,51	7,62	19,5

Electrical characteristics with different rear side power gain (reference to 370W front)

Pmax/W	Voc/V	Isc/A	Vmp/V	Imp/A	Pmax/gain
389	48.4	10.45	39.6	9.82	5%
407	48.4	10.94	39.6	10.29	10%
426	48.5	11.44	39.7	10.75	15%
444	48.5	11.94	39.7	11.22	20%
463	48.5	12.44	39.7	11.69	25%

LONGi Solar

LR6-72PE 360-380M

Hi-MO1 High Efficiency
Low LID MONO PERC Technology

-0,55%
25-year Power Warranty Annual Power Attenuation -0,55%

+4.10%

Additional Value from LONGi Solar's Linear Warranty
+1.85%
Standard Module linear power Warranty
+2.60%
+3.35%

LR6-72PE 360-380M

Positive power tolerance (O ~+5W) guaranteed

High module conversion efficiency (up to 19.6%)

Slower power degradation enabled by Low LID Mono PERC technology: flrst year <2%, 0.55% year 2-25

Better energy yield with excellent low irradiance performance and temperature coefficient

Solid PID resistance ensured by solar cell process optimization and careful module BOM selection

Adaptable to harsh environment: passed rigorous salt mist and ammonia tests

Robust frame (40mm) withstands mechanical loading of 5400Pa for snow load on front and 2400Pa for wind load on rear side

Design (mm)		Mechanical Parameters	Operating Parameters
		Cell Orientation: 72 (6x12)	Operational Temperature: -40°C ~ +85°C
		Junction Box: IP67, three diodes	Power Output Tolerance: 0 ~ +5W
		Output Cable: 4mm², 1200mm in length	Maximum System Voltage: DC1000V (IEC&UL)
		Glass: 3.2mm coated tempered glass	Maximum Series Fuse Rating: 20A
		Weight: 22.5kg	Nominal Operating Cell Temperature: 45 ± 2°C
		Dimension: 1956x991x40mm	Application Class: Class A
		Packaging: 26pcs per pallet 30pcs per 20'GP 624pcs per 40'HC	Fire Rating: UL type 4

Electrical Characteristics

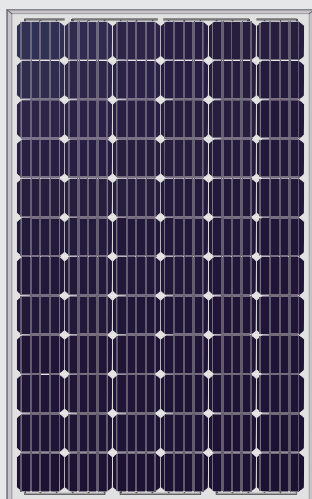Test uncertainty for Pmax: ±3%

Model Number	Maximum Power (Pmax/W)		Open Circuit Voltage (Voc/V)		Short Circuit Current (Isc/A)		Voltage at Maximum Power (Vmp/V)		Current at Maximum Power (Imp/A)		Module Efficiency (%)
LR6-72PE-360M	360	266.7	47.8	44.6	9.87	7.96	39.0	36.0	9.23	7.40	18.6
LR6-72PE-365M	365	270.4	48.1	44.9	9.90	7.98	39.3	36.3	9.28	7.44	18.8
LR6-72PE-370M	370	274.1	48.4	45.2	9.93	8.00	39.7	36.7	9.32	7,47	19.I
LR6-72PE-375M	375	277,8	48,7	45,5	9,96	8,03	40,1	37,0	9,36	7,51	19.3
LR6-72PE-380M	380	281,5	49,0	45,7	10,00	8,06	40,4	37,3	9,40	7,54	19.6

LONGi Solar

LR6-720PH
385~405M

High Efficiency Low LID Mono PERC
with OVERLAP Technology

10-year Warranty for Materials and Processing;
25-year Warranty for Extra Linear Power Output

-0,55%
25-year Power Warranty Annual Power Attenuation -0,55%

+4.10%

Additional Value from LONGi Solar's Linear Warranty +1.85%
Standard Module linear power Warranty +2.60%
+3.05%

LR6-720PH 385-405M

Positive power tolerance (O ~+5W) guaranteed

High module conversion efficiency (up to 20,3%)

Slower power degradation enabled by Low LID Mono PERC technology: flrst year <2%, 0,55% year 2-25

Better energy yield with excellent low irradiance performance and temperature coefficient

Solid PID resistance ensured by solar cell process optimization and careful module BOM selection

Adaptable to harsh environment: passed rigorous salt mist and ammonia tests

Robust frame (35mm) withstands mechanical loading of 5400Pa for snow load on front and 2400Pa for wind load on rear side
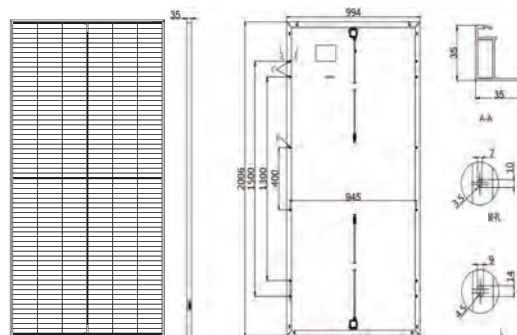
Design (mm)	Mechanical Parameters	Operating Parameters
	Cell Orientation: 6 parallels & 2 series	Operational Temperature: -40°C ~ +85°C
	Junction Box: IP67, two diodes	Power Output Tolerance: 0 ~ +5W
	Output Cable: 4mm², positive pole 800mm, negative pole 400mm	Voc and Isc Tolerance: ±3%
	Glass: 3.2mm coated tempered glass	Maximum System Voltage: DC1500V (IEC)
	Weight: 23kg	Maximum Series Fuse Rating: 20A
	Dimension: 1956x991x40mm	Nominal Operating Cell Temperature: 45 ± 2°C
	Packaging: 30pcs per pallet 150pcs per 20'GP 660pcs per 40'HC	Application Class: Class II

Electrical Characteristics
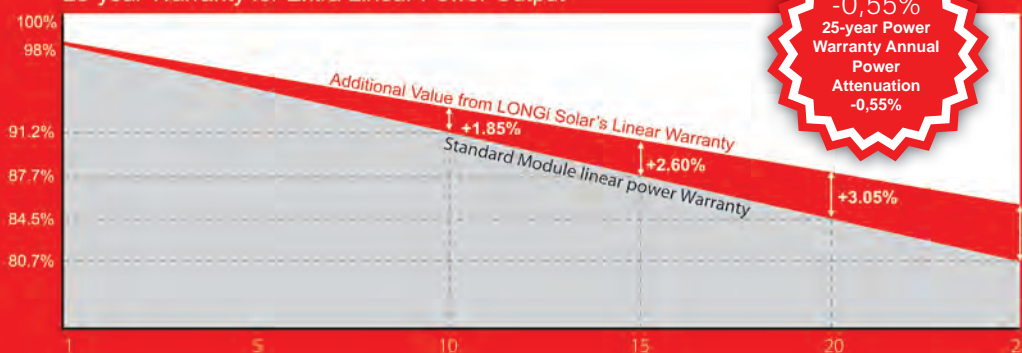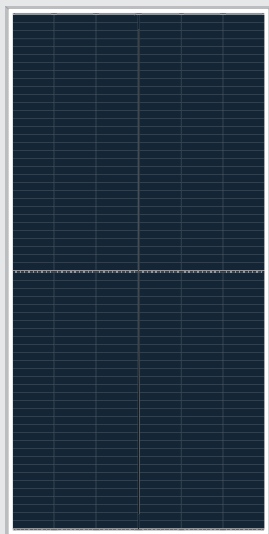
Test uncertainty for Pmax: ±3%

Model Number	Maximum Power (Pmax/W)		Open Circuit Voltage (Voc/V)		Short Circuit Current (Isc/A)		Voltage at Maximum Power (Vmp/V)		Current at Maximum Power (Imp/A)		Module Efficiency (%)
LR6-720PH-385M	385	285,5	43,4	40,5	11,57	9,33	35,6	32,9	10,82	8,68	19,3
LR6-720PH-390M	390	288,9	43,6	40,7	11,65	9,39	35,8	33,1	10,90	8,74	19,6
LR6-720PH-395M	395	292,6	43,8	40,9	11,73	9,46	36,0	33,3	10,98	8,81	19,8
LR6-720PH-400M	400	296,3	44,0	41,1	11,80	9,51	36,2	33,4	11,05	8,86	20,1
LR6-720PH-405M	405	300,00	44,2	41,3	11,88	9,58	36,4	33,6	11,13	8,92	20,3

Solar Powered Hydropanel

ZERO MASS water™

Why customers love?

SOURCE™

Water Independence: Free yourself from bottled or municipal with healthy, delicious water at your tap

Truly Renewable: When the sun comes up, your supply is refreshed each day without any waste

Every Person, Every Place: Whether it's dry or humid, SOURCE makes water for you and your family. Transform drinking water for every person with our Water for Life program

Drinking Water, Perfected: SOURCE produces pure water and mineralizes for health and taste benefit. With monitoring through the SOURCE app, you have drinking water peace of mind

How does SOURCE work?
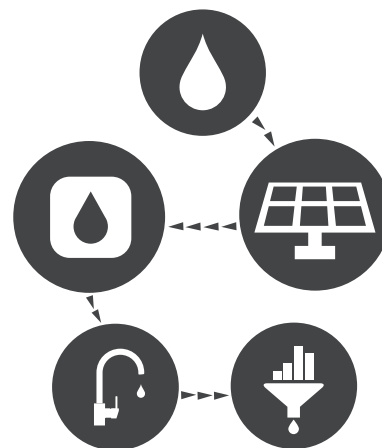
- Water vapor from the ambient air around us is drawn into SOURCE via fans and adsorbed onto special material

- Pure water is desorbed into an air-tight system inside SOURCE

- Liquid water flows into reservoir and is mineralized

- Drinking water passes through flavor polishing cartridge before being dispensed at the tap

- SOURCE panels are connected to a mesh network and are monitored for production and quality

SOURCE™

How much water do you need?

We build arrays based on your drinking water consumption, use and location.

2 Panels
Average couple, small family, or small office
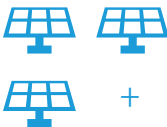
3+ Panel Array
Average or large family, office, school, community

How do you want to dispense your water?

Optional Dispenser

ELKAY BOTTLE DISPENSER
Wall mount

FREE STANDING DISPENSER
Ground Mount

Panel View

Front

- Solar PV
- Solar Thermal Assembly
- Fan Exhaust
- Lower Housing Assembly
- Reservoir Base Assembly

Rear

- Access Panel
- Fan Exhaust
- Air Inlet/Filter
- Pumps with Hose to Dispenser
- Reservoir
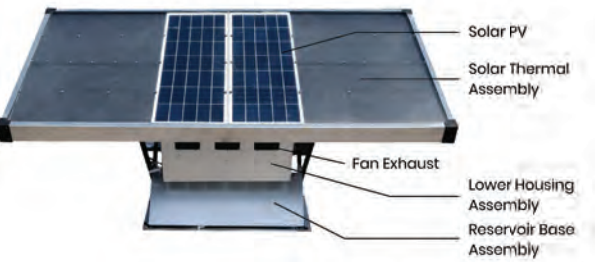
Ordering Information

Product Code	Description
SOURCE	**SOURCE Hydropanel system**

solar**edge**

Residential Solutions

SolarEdge developed the DC optimised inverter solution by splitting the traditional inverter functionality into two. The power optimiser that maximises energy production for each module and a simplified inverter that is only responsible for DC - AC inversion and grid management.

The SolarEdge monitoring application enables PV installers and system owners to perform remote monitoring on the go using their mobile Android device, thus allowing them to constantly be updated on the latest data and be up to speed with their site's performance.

Single Phase inverter with HD-Wave Technology

Less weight, **more power**

SolarEdge's HD-Wave inverter technology is a novel power conversion topology that significantly decreases inverter size and weight while achieving record efficiency.

Optimised installation with HD-Wave technology

- Specifically designed to work with power optimisers
- Record-breaking 99% efficiency
- Extremely small, lightweight and easy to install
- High reliability without any electrolytic capacitors

- Built-in module-level monitoring
- Outdoor and indoor installation
- Fixed voltage inverter for longer strings
- Smart Energy Management control
- Compatible with the StorEdge Interface for StorEdge™ applications

Ordering Information

Product Code	Description
SE2200H-ZA000NNN2	Inverter 1Ø 2,2kW, HD-Wave (-20ºC)
SE3000H-ZA000NNN2	Inverter 1Ø 3kW, HD-Wave (-20ºC)
SE3500H-ZA000NNN2	Inverter 1Ø 3,5kW, HD-Wave (-20ºC)
SE4000H-ZA000NNN2	Inverter 1Ø 4kW, HD-Wave (-20ºC)
SE5000H-ZA000NNN2	Inverter 1Ø 5kW, HD-Wave (-20ºC)
SE6000H-ZA000NNN2	Inverter 1Ø 6kW, HD-Wave (-20ºC)

solaredge

StorEdge AC Coupled Single Phase Inverter with Wave-HD technology

Upgrade existing PV systems to StorEdge™

- All the benefits of the HD-Wave inverter: record-breaking efficiency, extremely small, lightweight and easy to install, and high reliability without any electrolytic capacitors
- Specially designed to work side by side with three-phase SolarEdge inverters and non-SolarEdge inverters
- Compatible with the SolarEdge StorEdge Interfaces and selected battery vendors such as the LG Chem RESU

- Monitor battery status, PV inverter production, and self-consumption data for full visibility
- IP65 – Outdoor and indoor installation
- No high voltage or current during installation, maintenance or firefighting for maximum safety
- The StorEdge™ AC Coupled Inverter does not work with power optimisers or as a standard solar PV inverter

Ordering Information

Product Code	Description
SE3680H-RWSACNNN2	HD-Wave 3,68kW StorEdge AC Coupled Inverter
SE5000H-RWSACNNN2	HD-Wave 5kW StorEdge AC Coupled Inverter

Storedge AC Coupled Single Phase Inverter with HD-Wave technology with Non-SolarEdge Inverter
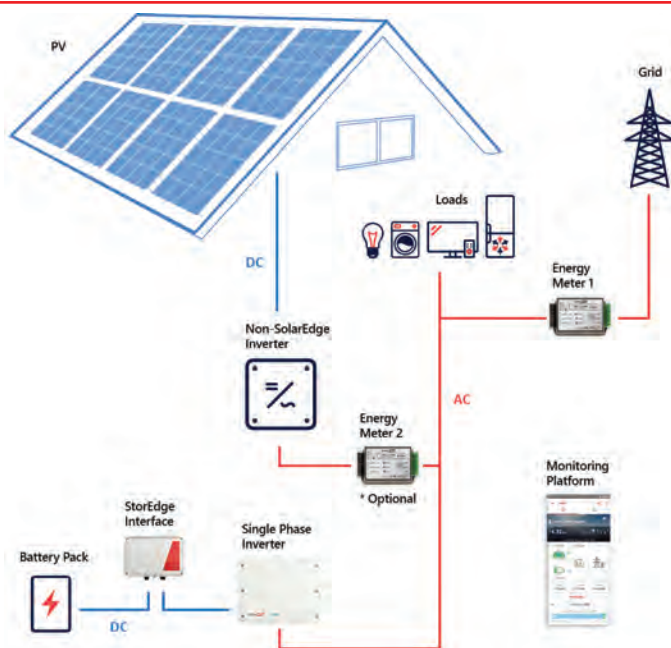
* Optional - needed for full system monitoring: consumption, self-consumption and inverter production

Storedge AC Coupled Single Phase Inverter with HD-Wave technology with Three Phase SolarEdge Inverter

solar**edge**

Three Phase Inverter

Specifically designed to work with power optimisers

- Noise level suitable for residential environment – No external fan
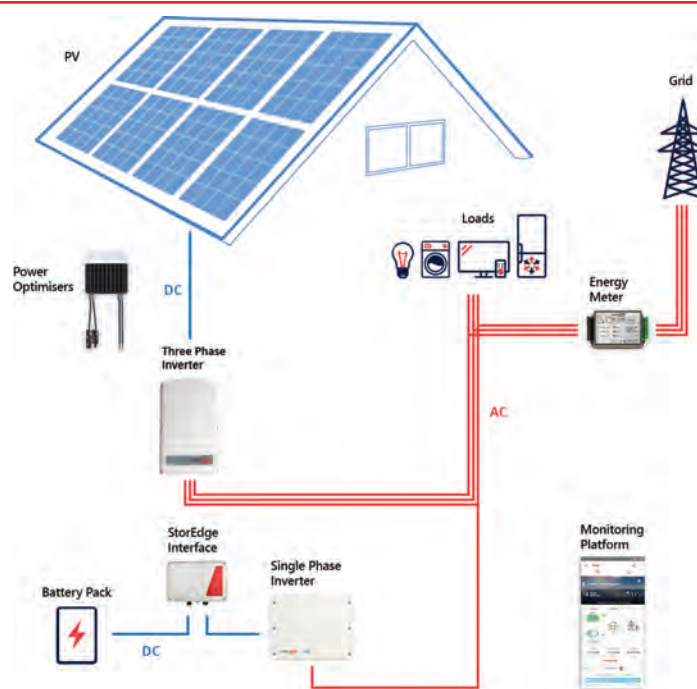- Superior efficiency (98%)
- Small, lightest in its class and easy to install
- Built-in module-level monitoring

- Internet connection through Ethernet or Wireless (Wi-Fi, ZigBee Gateway, Cellular)
- IP65 – Outdoor and indoor installation
- Fixed voltage inverter for longer strings
- Smart Energy Management control

SEXK-ZA00ENNN2

Product Code	Output	INPUT	Weight
	Maximum AC Power Output	Maximum DC Power (Module STC)	
SE4K-ZA00ENNN2	4000VA	5400W	18,7kg
SE5K-ZA00ENNN2	5000VA	6750W	18,7kg
SE7K-ZA00ENNN2	7000VA	9450W	18,7kg
SE8K-ZA00ENNN2	8000VA	10800W	18,7kg
SE9K-ZA00ENNN2	9000VA	12150W	18,9kg
SE10K-ZA00ENNN2	10000VA	13500W	18,9kg
SE12.5K-ZA000NNN2	12500VA	16850W	33,2kg

StorEdge Single Phase Inverter

Ideal for battery storage and backup power

- **Supports StorEdge Solution Applications** - reduce electric bills with maximised self-consumption and profile programming
- **Provides Backup Power** - StorEdge Inverter includes the hardware required for automatically supplying power to backed-up loads in the event of grid outages
- **Simple Design and Installation** - single inverter for managing PV production, battery storage and backup power

- **Enhanced Safety** - designed to eliminate high voltage during installation, maintenance or fire fighting
- **Full Visibility** - built-in monitoring of battery status, PV production, remaining backup power, and self-consumption data
- **Easy Maintenance** - remote access to inverter software

SEXXX-ZAS20NNB2

Product Code	Output - AC (Loads / Grid)	Output - AC (Backup Power)	INPUT DC (PV)	Input - DC (Battery)
	Max AC Power Output	Max AC Power Output - Surge	Maximum DC Power (STC)	Supported Battery Types
SE5000-ZAS20NNB2	4600VA	Lower Power Output: 3300; Higher Power Output: 7300V	6750W	LG Chem RESU7H; LG Chem RESU10H
SE6000-ZAS20NNB2	4600VA	Lower Power Output: 3300; Higher Power Output: 7300V	8100W	LG Chem RESU7H; LG Chem RESU10H

StorEdge Solution with Backup Power

SolarEdge StorEdge Interface
(technical information is on the next page)
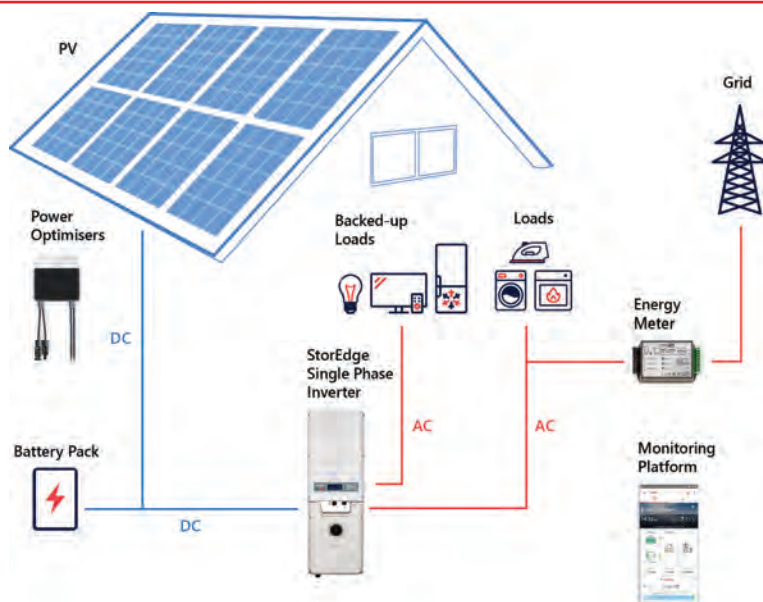
solar**edge**

SolarEdge StorEdge Interface

- Allows connection of selected battery vendors such as the LG Chem RESU to a SolarEdge inverter
- Simple installation and connectivity of the battery and the SolarEdge Meter

- Connects to the SolarEdge inverter in parallel to the PV strings
- Can be used to upgrade existing SolarEdge systems
- Designed to eliminate DC voltage and current during installation, maintenance or firefighting

Product Code	Battery DC Input		
	Number of Batteries per StorEdge system	**Compatible Batteries**	**Compatible Inverters**
SESTI-S1	1	LG Chem RESU7H	Single phase non-HD-Wave Inverters
SESTI-S2	1	LG Chem RESU10H	Single phase non-HD-Wave Inverters
SESTI-S4	1	LG Chem RESU7H LG Chem RESU10H	HD-Wave Inverters

Interface Diagram
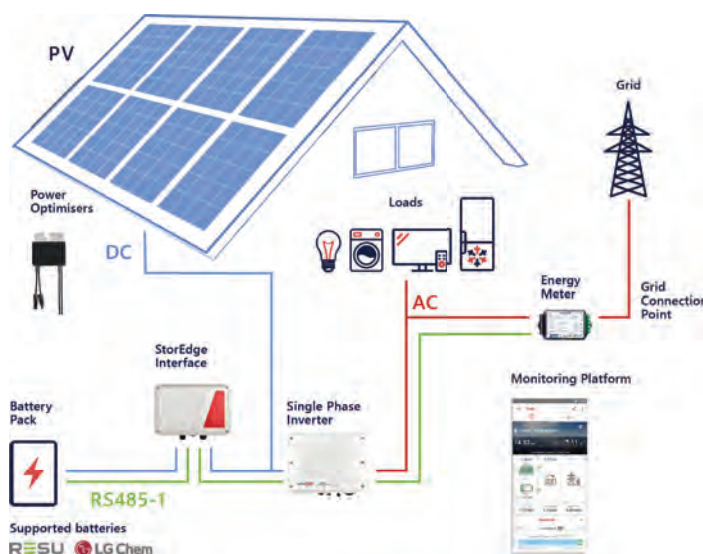
StorEdge ™ and Battery

Optimised PV Production

SolarEdge DC-optimized inverter managing all smart energy applications

Smart Energy

Smart Energy
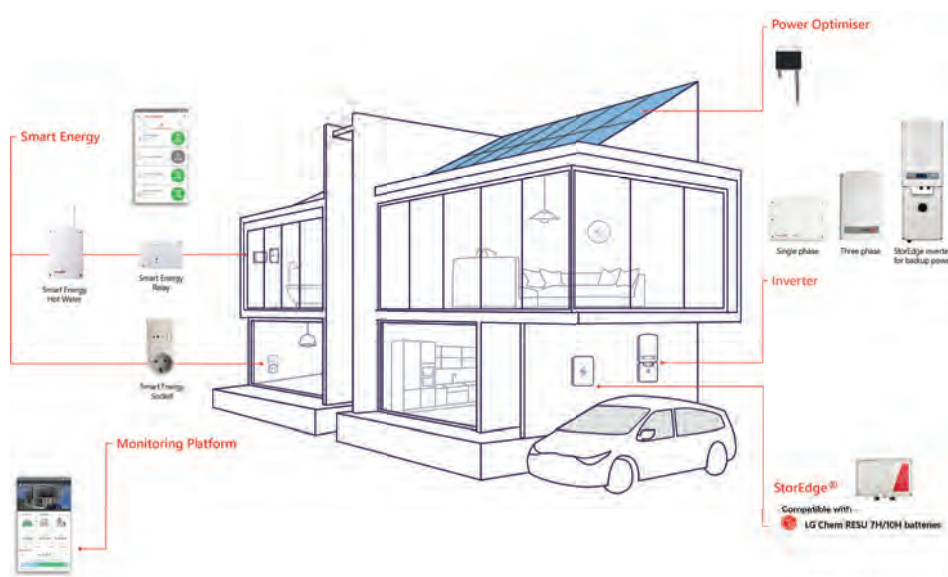
SolarEdge's Smart Energy Management solution increases self-consumption, reduces electricity bills and provides greater user convenience. The solution integrates solar energy, storage management and Smart Energy under the control of the SolarEdge PV inverter. Solar energy usage is maximised by shifting device consumption to match PV production as well as by storing energy to use when needed.

solar**edge**

Smart Energy ZigBee Plug-in

Wireless Home Energy Management Solution
- ZigBee module to support Smart Energy functionality
- Functions as Smart Energy network manager

- Installed within the inverter enclosure for outdoor resilience
- Antenna external to inverter for wider range

SE1000-ZB06-MOD

Functional Unit

Number of devices in a Smart Energy network	Up to 10
Communications with monitoring portal	Single inverter installation - Ethernet / GSM*; Multiple inverter installation - RS485 and Ethernet / ZigBee / Wi-Fi / GSM*

*Requires a SIM card with a 1GB data plan that should be purchased from a cellular provider

RF Performance

Transmit Power	11,8 dBm
Receiver Sensitivity	-102 dBm
Antenna Gain	5 dBi
Operating Frequency Range	2,4-2,5 GHz
Outdoor (LOS) Range	400m
Indoor Range*	50m

*Requires a SIM card with a 1GB data plan that should be purchased from a cellular provider

Ordering Information

Product Code	Description
SE1000-ZB06-MOD*	Wireless Communication ZigBee Module for Home Energy Management

*For every system using Smart Energy products, one Smart Energy ZigBee Plug-in is required

Smart Energy Hot Water

Maximises self-consumption by storing excess energy as hot water

- Smart Energy Hot Water adjusts the power supplied to the heater based on available PV power (up to 3kW)
- Seamless integration with all SolarEdge inverters

- Wireless communication between the inverter and Smart Energy Hot Water via Smart Energy ZigBee Plug-in
- Simple wall mount installation
- Suitable for powering purely resistive loads only

SEHAZB-HEAT-CONT-3 UNITS

Electrical Service

Operating Voltage Range	207 - 253V AC
AC Frequency	50Hz
Supported Grids	L / N / PE
Maximum Supported Load Size	3kW
Maximum Load Current Rating	13A
Minimum Output Power	2% of load rating
Load Type	Resistive
Efficiency	> 97%

Communication

Supported Communication Protocol	ZigBee Home Automation
Nominal Transmit Power	10 dBm
Operating Frequency Range	2,4 - 2,5 GHz
Outdoor (LOS) Range	400m
Indoor Range*	50m

*Approximate values may differ depending on specific installations conditions

Ordering Information

Product Code	SEHAZB-HEAT-CONT-3 UNITS

solar**edge**

Smart Energy - Load Switching Devices

Maximise self-consumption by controlling device usage

Smart Energy Socket
- Wireless AC switch for controlling electrical devices
- Smart Engery can be done remotely according to a preconfigured schedule or dynamically by the inverter for maximised self-consumption
- Built-in energy and power consumption metering
- Provides power measurements up to 3kW

Smart Energy Relay
- Wireless dry contact switch for controlling electrical devices
- Suitable for heat pump control
- Supports a wide input voltage range

Device	Smart Energy Switch	Smart Energy Socket	Smart Energy Relay
Product Code	**SEHAZB-SWITCH-MTR**	**SEHAZB-SCKT-MTR-DE**	**SEHAZB-DR-SWITCH-2**
Product Image			

Electrical Service

Operating Voltage Range - Line to Neutral	90 - 250V AC	90 - 250V AC	90 - 250V AC
AC Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60Hz
Maximum Active Power Measurement	3kW	3kW	N / A
Maximum Load Current	13A	13A	13A
Dry Contact Voltage Range	N / A	N / A	0 - 250V AC / V DC

Communication

Supported Communication Protocol	ZigBee Home Automation	ZigBee Home Automation	ZigBee Home Automation
Nominal Transmit Power	3 dBm	3 dBm	10 dBm
Operating Frequency Range	2,4 - 2,5 GHz	2,4 - 2,5 GHz	2,4 - 2,5 GHz
Outdoor (LOS) Range	100m	100m	400m
Indoor Range*	50m	50m	50m

* Approximate values. May differ depending on specific installation conditions

Installation Specifications

Operating Temperature Range	0 to +50°C	0 to +50°C	0 to +50°C
Protection Rating	IP30	IP30	IP30
Dimensions (H x W x D)	110 x 70 x 25mm	110 x 50 x 40mm	110 x 70 x 25mm
Mounting Type	Wall mount	N / A	Wall mount

Load Switching Devices Diagram

solar**edge**

Pxxx Power Optimiser

SolarEdge power optimisers can be used with crystalline silicon PV modules or Thin film modules to provide module-level MPPT and performance monitoring, and are designed to work exclusively with SolarEdge inverters. All power optimisers have 99,5% maximum efficiency and are backward-compatible with older SolarEdge products.

The P300 - P505 optimisers can be used with any SolarEdge inverter, while the P600 - P800 dual-module optimisers are compatible only with large 3-phase inverters. SolarEdge optimisers can be attached to most PV mounting systems using a single fastener.

Features

- SafeDC™ module-level shutdown for added safety (1V DC per optimiser)
- NEMA6P, IP68 environmental protection rating
- Operating temperatures of -40°C to +85°C

- Available for 60-Cell, 72-Cell, 96-Cell, and bi-facial PV modules
- 99,5% maximum efficiency
- 25 years warranty
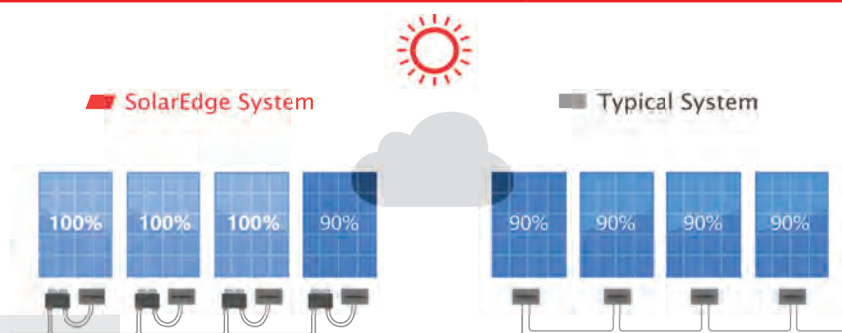
Power Optimiser: Module Add-On for Residential

PV power optimisation at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99,5%)
- Mitigates all types of modules mismatch-loss, from manufacturing tolerance to partial shading

- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module level monitoring
- Module-level voltage shut down for installer and firefighter safety

Product Code	Compatible Module Type	Rated Input DC Power @ STC	Maximum Input Voltage (@ Min. Temp)	Input Connectors	Output Cable (Length)
P300-5R M4M RS	60-Cell	300W	48V	MC4	0,95m
P370-5R M4M RM	For high power 60-Cell and 72-Cell	370W	60V	MC4	1,2m
P404-5R M4M RM	For 60-Cell and 72-Cell, short strings	405W	80V	MC4	1,2m
P500-5R M4M RM	96-Cell	500W	80V	MC4	1,2m
P505-5R M4M BM	For higher current modules	505W	83V	MC4	1,2m

Compliant with: IEC61000-6-2, IEC61000-6-3, FCC Part 15 B, IEC62109-1 Class II

Power Optimiser: Frame-mounted Module Add-On for Residential

Fast mount power Optimisers with module-level optimisation

- Specifically designed to work with SolarEdge inverters
- Quicker installation - Power optimisers can be mounted in advance saving installation time
- Up to 25% more energy
- Superior efficiency (99,5%)

- Mitigates all types of modules mismatch-loss, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Next generation maintenance with module level monitoring
- Module-level voltage shutdown for installer and firefighter safety

Product Code	Compatible Module Type	Rated Input DC Power @ STC*	Maximum Input Voltage (@ Min. Temp)	Input Connectors	Output Cable (Length)
P300-5R M4M FS	60-Cell	300W	48V DC	MC4	0,95m
P370-5R M4M FM	For high power 60-Cell and 72-Cell	370W	60V DC	MC4	1,2m
P404-5R M4M FM	60-Cells / 72-Cells, short strings	405W	80V DC	MC4	1,2m
P500-5R M4M FM	96-Cell	500W	80V DC	MC4	1,2m

Compliant with: IEC61000-6-2, IEC61000-6-3, FCC Part 15 B, IEC62109-1 Class II. *Rated STC power of the module. Module of up to +5% power tolerance allowed.

solaredge

Commercial Solutions

The SolarEdge solution consists of inverters, power optimisers, and a monitoring platform. The technology provides superior power harvesting and module management by connecting power optimisers at the module level. The ability to connect two modules to one optimiser, combined with DC to AC conversion and grid interaction being centralised at a simplified PV inverter maintains a competitive cost structure.

The cloud based SolarEdge monitoring platform provides enhanced PV performance monitoring and yield assurance through immediate fault detection and alerts at module level, string level and system level.

Three Phase Inverters

Large capacity, easy to install

Three Phase Inverter with synergy technology
- up to 100kVA

The inverter design is based on small, lightweight, and easy-to-carry primary and secondary units. They are wall mounted for a minimal footprint, with installation only requiring a one or two-person crew.

No crane or special tools are needed when installing the inverter, unlike alternative large capacity inverters on the market today, which are heavy, bulky, and difficult to install. Installing SolarEdge's large capacity inverters instead of using multiple, smaller capacity inverters will further reduce setup times and costs. This new generation of SolarEdge inverters is available in the following sizes: 50kVA, 55kVA, and 82,8kVA as well as 66,6kVA and 100kVA for medium voltage grids.

Specifically designed to work with power optimisers

- Easy two-person installation – each unit mounted separately, equipped with cables for simple connection between units
- Balance of System and labour reduction compared to using multiple smaller string inverters
- Independent operation of each unit enables higher uptime and easy serviceability
- No wasted ground area: wall / rail mounted or horizontally mounted under the modules (10˚ inclination)

- Built-in module-level monitoring with Ethernet or cellular GSM
- Fixed voltage inverter for superior efficiency (98,3%) and longer strings
- Integrated DC Safety Unit with DC Safety Switch and optional surge protection & DC fuses – eliminates the need for external DC isolators
- Built-in RS485 Surge Protection Device, to better withstand lightning events

Ordering Information

Product Code	Output			Input	
	Rated AC Power Output	Current (per Phase) @V AC, NOM	Grids Supported — Three Phase	Max. DC Power (Module STC), Inverter / Unit	Max. Inverter Efficiency
SE55K-ZA000NNN2	55000VA	80A	3 / N / PE (WYE with Neutral) V	74500 / 37250W	98,3%
SE55K-ZA0P0BNG4*	55000VA	80A	3 / N / PE (WYE with Neutral) V	74500 / 37250W	98,3%
SE55K-ZA0P0BNU4*	55000VA	80A	3 / N / PE (WYE with Neutral) V	74500 / 37250W	98,3%
SE82.8K-ZA000NNN2	82800VA	120A	3 / N / PE (WYE with Neutral) V	111750 / 37250W	98,3%
SE82.8K-ZA0P0BNG4*	82800VA	120A	3 / N / PE (WYE with Neutral) V	111750 / 37250W	98,3%
SE82.8K-ZA0P0BNU4*	82800VA	120A	3 / N / PE (WYE with Neutral) V	111750 / 37250W	98,3%

* G4 is for inverters with glands, U4 is for inverters with MC4

solaredge

Three Phase Inverter

SolarEdge offer multiple models of three-phase commercial inverters. The SolarEdge inverters are designed to work exclusively with SolarEdge power optimisers. MPPT and voltage management is handled by the power optimisers, allowing for a very high-efficiency, low cost inverter. The inverters operate with a high input voltage, allowing for longer string lengths, less wire line loss, and fewer BOS system components.

These wall-mountable inverters are lightweight, and have built in Module-Level Monitoring. The inverters are rated for use from temperatures of -20°C to +60°C. The built-in SafeDC™ feature automatically shuts down the DC current and voltage from the power optimisers when it detects excessive heat, when the SolarEdge inverter is turned off, or disconnected from the grid, to ensure installer and firefighter safety.

Product Code	Description	AC Output	Max DC Input	European Weighted Efficiency	Max AC Current	Weight
SE15K-ZA000NNN2	SE 3 phase inverter 15kW	15000VA	20250W	97,6%	23A	33,2kg
SE16K-ZA000NNN2	SE 3 phase inverter 16kW	16000VA	21600W	97,7%	25,5A	33,2kg
SE17K-ZA000NNN2	SE 3 phase inverter 17kW	17000VA	22950W	97,7%	26A	33,2kg
SE25K-ZA000NNN2	SE 3 phase inverter 25kW	25000VA	33750W	98%	38A	45kg
SE25K-ZA000NNP2	Inverter 3Ø, 25kW, DCD and SPD (-20°C), with safety unit	25000VA	33750W	98%	38A	48kg
SE25K-ZA000NND2	Inverter 3Ø, 25kW, DCD, SPD and Fuses (-20°C), with safety unit	25000VA	33750W	98%	38A	48kg*
SE27.6K-ZA000NNN2	SE 3 phase inverter 27,6kW, (-20°C)	27600VA	37250W	98%	40A	45kg
SE27.6K-ZA000NNP2	Inverter 3Ø, 27,6kW, DCD and SPD (-20°C), with safety unit	27600VA	37250W	98%	40A	48kg*
SE27.6K-ZA000NND2	Inverter 3Ø, 27,6kW, DCD, SPD and Fuses (-20°C), with safety unit	27600VA	37250W	98%	40A	48kg*
SE33.3K-ZA048NNN2	SE 3 phase inverter 33,3kW MV	33300VA	45000W	98%	40A	45kg
SE33.3K-ZA048NNP2	Inverter 3Ø, 33,3kW for the Medium Voltage grid, DCD and SPD (-20°C), with safety unit	33300VA	45000W	98%	40A	48kg*
SE33.3K-ZA048NND2	Inverter 3Ø, 33,3kW for the Medium Voltage grid, DCD, Fuses, (-20°C), with safety unit	33300VA	45000W	98%	40A	48kg*

*Weight with safety unit

Power Optimiser: Module Add-On for Commercial

PV power optimisation at the module-level
The most cost effective solution for commercial and large field installations

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99,5%)
- Balance of System cost reduction; 50% less cables, fuses and combiner boxes, over 2x longer string lengths possible

- Fast installation with a single bolt
- Advanced maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety
- Use with two PV modules connected in series or in parallel

Product Code	Compatible Module Type	Rated Input DC Power @ Stc	Maximum Input Voltage (@ Min. Temp)	Input Connectors	Output Cable (Length)
P600-5R M4M RM	60 Cell - 2 in series (portrait)	600W	80V	MC4	1,2m
P600-5R M4M RL	60 Cell - 2 in series (landscape)	600W	96V	MC4	1,8m
P700-5R M4M RM	72 Cell - 2 in series (portrait)	730W	125V	MC4	1,2m
P700-5R M4M RX	72 Cell - 2 in series (landscape)	730W	125V	MC4	2,1m
P800P-5R MDM RM	Parallel connection of 2x 96-Cell 5'' PV modules	800W	83V	MC4	1,2m
P800P-5R MDM RL	Parallel connection of 2x 96-Cell 5'' PV modules MC4 Dual Input	800W	83V	MC4 Dual Input	1,8m
P800S-5R M4M RM	Series connection of 2x high power or bi-facial modules	800W	120V	MC4 Dual Input	1,2m
P800S-5R M4M RX	Series connection of 2x high power or bi-facial modules	800W	120V	MC4	2,1m

SEXXK-ZA000NNN2

SEXXK-ZA000NNP2 and SEXXK-ZA000NND2

P800P-5R*****

P800S-5R*****

solar**edge**

P600 and P700

SE1000-CCG-G

SE1000-SEN-WIND-S1

SE1000-WIFI01

SE-ACT*

SE-WND-3Y-400-MB-K1
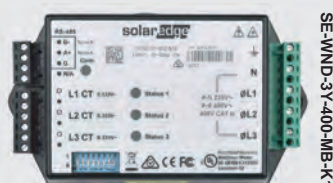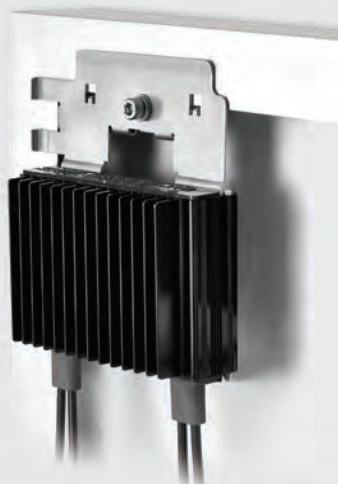
Power Optimiser: Frame-Mounted Module Add-On for Commercial

Fast mount power optimisers with module-level optimisation

- Specifically designed to work with SolarEdge inverters
- Quicker installation - Power optimisers can be mounted in advance saving installation time
- Up to 25% more energy
- Superior efficiency (99,5%)

- Mitigates all types of module mismatch-loss, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Next generation maintenance with module level monitoring
- Module-level voltage shutdown for installer and firefighter safety

Product Code	Compatible Module Type	Rated Input DC Power @ Stc	Maximum Input Voltage (@ Min. Temp)	Input Connectors	Output Cable (Length)
P600-5R M4M FL	For 2 x 60-Cell PV modules (landscape)	600W	96V	MC4	1,8m
P700-5R M4M FX	For 2 x 72-Cell PV modules (landscape)	700W	125V	MC4	2,1m

SolarEdge Monitoring And Accessories

SolarEdge provides free web-based monitoring.

The system provides PV performance monitoring, fault detection, performance monitoring, fault detection, and troubleshooting at module, string, and system levels. Web-based software provides real-time monitoring, facilitating increased system uptime, and lowering maintenance costs. Remote fault detection pinpoints the location of under performing modules on a virtual PV site map. The monitoring sensors and transmitters are built-in and data is transmitted over the DC power lines. Connection between the inverter(s) and the Internet can either be by Ethernet or a wireless connection using a ZigBee gateway with connections between multiple inverters using their RS-485 connection ports. A free monitoring iPhone app. or Android app. is available as a download from the Apple iTunes Store or Google Play. Registered users can monitor multiple sites from their iPhone or Android device.

The application provides an at-a-glance view of past and present energy production. Current weather conditions and forecasts are also presented to aid in assessing the system's performance. The Site Mapping Tool software is also available free on the SolarEdge website, which allows bar code scanning for creation of a virtual site map using an iPhone or Android phone. The SolarEdge Designer software for on-site configuration and module-level installation verification are available free online as well. The ZigBee Gateway Kit includes the ZigBee gateway and a single ZigBee Plug-in with extended range antenna for connecting a single inverter wirelessly to an existing network router. A ZigBee Plug-in can be used to connect each additional inverter and the ZigBee Repeater can be used to extend the range of the network up to 240m.

Ordering Information

Category	Product Code	Description
Communication	**SE1000-CCG-F**	Firefighter Safety Gateway
	SE1000-CCG-G	Commercial Gateway
	SE1000-WIFI01	Wi-Fi module kit
	SE1000-ZB05-SLV	Zigbee Plug-In
	SE1000-ZBGW-K5	Home Gateway + Slave Kit
	SE1000-ZBRPT05	Zigbee Repeater (Range Extender)
	SE1000-RS485-IF	RS485 Plug-In
Metering Solutions	**SE-ACT-0750-50**	50A Split - Core Current Transformer
	SE-ACT-0750-100	100A Split - Core Current Transformer
	SE-ACT-0750-250	250A Split - Core Current Transformer
	SE-CTML-0350-070	70A Split - Core Current Transformer
	SE-CTS-2000-1000	1000A Split - Core Current Transformer
	SE-WND-3Y400-MB-K1	1PH / 3PH 230V / 400V Energy Meter DIN Rail, CLASS 05

STUDER

Bi-Directional Inverter / Chargers

Design your hybrid solar system using high quality Swiss made battery inverters, battery management and MPPT chargers.
Suitable for a variety of system types, these high grade components are among the best in the world.

XTS (0.9-> 1.4kVA)   XTM (1.5-> 1.4kVA)   XTH (3-> 8kVA)

XTS

XTM

XTH

Features and performance

- True sine wave voltage
- Reliable and silent with any kind of load
- Outstanding overload capabilities
- AC and DC coupled solar solutions
- Parallel single phase and 3 phase configurations easily configured

- Multi-stage programmable battery charger with PFC (Power Factor Correction)
- Stand-by level adjustable over a large range and from a very low threshold
- Ultra-fast transfer relay
- Control by digital signal processors (DSP)
- High efficiency
- 5-year warranty

Product Code	Power P30 / Pnom [Va]	Battery Voltage Unom [V]	Current Transfer Imax [A]	Charger Current Imax [A]
XTS 900-12	900** / 500	12V	16A	35A
XTS 1200-24	1200** / 650	24V	16A	25A
XTS 1400-48	1400** / 750	48V	16A	12A
XTM 1500-12	1500 / 1500	12V	50A	70A
XTM 2000-12	2000 / 2000	12V	50A	100A
XTM 2400-24	2400 / 2000	24V	50A	55A
XTM 2600-48	2600 / 2000	48V	50A	30A
XTM 3500-24	3500 / 3000	24V	50A	90A
XTM 4000-48	4000 / 3500	48V	50A	50A
XTH 3000-12	3000 / 2500	12V	50A	160A
XTH 5000-24	5000 / 4500	24V	50A	140A
XTH 6000-48	6000 / 5000	48V	50A	100A
XTH 8000-48	8000 / 7000	48V	50A	120A

** Additional power with the ECF-01 fan module, as an option

Parallel 3 phase operation, up to 27kW per phase
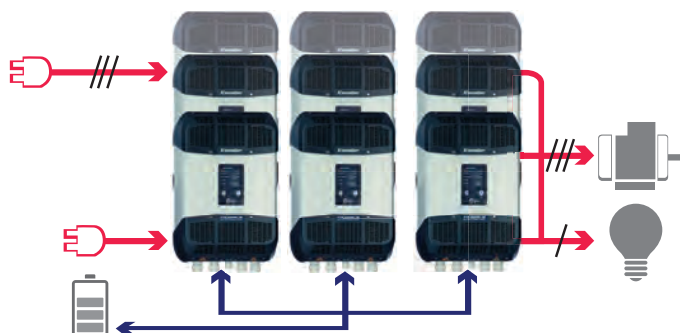
Single phase DC coupled configuration with generator backup

VT
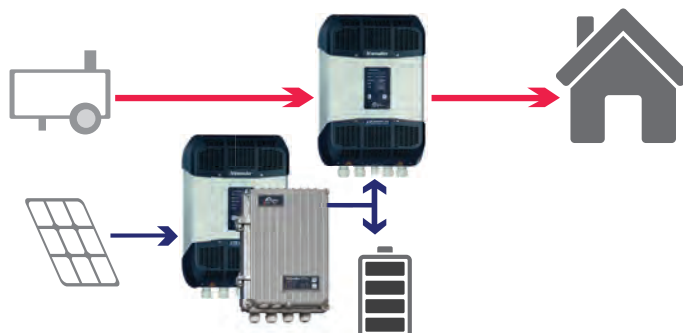
MPPT Solar Charge Controllers
VarioString series VarioTrack series

MPPT solar charge controllers for systems with solar PV capacity from 1 - 75kWp (with 15 in parallel), a PV input voltage up to 150V DC, and 12V, 24V or 48V battery banks.
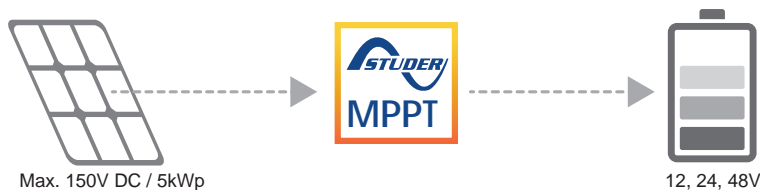
Max. 150V DC / 5kWp

MPPT

12, 24, 48V

Product Code	Recommended PV Power [W]	Battery Voltage Unom [V]	PV Voltage U [V]	Max. Charge Current Imax. [A]
VT-65	1000 (12V) 2000 (24V) 4000 (48V)	12V / 24V / 48V	80 (12V) / 150 (24 - 48V)	65
VT-80	1250 (12V) 2500 (24V) 5000 (48V)	12V / 24V / 48V	80 (12V) / 150 (24 - 48V)	80

VarioString Series

MPPT solar charge controllers for systems with solar PV capacity from 3 - 105kWp (with 15 in parallel), a PV input voltage up to 900V DC and 48V battery banks. Includes galvanic isolation between the PV and battery circuits.
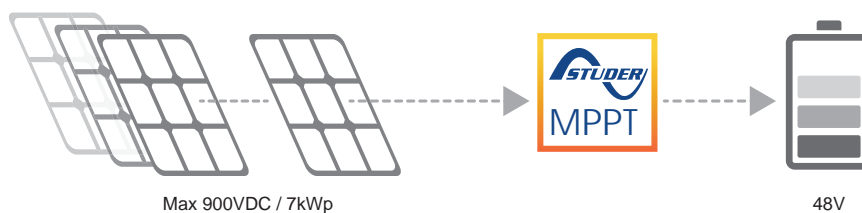
VS

Max 900VDC / 7kWp

MPPT

48V

Product Code	Recommended PV Power [W]	Battery Voltage Unom [V]	PV Voltage U [V]	Max. Charge Current Imax. [A]
VS-120	7000W	48V	250 - 500 parallel / 500 - 750 series	120A
VS-70	4200W	48V	250 - 500	70A

Accessories: Remote Control And Programming Centre

The RCC-02 enables user supervision and control of the system via the many parameter settings.

RCC-02

Product Code	Mounting	Dimensions (H x L x l)
RCC-02	Surface Mounted	170 x 168 x 43,5mm
RCC-03	Flush Mounted	170 x 168 x 43,5mm

For use with Xtender, VarioTrack and VarioString systems.

Accessories: Battery Status Processor

For precise battery measurements and an algorithm that calculates the state of charge in the most accurate way.

BSP*

Product Code	Shunt	Dimensions (H x L x l)
BSP 500	500A Shunt	110,5 x 75 x 26mm
BSP 1200	1200A Shunt	110,5 x 75 x 26mm

Also requires: either **RCC-02** or **RCC-03** | For use with Xtender, VarioTrack and VarioString systems.

BSP 500

Xcom- LAN

Xcom-GSM

Xcom-CAN

BTS-01

Accessories: Communication Module Xcom-232I

Xcom-232i is an RS232 serial bridge for communications access to a Studer system consisting of one or more Xtenders, VarioTracks or VarioStrings from any host.

Product Code	Dimension (H x L x I)
BSP 500	110,5 x 75 x 26mm
For use with Xtender, VarioTrack and VarioString systems.	

Accessories: Communication Sets

For Internet communication to the Studer Internet Portal, from where all parameters, real time system details and the last 30 days of log files can be viewed. Full system control as if from as RCC-02 / 03.

Product Code	Description
Xcom-LAN	(1 x Ethernet port and all necessary accessories)
Xcom-GSM	(GSM modem and all necessary accessories)
For use with Xtender, VarioTrack and VarioString systems.	

Accessories: Communication Module Xcom-Can

For communication with Lithium BMSs. List of compatible batteries available on request

Product Code	Xcom-CAN

Accessories: X-Connect Multi Xtender System

The pre-wired mounting offers a flexible and cost effective solution for high power systems (up to 63kVA) based on the XTH inverter / charger.

Communication Cable

Connect Xtenders, VarioTracks and the VarioStrings together to build multi-unit systems.

BTS-01 Battery Temperature Sensor

Accurately adapt the charge thresholds to the battery temperature.

Product Code	Dimensions (H x L x W)
BTS-01	58 x 51,5 x 22mm

emponi
off-grid solutions

PV Pump Drives

3 Phase Motor Drives:

Empo-ni's "Solar Direct Drives" are high-grade PV powered motor inverters. Suited to a multitude of applications, they can be used on many 3-phase motors in everything from pumps, compressors, fans and simple machines to general industrial applications. They have specifically been developed for solar power and therefore are capable of dealing with the behaviour of an erratic and variable power supply. Maximum Power Point Tracking of the array is integrated into the fundamental behaviour of the drive. As the sun rises, the frequency of the motor is ramped up, to the maximum set point. As the power diminishes, the drive will ramp down again, until no load can be sustained and the drive will shut down.

Developed and manufactured in Germany, they have been tested in the harshest conditions, including in the Sahara desert. Their high IP rating means that they do not need to be enclosed and can be surface mounted. Additionally, their fan-less design means that the most common failure mode on VSDs is eliminated.

Features

Popular uses:

Water pumping | Fans |
Compressors | Simple machines

SDD1.5-425

SDD5.5-850 (M)

Now available pre-kitted from Emponi, the kits contain specially matched motors enabling best possible performance in a small array! The kits are available in 2 types, enabling the user to select the pump which best suits the well depth.

Kit part number:	Description:
SDD-1.5-550W/35M	SDD1.5 kw drive with 4" 550W motor and 35m pump
SDD-1.5-550W/85M	SDD1.5 kw drive with 4" 550W motor and 85m pump

Hydraulic performance pump type optimized for 35m pump head duty point

Pump head	2	19	25	30	37	43	49	m
Discharge	5,49	4,38	3,84	3,38	2,45	1,15	0	[m³/h]

Hydraulic performance pump type optimized for 85m pump head duty point

Pump head	35	45	60	85	95	105	120	m
Discharge	1,55	1,43	1,18	0,87	0,62	0,52	0	[m³/h]

Hydraulic System Specification

External Casing :	Stainless Steel
Pump Stages:	Polycarbonate
Impeller:	Noryl
Max. Water Temperature:	35 °C
Sand Content:	max. 50g / m³
Utilization:	EN 60335-2-41
Power Input:	550W @ 2850 rpm
Water Connection:	DNM 1"1 / 4
Bore Diameter:	DN 100mm

Backup and PUS Pure Sine Wave Pwer Inverter for Load Shedding

SYNAPSE

- Pure sine wave output
- Smart LCD setting (frequency , charge voltage, charge current, etc).
- 3 steps charging algorithm
- Built in AVR function
- Overload and short-circuit protection
- Battery reverse polarity protection (Optional)
- Deep discharge protection
- Cold start function

Utility

External Battery packs

BATTERY

Home Appliances

The SYNAPSE Solar pure sine wave series is designed to work and protect PC equipment and serves as a backup device in extremely hostile power environments where other UPS simply cannot operate. An extra wide input AVR conserves battery for added security. Includes a multi-stage surge suppressor which can protect from surges and spikes. Available in 600W and 1000W versions. These units are powered / charged from the utility / grid only.

SYNAPSE 600

SYNAPSE 1000

Product Code		SYNAPSE 600	SYNAPSE 1000
Default Battery System Voltage		12V DC	24V DC
Inverter Output	Rated Power	600W	1000W
	Surge Rating (20ms)	1800W	3000W
	Waveform	Pure Sine Wave	Pure Sine Wave
	Rated Output Voltage	Inverter: 230V AC (+/-2% RMS), AVR: 195V AC - 245V AC	
	Output Frequency	50Hz / 60Hz +/-0,2Hz	50Hz / 60Hz +/-0,2Hz
	Inverter Efficiency (Peak)	>75%	>81%
	Bypass Efficiency	>95%	>95%
	Output Transfer Time	Typical: 6ms 10ms (Max.)	Typical: 6ms 10ms (Max.)
Battery	Minimum Start Voltage	Low Battery Voltage Cutoff +0,5V	Low Battery Voltage Cutoff +0,5V
	Low Battery Alarm	Low Battery Voltage Cutoff +0,5V	Low Battery Voltage Cutoff +1V
	Low Battery Cutoff	10 - 12V DC	20 - 24V DC
	High Battery Cutoff	Nominal Voltage +0,5V	Nominal Voltage +1V
Ac Charge	Floating Voltage	13,5 / 13,6 / 13,7V DC	27 / 27,2 / 27,4V DC
	Nominal Voltage	13,8 ~ 14,5V	27,6 ~ 29V
	Maximum Charge Current	600W	1000W
		20A	15A
Bypass & Protection	Input Waveform	Pure Sine Wave	Pure Sine Wave
	Input Frequency	50Hz or 60Hz	50Hz or 60Hz
	Low Frequency Trip	45+ / -0,2Hz	45+ / -0,2Hz
	Low Frequency Trip	65+ / -0,2Hz	65+ / -0,2Hz
	Overload Protection	110% ~ 125% R Load fault after 30S 125% ~ 150% R Load fault after 3s >150% R Load fault after 500ms	
	Over Temperature Protection	>90ºC	>90ºC
	Bypass Output Protection	10A 250V AC	10A 250V AC
	Output Circuit protection	YES	YES
Mechanical Specification	Dimensions	385 x 325 x 190mm	385 x 325 x 190mm
	(N.W) kg	3000W	1000W
		8kg	13,5kg
	Shipping Dimensions (W x H x D)	420 x 385 x 225mm	420 x 385 x 225mm

SYNAPSE-C2

Acc. Battery Boxes

Product Code	Description
SYNAPSE-C1	Battery box for 1x 12V 100AH
SYNAPSE-C2	Battery box for 2x 12V 100AH

SYNAPSE 3.0+ Off-Grid Inverter

SYNAPSE

- Pure sine wave solar inverter

- Output power factor 1

- High PV input voltage range

- Inverter running without battery

- Built-in 60A MPPT solar charger

- Battery equalization function to optimize battery performance and extend lifecycle

- Built-in anti-dusk kit for harsh environment

Model

Product Code	**SYNAPSE 3.0+**
Rated Power	3000VA / 3000W

Input

Voltage	230V AC
Selectable Voltage Range	170 - 280V AC (For Personal Computers); 90 - 280V AC (For Home Appliances)
Frequency Range	50Hz / 60Hz (Auto sensing)

Output

AC Voltage Regulation (Battery Mode)	230V AC ± 5%
Surge Power	6000VA
Efficiency (Peak)	90% ~ 93%
Transfer Time	10 ms (For Personal Computers); 20 ms (For Home Appliances)
Waveform	Pure sine wave

Battery

Battery Voltage	24V DC
Floating Charge Voltage	27V DC
Overcharge Protection	33V DC

Solar Charger & AC Charger

Maximum PV Array Open Circuit Voltage	145V DC
Maximum PV Array Power	1500W
MPP Range @ Operating Voltage	30 ~ 115V DC
Maxmum Solar Charge Current	60A
Maximum AC Charge Current	60A
Maximum Charge Current	120A

Physical

Dimension (D x W x H)	100 x 300 x 440mm
Net Weight	9,5kgs
Communication Interface	USB / RS232

Environment

Humidity	5% to 95% Relative Humidity (Non-condensing)
Operating Temperature	-10°C to 50°C
Storage Temperature	-15°C to 60°C

Product specifications are subject to change without further notice.

SYNAPSE 5.0+ Off-Grid Inverter

SYNAPSE

- Pure sine wave solar inverter

- Output power factor 1

- High PV input voltage range

- Inverter running without battery

- Built-in 80A MPPT solar charger

- Battery equalization function to optimize battery performance and extend lifecycle

- Built-in anti-dusk kit for harsh environment

Operation with battery connected

Solar Power and AC Power available

Solar Power and AC Power not available

Operation with battery connected

Solar Power available

Model

Product Code	SYNAPSE 5.0+
Rated Power	5000VA / 5000W

Input

Voltage	230V AC
Selectable Voltage Range	170 - 280V AC (For Personal Computers); 90-280V AC (For Home Appliances)
Frequency Range	50Hz / 60Hz (Auto sensing)

Output

AC Voltage Regulation (Battery Mode)	230V Ac ± 5%
Surge Power	10000VA
Efficiency (Peak)	90% ~ 93%
Transfer Time	10 ms (For Personal Computers); 20 ms (For Home Appliances)
Waveform	Pure sine wave

Battery

Battery Voltage	48V DC
Floating Charge Voltage	54V DC
Overcharge Protection	63V DC

Solar Charger & AC Charger

Maximum PV Array Open Circuit Voltage	500V DC
Maximum PV Array Power	4000 W
MPP Range @ Operating Voltage	120 ~ 450V DC
Maxmum Solar Charge Current	80A
Maximum AC Charge Current	60A
Maximum Charge Current	80A

Physical

Dimension (D x W x H)	100 x 300 x 440mm
Net Weight	10kgs
Communication Interface	USB / RS232

Environment

Humidity	5% to 95% Relative Humidity (Non-condensing)
Operating Temperature	-10°C to 50°C
Storage Temperature	-15°C to 60°C

Product specifications are subject to change without further notice.

SYNAPSE 5.0K+ Off-Grid Inverter

SYNAPSE

- Zero transfer time to protect mission-critical loads such as servers and ATM.

- Detachable LCD control module with multiple communications

- Built-in Bluetooth for mobile monitoring (Android App is available)

- Supports USB On-the-Go function

- Reserved communication port for BMS (RS485, CAN-BUS or RS232)

- Configurable AC/PV output usage timer and prioritization

- Optional parallel operation up to 9 units

Model

Product Code	SYNAPSE 5.0K+
Rated Power	5000VA / 5000W
Parallel Capability	Up to 9 units

Input

Voltage	230V AC
Voltage Range	110 - 280V AC
Frequency Range	50Hz / 60Hz (Auto sensing)

Output

AC Voltage Regulation (Battery Mode)	230V AC ± 5%
Surge Power	10000VA for 5 sec
Efficiency (Peak)	93% at Line Mode, 90% at Battery Mode
Transfer Time	0 ms
Waveform	Pure sine wave

Battery

Battery Voltage	48V DC
Floating Charge Voltage	54V DC
Overcharge Protection	66V DC

Solar Charger & AC Charger

Maximum PV Array Open Circuit Voltage	145V DC
Maximum PV Array Power	4000W
MPP Range @ Operating Voltage	60 ~ 115V DC
Maxmum Solar Charge Current	80A
Maximum AC Charge Current	60A
Maximum Charge Current	140A

Physical

Dimension (D x W x H)	140 x 303 x 525mm
Net Weight	13.5kgs
Communication Interface	USB / RS232 / RS485 / Bluetooth / Dry-contact

Environment

Humidity	5% to 95% Relative Humidity (Non-condensing)
Operating Temperature	0°C to 55°C
Storage Temperature	-15°C to 60°C

Product specifications are subject to change without further notice.

ES Series | Single-phase Energy Storage Inverter | 3,6kW / 5kW

The GoodWe ES series bi-directional energy storage inverter can be used for both on-grid and off-grid PV systems. During the day, the PV array generates electricity which can be provided either to the loads, fed into the grid or charge the battery, depending on the economics and set-up. The electricity stored can be released when the loads require it during the night. Additionally, the power grid can also charge the storage devices via the inverter.

Battery Input Data

Product Code	GW3648D-ES	GW5048D-ES
Battery Type	Li-Ion or Lead-acid[*1]	Li-Ion or Lead-acid[*1]
Nominal Battery Voltage	48V	48V
Max. Charging Voltage	≤60V (Configurable)	≤60V (Configurable)
Max. Charging Current[*1]	75A	100A
Max. Discharging Current[*1]	75A	100A
Battery Capacity[*2]	50 ~ 2000Ah	50 ~ 2000Ah
Charging Strategy for Li-Ion Battery	Self-adaption to BMS	Self-adaption to BMS

PV String Input Data

Max. DC Input Power	4600W	6500W
Max. DC Input Voltage	580V	580V
MPPT Range	125 ~ 550V	125 ~ 550V
Start-up Voltage[*3]	150V	150V
MPPT Range for Full Load	170 ~ 500V	170 ~ 500V
Nominal DC Input Voltage	360V	360V
Max. Input Current	11 / 11A	11 / 11A
Max. Short Current	13,8 / 13,8 A	13,8 / 13,8 A
No. of MPP Trackers	2	2
No. of Strings per MPP Tracker	1	1

AC Output Data (On-grid)

Nominal Apparent Power Output to Utility Grid	3680VA	4600VA
Max. Apparent Power Output to Utility Grid[*4]	3680VA	5100VA
Max. Apparent Power from Utility Grid	7360VA	9200VA
Nominal Output Voltage	230V	230V
Nominal Output Freqency	50 / 60 Hz	50 / 60 Hz
Max. Ac Current Output to Utility Grid	16A	24,5 x 5A
Max. Ac Current From Utility Grid	32A	40A
Output Power Factor	~1(Adjustable from 0,8 leading to 0,8 lagging)	
Output THDi (@Nominal Output)	<3%	<3%

AC Output Data (Back-up)

Max. Output Apparent Power	3680VA	4600VA
Peak Output Apparent Power[*6]	5520,10sec VA	6900,10sec VA
Max. Output Current	16A	20A
Nominal Output Voltage	230 (±2%) V	230 (±2%) V
Nominal Output Freqency	50/60 (±0,2%) Hz	50/60 (±0,2%) Hz
Output THDv (@Linear Load)	<3%	<3%

GOODWE
YOUR SOLAR ENGINE

- **IP65**
- **Uninterruptible Power Supply**
- **Remote Upgrade**
- **100A**
- **Export Control**
- **30% PV Oversizing**
- **Monitoring via App and PC**

Efficiency

Max. Efficiency	97,6%	97,6%
Max. Battery to Load Efficiency	94,0%	94,0%
Euro Efficiency	97,0%	97,0%

Protection

Anti-islanding Protection	Integrated	Integrated
PV String Input Reverse Polarity Protection	Integrated	Integrated
Insulation Resistor Detection	Integrated	Integrated
Residual Current Monitoring Unit	Integrated	Integrated
Output Over Current Protection	Integrated	Integrated
Output Short Protection	Integrated	Integrated
Output Over Voltage Protection	Integrated	Integrated

General Data

Operating Temperature Range	-25 ~ 60 °C	-25 ~ 60 °C
Relative Humidity	0 ~ 95%	0 ~ 95%
Operating Altitude	≤4000m	≤4000m
Cooling	Natural Convection	Natural Convection
Noise	<25 dB	<25 dB
User Interface	LED & APP	LED & APP
Communication with BMS*7	RS485; CAN	RS485; CAN
Communication with Meter	RS485	RS485
Communicaiton with Portal	Wi-Fi	Wi-Fi
Weight	28kg	30kg
Size	516 x 440 x 184mm	516 x 440 x 184mm
Mounting	Wall Bracket	Wall Bracket
Protection Degree	IP65	IP65
Standby Self Consumption	<13W	<13W
Topology	High Frequency Isolation	High Frequency Isolation

*1: Lead-acid battery use refers to Approved Battery Options Statement.
   The actual charge and discharge current also depends on the battery.
*2: Under off-grid mode, then battery capacity should be more than 100Ah.
*3: When there is no battery connected, inverter starts feeding in only if string voltage
   is higher than 200V.

*4: 4600 for VDE 0126-1-1 &VDE-AR-N4105, 4950 for AS4777.2(GW5048D-ES); 4050 for
   CEI 0-21(GW3648D-ES).
*5: 21,7A for AS4777.2 .
*6: Can be reached only if PV and battery power is enough.
*7: The standard configuration is CAN.

ET Series | Three-phase Energy Storage Inverter | 5,0kW / 8,0kW / 10kW

GOODWE
YOUR SOLAR ENGINE

The brand new GoodWe ET Series is a three-phase high voltage energy storage inverter that enables enhanced energy independence and maximizes self-consumption through export limit feature and time of use shifts for reduced electric bills. Covering a power range of 5kW, 8kW and 10kW, the ET Series allows up to 100% overloading to maximize power output and features Uninterruptible Power Supply(UPS) to inductive loads such as air conditioners or refrigerators with an automatic switchover time of less than 10 milliseconds, providing grid-tied savings when the grid is up and off-grid independence and security when it is down or compromised.

Battery Input Data

Product Code	GW5K-ET	GW8K-ET	GW10K-ET
Battery Type	Li-Ion	Li-Ion	Li-Ion
Battery Voltage Range	180 ~ 600V	180 ~ 600V	180 ~ 600V
Max. Charging Current	2A	25A	25A
Max. Discharging Current	25A	25A	25A
Charging Strategy for Li-Ion Battery	Self-adaption to BMS	Self-adaption to BMS	Self-adaption to BMS

PV String Input Data

Max. DC Input Power	6500W	9600W	13000W
Max. DC Input Voltage*[1]	1000V	1000V	1000V
MPPT Range	200 ~ 850V	200 ~ 850V	200 ~ 850V
Start-up Voltage	180V	180V	180V
MPPT Range for Full Load	240 ~ 850V	380 ~ 850V	460 ~ 850V
Nominal DC Input Voltage	620V	620V	620V
Max. Input Current	12,5 / 12,5A	12,5 / 12,5A	12,5 / 12,5A
Max. Short Current	15,2 / 15,2A	15,2 / 15,2A	15,2 / 15,2A
No. of MPP Trackers	2	2	2
No. of Strings per MPP Tracker	1/1	1/1	1/1

AC Output Data (On-grid)

Nominal Apparent Power Output to Utility Grid	5000VA	8000VA	10000VA
Max. Apparent Power Output to Utility Grid *[2]	5500VA	8800VA	11000VA
Max. Apparent Power from Utility Grid	10000VA	15000VA	15000VA
Nominal Output Voltage (V)	400 / 380, 3L / N / PE	400 / 380, 3L / N / PE	400 / 380, 3L / N / PE
Nominal Ouput Freqency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Max. AC Current Output to Utility Grid	8,5A	13,5A	16,5A
Max. AC Current From Utility Grid	15,2A	22,7A	22,7A
Output Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)		
Output THDi (@Nominal Output)	<3%	<3%	<3%

AC Output Data (Back-up)

Max. Output Apparent Power	5000VA	8000VA	10000VA
Peak Output Apparent Power*[3]	10000VA, 60sec	16000VA, 60sec	16500VA, 60sec
Max. Ouput Current	8,5A	13,5A	16,5A
Nominal Output Voltage	400 / 380V	400 / 380V	400 / 380V
Nominal Ouput Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Output THDv (@Linear Load)	<3%	<3%	<3%

GOODWE
YOUR SOLAR ENGINE

- **Uninterruptible Power Supply**
- **Maximum Efficiency up to 98.3%**
- **Compact Size & Light Weight**
- **Fanless Design, Quiet Operation**
- **Wide Battery Voltage Range**
- **Monitoring via App and PC**

Efficiency

Max. Efficiency	98,0%	98,2%	98,2%
Max. Battery to Load Efficiency	97,5%	97,5%	97,5%
Euro Efficiency	97,2%	97,5%	97,5%
MPPT Efficiency	99,9%	99,9%	99,9%

Protection

Anti-islanding Protection	Integrated	Integrated	Integrated
PV String Input Reverse Polarity Protection	Integrated	Integrated	Integrated
Insulation Resistor Detection	Integrated	Integrated	Integrated
Residual Current Monitoring Unit	Integrated	Integrated	Integrated
Output Over Current Protection	Integrated	Integrated	Integrated
Output Short Protection	Integrated	Integrated	Integrated
Battery Input Reverse Polarity Protection	Integrated	Integrated	Integrated
Output Over Voltage Protection	Integrated	Integrated	Integrated

General Data

Operating Temperature Range	-35 ~ 60 °C	-35 ~ 60 °C	-35 ~ 60 °C
Relative Humidity	0 ~ 95%	0 ~ 95%	0 ~ 95%
Operating Altitude	≤4000m	≤4000m	≤4000m
Cooling	Nature Convection	Nature Convection	Nature Convection
Noise	<30 dB	<30 dB	<30 dB
User Interface	LED & APP	LED & APP	LED & APP
Communication with BMS	RS485; CAN	RS485; CAN	RS485; CAN
Communication with Meter	RS485	RS485	RS485
Communication with EMS	RS485 (Insulated)	RS485 (Insulated)	RS485 (Insulated)
Communicaiton with Portal	Wi-Fi	Wi-Fi	Wi-Fi
Weight	24kg	24kg	24kg
Size (Width x Height x Depth)	516 x 415 x 180mm	516 x 415 x 180mm	516 x415 x 180mm
Mounting	Wall Bracket	Wall Bracket	Wall Bracket
Protection Degree	IP65	IP65	IP65
Standby Self Consumption *4	<15W	<15W	<15W
Topology	Transformerless	Transformerless	Transformerless

*1: Maximum operating voltage is 950V.
*2: According to local grid regulation.
*3: Can be reached only if PV and battery power is enough.
*4: No Back-up output.

RPI H4A - RPI H5A

RPI H6A - RPI H10A

RPI M15A - RPI M20A

RPI M30A

RPI M50A

RPI M80U_122

Delta Solar Grid-Tied Inverters

Performance and advanced features

Maximum profitability

Delta solar inverters achieve a peak efficiency of up to 98,6% and offer one of the largest operating temperature ranges available. Full output up to 52°C ambient temperature to maximise energy efficiency and ensure maximum profitability.

Long lifetime

Delta inverters have a very long lifetime thanks to the durable aluminium housing and high quality robust electronics that are employed in their design. Continuous product improvement is ensured due to comprehensive testing during product development and in production.

Easy installation

The lightweight, compact design combined with the unique wall bracket makes installation of the solar inverters greatly simplified. All inverters ship standard with a mounting bracket and AC plug to allow quick installation right out of the box

Aluminium housing

The aluminium housing of Delta solar inverters ensure long lasting protection against moisture and corrosion. The dust-proof, completely shockproof housing protects the electronics of the solar inverter from water spray from all directions. This means that it can be installed in protected outdoor areas, damp basements and areas with a high level of dust (agriculture).

3kVA - 5kVA Grid - Tied Inverter

	Input (DC)			Output (AC)		
Product Code	**MPP Operating Voltage Range**	**Max. No. Of MPP Trackers**	**No. Of Phases**	**Nominal Apparent Power**	**Voltage Range**
RPI H3A	125 ... 550V	1	1	3kVA	230 (-20% / +22 %), 1 phase (L, N, PE or L, L, PE)
RPI H4A	100 ... 550V	2	1	4kVA	
RPI H5A	100 ... 550V	2	1	5kVA	

6kVA - 10kVA Grid-Tied Inverter

DC Input			AC Output			
Product Code	**MPP Operating Voltage Range**	**Max. No. Of MPP Trackers**	**No. Of Phases**	**Nominal Apparent Power**	**Voltage Range**
RPI M6A	200 ... 1000	2	3	6kVA	230 ±20% / 400V AC ±20%; 3 phase + PE or 3 phase + N + PE
RPI M8A	200 ... 1000	2	3	8kVA	
RPI M10A	200 ... 1000	2	3	10kVA	

15kVA - 50kVA Grid-Tied Inverter

DC Input			AC Output			
Product Code	**MPP Operating Voltage Range**	**Max. No. Of MPP Trackers**	**No. Of Phases**	**Nominal Apparent Power**	**Voltage Range**
RPI M15A	200 ... 1000	Parallel inputs: 1 MPP Tracker, Separate inputs: 2 MPP	3	15kVA	230 ± 20% / 400V ± 20%; 3 phase + PE or 3 phase + N + PE
RPI M20A	200 ... 1000	Trackers,input load: symmetrical and asymmetrical (for M15A / M20A / M30A: 33 / 67%; for M50A: 40 / 60%)	3	20kVA	
RPI M30A	200 ... 1000		3	30kVA	
RPI M50A	200 ... 1000		3	50kVA	

*Please enquire about our Generator integration feature!

Delta's Grid-tied, 3-phase and transformerless PV Inverter

Product Features

- 2 stages inverter with wide input operation range from 200 to 1000V DC
- Wall mounted installation
- 2 MPP trackers
- Excellent performance, maximum efficiency 98,8%

- 16 strings with fuses protection
- Ergonomics handle design
- Outdoor application with NEMA4X
- Arc fault detector
- Built-in DC switch
- Built-in AC & DC SPDs

DC Input					AC Output
Product Code	**Operating Voltage Range**	**MPP Voltage, Rated Power**	**MPP Tracker**	**Connection Type**	**Rated Output Power**
RPI M80U_122	200 - 1000V	600 ~ 800V	2	18 pairs of MC4 connectors	80kW

ARaymond

PowAR Snap® S
Fastening & Grounding clip for framed modules and steel structures – ANTI-THEFT VERSION

Quick
- Fastening and grounding in a single operation.
- Up to 5 times faster than a clamp.

Easy to use
- Tool-free set up.
- Designed for non-qualified workers– allowing minimal training.
- Friendly: no need for climbing on structure, panels can be inserted from underneath the array.

Cost saving
- Grounds the module to the structure, no other earthing required between modules.
- Lower overall costs of the PV installation.

- Lower land investment and structure savings thanks to minimised inter module gap: up to 3% more modules per available surface.
- Hot spot risk reduction for PV modules thanks to elastic mechanical clamping[1].

Performance
- Tested by accredited laboratories and qualified by major module manufacturers.
- High protection against corrosion and lightening.
- Grounding continuity of the string preserved when a module is dismounted for maintenance.
- Anti-theft designed.

233147001

Product Code	Product Group	Dimensions	Orientation	Types	Material
233147001	Power snap Anti-Theft Clip PowAR Snap® S Nano coated	38 x 63 x 34mm	Portrait / Land-scape	Framed	-

Removal Tool for Anti-Theft Clip

RUB-SOL-PS-ECONOTOOL

Product Code	Description
RUB-SOL-PS-ECONOTOOL	Removal tool for Power snap S

PowAR Snap® 90B Fastening clip for framed modules and steel structures STANDARD VERSION
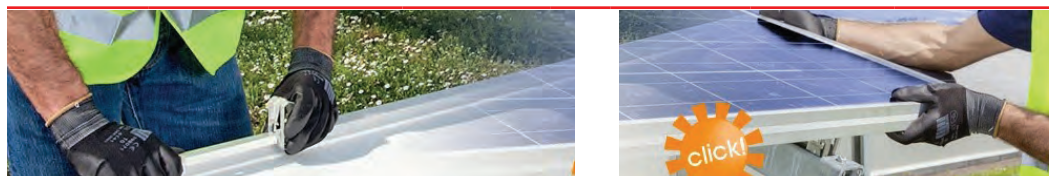
Easy to use
- **Tool free:** Low mounting effort.
- **Multiple access:** Module assembly from top or bottom.
- **Maintenance friendly:** No torque control required.

Cost saving
- **Fast assembly**: 2 minutes per module saved.[1]
- **Foot print reduction:** For solar on-ground installations up to 3%.[2]

Performance
- 7 Compliant with IEC 61215:2005-10.16, +2400 and -2400 Pa static load.[3]
- Compliant with UL2703, section 21 for mechanical \ load testing.

237390000

[1]According to field test results available on demand | [2]Clamp-less solution allowing 3cm average space saving between each module | [3]Fraunhofer ISE tests results available on demand

Product code	Product group	Dimensions	Orientation	Types	Material
***237390000**	PowAR Snap 90B Magni-coated mounting clip	38 x 63 x 34mm	Portrait / Landscape	Framed	Magni-coated 1050-1065 Steel

Solar Module Mounting Accessories

Benefits
The "PowAR Snap 90B" is a fastener interface between standard PV modules and racking rails system 4 "PowAR Snap 90B" attachments are required per module.

227130000

Product Code	Product Group	Dimensions	Orientation	Types	Material
***227130000**	Setting tool / Removal tool PowAR Snap 90B	38 x 63 x 34mm	Portrait / Landscape	Framed	1018 Steel HRPO Black oxide finish

ARaymond

Rayvolt® Grounding Clip For Electrical Management

Quick and easy set up

- Just one single action required to cut wire insulation, connecting the wire and fixing it to the frame. Free positioning on frame and regarding distances between modules.

Efficient

- Mechanically and electrically: complies with product norms IEC61730-2:2007, IEC60947-1:2007 and EN60068-2-11:1999.[1]

Large scope of use

- For all modules with aluminium frame thickness from 1,5 to 2,5mm and multi-strand flexible cable cross section of 6mm² (H07V-K6 mm²).

[1] Test report from Bureau Veritas available on demand

Ground Clip Installation

Product Code	Product Group	Surface Treatment	Frame Thickness	Wire Size	Material
*220492000	Grounding Clip	Depton®	E=1,2 >2,5mm	6mm²	Steel C67S
* Stocked and available					

Roof Mounting Systems

Solarsnap

Rubicon offers a complete solar mounting system solutions for all roof types. The system is easy to assemble and requires minimal use of tools. The basic components comprise the roof bracket or roof hook, Solarsnap (steel or aluminium options) and the Araymond Powersnap clip.

- Roof Brackets - made from stainless steel or aluminium (certification on request)
- Solarsnap – 41 x 41mm solar rail made from steel or aluminium designed for solar systems
- Powersnap – The innovative module mounting clip made from spring steel with a mil spec magni coating for use with aluminium and steel Solarsnap.

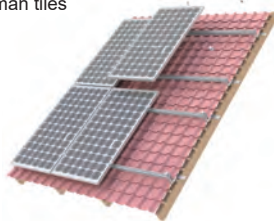### Tiled Roof - for use with traditional Roman tiles

Bracket

Rail

Clip

Roof Type
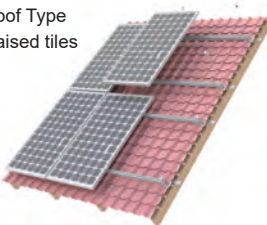Roman tiles

Tiled Roof - for use with Raised tiles

Bracket

Rail

Clip

Roof Type
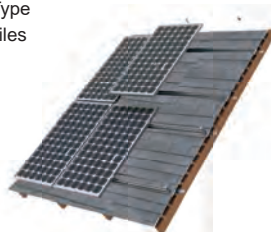Raised tiles

Tiled Roof - for use with Slate tiles

Bracket

Rail

Clip

Roof Type
Slate tiles

Solarsnap

Corrugated Mounting System

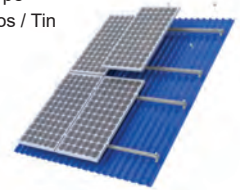### For Asbestos Or Tin Roof Mounting

Bracket

Rail

Clip

Roof Type
Asbestos / Tin

Tilt Mounting Systems

Tilt Mounting Systems - Option 1
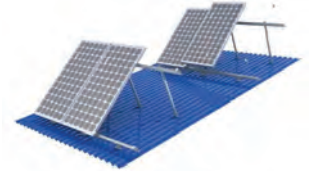
Bracket

Rail

Clip

Tilt Mount

Tilt Mounting Systems - Option 2

Bracket

Rail

Clip

Tilt Mount

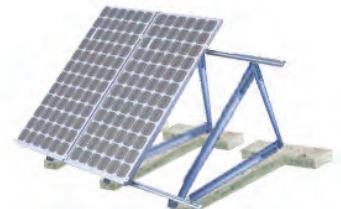### Tilt Mounting Systems - Flat Roof

Bracket

Rail

Clip

Tilt Mount

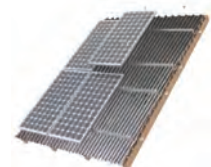## Metal Roof Sheeting

Metal Roof Sheeting - Clip Lock

Bracket

Rail

Clip

Metal Roof

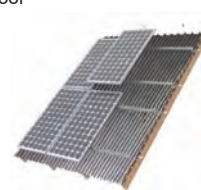# Metal Roof Sheeting

Metal Roof Sheeting - IBR

Bracket

Rail

Clip

Metal Roof

Solarsnap Rail

Product Code	Description	Region	Mounting Surface
SS-1,0PG	Solarsnap 41 x 41 x 1,0 (6M) Length, Pre-galvanised	Inland	All
SS-1,5HDG	Solarsnap 41 x 41 x 1,5 (6M) Length, Hot-dip Galvanised	All	All
SS-ALU2,5	Solarsnap 41 x 41 x 2,5(5,1M) Length, Aluminium	All	All
RUB_SO-LARALUMP2000	Aluminium Solar Strut 6m 1,5mm	All	All

Angle Frames

Complete Assemblies - Adjustable

Product Code	Description	Region	Mounting Surface
SS-TP-PG	SS Tilt Portrait	All	-15 To 15° Roof
	15-30° 1300mm, Pre-galvanised 1,5mm. All edges Deburred and Galvanised as per ISO1294s4-6. All Magni-coated fasteners included. Supplied in flat pack form		
SS-TL-PG	SS Tilt Landscape	Inland	-15 To 15° Roof
	15-30° 1000mm, Pre-galvanised 1,5mm. All edges Deburred and Galvanised as per ISO12944-6. All Magni-coated fasteners included. Supplied in flat pack form		

Roof Mounting Brackets

Product Code	Description	Region	Mounting Surface
RUB-ALU-IBR	IBR Bracket Assembly - Aluminium Bracket	All	IBR Roof
	Supplied with Fasteners. Aluminium for Inland use only Sold per box of 50 Sets		
RUB-TRB-11	Cliplock Bracket Assembly - Aluminium Set of 2	All	Cliplock Roof
	Supplied with Fasteners. Aluminium for maximum corrosion resistance. Sold per box of 50 Sets		

Tile Roof

Product Code	**RUB-TRH-04**	**RUB-TRH-07**	**RUB-TRH-10**
Description	Stainless Steel mounting bracket for tiled roof perpendicular	Stainless Steel mounting bracket linear	Stainless Steel mounting bracket for slate roof tiles

SS-6S*

SS-ALU*

Tilt Portrait

Tilt Landscape

RUB-ALU-IBR

RUB-TRB-11

Solarsnap

RUB-TRB-06

RUB-ARL-30

RUB-CBB-MIK

RUB-CTB

RUB-AFK-30
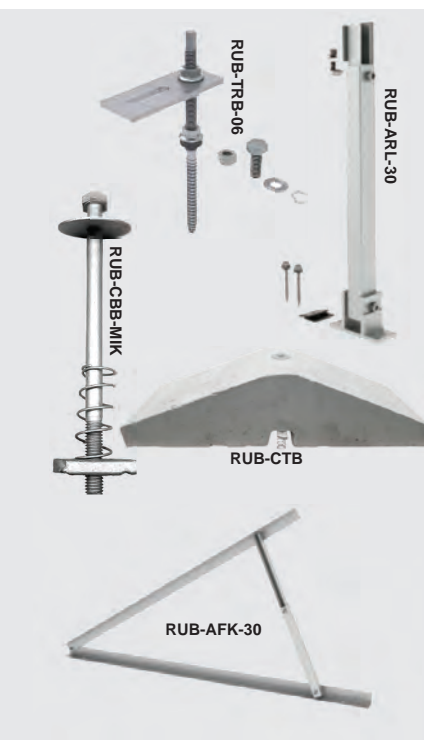
Tin Roof

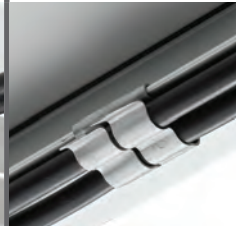| Product Code	Description
RUB-TRB-06	Stainless steel dowel screw for tin roof or fibre cement. To be used for wooden truss
RUB-ARL-30	Adjustable Aluminium rear leg for metal roof mounting
RUB-ARFL-30	Front foot for adjustable mounting system

Flat Roof Mounting

Product Code	Description
RUB-CBB	Concrete Ballast Block-28kg - M10-Modular
RUB-CBB-MIK	Concrete Ballast Block Mounting Kit

Tilt Alu Bracket

Product Code	Description
RUB-AFK-30	Aluminium adjustable tilt 'A' frame

Cable Routing Clips For Solar Modules

ARaymond

Product Images	Clips Managing One Cable			Clips Managing 2 Cables	Clips Managing Multiple Cables
Product Code	*228185001	*018690003	*019659002	*051632001	*228187001
Material & Surface Treatment	C67S Steel MKBM 2,2 SI GZ	C67S Steel MKBM 2,2 SI GZ	C67S Steel MKBM 2,2 SI GZ	C67S Steel Magni 3,1	C67S Steel MKBM 2,2 SI GZ
Fixing Type	Edge clip, Cable parallel to the edge	Edge clip with int. support for improved guidance, Cable parallel to the edge	Edge clip, Cables perpendicular to the edge	Edge clip, Cables parallel to the edge and to each other	Edge clip, Cables parallel to the edge
Cable Cross Sections And External Dia.	Max. cable cross section 10mm² Ext. dia. 8mm	Cable cross section 4, 6 or 10mm² Ext. dia. from 4,5 - 10mm	Cable cross section 4 or 6 mm² Ext. dia. from 5,7 - 7mm	Cable cross section 4 - 6mm² Ext. dia. from 6,35 to 7,2mm	Max. cable cross section 10 mm² Suitable for 4 cables of cross section 4mm²
Thickness	2,25 to 2,75mm	0,8 to 3mm	0,7 to 2,1mm	2 to 2,4mm	1,5 to 2,5mm
Possibility To Re-Open	Yes	Yes	Yes	Yes	Yes
Qty. Of Pieces Per Carton	1800	700	4000	2000	600

*Available and stocked

1.5 Axis Tracker System

A brand new, Innovative "1.5 Axis tracker" which provides higher yield than traditional single-axis tracking with little more cost than a single axis tracker. Simple, fast installation that doesn't require heavy machinery – ideal for small, medium and large installations.

Technical Information

Tracker Type	1.5 Axis variable tilt and roll tracker for PV panels
Modules & kWp per tracker	12 x 60 Cells or 12 x 72 Cells panels. kWp ranging from 2,5 to 4kWp
Tracking Range	Tilt: 10 to 30°, Roll: -52° to +52°
Control System	Astronomical tracking with backtracking, SCADA control system, real-time performance monitoring of solar plant including preventive maintenance
Drive System	Electric linear actuator
Structure & Bearings	Hot-dip Galvanised steel structure, maintenance-free spherical bearings
Dimensions	Module frame H=5m, W=3,2 to 4m; Maximum system height < 4m
Maximum Wind Speed	Up to 110 km / h (10 Min. average) & 175 km / h (3s gust) measured at 10m
Codes & Standards	Eurocodes 1, IEC 62817, CE
Warranty	Full system warranty

Ordering Information

Product Code	Description
HLPV1.5	1.5 Axis Tracker system

Adjustable Fix Tilt

Material

Item	Material	Treatment
Anchors	SAE 1008	HDG
Posts	SAE 1008	HDG
Rafters	S350	Pre - galvanised
Purlins	S350	Pre - galvanised
Clamps	S350	HDG
Braces	SAE 1008	HDG
	Summary	HDG / Pre - galvanised Z275

Capacity And Specifications - 5m Starters And Add-on

No. of Panels on Table	10
Number of Rows on Tables	2 x 5
Module Orientation	Portrait
Anchor	Earth Anchor (Screw)
Wind Load Design	40m / s Basic 3 Sec Gust
Brace Spacing	5m, 1 on every second post.
Angle Adjustment	10 - 30°
HDG Process	ISO 1461
Corrosion Category	<= C3
Module Thickness (72 cell)	35mm / 40mm / 50mm / 45mm
Concrete	To be provided

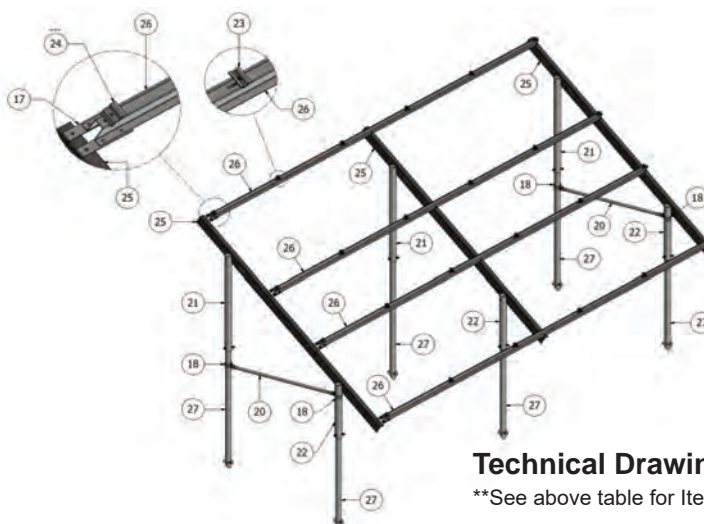PIA850044

PIAsolar
your innovative solution partner

FRS Table, 10° to 30° Fix Tilt Structure
5x2P Starter | 5x2P Add On

Product Code	Description	5x2P Starter Qty.*	5x2P Add On Qty.*	Item No.**
PIA050000	DIN933 - M12x40 Hex Head Screw (Pierce Bolt)	6	4	1
PIA050001	DIN558 - M12x25 Hex Head Set Screw (Clamp Bolt)	12	8	2
PIA050009	DIN933 - M16x40 Hex Head Set Screw GR8,8	6	4	3
PIA050011	DIN558 - M12x40 Hex Head Set Screw GR4,8	4	2	4
PIA051001	DIN 9021 Fender Washer - M6 - Ø18mm x 1,6mm, HV100	40	40	5
PIA051003	DIN 9021 Fender Washer - M8 - Ø24 x 2mm, HV100	24	24	6
PIA051007	DIN 125 Flat Round Washer - M12 - (Ø24 x 2,5mm)	4	4	7
PIA051026	DIN 9021 Fender Washer - M16 - Ø50 x 3mm, HV100	6	4	8
PIA052002	DIN934 - M6 Hex Nut, GR 8	16	16	9
PIA052004	DIN934 - M8 Hex Nut	24	24	10
PIA052005	DIN934 - M12 Hex Nut	4	4	11
PIA052006	DIN934-M16x24x13-Gr8 Hex Nut	6	4	12
PIA053001	8-M6x20 Hex Socket Head Shoulder Bolt	16	16	13
PIA053005	DIN912 M6x40 Hex Socket Head Capscrew (Full Thread)	24	24	14
PIA053006	DIN 557 (Modified) M6 Square Nut	24	24	15
PIA053090	DIN912 M8x25 Socket Head Capscrew GR 8,8	24	24	16
PIA135001	Splicer Plate, 187 x 30 x 6mm	8	8	17
PIA136002	Post Brace Clamp - ID 76mm, 3mm Thk	4	2	18
PIA136034	Post Brace Clamp - ID Ø63, 5mm, 3mm Thk	2	1	19
PIA140005	Diagonal Bracing, 1660mm Pivot To Pivot, 31,75 x 1,6mm	2	1	20
PIA142062	Long Post, Ø76, 2 x 2mm, 1370mm	3	2	21
PIA142064	Short Post, Ø76, 2 x 2mm, 770mm	3	2	22
PIA170001	Omega Module Clamp HDG	16	16	23
PIA171001	Zeta Module Clamp 50mm HDG 3mm Thk	8	8	24,1
PIA171003	Zeta Module Clamp 40mm HDG 3mm Thk	8	8	24,2
PIA171005	Zeta Module Clamp 45mm HDG 3mm Thk	8	8	24,3
PIA171008	Zeta Module Clamp 33mm HDG 3mm Thk	8	8	24,4
PIA180052	Lipped Angle Rafter 3265mm, 125 x 50 x 20 x 1,9mm	3	2	25
PIA182133	Purlin 5144, 5mm x 1,6mm, 80 x 65 x 35mm	4	4	26
PIA201013	Ø63.5 Repair Earth Anchor 1800mm	6	4	27

*The difference between the 5x2P Starter and the 5x2P Starter Add On is the quantity required when ordering

PIA050000
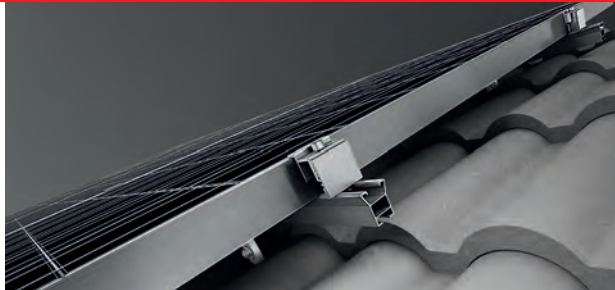PIA0500**
PIA0510**
PIA0520**
PIA053001
PIA053001
PIA053006
PIA053090
PIA135001
PIA136034
PIA140005
PIA142062
PIA142064
PIA170001
PIA17100x
PIA182133
PIA201013

Technical Drawing
**See above table for Items ordering information

LIZARD ®
MANUFACTURING SA

Residential - Roof tile fixing support

For use with traditional Roman tiles

Bracket

Product Code	30104
Material	Stainless Steel AISI 304
Weight	0,61kg
Packaging	10 Pcs

Rail

Product Code	10101
Pack	4 bars

Roman tiles

Profiles / Pre-assembled clamps

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30104	8 Roof tile fixing support
Span suggested 1200mm	

For use with traditional Raised tiles

Bracket

Product Code	30105
Material	Stainless Steel AISI 304
Weight	0,64kg
Packaging	10 Pcs

Roman tiles

Rail

Profiles / Pre-assembled clamps

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30105	8 Roof tile fixing support
Span suggested 1200mm	

For use with traditional Roman tiles

Bracket

Product Code	30111
Material	Stainless Steel AISI 304
Weight	0,86kg
Packaging	10 Pcs

Roman tiles

Rail

Profiles / Pre-assembled clamps

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30111	8 Roof tile fixing support
Span suggested 1200mm	

For use with Slate tiles

Bracket

Product Code	30312
Material	Stainless Steel AISI 304
Weight	0,86kg
Packaging	10 Pcs

Slat tiles

Profiles / Pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30312	10 Slates tile support
Span suggested 1200mm	

Industrial- PV Mounting System

Support for Klip-lok roof

Bracket

Product Code	30106
Material	Electro Galvanised steel
Weight	0,31kg
Packaging	40 Pcs

Klip-lok roof

Profiles / Pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30106	10 Support for Klip-lok roof
Span suggested 932mm	

Railless klip-lok system

Bracket

Product Code	30106
Material	Electro-galvanised steel
Weight	0,31kg
Packaging	40 Pcs

Klip-lok roof

Pre-assembled clamps

Product Code	30108
Pack	40 pcs

Product Code	30107
Pack	40 pcs

To install four modules

30108	4 Universal lateral clamps
30107	6 Universal central clamps
30106	10 Support for Klip-lok roof
Span suggested 699 mm	Landscape installation

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Industrial- PV Mounting System

LIZARD®
MANUFACTURING SA

Trapezoidal - Profile for PV Modules (IBR)

Product Code	10102
Material	Aluminium
Weight	2,52kg
Packaging	4 Bars

IBR

Pre-assembled clamps

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10102	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
Fixing span suggested 800mm	

Trapezoidal - Support for metal roof

Product Code	30101
Material	Stainless Steel AISI 304
Weight	0,04kg
Packaging	10 Pcs
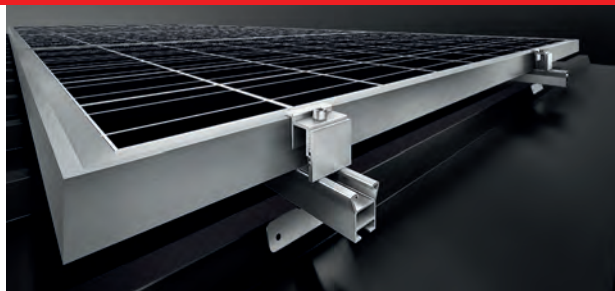
IBR

Profiles / Pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30101	12 Support for metal roof
Span suggested 800mm	

Ondulated - PV mounting system

Double thread screw 12 x 300mm

Product Code	30102
Material	Stainless Steel AISI 304
Weight	0,38kg
Packaging	40 Pcs

Ondulated

Profiles / Pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30102	8 Double thread screw
Span suggested 1200mm	

LIZARD®
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Ondulated - PV mounting system

Double thread screw 10 x 200mm
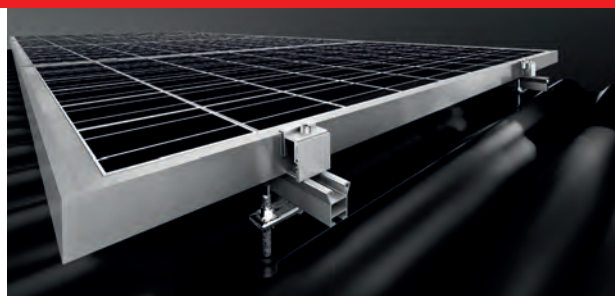
Product Code	30112
Material	Stainless Steel AISI 304
Weight	0,38kg
Packaging	40 Pcs

Ondulated

Profiles / Pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
30112	8 Double thread screw
Span suggested 1200mm	

Grounding Device

Earth bonding bracket

Product Code	20112
Material	Stainless Steel AISI 304
Weight	0,04kg
Packaging	10 Pcs

Profiles / Pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	30107
Pack	40 pcs

Product Code	10202
Pack	10 pcs

About Lizard's clamps
Their pre-assembled clamps, final and central, are made in aluminium and stainless steel to be compatible with the frames of the PV panels. The clamps are designed to fix PV panels with thickness between 30 and 50mm.

Flat- PV Mounting System

Flat portrait

Adjustable triangular support

Product Code	40103
Material	Aluminium
Weight	3,87kg
Packaging	6 Pcs
15-20-25-30° - 1400mm	

Concrete ballast

Product Code	40109
Material	Concrete
Weight	25,00kg
Packaging	1 Pcs

Flat cross-beam

Product Code	40104
Material	Aluminium
Weight	0,71kg
Packaging	4 Pcs

Profiles / Pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	2 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
40103	3 Triangular support
Span suggested 1600mm	

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Flat landscape

Adjustable triangular support

Product Code	40102
Material	Aluminium
Weight	2,70kg
Packaging	6 Pcs

15-20-25-30° - 1190mm

Concrete ballast

Product Code	40109
Material	Concrete
Weight	25,00kg
Packaging	1 Pcs

Flat cross-beam

Product Code	40104
Material	Aluminium
Weight	0,71kg
Packaging	4 Pcs

Profiles / pre-assembled clamps

Rail

Product Code	10101
Pack	4 bars

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

To install four modules

10101	4 Profiles length 4200mm
10201	4 Universal lateral clamps
10202	6 Universal central clamps
40102	5 Triangular support
20106	2 linear connections

Span suggested 1600mm

Flat 10º landscape

Roof support 10°

Product Code	40101
Material	Aluminium
Weight	1,73kg
Packaging	10 Pcs

Concrete

Pre-assembled clamps

Product Code	10201
Pack	10 pcs

Product Code	10202
Pack	10 pcs

Why choose this system Profiles / pre-assembled clamps

It's a reticular system expressly designed for medium-big plants. The system is also suggested for PV plants which need a low ballast load. Supplied in kit.

Flat personalised

Perpendicular connection

Product Code	20107
Material	Stainless Steel AISI 304
Weight	0,23kg
Packaging	10 Pcs

Adjustment flange

Product Code	40106
Material	Stainless Steel AISI 304
Weight	0,67kg
Packaging	20 Pcs

Ground fixing flange

Product Code	40108
Material	Stainless Steel AISI 304
Weight	0,40kg
Packaging	20 Pcs

Profiles / Pre-assembled clamps

Rail

Product Code	10104
Pack	4 bars

Product Code	10203
Pack	10 pcs

Product Code	10204
Pack	10 pcs

LIZARD
MANUFACTURING SA

Accessories

Fixing rivet with seal	
Product Code	**20101**
Material	Aluminium
Weight	0,20kg
Packaging	100 Box

Fixing screw	
Product Code	**20102**
Material	Stainless Steel AISI 304
Weight	0,67kg
Packaging	100 Box

Self-adhesive sealing tape	
Product Code	**20103**
Material	Butylene
Weight	1,00kg
Packaging	1 Roll 10mt
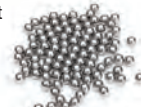
Anti-theft ball	
Product Code	**20104**
Material	Stainless Steel AISI 304
Weight	0,12kg
Packaging	100 Box
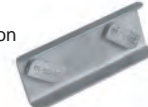
Linear connection	
Product Code	**20106**
Material	Stainless Steel AISI 304
Weight	0,09kg
Packaging	10 Pcs

Perpendicular connection	
Product Code	**20107**
Material	Stainless Steel AISI 304
Weight	0,23kg
Packaging	10 Pcs

Perpendicular connection	
Product Code	**20108**
Material	Stainless Steel AISI 304
Weight	0,18kg
Packaging	10 Pcs

Big hammer head bolt	
Product Code	**20109**
Material	Stainless Steel Aisi 304
Weight	-
Packaging	12 Pcs

Small hammer head bolt	
Product Code	**20110**
Material	Stainless Steel AISI 304
Weight	-
Packaging	10 Pcs

Inox plate for screw	
Product Code	**20115**
Material	Stainless Steel AISI 304
Weight	-
Packaging	10 Pcs

Rail-less IBR Bracket

RUBICON

New from Rubicon: Complete rail-less IBR mounting bracket solution

Features:

- Low cost
- Light weight
- Earthing accessory available
- 100mm airgap from module backsheet to IBR sheet trough for good airflow
- Quick and easy installation with self drilling screws
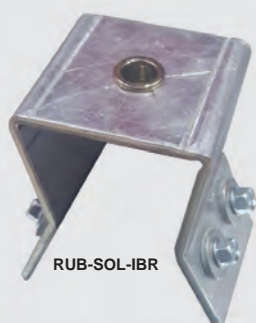
RUB-SOL-IBR

Ordering Information

Product Code	Description
RUB-SOL-IBR	IBR Rail-less bracket
RUB-SOL-EC	End Clamp assembly for rail less IBR bracket
RUB-SOL-MC	Mid Clamp assembly for rail less IBR bracket
RUB-SOL-ET	Earth tag for mid clamp

Aluminium Walkway

RUBICON

Specially bent walkway for solar installations

Features:

- Marine grade aluminium with excellent corrosion resistance
- Lightweight
- Safe non-slip design
- Strong rigid construction

Application:

- Roofing installations
- Bulk liquid container industry
- Trailer applications
- Machinery and factory installations

Specification Sheet:

Description	Dimension / Mass	Comment
Length Max	5700 mm	± 30 mm
Length Min	1080 mm	± 3 mm
Width	475 mm	± 5 mm
Height Of Flange	50 mm	± 3 mm
Gauge	3 mm	± 0,2 mm
Mass / M	3,85 kg	Net Mass
Load Max	150 kg	Per 1500 mm

Cross Sectional View:
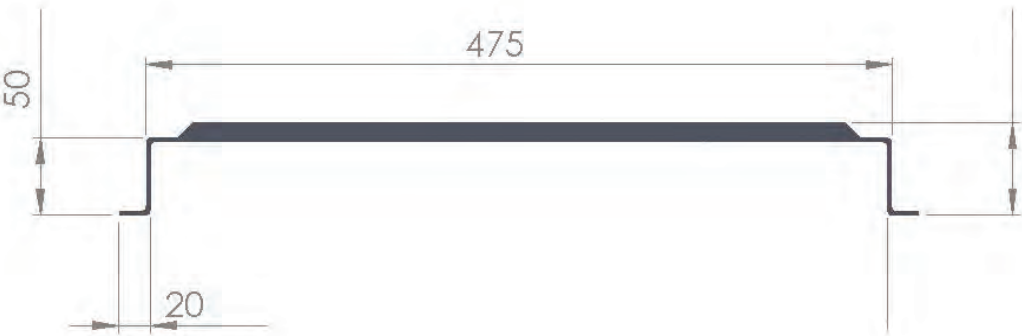
KBE Solar DB EN 50618 H1Z2Z2-K

NEW
EN 50618
1500V DC

TÜV
TÜV Rheinland Group
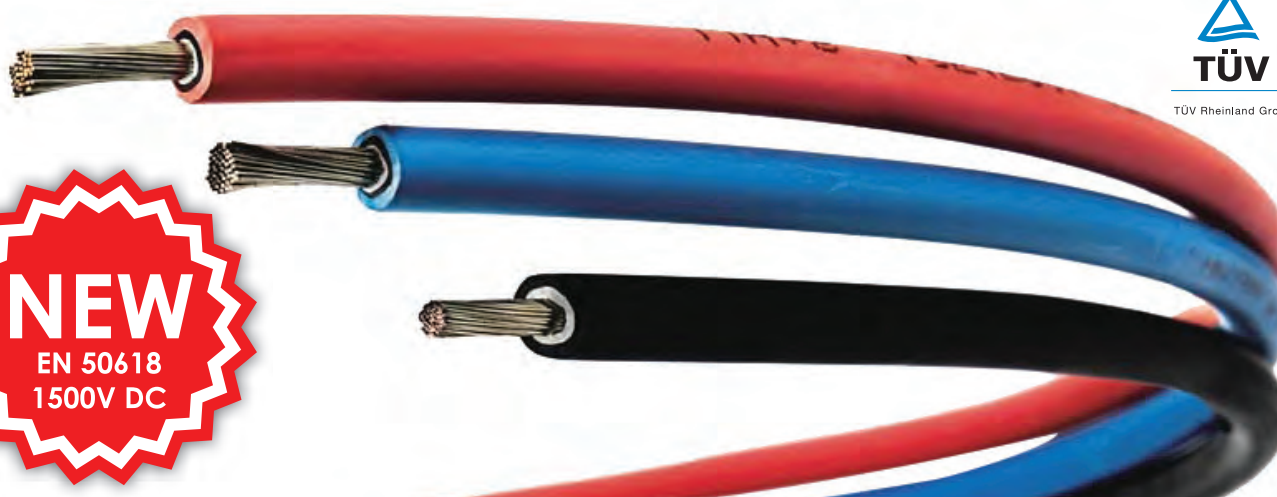
* Blue cable available on request

KBE's solar product range covers standard cables, PV-cables for direct burial, and voltages up to 1500 V according the newest standard H1Z2Z2-K according to the European norm EN 50618. Our cables are certified according to international standards EN 50618 (TÜV) or even Style 4703 (UL). KBE solar cables are suitable for installations in PV power plants, roof systems, wire harnesses, and panel manufacturing while meeting the expectations of distributors. The state-of-the-art production facilities guarantee a continuous cost optimisation.

KBE solar cables are TÜV certified "Made in Germany ". The special cross-linked insulations exceed the test requirements to ensure long service time and high operating reliability. KBE solar cables are available in many different outer diameters making them compatible with almost all connectors and junction boxes. Resistance to termites and protection against rodents are also available on request for your individual needs!
Our capacity and short delivery time is outstanding while offering different packaging sizes to meet your individual requirements.

Conductor

- E-Cu tinned acc. IEC 60228 Class 5

Insulation material

- Cross-linked Special Polyolefin
- 36 Shore D
- Halogen free
- Weather- and UV-resistant
- Ozone resistant

Jacket material

- Cross-linked Special Polyolefin
- 36 Shore D
- Halogen free
- Weather- and UV-resistant
- Ozone resistant

Temperature range

- -40°C to +90°C
- Max. conductor temperature: 120°C

Voltage rating

- U / U = 600 / 1000V AC
- Max. 1800V AC (conductor-conductor, non earthed system, circuit not under load)

Flame resistance

- Acc. to DIN EN 60332-1-2

Colours

- Black, red, blue

Guidelines & certificates

- EN 50618, R60107612
- RoHS 2011/65/EU

Ordering Information

Product Code	Cable Type	Colour	Cross Section	Conductor Design (N x Max.)	Insulation Thickness	A @ 60°C	Outer Ø
KBE 730250015002UUSW	Single core	Black	2,5mm²	50 x 0,26 Ømm	0,5mm	41A	5mm
KBE 730250015002UURT	Single core	Red	2,5mm²	50 x 0,26 Ømm	0,5mm	41A	5mm
KBE 730400015001UUSW	Single core	Black	4mm²	56 x 0,29 Ømm	0,5mm	55A	5,4mm
KBE 730400015001UURT	Single core	Red	4mm²	56 x 0,29 Ømm	0,5mm	55A	5,4mm
KBE 730600015003UUSW	Single core	Black	6mm²	80 x 0,31 Ømm	0,5mm	70A	6mm
KBE 730600015003UURT	Single core	Red	6mm²	80 x 0,31 Ømm	0,5mm	70A	6mm
KBE 731000015004UUSW	Single core	Black	10mm²	80 x 0,41 Ømm	0,5mm	98A	7,1mm
KBE 731000015004UURT	Single core	Red	10mm²	80 x 0,41 Ømm	0,5mm	98A	7,1mm
KBE 731600015001UUSW	Single core	Black	16mm²	120 x 0,41 Ømm	0,5mm	132A	8,1mm
KBE 731600015001UURT	Single core	Red	16mm²	120 x 0,41 Ømm	0,5mm	132A	8,1mm
KBE 732500015001UUSW	Single core	Black	25mm²	196 x 0,41 Ømm	0,7mm	176A	10,5mm
KBE 732500015001UURT	Single core	Red	25mm²	196 x 0,41 Ømm	0,7mm	176A	10,5mm

1000m drums available in 4 and 6mm²

LAPP KABEL

00351*

SWA*

CABLE-PERMO*

Cable For Data Communication Systems Unitronic® LiYCY (TP)

Benefits

DIN colour coded cores | Twisted core pairs are covered with an impervious copper braid

Product Code	No. Of Cores & mm² Per Conductor	Outer Diameter	Product Code	No. Of Cores & mm² Per Conductor	Outer Diameter
0035131	2 x 2 x 0,14	5,7mm	0035817	16 x 2 x 0,5	16,5mm
0035132	4 x 2 x 0,14	6,2mm	0035820	2 x 2 x 0,75	8,5mm
0035150	8 x 2 x 0,14	8,2mm	0035822	4 x 2 x 0,75	10,7mm
0035136	16 x 2 x 0,14	10,2mm	0035823	6 x 2 x 0,75	12,1mm
0035800	2 x 2 x 0,25	6,3mm	0035824	8 x 2 x 0,75	14,7mm
0035802	4 x 2 x 0,25	7,6mm	0035825	12 x 2 x 0,75	16,2mm
0035804	8 x 2 x 0,25	10,3mm	0035830	2 x 2 x 1	10,3mm
0035807	16 x 2 x 0,25	12,5mm	0035831	3 x 2 x 1	10,4mm
0035810	2 x 2 x 0,5	8,6mm	0035832	4 x 2 x 1	11,3mm
0035812	4 x 2 x 0,5	9,4mm	0035836	5 x 2 x 1	11,8mm
0035814	8 x 2 x 0,5	13,1mm	*Data cables low frequency		

Armoured Cable

RUBICON

Ungrounded cable application

Product Code	Size mm²	Amps	Rated Voltage	Max. Temp.
SWA700	1,5 x 3 core	19A	600 / 1000PV	70 ºC
SWA701	1,5 x 4 core	19A	600 / 1000PV	70 ºC
SWA702	2,5 x 3 core	26A	600 / 1000PV	70 ºC
SWA703	2,5 x 4 core	26A	600 / 1000PV	70 ºC
SWA704	4 x 3 core	35A	600 / 1000PV	70 ºC
SWA705	4 x 4 core	35A	600 / 1000PV	70 ºC
SWA706	6 x 3 core	45A	600 / 1000PV	70 ºC
SWA708	6 x 4 core	45A	600 / 1000PV	70 ºC
SWA709	10 x 3 core	62A	600 / 1000PV	70 ºC
SWA710	10 x 4 core	62A	600 / 1000PV	70 ºC
SWA711	16 x 3 core	83A	600 / 1000PV	70 ºC
SWA712	16 x 4 core	83A	600 / 1000PV	70 ºC
SWA713	25 x 3 core	110A	600 / 1000PV	70 ºC
SWA714	25 x 4 core	110A	600 / 1000PV	70 ºC
SWA715	35x3 core	135A	600 / 1000PV	70 ºC
SWA716	35 x 4 core	135A	600 / 1000PV	70 ºC
SWA717	50 x 3 core	163A	600 / 1000PV	70 ºC
SWA718	50 x 4 core	163A	600 / 1000PV	70 ºC
SWA719	70 x 3 core	207A	600 / 1000PV	70 ºC
SWA720	70 x 4 core	207A	600 / 1000PV	70 ºC
SWA721	95 x 3 core	251A	600 / 1000PV	70 ºC
SWA722	95 x 4 core	251A	600 / 1000PV	70 ºC
SWA723	120 x 3 core	290A	600 / 1000PV	70 ºC
SWA724	120 x 4 core	290A	600 / 1000PV	70 ºC

For all applications, contractors should compensate for volt drop in accordance with SANS 10142. *Ordered per meter

Battery Cable Double Insulation (Per Meter)

Product Code	Insulation Type	Colour Options	Rated Current	Rated Voltage	Size
CABLE-PERMO16	Double	Black, green, red	76A	1000V	16mm²
CABLE-PERMO25	Double	Black, blue, red	101A	1000V	25mm²
CABLE-PERMO35	Double	Blue, grey, black, red	125A	1000V	35mm²
CABLE-PERMO50	Double	Black, blue, red	151A	1000V	50mm²
CABLE-PERMO70	Double	Black, blue, red	192A	1000V	70mm²
CABLE-PERMO95	Double	Black, brown, red	232A	1000V	95mm²

Upon order, please specify which colour you would like. E.g **CABLE-PERMO25**/blue”

RUBICON
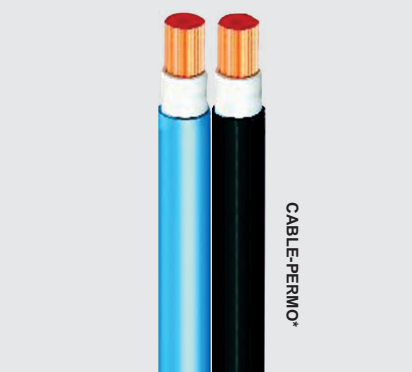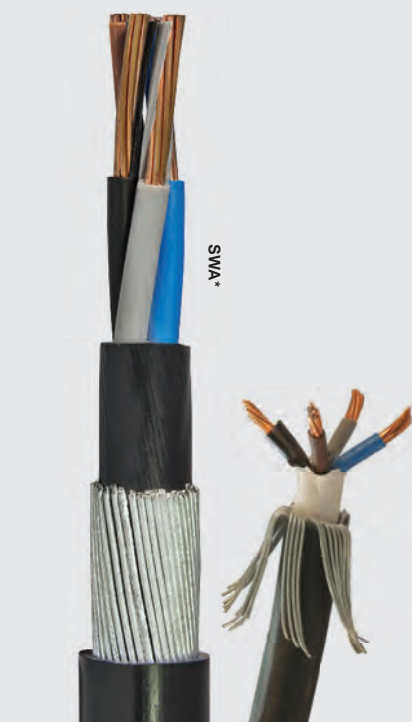
Cable (Panel Wire)

Product Code	Description	Coil Length	Rated Current	Rated Voltage	Size
CABLE-PW0.5*	Panel wire	100m	3A	1000V	0,5mm^2
CABLE-PW0.75*	Panel wire	100m	6A	1000V	0,75mm^2
CABLE-PW1.0*	Panel wire	100m	10A	1000V	1mm^2
CABLE-PW1.5*	Panel wire	100m	16A	1000V	1,5mm^2
CABLE-PW2.5*	Panel wire	100m	25A	1000V	2,5mm^2
CABLE-PW4*	Panel wire	100m	32A	1000V	4mm^2
CABLE-PW6*	Panel wire	100m	41A	1000V	6mm^2
CABLE-PW10*	Panel wire	100m	55A	1000V	10mm^2

*Specify colour; Red, White, Blue, Black, Grey, Green, Green / Yellow, Violet, Orange, Pink, Brown, Yellow. Sold per 100m coil.
E.g "**CABLE-PW1.0**/black"

H07 Cable (Neoprene / Multicore)

These heavy-duty rubber sheathed cables are suitable for use on large appliances and machinery in dry and damp conditions as well as in open air and wet industrial environments. Resistance to oils and certain chemicals is also good. Withstands voltages up to 2500V.

(Core1) Product Code	(Core2) Product Code	(Core3) Product Code	(Core4) Product Code	(Core5) Product Code	Size	Cable Type
CABLE-H07-1.5-1	CABLE-H07-1.5-2	CABLE-H07-1.5-3	CABLE-H07-1.5-4	CABLE-H07-1.5-5	1,5mm^2	Rubber
CABLE-H07-2.5-1	CABLE-H07-2.5-2	CABLE-H07-2.5-3	CABLE-H07-2.5-4	CABLE-H07-2.5-5	2,5mm^2	Rubber
CABLE-H07-4-1	CABLE-H07-4-2	CABLE-H07-4-3	CABLE-H07-4-4	CABLE-H07-4-5	4mm^2	Rubber
CABLE-H07-6-1	CABLE-H07-6-2	CABLE-H07-6-3	CABLE-H07-6-4	CABLE-H07-6-5	6mm^2	Rubber
CABLE-H07-10-1	CABLE-H07-10-2	CABLE-H07-10-3	CABLE-H07-10-4	CABLE-H07-10-5	10mm^2	Rubber
CABLE-H07-16-1	CABLE-H07-16-2	CABLE-H07-16-3	CABLE-H07-16-4	CABLE-H07-16-5	16mm^2	Rubber
CABLE-H07-25-1	CABLE-H07-25-2	CABLE-H07-25-3	CABLE-H07-25-4	CABLE-H07-25-5	25 mm^2	Rubber
CABLE-H07-35-1	CABLE-H07-35-2	CABLE-H07-35-3	CABLE-H07-35-4	CABLE-H07-35-5	35mm^2	Rubber
CABLE-H07-50-1	CABLE-H07-50-2	CABLE-H07-50-3	CABLE-H07-50-4	CABLE-H07-50-5	50mm^2	Rubber
CABLE-H07-70-1	CABLE-H07-70-2	CABLE-H07-70-3	CABLE-H07-70-4	CABLE-H07-70-5	70mm^2	Rubber

Cable is sold per meter. Only in black.

CABLE-PW*

CABLE-H07-*
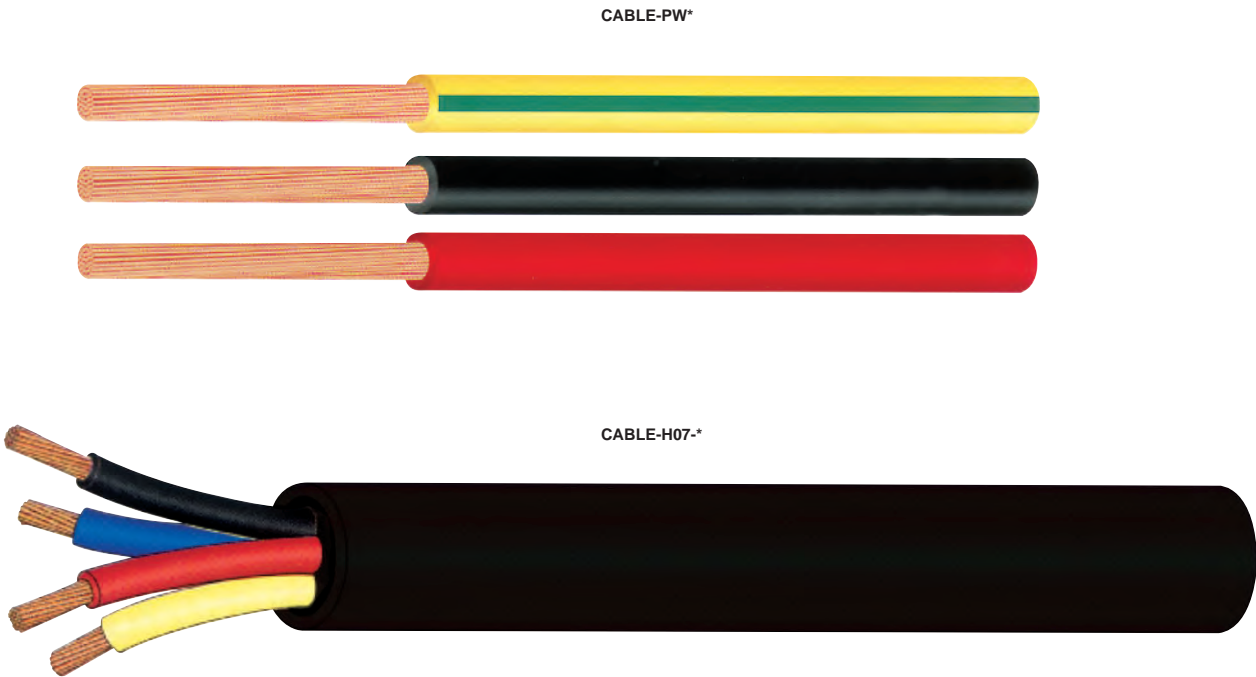
Flexible Polyamide Conduit

Polyamide 6 flexible conduit, black

Product Code	Description	O / D - I / D
PAREB-07G	Flex conduit, 7mm, length 100 meters	10 / 07mm
PAREB-10F	Flex conduit, 10mm, length 50 meters	12 / 09mm
PAREB-12F	Flex conduit, 12mm, length 50 meters	16 / 11mm
PAREB-17F	Flex conduit, 17mm, length 50 meters	20 / 13,5mm
PAREB-23F	Flex conduit, 23mm, length 50 meters	25 / 16mm
PAREB-29F	Flex conduit, 29mm, length 50 meters	32 / 21mm
PAREB-36F	Flex conduit, 36mm, length 30 meters	40 / 29mm
PAREB-48F	Flex conduit, 48mm, length 30 meters	50 / 36mm

* Sizes available up to 90mm. We also stock grey and sell the conduits in different materials, including metal!

Conduit Glands

Threaded straight connectors / glands

Product Code	Description	Product Code	Description
PAGOB-07M12	Straight fitting M12-7mm	**PAGOB-29M32**	Straight fitting M32-29mm
PAGOB-10M16	Straight fitting M16-10mm	**PAGOB-36M40**	Straight fitting M40-36mm
PAGOB-12M16	Straight fitting M16-12mm	**PAGOB-48M50**	Straight fitting M50-48mm
PAGOB-17M20	Straight fitting M20-17mm	-	-
PAGOB-17M25	Straight fitting M25-17mm	-	-
PAGOB-23M25	Straight fitting M25-23mm	-	-

*IP 67 On request

Accessories: Locknut

Product Code	Description	Product Code	Description
PAGMB-M12	Locknut M12	**PAGMB-M32**	Locknut M32
PAGMB-M16	Locknut M16	**PAGMB-M40**	Locknut M40
PAGMB-M20	Locknut M20	**PAGMB-M50**	Locknut M50
PAGMB-M25	Locknut M25	-	-

Threaded Arched 90º Elbow Connectors / Glands

Product Code	Description	Product Code	Description
VPBRB-10M16	90º Elbow M16-10mm	**VPBRB-29M32**	90º Elbow M32-29mm
VPBRB-12M16	90º Elbow M16-12mm	**VPBRB-36M40**	90º Elbow M40-36mm
VPBRB-17M20	90º Elbow M20-17mm	**VPBRB-48M50**	90º Elbow M50-48mm
VPBRB-23M25	90º Elbow M25-23mm	-	-

*IP 67 On request

System Support Bracket

Product Code	Description	Qty.	Product Code	Description	Qty.
PAHOB-07	System support for M12, black	100	**PAHOB-48**	System support for M50, black	20
PAHOB-10	System support for M16, black	100	**PADSB-17**	Top for system support for 17mm	50
PAHOB-12	System support for M16, black	50	**PADSB-23**	Top for system support for 23mm	50
PAHOB-17	System support for M20, black	50	**PADSB-29**	Top for system support for 29mm	30
PAHOB-23	System support for M25, black	50	**PADSB-36**	Top for system support for 36mm	20
PAHOB-29	System support for M32, black	30	**PADSB-48**	Top for system support for 48mm	20
PAHOB-36	System support for M40, black	20	**PAVSB**	Connecting piece for system support	100

*Sold per a unit

PAREB-07G up to PAREB-48F

PAGOB-*

PAGMB-*

VPBRB-*****

PAHOB-**

PADSB-*

PAVSB

Accessories: Pipe / Tube Clamp

Product Code	Description	Product Code	Description
MES1B-07	Pipe / Tube Clamp, 7mm	MES1B-17	Pipe / Tube Clamp, 17mm
MES1B-10	Pipe / Tube Clamp, 10mm	MES1B-23	Pipe / Tube Clamp, 23mm
MES1B-12	Pipe / Tube Clamp, 12mm	MES1B-29	Pipe / Tube Clamp, 29mm
MES1B-14	Pipe / Tube Clamp, 14mm	MES1B-36	Pipe / Tube Clamp, 36mm
*Sold per a unit			

MES1B-07 up to MES1B-36

Sliced Conduit (Split Conduit)

PPRTB polypropylene, two-parts divisible tubing, black (split)

Product Code	Nominal Width	Internal Diameter	External Diameter	Qty.
PPRTB-17	17 nw	15,1mm (int.)	21,3mm (out)	50m
PPRTB-24	24 nw	24mm (int.)	31,5mm (out)	50m
PPRTB-29	29 nw	26,6mm (int.)	34,4mm (out)	25m

Can be ordered in larger quantity, black stocked. Other sizes / diameters are available, please enquire.

PPRTB-

Cable Ties Insulok Nylon UV Stabilised

HellermannTyton

Product Code	Description	Width	Length	Qty.
T18R*	Cable ties, Black or white	2,5mm	100mm	100
T30R*	Cable ties, Black or white	3,5mm	148mm	100
T50R*	Cable ties, Black or white	4,7mm	198mm	100
T50I*	Cable ties, Black or white	4,7mm	305mm	100
T50L*	Cable ties, Black or white	4,7mm	392mm	100
T120S*	Cable ties, Black or white	7,8mm	278mm	100
T120R*	Cable ties, Black or white	7,8mm	338mm	100
LK5BK	Cable ties, Black	13mm	536mm	100

*Add "BK" for black & "NT" for white on end of code. For example, "T120RBK" = black or "T120RNT" = white

T**R* up to LK5BK

M Type Nylon Cable Glands + Locknuts (Economy)

STÜTTA
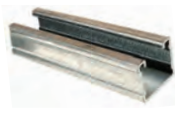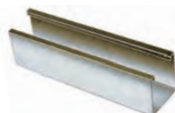
Product Code	Thread	H	GI	Dia.	Sealing Range
M1207	M12 x 1,5	21mm	8mm	15mm	3 - 6,5mm
M1610	M16 x 1,5	25mm	8mm	22mm	5 - 10mm
M2012	M20 x 1,5	27mm	9mm	24mm	6 - 12mm
M2516	M25 x 1,5	31mm	11mm	33mm	9 - 16mm
M3220	M32 x 1,5	39mm	11mm	42mm	13 - 20mm
M4026	M40 x 1,5	48mm	13mm	53mm	20 - 26mm
M5031	M50 x 1,5	49mm	13mm	60mm	25 - 31mm
M6344	M63 x 1,5	49mm	14mm	65 / 68mm	37 - 40mm

Nylon Cable Gland

M1207

Locknut

Wiring Channels and Trunking With Mild Steel
Pre – Galvanised Finish

RUBICON

Product Image					
Product Code	RWC9000	RWC8200	RWC8300	RWC1000	RWC2000-1
Dimensions (W x L)	127 x 3000mm	76,2 x 3000mm	76,2 x 3000mm	41,3 x 6000mm	41,3 x 5000mm
Thickness	0,8mm	0,8mm	0,8mm	2,4mm	1mm
Height	41,3mm	41,3mm	41,3mm	41,3mm	41,3mm

Product Image					
Product Code	RWC2000-16	RWC3300	RWC4000	RWC2200	RWC8000
Dimensions (W x L)	41,3 x 5000mm	41,3 x 3000mm	41,3 x 3000mm	50,8 x 3000mm	76,2 x 3000mm
Thickness	1,6mm	2,5mm	1,6mm	0,8mm	0,8mm
Height	41,3mm	20,6mm	20,6mm	50,8mm	25mm

RUBICON

PVC Cover
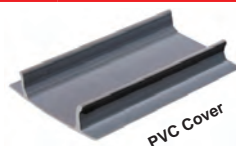
Product Image	PVC Cover				
Product Code	RWC1184PVC-3MG	RWC1184PVC-3MW	RWC1184PVC-2.5MG	RWC1184PVC-2.5MW	RWC2184PVC
Dimensions (W x L)	41,3 x 3000mm	41,3 x 3000mm	41,3 x 2500mm	41,3 x 2500mm	41,3m x 3000mm
Thickness	0,8mm	0,8mm	0,8mm	0,8mm	2,4mm
Material	PVC - Grey	PVC - White	PVC - Grey	PVC - White	PVC

Product Code	RWC9184PVC-3MG	RWC9184PVC-3MW	RWC9184PVC-2.5MG	RWC9184PVC-2.5MW
Dimensions (W x L)	127 x 3000mm	41,3 x 3000mm	127 x 2500mm	76,2 x 3000mm
Thickness	1,6mm	1,6mm	1mm	2,5mm
Material	PVC - Grey	PVC - White	Pre-Galvanised - Grey	Pre-Galvanised - White

Pre-Galvanised Cover

Product Image	Pre-Galv. Cover					
Product Code	RWC1184PG-3M	RWC1184PG-2.5M	RWC2184PG	RWC9184PG-3M	RWC9184PG-2.5M	RWC8184PG-3M
Dimensions (W x L)	41,3 x 3000mm	41,3 x 2500mm	41,3 x 3000mm	127 x 3000mm	127 x 2500mm	76,2 x 3000mm
Thickness	0,8mm	0,8mm	0,8mm	1mm	1mm	2,5mm
Material	Pre-Galvanised	Pre-Galvanised	Pre-Galvanised	Pre-Galvanised	Pre-Galvanised	Pre-Galvanised

Wiring Channels Accessories Standard

Product Image							
Product Code	RWC*STDHORELB	RWC*SPLICE	RWC*STDEX-TELB	RWC*STD4WAY	RWC*ENDCAPGAL	RWC*STDTEE	RWC*STDINT
Description	Standard Horizontal Elbow 90° Bend	Standard Internal Splice	External Elbow Dropper	Standard 4 Way (4W)	Standard End Cap	Standard Tee Piece	Standard Internal Elbow Riser

*Add the numerical part of the Channels product code to the accessory code. For example **RWC9000STDHORELB** is the Standard accessory code for the **RWC9000** (Horizontal Elbow 90° Bend) product.

Wiring Channels Accessories Radiused
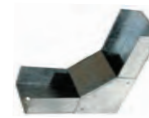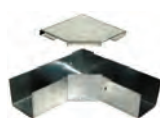
Product Image				
Product Code	RWC*RADHORELB	RWC*RADEXTELB	RWC*RADTEE	RWC*RADINTELB
Description	Radiused Horizontal Elbow (RHE)	Radiused External Elbow (REE)	Radiused Tee(RT)	Radiused Internal Elbow (RIE)

*Add the numerical part of the Channels product code to the accessory code. For example **RWC9000RADTEE** is the Radiused Tee accessory code for the **RWC9000** product.

RUBICON

Channel Support Systems: Hangers and Adaptors

Product Code	Product Image	Description	Hanger Hole Size
RWC2000HANGER		For Wiring Channel 1000, 2000, 3300 & 4000	11mm
RWC2200HANGER		For Wiring Channel 2200 Hanger	11mm
RWC8000HANGER		For Wiring Channel 8000 Hanger	11mm
RWC9000HANGER		For Wiring Channel 9000 Hanger	11mm
RWCFH01/8		Flange Hanger, Electro-galvanised Finish	8mm
RWCFH01/10		Flange Hanger, Electro-galvanised Finish	11mm
RWCFH01/12		Flange Hanger, Electro-galvanised Finish	13mm
RWCPH01/10		Purlin Hanger, Pre-galvanised Finish	11mm
RWCPH01/12		Purlin Hanger, Pre-galvanised Finish	14mm
RWCSH01/12		Swivel Hanger, Electro-galvanised Finish	13mm
RWC2540BRASS		For Wiring Channel 2540, Brass Light Fitting Adaptor	-
RWC2540NYLON		For Wiring Channel 2540, Nylon Light Fitting Adaptor	-

Fasteners All fasteners sold individually. When enquiring give the thread size and length.

Gutter Bolt & Square Nut
Hex Set Screw & Nut
Long Spring Nut
Short Spring Nut
Coupling Nut
Drop in Anchor
Flat Washer
Spring Washer
Fender Washer
Threaded Rod
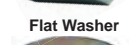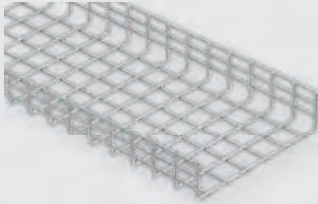
Product Code	Product Range	Threaded Size	Length (mm)	Material
RWCSAN *-***	Hex Set Screw & Nut	M6, M8, M10, M12	20, 25, 30, 35, 40, 45, 50, 55, 60	Electro-gal.
RWCFW *	Flat Washer	M6, M8, M10, M12		Electro-gal.
RWCSW *	Spring Washer	M6, M8, M10, M12		Electro-gal.
RWCFENW *	Fender Washer	M6, M8, M10, M12		Electro-gal.
RWCHCN *	Hex Coupling Nut	M6, M8, M10, M12		Electro-gal.
RWCSN *	Spring Nut Long / Short	M6, M8, M10, M12		Electro-gal.
RWCTR *	Threaded Rod	M6, M8, M10, M12	3 meters	Electro-gal.
RWCGBN**	Gutter Bolt & Square Nut	M6	12, 20, 25	Electro-gal.
RWCCPS M10	Cone Point Screw	M10	45	Electro-gal.
RWCCPS M12F	Cone Point Screw	M12 Fit	-	Electro-gal.
RWCCPS M12	Cone Point Screw	M12	-	Electro-gal.
RWCDIA **	Drop in Anchor	M6, M8, M10, M12	25, 30, 40, 50	Electro-gal.

*Add Threaded size for product code. **Add Threaded size and length for product code. ***Add length for product code.

Medium Duty Wiring Channels (Welded Wire Mesh Tray)
(PF Splice sets comprise 2x Angle splices, 8x M6 Cup square bolts, Hex nuts and flat washers / Joint.)

Product Code	Product Image	Width	Length	Height	Base Aperture	Side Aperture	Wire
RWWM50-100		100mm	3000mm	50mm	50 x 75mm	25 x 50mm	4mm
RWWM50-150		150mm	3000mm	50mm	50 x 75mm	25 x 50mm	4mm
RWWM50-200		200mm	3000mm	50mm	50 x 75mm	25 x 50mm	4mm
RWWM50-300		300mm	3000mm	50mm	50 x 75mm	25 x 50mm	4mm
RWWM50-400		400mm	3000mm	50mm	50 x 75mm	25 x 50mm	4mm
RWWM50-500		500mm	3000mm	50mm	50 x 75mm	25 x 50mm	4mm
RWWM50-600		600mm	3000mm	50mm	50 x 75mm	25 x 50mm	4mm

The standard finish is Hot-dip Galvanised. The Finish for the fasteners is Super Zinc
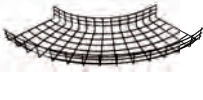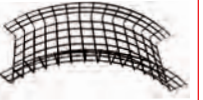
Heavy Duty Wiring Channels (Welded Wire Mesh Tray)
(PF Splice sets comprise 2x Angle splices, 8x M6 Cup square bolts, Hex nuts and flat washers per joint.)

Product Code	Product Image	Width	Length	Height	Base Aperture	Side Aperture	Wire
RWWM75-100		100mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	375mm
RWWM75-150		150mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	375mm
RWWM75-200		200mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	375mm
RWWM75-300		300mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	375mm
RWWM75-400		400mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	375mm
RWWM75-800		800mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	300mm

The standard finish is Hot-dip Galvanised. The Finish for the fasteners is Super Zinc

RUBICON

Wiring Channels (Welded Wire Mesh Tray) Accessory

Product Image						
Product Code	RWWM**-***H	RWWM**-***I	RWWM**-***E	RWWMPT**-**4W	RWWPT**-***T	RWWMSPLICE
Description	Horizontal Bend (HB)	Riser (Internal) Bend (IB)	Dropper (External) Bend (EB)	4 Way (4W)	Tee Piece (TP)	Welded Wire Mesh Cable Tray Splice Set

*Add the numerical part of the Wire Channels product code to the accessory code. For example **RWWT75-100T** is the accessory code for the Tee pie.

Tools For Wire Mesh Trays

Bolt cutter

Product Code	Length	Designation	Weight	Wire	Qty.
GKDB B28	630mm	Bolt cutter, universal	2,63kg	4-6	1

Equipped with especially configured cutting edges for low-burr cutting wire tray to length

Portable Mesh Trunking Shears Mini Portable Mesh

Product Code	Designation	Weight	Qty.
MGKE M	Portable Mesh Trunking Shears Mini	1kg	1

For a clean cut on wires up to 6mm, supplied in case. Comprising: Mesh trunking shears, 2x batteries, 1x charger

Cantilever Arms - Single

Product Code	Length	Thickness	Material
RWCCA254S-150	150mm	2,5mm	Hot-dip Galvanised
RWCCA254S-200	200mm	2,5mm	Hot-dip Galvanised
RWCCA254S-250	250mm	2,5mm	Hot-dip Galvanised
RWCCA254S-350	350mm	2,5mm	Hot-dip Galvanised
RWCCA254S-450	450mm	2,5mm	Hot-dip Galvanised
RWCCA254S-550	550mm	2,5mm	Hot-dip Galvanised
RWCCA254S-600	600mm	2,5mm	Hot-dip Galvanised
RWCCA254S-650	650mm	2,5mm	Hot-dip Galvanised

Cantilever Arms - Double

Product Code	Length	Thickness	Material
RWCCA254D-650	650mm	2,5mm	Hot-dip Galvanised
RWCCA254D-800	800mm	2,5mm	Hot-dip Galvanised
RWCCA254D-850	850mm	2,5mm	Hot-dip Galvanised
RWCCA254D-1050	1050mm	2,5mm	Hot-dip Galvanised

Return Flange Arms (Wrap Around Arms)

Product Code	Length	Height	Thickness	Material
RWCCA2235-150	150mm	50,5mm	2mm	Pre-galvanised
RWCCA2235-200	200mm	63mm	2mm	Pre-galvanised
RWCCA2235-250	250mm	75mm	2mm	Pre-galvanised
RWCCA2235-350	350mm	100mm	2mm	Pre-galvanised
RWCCA2235-450	400mm	113mm	2mm	Pre-galvanised
RWCCA2235-550	500mm	138mm	2mm	Pre-galvanised
RWCCA2235-650	600mm	163mm	2mm	Pre-galvanised

Can be used with cable tray

Field Assembly (Wrap Around Arms)

Product Code	Length	Thickness	Material
RWCRFARM-200	200mm	2,5mm	Hot-dip Galvanised
RWCRFARM-250	250mm	2,5mm	Hot-dip Galvanised
RWCRFARM-350	350mm	2,5mm	Hot-dip Galvanised
RWCRFARM-450	450mm	2,5mm	Hot-dip Galvanised

* Standard slot size

GKDB B28

MGKE M

Flat Arm 254

Full Double 254

Wrap Around 223

Tray Arms 249

RUBICON
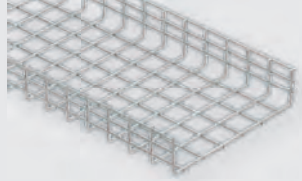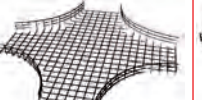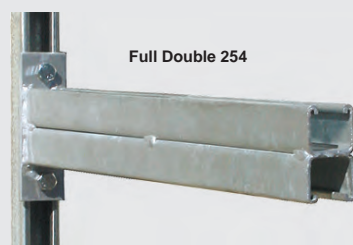
Cable Ladder - Medium Duty

(CL55 Litespan® Splice sets comprise 2x Angle Splices, 8x M6 Cup Square Bolts, Hex Nuts and Flat Washers per joint.)

Product Code	Product Image	Width	Length	Height	Strapping Slots	Cable Tie Holes	Standard Finish
RCL55-100		100mm	3000mm	55mm	11 x 28mm	11 & 8 Ømm	Hot-dip Galvanised
RCL55-150		150mm	3000mm	55mm	11 x 28mm	11 & 8 Ømm	Hot-dip Galvanised
RCL55-200		200mm	3000mm	55mm	11 x 28mm	11 & 8 Ømm	Hot-dip Galvanised
RCL55-300		300mm	3000mm	55mm	11 x 28mm	11 & 8 Ømm	Hot-dip Galvanised
RCL55-400		400mm	3000mm	55mm	11 x 28mm	11 & 8 Ømm	Hot-dip Galvanised
RCL55-500		500mm	3000mm	55mm	11 x 28mm	11 & 8 Ømm	Hot-dip Galvanised

Accessory Radius: Min. 450mm. Suitable for use with K, U & Trefoil Clamps. Cross rung centre is 375mm. Fasteners finish Mega Zinc / Super Zinc

Accessories For Cable Ladders - Medium Duty

Product Image							
Product Code	RCL55-***H	RCL55-***I	RCL55-***E	RCL55-***4W	RCL55-***T	RCL55SPLICE	RCL55RADSPLICE
Description	Horizontal Bend (HB)	Riser (Internal) Bend (IB)	Dropper (External) Bend (EB)	4 Way (4W)	Tee Piece (TP)	Adjustable Splice (AS) (only in vertical plane)	Reduction Splice (RS)

*Add the numerical part of the Wire Channels product code to the accessory code. For example **RCL55-100INT** is the accessory code for the riser product **RCL55-100** Ladder.
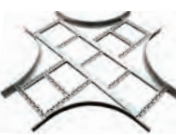
Cable Ladder - Heavy Duty

(CL76 Litespan® Splice sets comprise 2x Angle Splices, 8x M6 Cup Square Bolts, Hex Nuts and Flat Washers per joint.)

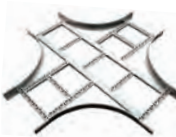| Product Code	Product Image	Width	Length	Height	Strapping Slots	Cable Tie Holes	Material
RCL76-100		100mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised
RCL76-150		150mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised
RCL76-200		200mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised
RCL76-300		300mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised
RCL76-400		400mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised
RCL76-500		500mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised
RCL76-600		600mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised
RCL76-800		800mm	3000mm	76mm	11 x 28mm	11 & 8 Ømm	Hot-dip galvanised

Accessory Radius: Minimum 450mm. Suitable for use with K, U and Trefoil Clamps. Cross rung centre is 375mm (except 800 & 1000mm centre =300). The finish for the fasteners is Mega Zinc / Super Zinc

Accessories For Cable Ladders - Heavy Duty

Product Image							
Product Code	RCL76-***H	RCL76-***I	RCL76-***E	RCL76-***4W	RCL76-***T	RCL76SPLICE	RCL76RADSPLICE
Description	Horizontal Bend (HB)	Riser (Internal) Bend (IB)	Dropper (External) Bend (EB)	4 Way (4W)	Tee Piece (TP)	Adjustable Splice (AS) (only in vertical plane)	Reduction Splice (RS)

*Add the numerical part of the Wire Channels product code to the accessory code. For example **RCL76-100INT** is the accessory code for the Riser product **RCL76-100** ladder.
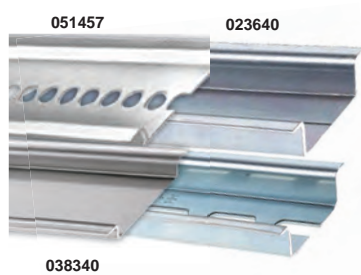
DIN Rail Electro Plated

RUBICON

Description	Product Code		
	35 x 7,5mm	**35 x 15mm**	Plastic
2 Meter, Non-Slotted	**038340**	-	-
2 Meter, Slotted	**051457**	**023640**	-

051457   023640

038340

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DIN Terminals / W Series Screw Connection With Universal Foot For DIN Mounting

DIN Terminal (Colour options)

Earth Terminal

End Plate

End Bracket

Cross Connector 10 Way
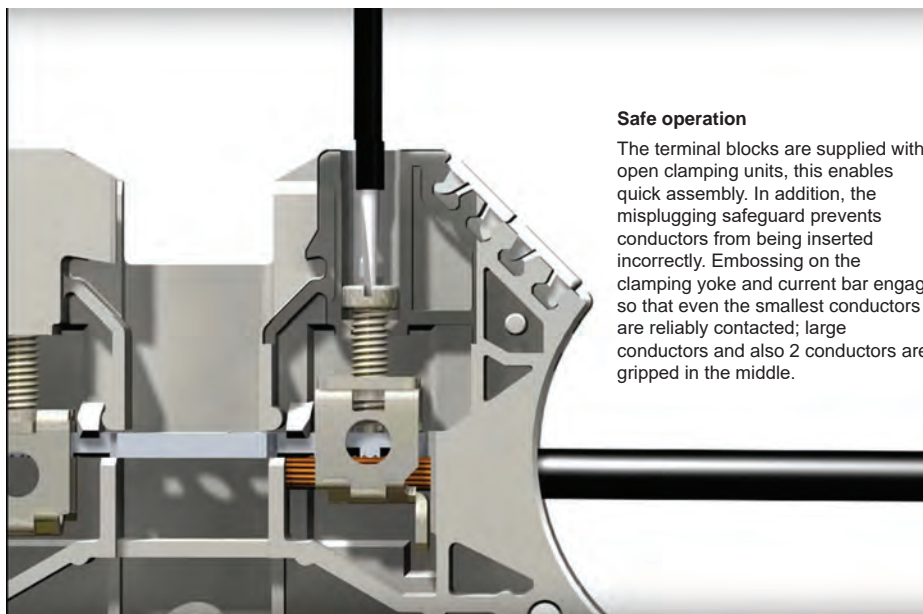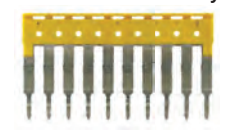
Safe operation
The terminal blocks are supplied with open clamping units, this enables quick assembly. In addition, the misplugging safeguard prevents conductors from being inserted incorrectly. Embossing on the clamping yoke and current bar engage so that even the smallest conductors are reliably contacted; large conductors and also 2 conductors are gripped in the middle.

Terminal Size	Product Code				
	2,5mm²	**4mm²**	**6mm²**	**10mm²**	**16mm²**
Grey	1020000000	1020100000	1020200000	1020210000	1020400000
Black	1020010000	1020110000	1020210000	1020310000	-
Blue	1020080000	1020180000	1020280000	1020380000	1020480000
Red	1020040000	1020014000	1020240000	1020340000	-
Earth Terminal	1010000000	1010100000	1010200000	1010300000	1010400000
End Plate	1010500000	1010500000	1010500000	1010500000	1010500000
End Bracket	0383560000	0383560000	0383560000	0383560000	0383560000
Cross Connector 10 Way	1054460000	1052060000	1052260000	1055060000	1055160000

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1852390000

1813130000

1798620000

Sleeves in application

Tie On Cable Markers

SlimFix SFX

	Product Code							
White	Yellow	Blue	Red	CSP	Type	Printing Area	Length	Qty. (Box)
1852390000	1852360000	1852400000	1852370000	1852380000	SFX 10/23	23 x 5mm	23mm	160
1860120000	1860150000	1051870000	1963650000	1860140000	SFX 11/60	11 x 44mm	60mm	60
1852440000	1852410000	1852450000	1852420000	1852430000	SFX 14/23	23 x 8,2mm	23mm	160
1083230000	1083240000	1083260000	-	-	SFX 30/60	30 x 45mm	60mm	30
1852490000	1852460000	1852500000	1852470000	1852480000	SFX 9/24	23,9 x 9mm	24mm	160

Rubicon will do printing for you, please send us an excel sheet with your requirements.

SlimFix SFC

	Product Code							
White	Yellow	Blue	Red	CSP	Type	Printing Area	Length	Qty. (Box)
1813130000	1813160000	1813170000	1813150000	8131800000	SFC 0/12	12 x 4,1mm	12mm	200
1813190000	1813210000	1813220000	1813200000	1813230000	SFC 0/21	21 x 4,1mm	21mm	200
1813240000	1813260000	1813270000	1813250000	1813280000	SFC 0/30	30 x 4,1mm	30mm	150
1747320001	1747320004	1747320002	1747320003	1752720000	SFC 1/12	12 x 4,1mm	12mm	200
1779080001	1779080002	1779080003	1779090000	1779090000	SFC 1/21	21 x 4,1mm	21mm	200
1805760000	1805730000	1805720000	1805740000	1805750000	SFC 1/30	30 x 4,1mm	30mm	150
1062000000	1062010000	1062030000	1062020000	1062040000	SFC 2,5/12	12 x 5,8mm	12mm	120
1062050000	1062070000	1062090000	1062080000	1062110000	SFC 2,5/21	12 x 5,8mm	21mm	120
1758320001	1758320004	7583200020	1758320003	1763480000	SFC 2/12	12 x 5,8mm	12mm	24
1805810000	1805780000	1805770000	1805790000	1805800000	SFC 2/21	21 x 5,8mm	21mm	120
1805870000	1805830000	1805820000	1805850000	1805860000	SFC 2/30	30 x 5,8mm	30mm	90
1025220000	1025230000	1025250000	1025240000	1025550000	SFC 3/12	12 x 5mm	12mm	80
1025260000	1025270000	1025300000	1025290000	1025560000	SFC 3/21	21 x 5mm	21mm	80
1025310000	1025320000	1025340000	1025330000	1025570000	SFC 3/30	30 x 5mm	30mm	60

Rubicon will do printing for you, please send us an excel sheet with your requirements.

Transparent Wire Sleeves TM- Sleeves

Product Code	Type	Length	Conductor O.D.	Wire Cross-Section	Qty. (Box)
1798620000	TM 200/15 V0	15mm	1 - 1,5mm	0,22 - 1mm²	1000
1798580000	TM 201/15 V0	15mm	1,5 - 2,5mm	0,25 - 1,5mm²	1000
1874850000	TM 201/20 V0	20mm	1,5 - 2,5mm	0,25 - 1,5mm²	1000
1798540000	TM 201/30 V0	30mm	1,5 - 2,5mm	0,25 - 1,5mm²	500
1798520000	TM 202/15 V0	15mm	2 - 4mm	0,5 - 2,5mm²	1000
1874760000	TM 202/20 V0	20mm	2 - 4mm	0,5 - 2,5mm²	1000
1798490000	TM 202/30 V0	30mm	2 - 4mm	0,5 - 2,5mm²	500
1798470000	TM 203/15 V0	15mm	4 - 7mm	2,5 - 10mm²	500
1874770000	TM 203/20 V0	20mm	4 - 7mm	2,5 - 10mm²	500
1806240000	TM 203/30 V0	30mm	4 - 7mm	2,5 - 10mm²	200
1806360000	TM 204/15 V0	15mm	6 - 10mm	6 - 16mm²	500
1874780000	TM 204/20 V0	20mm	6 - 10mm	6 - 16mm²	500
1806250000	TM 204/30 V0	30mm	6 - 10mm	6 - 16mm²	200
1806370000	TM 205/15 V0	15mm	10 - 14mm	16 - 35mm²	200
1874790000	TM 205/20 V0	20mm	10 - 14mm	16 - 35mm²	200
1806260000	TM 205/30 V0	30mm	10 - 14mm	16 - 35mm²	200
1806380000	TM 206/15 V0	15mm	14 - 22mm	35 - 120mm²	200
1874800000	TM 206/20 V0	20mm	14 - 22mm	35 - 120mm²	200
1806270000	TM 206/30 V0	30mm	14 - 22mm	35 - 120mm²	100
1806390000	TM 207/15 V0	15mm	22 - 30mm	120 - 240mm²	50
1874820000	TM 207/20 V0	20mm	22 - 30mm	120 - 240mm²	50
1806280000	TM 207/30 V0	30mm	22 - 30mm	120 - 240mm²	50
1806280000	TM 208/15 V0	15mm	30 - 35mm	240 - 300mm²	50

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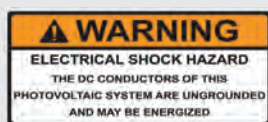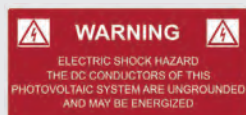
Transparent Wire Sleeves (Continued)

TM-Sleeves

Product Code	Type	Conductor O.D.	Wire Cross-Section	Length	Qty. (Box)
1806400000	TM 208 / 20 V0	30 - 35mm	240 - 300mm²	20mm	50
1874830000	TM 208 / 30 V0	30 - 35mm	240 - 300mm²	30mm	50
1806290000	TM 209 / 15 V0	35 - 40mm	300 - 500mm²	15mm	50
1806410000	TM 209 / 20 V0	35 - 40mm	300 - 500mm²	20mm	50
51874720000	TM 209 / 30 V0	35 - 40mm	300 - 500mm²	30mm	50
1866680000	TMX 30 V0	10 - 317mm	16 - 150mm²	30mm	400

1806400000

Wire Sleeve Inserts

TM-I

Product Code						
White	Yellow	Blue	Type	Width	Length	Qty. (Box)
1609981044	1609981687	1609981693	TM-I 15	4mm	15mm	400
1680411044	1680411687	1680411693	TM-I 20	4mm	20mm	400
1876390000	1876370000	1876400000	TM-I 30	4mm	30mm	300

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1609981044

Photovoltaic Labels

RUBICON

Product Code	Description	Qty.
596-00495	Warning Dual Power Source	50
596-00496	Warning Electric Shock Hazard DC Volt	50
596-00497	Warning Electric Shock Hazard	50
596-00588	Warning DC Conductors Energised	50
596-00499	Warning Turn Off Photovoltaic	50
596-00587	Caution Photovoltaic System Is Back Fed	50
596-00237	Photovoltaic AC Disconnect	50
596-00238	Photovoltaic DC Disconnect	50
596-00239	PV AC Disconnect Rating	50
596-00252	AC Module Rating Label From NEC 2011	50
596-00253	DC Module Rating Label From NEC 2011	50
596-00255	Main PV System AC Disconnect	50
596-00246	Solar Disconnect	50
596-00206	Warning Photovoltaic Power Source	50
596-00615	Caution Solar Circuit	50
596-00243	Main Photovoltaic System Disconnect	50
596-00208	Warning Photovoltaic Power Source 725 x 5	20
596-00233	Warning - Electrical Shock Hazard	50 / RL
596-00232	Warning - Electrical Shock Hazard W / DC	50 / RL
596-00234	Warning - Grounded Conductors May Be Energised	50 / RL
596-00258	Warning - DC Conductors May Be Energised	50 / RL
596-00235	Warning - Turn Off PV AC Prior To Working Inside Panel	50 / RL
596-00236	Caution - PV System Circuit Breaker Is Back fed	50 / RL

WARNING
ELECTRICAL SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE UNGROUNDED
AND MAY BE ENERGIZED
*00588

WARNING
ELECTRIC SHOCK HAZARD
THE DC CONDUCTORS OF THIS
PHOTOVOLTAIC SYSTEM ARE UNGROUNDED
AND MAY BE ENERGIZED
*00258

CAUTION: SOLAR CIRCUIT
*00615

PHOTOVOLTAIC AC DISCONNECT
MAXIMUM AC OPERATING CURRENT:
NOMINAL AC OPERATING VOLTAGE:
*00239

WARNING
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS.
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION
*00233

WARNING
ELECTRICAL SHOCK HAZARD
DO NOT TOUCH TERMINALS.
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION
DC VOLTAGE IS ALWAYS PRESENT
WHEN SOLAR MODULES
ARE EXPOSED TO SUNLIGHT
*00496

CAUTION
PV SYSTEM CIRCUIT BREAKER IS BACKFED
*00496

WARNING:
TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL
*00235

Insulation Tape: # 21 Heavy Duty / NiTTO Tape

Product Code	Colour	Width	Length	Thickness
A21-NiTTO-B	Black	18mm	20 meter	0,2mm
A21-NiTTO-R	Red	18mm	20 meter	0,2mm
A21-NiTTO-GY	Green / yellow	18mm	20 meter	0,2mm
A21-NiTTO-W	White	18mm	20 meter	0,2mm
A21-NiTTO-Y	Yellow	18mm	20 meter	0,2mm
A21-NiTTO-BL	Blue	18mm	20 meter	0,2mm
A21-NiTTO-G	Green	18mm	20 meter	0,2mm

A21-NiTTO-*

PVC Trunking

Industrial CLT Range
Length - 3000mm | Material - Rigid PVC | Colour - Grey

Product Code	Width	Height
PVC CLT-1	50mm	50mm
PVC CLT-2	75mm	50mm
PVC CLT-3	75mm	75mm
PVC CLT-4	100mm	50mm
PVC CLT-5	100mm	75mm
PVC CLT-6	100mm	100mm

*Accessories are available for the above, please call.

Compact Miniature PVC Trunking

Standard length - 3000mm | Material - Rigid PVC | Colour - White

Product Code	Width	Height	Compartments
PVC YT1	16mm	16mm	One
PVC YT2	25mm	16mm	One
PVC YT3	40mm	16mm	One
PVC YT4	40mm	25mm	One
PVC YT5	40mm	40mm	One

PVC Conduit

Product Code	Description	Product Code	Description
PVC 20 CONDUIT	20mm PVC Conduit	PVC 40 CONDUIT	40mm PVC Conduit
PVC 25 CONDUIT	25mm PVC Conduit	PVC 50 CONDUIT	50mm PVC Conduit
PVC 32 CONDUIT	32mm PVC Conduit	-	-

Sold per 4 meter lengths

PVC Glue

Product Code	Description
PVC GLUE	200ml Bottle

Male Adaptors

Product Code	Description	Product Code	Description
PVC 20 MALEADAPT	20mm Male Adaptors	PVC 40 MALEADAPT	40mm Male Adaptors
PVC 25 MALEADAPT	25mm Male Adaptors	PVC 50 MALEADAPT	50mm Male Adaptors
PVC 32 MALEADAPT	32mm Male Adaptors	-	-

Female Adaptors

Product Code	Description
PVC 20 FEMADAPT	20mm Female Adaptors

Couplings

Product Code	Description	Product Code	Description
PVC 20 COUPLING	20mm Couplings	PVC 40 COUPLING	40mm Couplings
PVC 25 COUPLING	25mm Couplings	PVC 50 COUPLING	50mm Couplings
PVC 32 COUPLING	32mm Couplings	-	-

PVC CLT-*

PVC YT*

PVC ** CONDUIT

PVC GLUE

PVC ** MALEADAPT

PVC ** FEMADAPT

PVC ** COUPLING
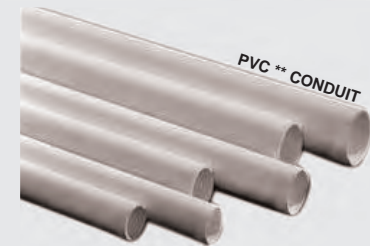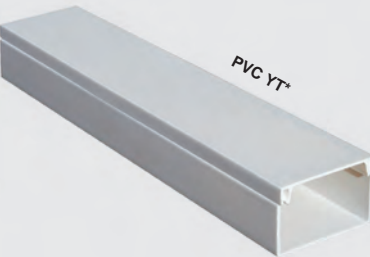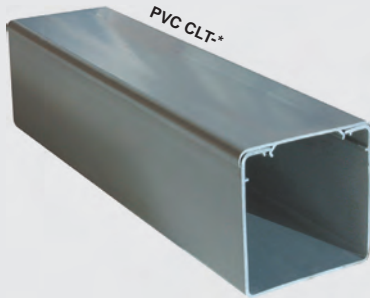
Saddles

Product Code	Description	Product Code	Description
PVC 20 SADDLE	20mm Saddles	PVC 50 SADDLE	50mm Saddles
PVC 25 SADDLE	25mm Saddles	PVC 20 HOS SADDLE	20mm Spacer Bar Saddles
PVC 32 SADDLE	32mm Saddles	PVC 25 HOS SADDLE	25mm Spacer Bar Saddles
PVC 40 SADDLE	40mm Saddles	-	-

Conduit Boxes

Product Code	Description	Product Code	Description
PVC 20 1W BOX	20mm x 1 Way	PVC 20 U BOX	20mm - 'U'
PVC 20 2W BOX	20mm x 2 Way	PVC 20 U BOX	20mm - 'Y'
PVC 20 3W BOX	20mm x 3 Way	PVC 25 1W BOX	25mm x 1 way
PVC 20 4W BOX	20mm x 4 Way	PVC 25 2W BOX	25mm x 2 way
PVC 20 2W ANGLEBOX	20mm Angle Box	PVC 25 3W BOX	25mm x 3 way
PVC 20 4WSPOUTBOX	4 Hole Loop in box	PVC 25 4W BOX	25mm x 4 way
PVC 20 8W LOOPBOX	8 Hole Loop in box	PVC 25 2W ANGLEBOX	25mm Angle Box

Bends, Elbows and Tees

Product Code	Description	Product Code	Description
PVC 20 INSP BEND	20mm Inspection Bends	PVC 40 SOL BEND	40mm Solid Bends
PVC 20 SOL BEND	20mm Solid Bends	PVC 50 SOL BEND	50mm Solid Bends
PVC 25 SOL BEND	25mm Solid Bends	PVC 20 INSP ELBOW	20mm Inspection Elbows
PVC 32 SOL BEND	32mm Solid Bends	PVC 20 TEES	20mm Inspection Tees

Non - Insulated Ferrules

Product Code	Pack	Size	Product Code	Pack	Size
HTB1F	100	1,5mm^2	HTB35F	100	35mm^2
HTB2F	100	2,5mm^2	HTB50F	50	50mm^2
HTB4F	100	4mm^2	HTB70F	50	70mm^2
HTB6F	100	6mm^2	HTB95F	20	95mm^2
HTB10F	100	10mm^2	HTB120F	10	120mm^2
HTB16F	100	16mm^2	HTB150F	10	150mm^2
HTB25F	100	25mm^2	HTB185F	10	185mm^2

Non - Insulated Ring Lugs

Product Code (100Pc)	Size	Product Code (Each)	Size
LUGS-1.5X4	1,5mm^2 x 4mm	LUGS-50X8	50mm^2 x 8mm
LUGS-1.5X5	1,5mm^2 x 5mm	LUGS-50X10	50mm^2 x 10mm
LUGS-1.5X6	1,5mm^2 x 6mm	LUGS-50X12	50mm^2 x 12mm
LUGS-2.5X4	2,5mm^2 x 4mm	LUGS-50X16	50mm^2 x 16mm
LUGS-2.5X6	2,5mm^2 x 6mm	LUGS-70X6	70mm^2 x 6mm
LUGS-2.5X10	2,5mm^2 x 10mm	LUGS-70X8	70mm^2 x 8mm
LUGS-4X6	4mm^2 x 6mm	LUGS-70X10	70mm^2 x 10mm

PVC ** SADDLE

PVC ** *W BOX

PVC 20 INSP ELBOW

HTB*F

Non-Insulated Ring Lugs

Non-Insulated Ring Lugs (CONTINUED)

Non-Insulated Ring Lugs

Product Code (100Pc)	Size	Product Code (Each)	Size
LUGS-4X10	4mm^2 x 10mm	LUGS-70X12	70mm^2 x 12mm
LUGS-6X5	6mm^2 x 5mm	LUGS-70X16	70mm^2 x 16mm
LUGS-6X6	6mm^2 x 6mm	LUGS-95X8	95mm^2 x 8mm
LUGS-6X8	6mm^2 x 8mm	LUGS-95X10	95mm^2 x 10mm
LUGS-10X5	10mm^2 x 5mm	LUGS-95X12	95mm^2 x 12mm
LUGS-10X6	10mm^2 x 6mm	LUGS-95X16	95mm^2 x 16mm
LUGS-10X8	10mm^2 x 8mm	LUGS-120X10	120mm^2 x 10mm
LUGS-16X5	16mm^2 x 5mm	LUGS-120X12	120mm^2 x 12mm
LUGS-16X6	16mm^2 x 6mm	LUGS-120X16	120mm^2 x 16mm
LUGS-16X8	16mm^2 x 8mm	LUGS-150X10	150mm^2 x 10mm
LUGS-16X10	16mm^2 x 10mm	LUGS-150X12	150mm^2 x 12mm
LUGS-16X12	16mm^2 x 12mm	LUGS-150X16	150mm^2 x 16mm
LUGS-25X6	25mm^2 x 6mm	LUGS-185X10	185mm^2 x 10mm
LUGS-25X8	25mm^2 x 8mm	LUGS-185X12	185mm^2 x 12mm
LUGS-25X10	25mm^2 x 10mm	LUGS-185X16	185mm^2 x 16mm
LUGS-50X6	50mm^2 x 6mm	LUGS-240X10	240mm^2 x 10mm
LUGS-25X12	25mm^2 x 12mm	LUGS-240X12	240mm^2 x 12mm
LUGS-35X6	35mm^2 x 6mm	LUGS-240X16	240mm^2 x 16mm
LUGS-35X8	35mm^2 x 8mm	LUGS-240X20	240mm^2 x 20mm
LUGS-35X10	35mm^2 x 10mm	-	-

Aluminium – Copper Cable Lugs With Barrier

DIN 48201 | With Solid Copper Palm | Material AI99.5: E-Copper | Surface Bright
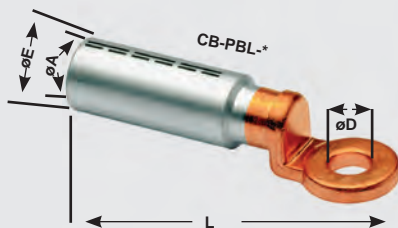
CB-PBL-*

Product Code	Area	Hole E	D	A	L	Product Code	Area	Hole E	D	A	L
CB-PBL-1	16mm^2	8	25	5,4	63,5	CB-PBL-17	120mm^2	12	30	14,7	92
CB-PBL-2	16mm^2	10	25	5,4	63,5	CB-PBL-18	120mm^2	16	30	14,7	92
CB-PBL-3	25mm^2	8	25	6,8	63,5	CB-PBL-19	150mm^2	12	30	16,3	105
CB-PBL-4	25mm^2	10	25	6,8	63,5	CB-PBL-20	150mm^2	16	30	16,3	105
CB-PBL-5	25mm^2	12	25	6,8	63,5	CB-PBL-21	150mm^2	20	38	16,3	109
CB-PBL-6	35mm^2	8	25	8	74,5	CB-PBL-22	185mm^2	10	30	18,3	107
CB-PBL-7	35mm^2	10	25	8	74,5	CB-PBL-23	185mm^2	12	30	18,3	107
CB-PBL-8	35mm^2	12	25	8	74,5	CB-PBL-24	185mm^2	16	30	18,3	107
CB-PBL-9	50mm^2	8	25	9,8	75,5	CB-PBL-25	185mm^2	20	38	18,3	111
CB-PBL-10	50mm^2	10	25	9,8	75,5	CB-PBL-26	240mm^2	10	38	21	120
CB-PBL-11	50mm^2	12	25	9,8	75,5	CB-PBL-27	240mm^2	12	38	21	120
CB-PBL-12	70mm^2	10	25	11,2	83,5	CB-PBL-28	240mm^2	16	38	21	120
CB-PBL-13	70mm^2	12	25	11,2	83,5	CB-PBL-29	240mm^2	20	38	21	120
CB-PBL-14	95mm^2	10	25	13,2	86,5	CB-PBL-30	300mm^2	12	38	23,3	124
CB-PBL-15	95mm^2	12	25	13,2	86,5	CB-PBL-31	300mm^2	16	38	23,3	124
CB-PBL-16	95mm^2	16	30	13,2	90	CB-PBL-32	300mm^2	20	38	23,3	124

RUBICON

PVC Glands

Product Code	Description
N01PCOMGLANDT	Gland 00 / 0 / 1, UNI: 3-in-one, white, threaded
N01PCOMGLANDTB	Gland 00 / 0 / 1, UNI: 3-in-one, black, threaded
N01PCOMGLANDTP	Gland 00 / 0 / 1, UNI: 3-in-one, black pushin

N01PCOMGLANDT*

Cable Clips

Hardened nails, zinc plated clips for cable fastening.

Product Code	Description & Size	Qty.	Product Code	Description & Size	Qty.
HT50WT	Flat 5mm, white	100	**HT900WT**	Round 0,9mm, white	100
HT90WT	Flat 8,5mm, white	100	**HT1000BK**	Round 1mm, black	100
HT100WT	Flat 10,5mm, white	100	**HT1000WT**	Round 1mm, white	100
HT120WT	Flat 12,5mm, white	100	**HT1100BK**	Round 11mm, black	100
HT350WT	Round 0,3mm, white	100	**HT1100WT**	Round 11mm, white	100
HT400WT	Round 0,4mm, white	100	**HT1200BK**	Round 12mm, black	100
HT500WT	Round 0,5mm, white	100	**HT1200WT**	Round 12mm, white	100
HT600WT	Round 0,6mm, white	100	**HT1400WT**	Round 14mm, white	50
HT700WT	Round 0,7mm, white	100	**HT2000WT**	Round 20mm, white	50
HT800BK	Round 0,8mm, black	100	-	-	-
HT800WT	Round 0,8mm, white	100	-	-	-
HT900BK	Round 0,9mm, black	100	-	-	-

HT**WT - Cable Clips

DEKS
Easy to Work With

Square Roof Flashing

Dektite by Deks is a product designed to allow for easy, watertight cable, conduit and pipe penetrations through roofs and other surfaces.

Technical information:

Using a malleable Aluminium frame, the Dekstite's base can be formed to almost any roof profile. The durable EPDM cone provides a watertight seal around pipes or cables. Fixing is done with silicone on tiles or, in the case of metal sheet, Tek screws

Dektite Roof Penetrator	Cut to fit the diameter of pipe or cable	Apply silicone to underside	Insert Tek screws into metal sheet

RUB-DEK-S1

Ordering Information

Product Code	Description	Penetration Size	Overall Size
RUB-DEK-S1	Dektite Roof Penetrator	1 x 0 – 35mm, 2 x 0 – 6mm	100 x 100mm
RUB-DEK-S2	Dektite Roof Penetrator	12 x 0 – 8mm	139 x 139mm
RUB-SIL-CLEAR	Clear Silicone Tube	-	-
RDTC82500	25mm Tile Hole Saw	-	-
RDTC83500	35mm Tile Hole Saw	-	-
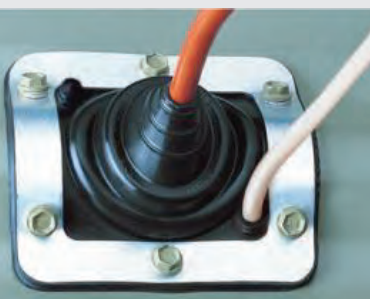
RUB-DEK-S2

Watertight Distribution Enclosures (UV Rated) IP65, (Surface Mounted), (DC Rated DB Boards)

Technical data

- Degree of protection is IP65
- Test of resistance to glow wire is at 650°C
- For DIN mount Circuit Breakers

- Ball pressure test 70°C
- Maximum Voltage 1000V AC / 1500V DC
- Ordered separately

Product Code	Description	Product Code	Description	N	E
CDN4PT	Grey with transparent window 4 way	87285	Earth & Neutral bar	4+1	4+1
CDN6PT	Grey with transparent window 6 way	87285	Earth & Neutral bar	4+1	4+1
CDN8PT	Grey with transparent window 8 way	87286	Earth & Neutral bar	8+1	8+1
CDN12PT	Grey with transparent window 12 way	87287	Earth & Neutral bar	2+12	2+12
CDN18PT	Grey with transparent window 18 way	87292	Earth & Neutral bar	2+16	2+16
CDN24PT	Grey with transparent window 24 way	87292	Earth & Neutral bar	2+16	2+16
CDN36PT	Grey with transparent window 36 way	87288	Earth & Neutral bar	2+24	2+24
CDN54PT	Grey with transparent window 54 way	87290	Earth & Neutral bar	4+32	4+32

Surface Distribution Enclosures IP40

Technical data

- Degree of protection is IP40
- Test of resistance to glow wire is at 650°C
- For DIN mount Circuit Breakers

- Ball pressure test 70°C
- Maximum Voltage 1000V AC / 1500V DC
- Ordered separately

Product Code	Description	Product Code	Description	N	E
BV4PT	White with transparent window 4 way	92303	Earth & Neutral bar	4+2	4+2
BV8PT	White with transparent window 8 way	92304	Earth & Neutral bar	8+2	8+2
BV12PT	White with transparent window 12 way	92301	Earth & Neutral bar	12+2	12+2
BV24PT	White with transparent window 24 way	92304	Earth & Neutral bar	16+2	16+2
BV36PT	White with transparent window 36 way	92301	Earth & Neutral bar	24+2	24+2

ALLBRO

SMC High End Hinged Enclosures (Manufactured in R.S.A)

Technical data

- External adjustable mounting bracket, horizontal, vertical or 45° angles
- Internal Stainless Steel hinges

- Mounting brackets are Stainless Steel
- DIN rail mount with M6 bolt and nut
- The height of the DIN rail is easily adjustable

Product Code	Description	A *Width	B *Height	C *Depth	D *Width	E*Height
ALL-003/E *	Allbrox 3 with SMC Device Plate	250mm	350mm	200mm	235mm	310mm
ALL-004/E*	Allbrox 4 with SMC Device Plate	300mm	400mm	200mm	285mm	360mm
ALL-005/E*	Allbrox 5 with SMC Device Plate	350mm	500mm	200mm	335mm	460mm
ALL-006/E*	Allbrox 6 with SMC Device Plate	400mm	600mm	200mm	385mm	560mm
ALL-007.1-P	Allbrox 7,1 Portrait with SMC Device Plate	828mm	709mm	287mm	754mm	634mm
ALL-008-P	Portrait with multi-cam	800mm	1000mm	320mm	706mm	906mm
ALL-008/L-ICAM	Landscape with individual cam	1000mm	800mm	320mm	906mm	706mm
ALL-008/P-ICAM	Portrait individual cam	800mm	1000mm	320mm	706mm	906mm

*Replace 'E' with 'O' to order Orange SMC High End Hinged Enclosures. For Example **ALL-003/O**

Mounting Plates

Product Code	Description	Product Code	Description
D/ALL-003	CBROX 3	D/ALL-007.1	CBROX 7
D/ALL-004	CBROX 4	D/ALL-008	CBROX 8
D/ALL-006	CBROX 6	-	-

ALLBRO

ALLBROX Distribution
Board Kit

DAE 212u/1mm

SDJDAE20PA7035

28400.0-01

60

19

37

40

08410.0-00

49,50

28,50

∅ 60

∅ 50
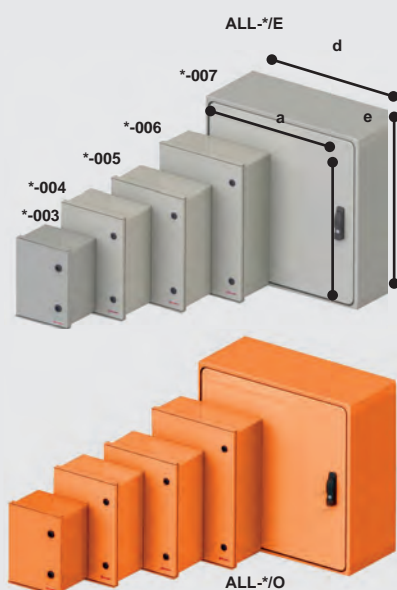
ALLBROX Distribution Board Kit

Product Code	Description	Qty.
ALL-04/DBK-A	Allbrox 4 Distribution Board Kit	1
ALL-05/DBK-A	Allbrox 5 Distribution Board Kit	1
ALL-06/DBK-A	Allbrox 6 Distribution Board Kit	1

Panel Breathers (M12)

STEGO

K99.1. Pressure equalization element – Polyamide
Material Polyamide 6 | Connection thread Metric M12 x 1,5 | Protection type IP66, IP68 and IP69K

Connection Thread / Length				Spanner Width	Qty.
Product Code	**A**	**D**	**C**	**SW x E**	
DAE 212u*/1mm	M12 x 1,5mm (M12)	6,6mm	7mm	17 x 18,3mm	50
DAE 212u*/1,5mm	M12 x 1,5mm (M12)	10,0mm	7,5mm	17 x 18,3mm	50

*Add "n" to order black colour

SW x E
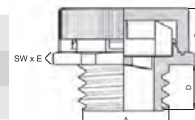
Venting Element (M20)

Body: Polyamide PA6 V-0

Membrane: Polyether sulphone PES

O-Ring: Nitrile rubber NBR

Connecting Thread: Metric, as per EN 60423

Typical Air Flow: > 400 ml / Min. / cm² at Δp = 0,07 bar

Water Entry Pressure: ≥ 0,83 bar

(Dynamic WEP, 30 seconds)

Temperature Range: -40 °C to +100 °C

Protection Grade: IP66 / IP68 - 0,6 bar (60 Min.) / IP69K

Colour: Light grey

H

SW1   L

A

Product Code	A	L	Sw1	H	Qty.
SDJDAE20PA7035	M20 x 1,5mm (M20)	10mm	27mm	21,6mm	10
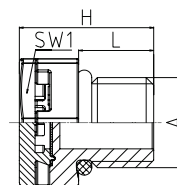
Pressure Compensation Device (M40)

Pressure differentials in enclosures with a high degree of protection are a result of internal and external temperature changes. In the case of negative pressure or practical vacuum, dust and humidity can enter the enclosure through the door seal. When the air inside the enclosure cools down, condensation may occur because the humidity cannot escape the enclosure.

The easy-to-install pressure compensation device DA 284 provides compensation of pressure at a protection degree of IP66. even with a slight overpressure, a waterproof membrane inside the plug allows the humidity to escape whilst blocking water and dirt from entering the enclosure.

Mounting: Thread M40 x 1,5 with nut
Depth in enclosure: Approx. 16mm
Filter waterproof: Membrane

Air permeability: 1200l / h at a pressure difference of min. 70mbar
Dimensions: Ø 60 x 37mm

Product Code	Material	Protection Type	Operating / Storage Temp.	1 Packing Unit	Weight (Approx.)	Approvals
28400.0-01	Plastic, light grey, M40	IP66 (EN 60529) / IPX9K (EN 40050-9)	-35 to +70°C	1 piece	45g	-

Drainage Device DD 084 | IP66 / IP67 / IP69K

Condensate occurs in enclosures and housings with high protection type by variations in temperature. The use of a drainage device allows the conveying of the condensate without losing the maximum protection type of IP66.

The water permeable membrane makes sure the drainage of the enclosure by the capillary attraction. The construction prevents the infiltration of splash water into the enclosure.

Mounting: Thread M50 x 1,5 with nut
            (Wrench size 60mm, housing 50mm)
Material: Plastic according to UL94 V-0, umbra grey, weather proof and UV light resistant according UL746C (f1)

Water flow-through: Approx. 200ml / h at a water column of 5m
Dimensions: Ø 60 x 49,5mm
Operating / Storage temperature: -45 to +70ºC

Product Code	Protection Type	Enclosure Wall Thickness	1 Package Unit	Weight (Approx.)
08410.0-00	IP66 / IP67 (EN 60529) / IP69K (EN 40050-9)	0,5 - 5,5mm	1 piece	60g
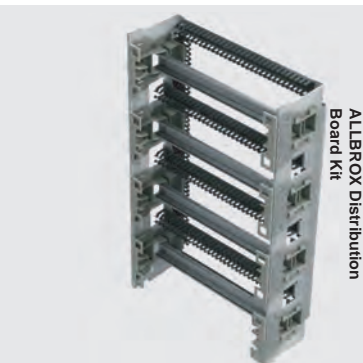
ALLBRO

Standard General Purpose Polyester Enclosures (GRP)

Screw Lid IP66 Product Code	Slide Lid IP54 Product Code	Device Plate (Steel) (1)	Dimensions H x W x D
040-751	040-752	DEV-UT1	80 x 80 x 60mm
040-655	040-714	DEV-UT2	110 x 110 x 90mm
040-670	040-715	DEV-UT3	160 x 110 x 90mm
040-656	040-716	DEV-UT4	210 x 160 x 90mm
040-753	040-761	DEV-UT4	211 x 160 x 180mm
040-657	040-717	DEV-UT5	210 x 210 x 125mm
040-658	040-718	DEV-UT6	260 x 210 x 125mm
040-671	040-719	DEV-UT7	310 x 210 x 125mm
040-672	040-720	DEV-UT8	310 x 260 x 165mm
040-673	040-721	DEV-UT9	310 x 310 x 165mm
040-674	040-722	DEV-UT10	410 x 410 x 165mm

* Colour = RAL 7035 | (1) Device plate sold separately

Accessories

Product Code	Description
UT-MF	UT Mounting Feet
UT4-DIN	UT4 Shroud Kit
UT4-SAM	UT4 Shroud 6 Way Samite
UT6-DIN	UT6 Shroud 6 Way DIN
UT10-DIN	UT10 Shroud 24 Way DIN
UT10-SAM	UT10 Shroud 32 Way Samite

Modular Wall Mounted Enclosures

IP 68 Enclosure Product Code	Dimensions H x W x D	Colour Of Base & Lid	M / Plate DMC Version** Product Code	M / Plate Powder Coated Mild Steel** Product Code
OK0-RAL	186 x 151 x 132mm	Grey	OKM-0	OKM-0M
OK1-RAL	260 x 165 x 160mm	Grey	OKM-1	OKM-1M
OK2-RAL	260 x 260 x 160mm	Grey	OKM-2	OKM-2M
OK3-RAL	340 x 260 x 160mm	Grey	OKM-3	OKM-3M
OK4-RAL	530 x 340 x 160mm	Grey	OKM-4	OKM-4M

**Device plate (DMC version and powder coated mild steel) is sold separately.

Accessories

Product Code	Description
OKPH-G	Hinge Set - Grey
OKPH-O	Hinge Set - Orange
OKM-MS	Mounting Brackets
OK-BP	Blind Plug
OK-G/SCREWS	Cover Sealing Screws
OKARI-HAND	Handle

Cable Junction Box

Product Code	Description	IP Level	Dimensions H x W x D	Qty. (Per Box)
040-702	UB40 (20mm)	68	108 x round x 68mm	20
040-793	UB40 / 1 (25mm)	68	135 x round x 85,5mm	20

UT7

UT8

UT9

OK0-RAL

OKPH-G

OKPH-O

040-7*

Atlantic | IP40 Steel Distribution Cabinets

IP30 - IP40 Combinable Surface Cabinets

Supply

They are supplied disassembled in a single packaging that contains body, sides, top and bottom cover, cable entry cover and accessory bag.

- **Accessory bag:** Insulating caps to permit reversible doors, wall mounting supports, reinforcement buttons, mass continuity clamps, rulers for fitting rails and assembly instructions.

The doors are supplied separately if requested, with both locks assembled and with accessory bag.

- **Door accessory bag:** Hinges and locks, mounting screws, lock pins and key.

Material

- Opaque doors manufactured in cold-rolled steel EN 10130+A1; 1mm thick surface cabinets and 1,2mm thick flush-fit cabinets and transparent doors manufactured in tinted 4mm tempered safety glass.

Finish

- Coated with hardened RAL 9003 epoxy-polyester paint, embossed 80-120 µ.

Protection

- **Corrosion resistance according to the UNE-EN 62208 standard.**

For outdoor installations, the effect of the corrosion must be taken into consideration.

IP30 - IP40 Combinable Surface Cabinets

Product Code Enclosure (No Door)	Product Code Door only	Dim. Cabinet	Usable Height Space	Cable Entry	Modular Capacity	Weight		Maximum Acceptable Load	Power Dissipation According To Temperature Increase °C P(W)*				
		(A x B x Cmm)	(Dmm)	(F x Gmm)		Cab.	Door	kg	20	25	30	35	40
40ENL96-120	PO40SUP96-120 PT40SUP96-120	910 x 670 x 212	850	440 x 106	96 - 120	17,10	9,69 9,77	40	153,97	192,46	230,95	269,44	307,93
40ENL120-168	PO40SUP120-168 PT40SUP120-168	1110 x 670 x 212	1050	440 x 106	120 - 168	20,10	11,42 11,72	50	183	228,75	274,50	320,25	365,99
40ENL144-192	PO40SUP144-192 PT40SUP144-192	1310 x 670 x 212	1250	440 x 106	144 - 192	29,67	10 11.30	60	185,90	232,38	278,85	325,33	371,80

40ENL96-120 **40ENL120-168** **40ENL144-192**

B
538
Y

414
432
450

A D

X X'

Y'

Face on view

Y-Y'

Min. 23/
Max. 97

Side view

C

X-X'

F
G
Z

Top view
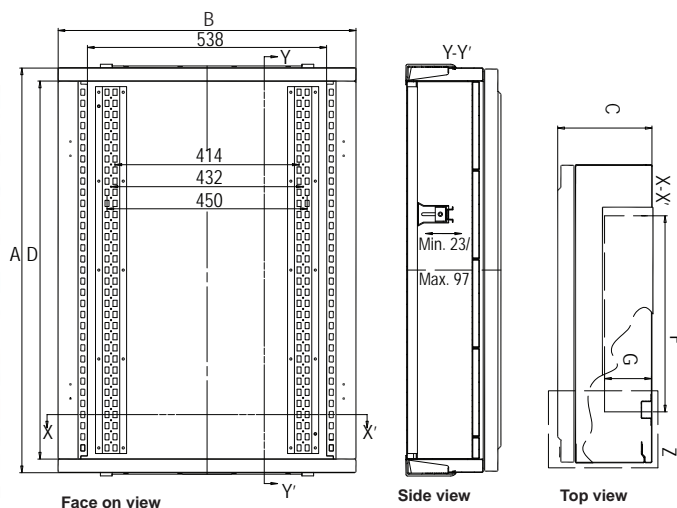
Lid Kits (Only | Lid Kits inside)

Product Code Plastic	Product Code Metal	Modular Capacity	For Cabinet	They Include
S120P150	S120M150	120 MOD.	65SUP96-120PO-PT	5 150-mm mod. lids + 2 50-mm blind lids + 5 DIN rails
S120P200	S120M200	120 MOD.	65SUP120-168PO-PT	5 200-mm mod. lids + 1 50-mm blind lid + 5 DIN rails
S168P150	S168M150	168 MOD.	65SUP120-168PO-PT	7 150-mm mod. lids + 7 DIN rails
S144P200	S144M200	144 MOD.	65SUP144-192PO-PT	6 200-mm mod. lids + 1 50-mm blind lid + 6 DIN rails
S192P150	S192M150	192 MOD.	65SUP144-192PO-PT	8 150-mm mod. lids + 1 50-mm blind lid + 8 DIN rails
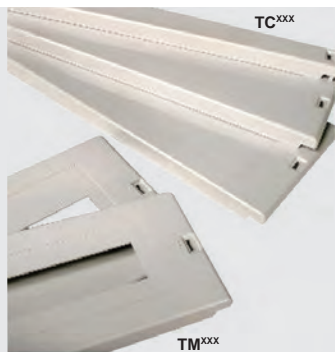
Plastic Lids

Material: ABS RAL 9003 white. | **Characteristics:** Hinged and reversible. They are closed by means of a clipping system.

Product Code	Description	Dimensions (H x W)	No. of Modules
TM150	Modular plastic cover hinged	150 x 577mm	24
TM200	Modular plastic cover hinged	200 x 577mm	24
TC50	Blind plastic cover Hinged	50 x 577mm	-
TC150	Blind plastic cover Hinged	150 x 577mm	-
TC200	Blind plastic cover Hinged	200 x 577mm	-

Metal Lids

Material: RAL 9003 white cold-rolled steel. | **Characteristics:** Fixed, bolted to the structure by means of M6 caged nuts and M6 x 10 anti-twist screws.

Product Code	Description	Dimensions (H x W)	No. of Modules
TMM150F	Fixed modular cover metal	150 x 577mm	24
TMM200F	Fixed modular cover metal	200 x 577mm	24
TMM300F	Fixed modular cover metal	300 x 577mm	2 x 24
TMM400F	Fixed modular cover metal	400 x 577mm	2 x 24
TCM50F	Fixed blind cover metal	50 x 577mm	-
TCM150F	Fixed blind cover metal	150 x 577mm	-
TCM200F	Fixed blind cover metal	200 x 577mm	-
TCM300F	Fixed blind cover metal	300 x 577mm	-
TCM400F	Fixed blind cover metal	400 x 577mm	-

Moulded-Case Circuit Breaker Cover (MCCB)

Material: RAL 9003 painted steel cover. Plate and adjustment elements in 2-mm thick galvanised steel.

Characteristics: Cover plus plate system for installing moulded-case circuit breakers (MCCBs) up to 400A. MCCB layout can be horizontal and/or vertical. The supports are height-adjustable.

Supply: The two cover + plate references must be ordered. The plate includes the four supports and all the screws needed for installation.

Product Code	Description	Dimensions (H x W)	For Switch
TMCB200	200mm Moulded-case circuit breaker cover	200 x 577mm	MCCB
TMCB250	200mm Moulded-case circuit breaker cover	250 x 577mm	MCCB
TMCB300	300mm Moulded-case circuit breaker cover	300 x 577mm	MCCB
TMCB400	400mm Moulded-case circuit breaker cover	400 x 577mm	MCCB

Plate + Moulded-Case Circuit Breaker Cover (MCCB) Support

PMCB200	Plate + moulded-case circuit breaker	165 x 385mm	-
PMCB250	Plate + moulded-case circuit breaker	215 x 385mm	-
PMCB300	Plate + moulded-case circuit breaker	265 x 385mm	-
PMCB350	Plate + moulded-case circuit breaker	315 x 385mm	-

DIN Rail Kit For Surface Cabinets

Product Code	Description		No. of Modules
48013	DIN rail + supports for surface assembly		24

Auxiliary Modules (Door Included)

TC^{xxx}

TM^{xxx}

TMM^{xxx}

TCM^{xxx}

TMCB^{xxx}

PMCB^{xxx}

48013

ME^XXXXX
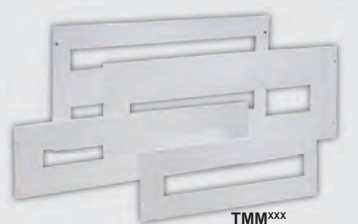
Material: RAL 9003 painted sheet steel.| **Characteristics:** Possibility of installing auxiliary side or central module.Used for the installation of busbars, switches, control equipment etc., leaving more space inside the cabinet. Opaque door with standard 5mm double bit lock.| **For The Following Cabinets:** 40ENL.

Product Code	Description	Dimensions (H x W x D)	Usable Espace (H x W)	For Cabinet
MEL4096	Side Auxiliary module	910 x 350 x 212mm	850 x 209mm	40ENL96-120
MEL40120	Side Auxiliary module	1110 x 350 x 212mm	1050 x 209mm	40ENL120-16
MEL40144	Side Auxiliary module	1310 x 350 x 212mm	1250 x 209mm	40ENL144-192
*Joining / Baying Kit included				

Product Code	Description	Dimensions (H x W x D)	Usable Espace (H x W)	For Cabinet
MEC4096	Central Auxiliary module	910 x 350 x 212mm	850 x 209mm	40ENL96-120
MEC40120	Central Auxiliary module	1110 x 350 x 212mm	1050 x 209mm	40ENL120-168
MEC40144	Central Auxiliary module	1310 x 350 x 212mm	1250 x 209mm	40ENL144-192
*1x Joining / Baying Kit included	1x Extra Joining / Baying Kit NEEDED			

Cover Kit For Busbar

Material: RAL 9003 painted sheet steel. | **Characteristics:** All the accessories necessary for assembly are supplied. They provide additional protection for busbars.

4866^X

Product Code	Gap Dimensions (H x W)	Height Dimensions Lid 1	Height Dimensions Lid 2	For Cabinet No. of Modules
48662	850 x 248mm	850mm	-	96
48663	1050 x 248mm	600mm	450mm	120
48664	1250 x 248mm	800mm	450mm	144

Moulded-case Circuit Breaker And Busbar Cover Kit

4870^X

Product Code	Dimensions MCCB Cover	Dimensions Blind Lid	Dimensions Plate	For Cabinets (No. of Modules)
48700	450 x 248mm	-	300 x 212mm	48
48701	450 x 248mm	200 x 248mm	300 x 212mm	72
48702	450 x 248mm	400 x 248mm	300 x 212mm	96
48703	450 x 248mm	600 x 248mm	300 x 212mm	120
48704	450 x 248mm	800 x 248mm	300 x 212mm	144

Combination + Extension ENL Cabinets (Joining / Baying Kits)

Material: RAL 9003 painted sheet steel. | **Characteristics**: It permits the connection and extension of ENL-type surface enclosures using a clipping system. It contains the joining structure, plus the cabinet extension. (Door not included). | **For The Following Cabinets**: 40ENL.

EE67^XXX

Product Code	Dimensions (H)	No. of Modules	For Cabinet	For Side Auxiliary Module	For Central Auxiliary Module
EE6791	850mm	96	40ENL96-120	MEL4096	MEC4096
EE67111	1050mm	120	40ENL120-168	MEL40120	MEC40120
EE67113	1250mm	144	40ENL144-192	MEL40144	MEC40144
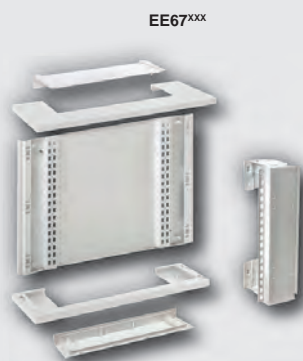
How to join two 40ENL72-96 cabinets

References			Final set

+ **>**

Ref. Cabinet 40ENL72-96	Ref. Extension EE6771	Door must be requested separately.
It includes one rear and two side panels.	It includes one rear panel and one joining structure.	

Mounting Plates | Total Plain

Material: Mounting plate in 2mm thick galvanised steel. | **For The Following Cabinets:** 40SUP-40ENL-40EMP-65SUP.

Product Code	Dimensions (H x W)	No. Of Adjustable Supports
PLM850	850 x 478mm	2
PLM1050	1050 x 478mm	2
PLM1250	1250 x 478mm	2

Locks With Key

Characteristics: Housing manufactured in RAL 7037 polyamide and latch in steel. Aluminium key with code 333 included (1 pc.). (Ref. 48550 for spare).

Product Code	Description
48447	1/4 turn lock with key code 333 (surface)

Wall-mounting Support (Brackets)

MATERIAL: Galvanised steel. **| CHARACTERISTICS:** They are attached to the rear part of the cabinet vertically or horizontally. | **Supply:** 4-support pack**.**

Product Code	Description
48427	Galvanised wall-mounting support (4-piece pack)

PLMxxx

48447

48427

Atlantic Plus

IP40 Combinable Steel Distribution Cabinets

Product Series

Standard

- **IP40 combinable surface cabinets with opaque or transparent door.**

Supply

IP40 combinable surface cabinets supplied disassembled in a single packaging that contains:

- **Body.**
- **Sides.**
- **Top and bottom cover.**
- **Cable-entry cover.**
- **Frame.**
- **Plinth.**
- **Door.**
- **Accessory bag: Lifting and mounting pack, hinges,covers, cable-gland, screws, key, assembly instructions.**

IP40 Combinable Surface Cabinets

RAL 9003 rolled steel. | Cabinets supplied with modular frame, without lids or DIN rail. | Plinth included in the unit. The dimensions include the 100-mm plinth. | Cabinets supplied with door; PO: opaque door - PT: transparent door.

Product Code Enclosure & Door	Cabinet Dimensions	Usable Height Space	Modular Capacity	Weight	Maximum Acceptable Load	Power Dissipation According To Temperature Increase °C P(W)*				
	(A x B x C)	(B)				20	25	30	35	40
40ENL192-240PO	1810 x 730 x 250mm	1600mm	192 – 240mm	56kg	70kg	321,2	401,5	481,8	562,1	642,4
40ENL192-240PT	1810 x 730 x 250mm	1600mm	192 – 240mm	56kg	70kg	321,2	401,5	481,8	562,1	642,4
40ENL216-288PO	2110 x 730 x 250mm	1900mm	216 – 288mm	66.25kg	85kg	369,8	462,2	554,6	647,1	739,5
40ENL216-288PT	2110 x 730 x 250mm	1900mm	216 – 288mm	66kg	85kg	369,8	462,2	554,6	647,1	739,5

I40 Combinable Opaque Door

I40 Combinable Transparent Door
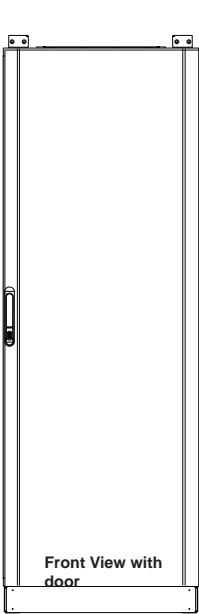
Front View with door
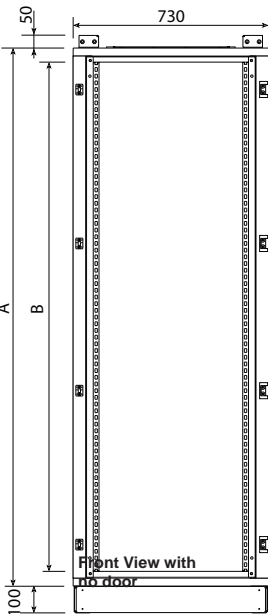
Front View with no door
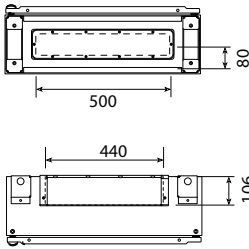
Top View with

Hinged Plastic Covers

Material: ABS RAL 9003 white. | **Characteristics:** Hinged and reversible. They are closed by means of a clipping system.

Product Code	Description	Dimensions (H x W)	No. of Modules
TM150	Modular cover	150 x 577mm	24
TM200	Modular cover	200 x 577mm	24
TC50	Blind cover	50 x 577mm	-
TC150	Blind cover	150 x 577mm	-
TC200	Blind cover	200 x 577mm	-

Fixed Metal Covers

Material: RAL 9003 white cold-rolled steel. | **Characteristics:** Fixed, bolted to the structure by means of M6 caged nuts and M6x10 anti-twist screws. Hinged lids available to order.

Product Code	Description	Dimensions (H x W)	No. of Modules
TMM150F	Fixed modular cover	150 x 577mm	24
TMM200F	Fixed modular cover	200 x 577mm	24
TMM300F	Fixed modular cover	300 x 577mm	2x24
TMM400F	Fixed modular cover	400 x 577mm	2x24
TCM50F	Fixed blind cover	50 x 577mm	-
TCM150F	Fixed blind cover	150 x 577mm	-
TCM200F	Fixed blind cover	200 x 577mm	-
TCM300F	Fixed blind cover	300 x 577mm	-
TCM400F	Fixed blind cover	400 x 577mm	-

Moulded-case Circuit Breaker Cover And Support (MCCB)

Material: RAL 9003 painted steel cover. Plate and adjustment elements in 2mm thick galvanised steel. | **Characteristics:** Cover plus plate system for installing moulded-case circuit breakers (MCCBs) up to 630 A. MCCB layout can be horizontal and/or vertical. The supports are height-adjustable. | **Supply:** The two cover + plate references must be ordered. The plate includes the four supports and all the screws needed for installation.

Product Code	Description	Dimensions (H x W)	For Switch
TMCB200	Cover (MCCB) 200mm moulded-case circuit breaker	200 x 577mm	MCCB
TMCB250	Cover (MCCB) 250mm moulded-case circuit breaker	250 x 577mm	MCCB
TMCB300	Cover (MCCB) 300mm moulded-case circuit breaker	300 x 577mm	MCCB
TMCB400	Cover (MCCB) 400mm moulded-case circuit breaker	400 x 577mm	MCCB
PMCB200	Plate + moulded-case circuit breaker (MCCB) support	165 x 385mm	-
PMCB250	Plate + moulded-case circuit breaker (MCCB) support	215 x 385mm	-
PMCB300	Plate + moulded-case circuit breaker (MCCB) support	265 x 385mm	-
PMCB350	Plate + moulded-case circuit breaker (MCCB) support	315 x 385mm	-

MEL40^{XXXX}
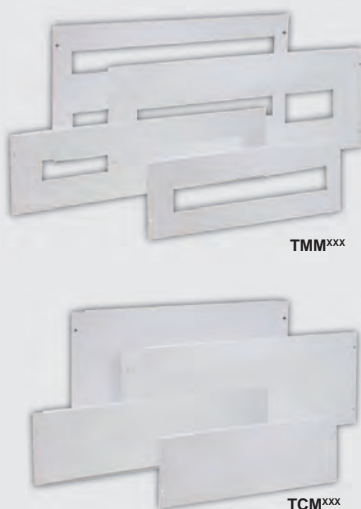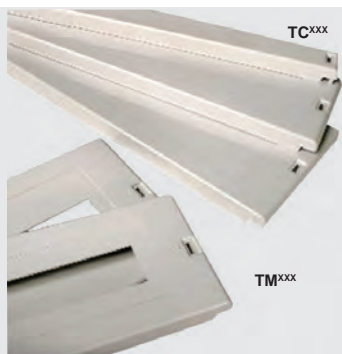
Atlantic Plus | IP40 Steel Distribution Cabinet Accessories
Auxiliary Module

Material: RAL 9003 painted sheet steel. | **Characteristics:** Possibility of installing side or central auxiliary module. The cabinet and auxiliary module are joined by means of a jumper, leaving free inner passage space. Used for the installation of busbars, switches, control equipment etc., leaving more space inside the cabinet. They feature a standard 4-point lock, double-bit insert with retractable handle in RAL 7016 grey. | **For The Following Cabinets**: 40ENL.

Auxiliary Module Side (Door included)

Product Code	Description	Dimensions (H x W x D)	Usable Espace (H)	For Cabinet
MEL401810	Auxiliary module side	1810 x 430 x 250mm	1650mm	40ENL192-240
MEL402110	Auxiliary module side	2110 x 430 x 250mm	1950mm	40ENL216-288
*Joining / Baying Kit included				

Auxiliary Module Central (Door included)

Product Code	Description	Dimensions (H x W x D)	Usable Espace (H)	For Cabinet
MEC401810	Auxiliary module central	1810 x 430 x 250mm	1650mm	40ENL192-240
MEC402110	Auxiliary module central	2110 x 430 x 25mm	1950mm	40ENL216-288
*1x Joining / Baying Kit included, 1x extra Joining / Baying Kit NEEDED.				

MEC40^{XXXX}

Accessories for Auxiliary Module
Main Switch

Material: Mounting plate in galvanised steel. RAL 9003 painted steel protection cover.| **Characteristics:** It features a protective cover and mounting plate with adjustment supports included. Possibility of fitting the moulded-case circuit breaker (MCCB) up to 630 A in the upright position.

Product Code	Description	Plate Dimensions (H x W)	Cover Dimensions (H x W)
48705	Moulded-case circuit breaker kit	300 x 273mm	450 x 303mm

48705

Protective Covers For Busbar

Material: RAL 9003 painted sheet steel. | **Characteristics:** Partial covers to divide the protection area into sectors. All the accessories necessary for assembly are supplied. They provide the switchgear and other devices inside the auxiliary cabinet with additional protection. | **For The Following Cabinets:** MEL-MEC.

Product Code	Description	Cover Dimensions
48370	Protective covers for busbar	300 x 303mm
48371	Protective covers for busbar	450 x 303mm
48372	Protective covers for busbar	600 x 303mm
48266	Protective covers for busbar	1200 x 303mm
48267	Protective covers for busbar	1500 x 303mm

483^{XX} and 482^{XX}

Combination + Extension ENL Cabinets (Joining / Baying Kits)

Material: RAL 9003 painted sheet steel.| **Characteristics:** It permits the connection and extension of ENL-type surface enclosures using a clipping system. It contains the joining structure plus the cabinet and door extension.|**For The Follow Cabinets:** 40ENL.

Product Code	Dimensions (H)	For cabinet	For Side Auxilary	For Central Auxilary
EE1810PO	1810mm	40ENL192-240PO	MEL401810	MEC401810
EE2110PO	2110mm	40ENL216-288PO	MEL402110	MEC402110
Door included				

EE^xxxxPO

How to join two 40ENL192-240PO cabinets

References		Final set

+ **>**
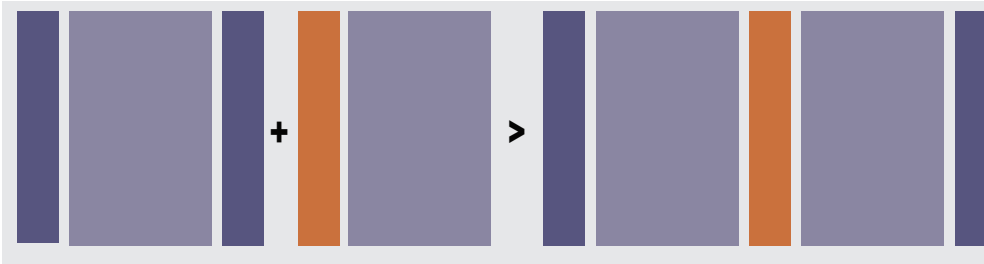
Ref. Cabinet 40ENL192-240PO   **Ref. Extension EE1810PO**   **Door included.**

It includes one rear and two side panels.

It includes one rear panel and one joining structure.

Flat Mounting Plates | Total Plain

PLM^xxx

Material: Mounting plate in 2mm thick galvanised steel. | **Characteristics:** The mounting elements must be ordered for the height adjustment: ref. 48340. | **For The Following Cabinets:** 40ENL

Product Code	Dimensions (H x W)	No. Of Adjustable Elements Needed
PLM1600	1650 x 500mm	3
PLM1900	1950 x 500mm	3

Spare Doors

PT40ENL^xxx

PO40ENL^xxx

Product Code	Description	For Cabinet (No. of Modules)
PO40ENL192	Opaque door for cabinet type ENL	192-240
PT40ENL192	Transparent door for cabinet type ENL	192-240
PO40ENL216	Opaque door for cabinet type ENL	216-288
PT40ENL216	Transparent door for cabinet type ENL	216-288

Inserts For Lock With Handle

Product Code	Description
48465	Security insert lock with key code 333

48465

Installation Components Accessories
Module Lids

Material: 6-module lid in PS; 1-metre lid in PVC .

Product Code	Description
48019	Module lid RAL 7035 grey (1m)

48019

High Voltage Label

49390

Product Code	Description	Dimensions
49390	High voltage adhesive label	105 x 105mm

LINKWELL

New Generation SV Bus - Bar Holder

Rated Working Voltage Up To 1000 Volt, 50/60 HZ. According to VDE 0660

New Type Adjustable Busbar Holder

With the wiring techniques of wire section material and Bus – bar without pinholes adopted, the bending - proof intensity and short – circuit – proof capacity of the Bus – bar are improved, and it also helps to cool the Bus – bar, lower the temperature and increase current capacity.

SV1
SV2
SV3
SV4

Copper BusBar
SV Bus - Bar Holder
Bus - Bar Terminal

Product Code	Rated Current Up To	No. Of Poles	Centre Distance Of Bus Bar	Suitable For Bar Size	Tightening Turning Moment		Per Package
					Fixed Screw	Fixed The Cover	
SV1	800	1	-	30 x 10mm	5 - 8Nm	1 - 3Nm	2
SV2	800	2	60mm	30 x 10mm, 30 x 5mm, 25 x 10mm,25 x 5mm, 20 x 10mm, 20 x 5mm, 20 x 10mm, 15 x 10mm, 15 x 5mm, 12 x 10mm, 12 x 5mm	3 - 5Nm	1 - 3Nm	2
SV3	800	3	60mm	30 x 10mm, 30 x 5mm, 25 x 10mm,25 x 5mm, 20 x 10mm, 20 x 5mm, 15 x 10mm, 15 x 5mm	3 - 5Nm	1 - 3Nm	2
SV4	800	4	60mm	30 x 20mm, x 30 x 5mm, 25 x 10mm, 25 x 5mm, 20 x 10mm, 20 x 5mm, 15 x 10mm,15 x 5mm	3 - 5Nm	1 - 3Nm	2

Cu22ˣ

Copper Busbar

Product Code	Specifications	Rated Current	Length
Cu221	30 x 5mm	447A	3m
Cu222	25 x 5mm	384A	3m
Cu223	20 x 10mm	497A	3m
Cu224	20 x 5mm	319A	3m
Cu225	30 x 10mm	800A	3m

CT-450
CT-440
CT-220
CT-525
CT-430
CJ-430
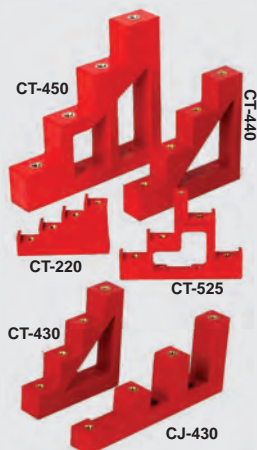
Step Insulators

Product Code	Description	Phase Number	Width
CT-215	Step Insulator	2 phase	15mm
CT-220	Step Insulator	2 phase	20mm
CT-225	Step Insulator	2 phase	25mm
CT-525	Step Insulator	5 phase	25mm
CT-430	Step Insulator	4 phase	30mm
CT-440	Step Insulator	4 phase	40mm
CT-450	Step Insulator	4 phase	50mm
CJ-430	Step Insulator	4 phase	30mm
CJ-440	Step Insulator	4 phase	40mm
CJ-50	Step Insulator	-	50mm

SV Bus Bar Terminal

Material: Steel / Metal
Which is widely applied in power distribution, automation industry, building control technology, communication and traffic.

SV2ˣˣ

Product Code	Thickness Of Bus	Round Lead Wiring	Piled Copper Bus Terminal Space	Torque	Per Package	Min. (H)	Max. (H)
SV201	4 - 5mm	1 - 4mm²	-	2Nm	50pcs	17mm	23mm
SV202	4 - 5mm	2,5 - 16mm²	8 x 8mm	3Nm	50pcs	22mm	29mm
SV203	4 - 5mm	16 - 50mm²	10,5 x 11mm	6 - 8Nm	50pcs	26mm	39mm
SV204	4 - 5mm	35 - 70mm²	16,5 x 15mm	10 - 12Nm	50pcs	39mm	57mm
SV205	4 - 5mm	70 - 185mm²	22,5 x 20mm	12 - 15Nm	50pcs	44mm	66mm
SV206	9 - 10mm	1 - 4mm²	-	2Nm	50pcs	17mm	23mm
SV207	9 - 10mm	2,5 - 16mm²	8 x 8mm	3Nm	50pcs	22mm	29mm
SV208	9 - 10mm	16 - 50mm²	10,5 x 11mm	6 - 8Nm	50pcs	26mm	39mm
SV209	9 - 10mm	35 - 70mm²	16,5 x 15mm	10 - 12Nm	50pcs	39mm	57mm
SV210	9 - 10mm	70 - 185mm²	22,5 x 20mm	12 - 15Nm	50pcs	44mm	66mm

COOPER
Bussmann

Bussman PV Fuses

Overview of String Protection

Depending on the desired capacity of the Photovoltaic (PV) system, there may be several PV strings connected in parallel to achieve higher currents and subsequently more power.

PV systems that have three or more strings connected in parallel need to have each string protected. Systems that have less than three strings will not generate enough fault current to damage the conductors, equipment or modules. Therefore, they do not present a safety hazard, provided the conductor is sized correctly, based on local codes and installations requirements.

Where three or more strings are connected in parallel, a fuse link on each string will protect the conductors and

modules from over current faults and help minimise any safety hazards. It will also isolate the faulted string so that the rest of the PV system can continue to generate electricity.

It should be remembered that PV module output changes with the module temperature as well as the amount of sun it is exposed to. The exposure is dependent on irradiance level, incline as well as shading effect from trees / buildings or clouds. In operation, fuse links, as thermal devices, are influenced by ambient temperature. The current capability of the PV fuse links should be de-rated according to the Rated Current Dimensioning in the Cooper Bussmann High Speed Fuse Application Guide # 3160 at www.cooperbussmann.com.

1500V Fuses (DC)

NEW
1500V DC

Eaton's Bussmann™ series of 14 x 65mm (10 x 85mm with 10mm caps) package PV fuses are specifically designed for protecting and isolating photovoltaic strings. These fuse links are capable of interrupting low over-currents associated with faulted PV systems (reverse current, multi-array faults).

Cylindrical with 10mm fixings

Product Code	Rated Amps	Rated Voltage	Interrupting Rated
PV-2.25A10F85	2,25A	1500V DC	10kA
PV-2.5A10F85	2,5A	1500V DC	10kA
PV-3A10F85	3,0A	1500V DC	10kA
PV-3.5A10F85	3,5A	1500V DC	10kA
PV-4A10F85	4,0A	1500V DC	10kA
PV-15A10F85	15A	1500V DC	10kA
PV-20A10F85	20A	1500V DC	10kA
PV-25A10F85	25A	1300V DC	10kA
PV-32A10F85	32A	1300V DC	10kA

PV-*A10F85

Holder for 1500V Fuses

CHPV15V85

Product Code	Number Of Poles	Rated Voltage	Rated Current (UI)	Rated Isolation Voltage Ui	Rated Surge Volt. \ Uimp	Rated Breaking Capacity ICC
CHPV15L85	1	1000V AC / 1500V DC	32A (IEC) / 30A	1500V	6	30kA

10 x 38 PV Fuses (1000V DC)

1000V DC

A range of UL 2579 fast-acting 600V DC Midget fuses specifically designed to protect solar power systems in extreme ambient temperature, high cycling and low-level fault current conditions (reverse current, multi-array fault).

PV-25A10F

Product Code	Rated Current	Rated Voltage	Breaking Capacity	Dimensions	Class
PV-2A10F	2A	600V DC	30kA	10 x 38mm	gPV
PV-6A10F	6A	600V DC	30kA	10 x 38mm	gPV
PV-8A10F	8A	600V DC	30kA	10 x 38mm	gPV
PV-10A10F	10A	600V DC	30kA	10 x 38mm	gPV
PV-12A10F	12A	600V DC	30kA	10 x 38mm	gPV
PV-15A10F	15A	600V DC	30kA	10 x 38mm	gPV
PV-20A10F	20A	600V DC	30kA	10 x 38mm	gPV
PV-25A10F	25A	600V DC	30kA	10 x 38mm	gPV

30 Amp available on special request only.

Holders for 10 x 38 Fuse

CHPV1U - Without Indication

Product Code	Rated Current	Rated Voltage	No. Poles	Fuse Blown Indication
***CHPV1IU**	30A	1000V DC	1	With indication
CHPV2IU	30A	1000V DC	2	With indication
***CHPV1U**	30A	1000V DC	1	Without indication
CHPV2U	30A	1000V DC	2	Without indication
JV-L	Multi-pole connector Kit (10 x 38). For Use with Fuse Holders CHPV1U and CHPVIU			
*Stocking items				

NH1 Photovoltaic Fuses (DC)

NH DIN blade fuse

A range of NH size fuse links specifically designed for protecting and isolating photovoltaic array combiners and DC disconnects. These fuse links are capable of interrupting low over currents associated with faulted PV systems (reverse current, multi-array fault).

Product Code	Rated Current	Rated Voltage	Breaking Capacity	Dimensions	Class
PV-32ANH1	32A	1000V DC	30kA	NH1	gPV Fuse Links
PV-40ANH1	40A	1000V DC	30kA	NH1	gPV Fuse Links
PV-50ANH1	50A	1000V DC	30kA	NH1	gPV Fuse Links
PV-63ANH1	63A	1000V DC	30kA	NH1	gPV Fuse Links
PV-80ANH1	80A	1000V DC	30kA	NH1	gPV Fuse Links
PV-100ANH1	100A	1000V DC	30kA	NH1	gPV Fuse Links
PV-125ANH1	125A	1000V DC	30kA	NH1	gPV Fuse Links
PV-160ANH1	160A	1000V DC	30kA	NH1	gPV Fuse Links

Holders for NH1 Photovoltaic Fuses

Product Code	Rated Current	Rated Voltage	No. Poles	Description
SD1-D	250A	1000V DC	1	DIN-Rail and screw mounting
TD1-D	250A	1000V DC	2	DIN-Rail and screw mounting

XL Photovoltaic Fuses (DC)

A range of XL package fuse links specifically designed for protecting and isolating photovoltaic array combiners and disconnects. These fuse links are capable of interrupting low over currents associated with faulted PV systems (reverse current, multi-array fault).

Product Code Bladed	Product Code Bolted	Rated Current	Rated Voltage	Body Size
PV-63A-01XL	PV-63A-01XL-B	63A	1000V DC	01
PV-80A-01XL	PV-80A-01XL-B	80A	1000V DC	01
PV-100A-01XL	PV-100A-01XL-B	100A	1000V DC	01
PV-125A-01XL	PV-125A-01XL-B	125A	1000V DC	01
PV-160A-01XL	PV-160A-01XL-B	160A	1000V DC	01
PV-200A-1XL	PV-200A-1XL-B	200A	1000V DC	1XL
PV-200A-2XL	PV-200A-2XL-B	200A	1000V DC	2XL
PV-250A-2XL	PV-250A-2XL-B	250A	1000V DC	2XL
PV-315A-2XL	PV-315A-2XL-B	315A	1000V DC	2XL
PV-350A-3L	PV-350A-3L-B	350A	1000V DC	3L
PV-400A-3L	PV-400A-3L-B	400A	1000V DC	3L
PV-500A-3L	PV-500A-3L-B	500A	1000V DC	3L
PV-630A-3L	PV-630A-3L-B	630A	1000V DC	3L

Holders for XL Photovoltaic Fuses

Product Code	Description
SD1XL-S	Suitable for 01 & 1XL fuse
SB2XL-S	Suitable for 2XL fuse
SB3L-S	Blocks Size 3L fuse

COOPER Bussmann

AC Fuses NH DIN HRC Fuse Links (120kA / 500V)

NH DIN HRC Fuse Links (120kA / 500V)

Product Code	Description	Size	Quantity
24700-10A	Std. Protection Fuse With Indicator	00	1
24700-16A	Std. Protection Fuse With Indicator	00	1
24700-25A	Std. Protection Fuse With Indicator	00	1
24700-32A	Std. Protection Fuse With Indicator	00	1
24700-40A	Std. Protection Fuse With Indicator	00	1
24700-63A	Std. Protection Fuse With Indicator	00	1
24700-80A	Std. Protection Fuse With Indicator	00	1
24700-100A	Std. Protection Fuse With Indicator	00	1

MERSEN

Battery Protection For AC / DC Systems: Multibloc 00.St8 (For NH Fuses) (Holders)

Features and benefits

- Touch protection IP 20 - when fuse link is in test mode IP rating is maintained
- Parking position of switch operating cover even with fuse-links inserted
- Modular system of cover - cover for cable termination area can be extended - optional

- Varieties of cable termination: screw, clamp strap, Al-Cu clamp, extendable for V-terminal - optional
- Padlocking and sealing of switch door cover - optional
- Indicating switch for switch door position - optional
- Safe on load connection/disconnection in accordance with IEC 60947-3

Product Code	Rated Voltage	Rated Current	No. Poles	Size	Cable Termination Components
F229292	690V AC / 220V DC	160A	1	00	2 M8 screws
G229293	690V AC / 220V DC	160A	2	00	4 M8 screws

Battery Protection For AC / DC Systems: Multibloc 00.St9 (For NH Fuses) (Holders)

Features and benefits

- Touch protection IP 30
- Sealing and padlocking device integrated in switch door cover
- Installation depth 81 mm
- Voltage test through holes in slidable windows directly at contacts or tags of NH-fuse links
- Parking position of switch operating cover even with fuse-links inserted
- Modular system of cover - cover for cable termination area can be extended as required

- Varieties of cable termination: screw, clamp strap, Al-Cu clamp, frame clamp, extendable for
- V-terminal - optional
- Electronic or electro-mechanic fuse monitoring - optional
- Indicating switch for switch door position - optional
- Installation on to DIN rails in accordance with EN 60 715 - optional
- Safe on load connection/disconnection in accordance with IEC 60947-3

Product Code	Rated Voltage	Rated Current	No. Poles	Size	Cable Termination Components
P1023007	690V AC / 440V DC	160A	3	00	6 M8 screws

STÄUBLI

MC Inline Fuse

Molded inline fuses utilise genuine MC4 connectors from MultiContact to ensure the lowest losses and highest quality connection, while maintaining the full system safety. Fully overmolded, non-replaceable fuses are disposable to ensure user safety.

NEW 1500V DC

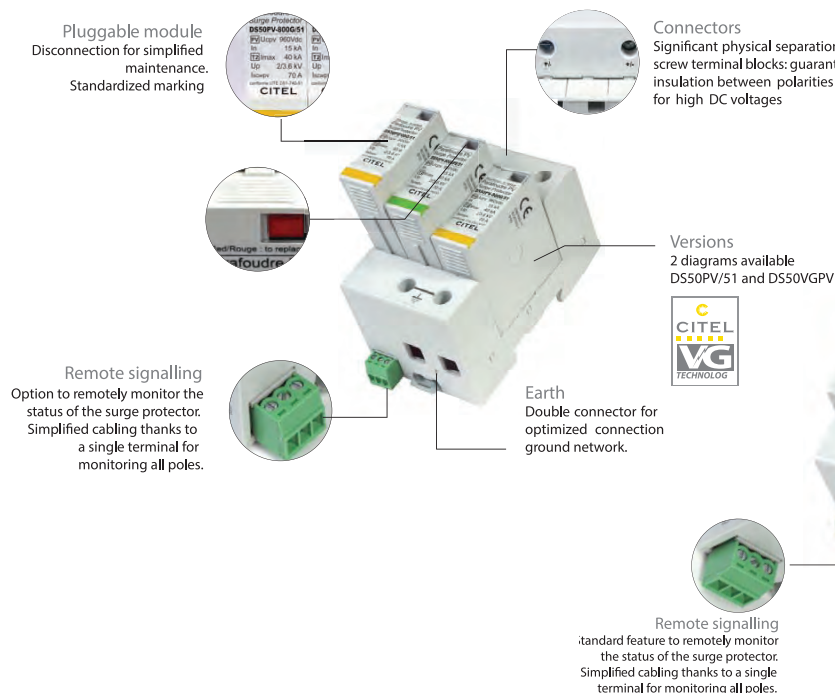| Product Code	Description
MCfuse-1-*	1000V DC, Inline Fuse, MC4
MCfuse1500-1-*	1500V DC, Inline Fuse, MC4

*Insert current rating: 4A, 6A, 10A, 12A, 15A, 20A | To order with pigtails, please contact a branch near you.
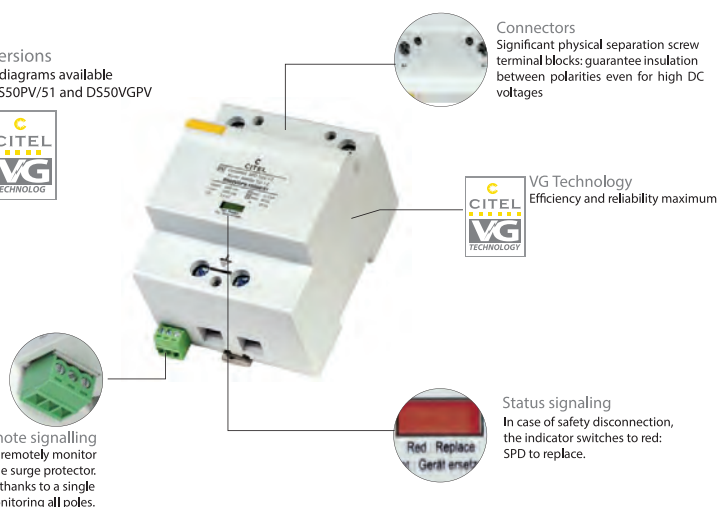
CITEL

Surge Protectors for Photovoltaic Systems

Most photovoltaic module manufacturers guarantee their materials for 20 years or more. The ROI of photovoltaic generation facilities connected to the low voltage network is therefore calculated over this long period of time. But these systems are often highly exposed to lightning and power surges, which can greatly reduce the required operating time. Implementation of appropriate protection solutions is strongly recommended.

DS50PV / 51 AND DS50VGPV / 51 SERIES

Pluggable module
Disconnection for simplified maintenance. Standardized marking

Connectors
Significant physical separation screw terminal blocks: guarantee insulation between polarities even for high DC voltages

Versions
2 diagrams available
DS50PV/51 and DS50VGPV

Remote signalling
Option to remotely monitor the status of the surge protector. Simplified cabling thanks to a single terminal for monitoring all poles.

Earth
Double connector for optimized connection ground network.

DS60PV / 51 SERIES

Connectors
Significant physical separation screw terminal blocks: guarantee insulation between polarities even for high DC voltages

VG Technology
Efficiency and reliability maximum

Remote signalling
standard feature to remotely monitor the status of the surge protector. Simplified cabling thanks to a single terminal for monitoring all poles.

Status signaling
In case of safety disconnection, the indicator switches to red: SPD to replace.

Several points must be considered to analyse the risk of Lightning and Power Surges:

- Due to the exposed nature of the PV array, the threat of lightning is more common.

- The risk is multiple: direct effect (lightning strike on the panels) and indirect (surge on Cells, solar chargers / inverters), on other lines data).

- The operating loss must be taken into account, especially at sites of high power capacity.

- When the PV system is located on industrial sites, the risk of switching overvoltages must also be taken into account.

- The level of risk is directly related to the lightning density and exposure of local lines

Protection of PV installation

The photovoltaic grid-connected low voltage power lines may be subject to overvoltages on different networks:

- **AC network:** surge protectors are necessary, and in most cases, mandatory on the AC output of the PV inverter which is connected back to the AC power grid.

- **DC network:** surge protectors are required or mandatory on the input of the PV inverter or the input PV modules.

- **Low current network:** if the PV inverter is connected to low voltage signal lines (probes, sensors, monitoring) then SPD devices are recommended.

AC surge protectors for PV installation

Depending on the type of networks, the presence of lightning rod or primary surge protectors existing, CITEL also offers a complete range of solutions to protect the AC portion of the PV system.

Installations with lightning rods

A Type 1 surge protector, specifically dimensioned to handle direct lightning current is required at the service entrance of the installation (main switchboard). Arresters like the DS130R provide a high energy surge capacity in a compact size and are easily serviced with pluggable modules.

Standard installation

In the absence of lightning rod, the implementation of a type 2 SPD is generally preferred, but, in some cases, it is compulsory depending on the level of lightning in the area (Ng> 2,5). The DS40 type 2 arrester range offers a modular solution adapted to these applications. For medium and small size facilities with limited space available, the DS240 / DS440 provides a high surge capacity in a reduced footprint.

Input protection of PV inverter

Guide UTE C15-712-1 requires the implementation of an additional SPD on the AC input of the PV inverter, if it is more than 10 m from the surge protector origin. The DS215 / DS415 surge protectors provide this protection for these applications and can be installed either directly into the distribution panel or in a dedicated, standalone enclosure solution.

Surge protectors for low current

The PV system can be interconnected to various low-current networks including probes, sensors, and monitoring equipment. In these cases, the implementation of suitable surge protector is highly recommended: The DLA range performs this function and surge protector is available for any type of telecom or data line connections.

Power Plant

If lightning protection rod systems are equipped:

- TYPE 1 Surge Protectors Are Compulsory For AC And DC Side

- Lightning Current Withstand I_{IMP} (10 / 350 µs) Is Minimum 5 kA

CITEL

NEW
1500V DC
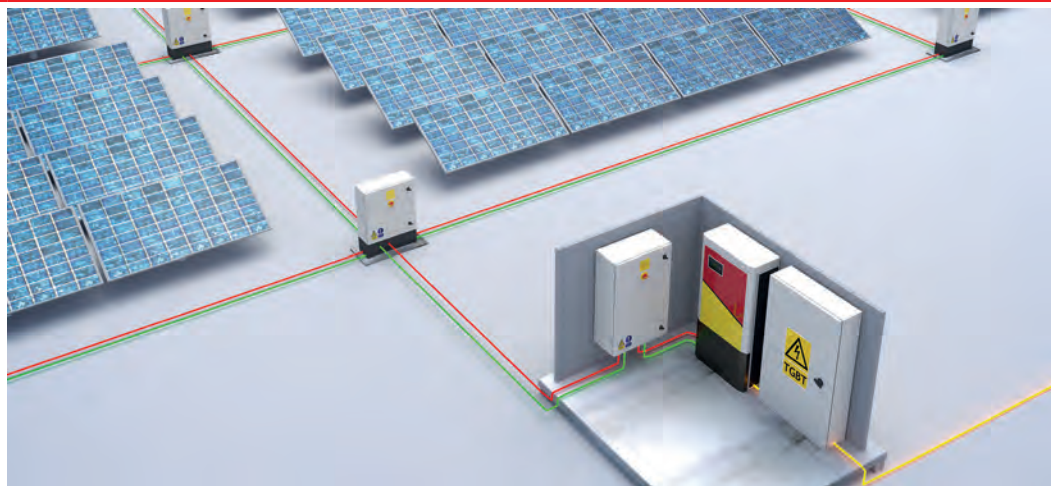
DS60VGPV-1500G/51

D60VGPV

DC	Type 1 + 2 Monobloc		
	• Lightning Impulse Current I_{IMP} = 12,5kA		
	• Nominal Discharge Current I_n = 40kA		
	Product Code	**Maximum Operating V DC**	**Protection Level CM / DM**
		Ucpv	Up
	DS60VGPV-600G/51	600 - 720V DC	2,2 / 2,8kV
	DS60VGPV-1000G/51	1000 - 1200V DC	4,7 / 5,4kV
	DS60VGPV-1500G/51	1250 - 1500V DC	4,7 / 5,4kV

DS250 Series

DS254VG-300/G

AC	Type 1 + 2 Monobloc | Remote Signal		
	• Lightning Current I_{IMP} = 25kA		
	• Maximum Discharge Current $I_{max.}$ = 40kA		
	Product Code	**Network**	**Protection Level CM / DM**
		230V AC	Up
	DS252VG-300/G	1P+N	1,5 / 1,5kV
	DS254VG-300/G	3P+N	1,5 / 1,5kV

DLA & DLA2 Series

DLA   **DLA2**

DATA	Type 1 + 2 Pluggable modules		
	• 1 Pair (DLA) or 2 pairs (DLA2) + shield protection – Pluggable modules - Screw connection		
	• Maximum Discharge Current $I_{max.}$ = 20kA		
	Product Code	**Type of Line**	**Protection Level**
	DLAx-06D3	RS422	20V
	DLAx-12D3	RS232, RS485	30V
	DLAx-24D3	4 - 20mA	40V
	DLAx-48D3	PT100	70V

CITEL

Commercial

If Lightning Protection Rod Systems are equipped:

- TYPE 1 Surge Protectors Are Compulsory For AC And DC Side

- Lightning Current Withstand I_{IMP} (10 / 350 µs) Is Minimum 5kA

DS50PV / 12KT1

NEW 1500V DC

DS50VGPVS-1000G/12KT1

DC	**Type 1 + 2 Pluggable modules** • Lightning Impulse Current I_{IMP} = 6,25kA • Nominal Discharge Current I_n = 40kA		
	Product Code	**Maximum Operating VDC**	**Protection Level CM / DM**
		Ucpv	Up
	DS50PVS-880G/10KT1	600 - 1060V DC	2,9 / 3,6kV
	DS50PVS-1000G/12KT1	1000 - 1200V DC	2,6 / 4,6kV
	DS50PVS-1500/12KT1	1250 - 1500V DC	3,4 / 5,3kV
	'S' in product code refers to option remote signalling status (option)		

DS130 Series

DS134VGS-230/G

AC	**Type 1 + 2 Pluggable modules** • Lightning Current I_{IMP} = 12,5kA • Maximum Discharge Current $I_{max.}$ = 50kA		
	Product Code	**Network**	**Protection Level CM / DM**
		230V AC	Up
	DS132VGS-230/G	1P+N	1,25 / 1,5kV
	DS134VGS-230/G	3P+N	1,25 / 1,5kV
	'S' in product code refers to option remote signalling status (option)		

DLA & DLA2 Series

DLA   DLA2

DATA	**Type 1 + 2 Pluggable modules** • 1 Pair (DLA) or 2 pairs (DLA2) + shield protection – Pluggable modules - Screw connection • Maximum Discharge Current $I_{max.}$ = 20kA		
	Product Code	**Type of Line**	**Protection Level**
	DLAx-06D3	RS422	20V
	DLAx-12D3	RS232, RS485	30V
	DLAx-24D3	4 - 20mA	40V
	DLAx-48D3	PT100	70V

Residential

CITEL

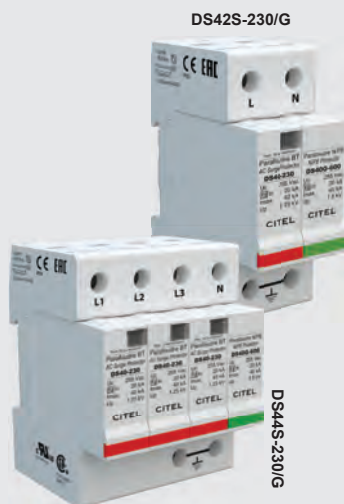**Without Lightning Rod Systems:**

- TYPE 2 Surge Protectors are necessary for AC And DC Side
- Maximum Discharge Current $I_{max.}$ is standardised at 40kA

DS50PV

DS50PVS- 800G/51

DC	**Type 2 Pluggable modules** • Nominal Discharge Current I_n = 15kA • Maximum Discharge Current $I_{max.}$ = 40kA		
	Product Code	**Maximum Operating V DC**	**Protection Level CM / DM**
		Ucpv	Up
	DS50PVS- 500/51	600V DC	2,2kV
	DS50PVS- 600/51	720V DC	2,8kV
	DS50PVS- 800G/51	960V DC	2,0 / 3,6kV
	DS50PVS-1000G/51	1200V DC	2,6 / 4,6kV
	DS50PVS-1500/51	1500V DC	3,4 / 5,3kV

'S' in product code refers to option remote signalling status (optional)

DS42S-230/G

DS40 Series

DS44S-230/G

AC	**Type 2 Pluggable modules** • Nominal Discharge Current (15 surges) I_n = 20kA • Maximum Discharge Current $I_{max.}$ = 40kA		
	Product Code	**Network**	**Protection Level CM / DM**
		230V AC	Up
	DS42S-230/G	1P+N	1,25 / 1,5kV
	DS44S-230/G	3P+N	1,25 / 1,5kV

'S' in product code refers to option remote signalling status (optional)

CITEL

Off-Grid

Without Lightning Rod Systems:

- Type 2 Surge Protectors Are Necessary For AC And DC Side
- Maximum Discharge Current $I_{max.}$ is standardised at 40kA

DS-2x0DC series

DS230S-48DC

DS240S-230/G

DS440S-230/G
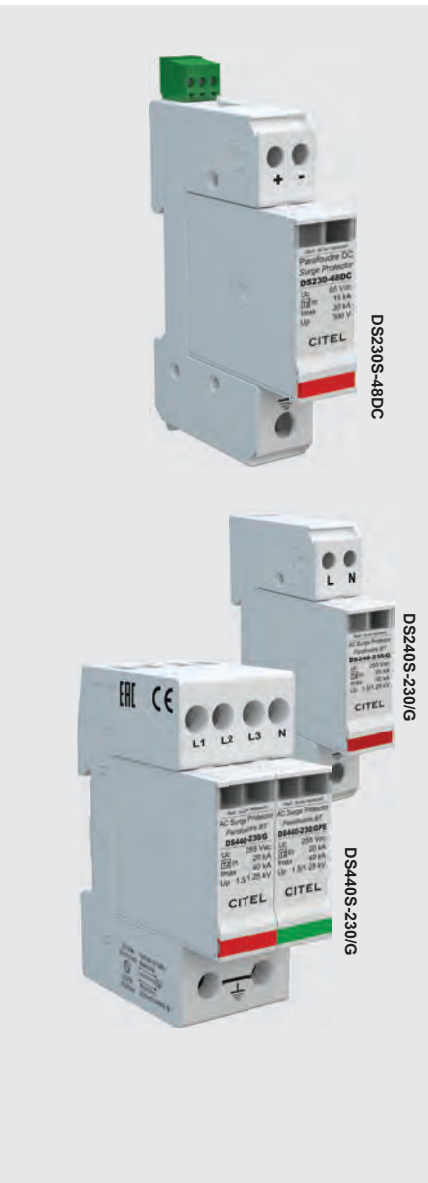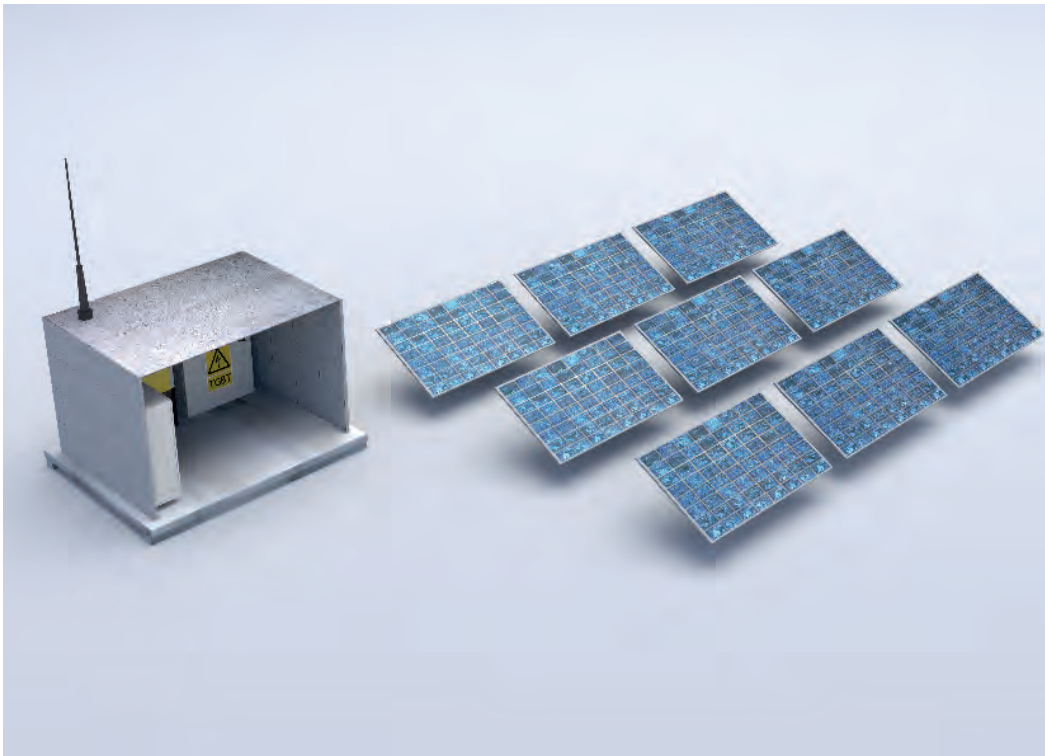
DC	**Type 2 low voltage protection** - Compact Pluggable module - $I_{max.}$: 20 to 40 kA		
	Product Code	**Operating Range VDC**	**Protection Level CM / DM**
		Ucpv	Up
	DS220S-12DC	12 – 24	250 V
	DS220S-24DC	24 – 38	250 V
	DS230S-48DC	48 – 65	300 V
	DS240S-75DC	75 – 100	390 V
	DS240S-130DC	130 – 180	620 V
	DS240S-220DC	220 – 275	900 V
	DS240S-350DC	350 – 460	1400 V
	'S' in product code refers to option remote signalling status (option)		

DSx40 Compact Series

AC	**Type 2 with 2 lines per module to reduce width** - Nominal Discharge Current (15 surges) I_n = 20kA - Maximum Discharge Current $I_{max.}$ = 40kA		
	Product Code	**Network**	**Protection Level CM / DM**
		230V AC	Up
	DS240S-230/G	1P+N	1,25 / 1,5kV
	DS440S-230/G	3P+N	1,25 / 1,5kV
	'S' in product code refers to option remote signalling status (option)		

telergon

ZFV On-Off Switch*[1]

Switch-disconnectors for DC applications are available in a wide range of currents and voltages up to 1500V DC21B. 2P, 3P+3P, 4P and 4P+4P versions are available, acting as a main switch. They are specially indicated for PV installations, where a safe disconnection is required. Standard panel handle is padlock-able in "OFF" position, for maintenance purposes.

Telergon uses this range of switches in all standardised enclosed applications for PV where a safe disconnection is required. Standard panel handle is padlock-able in "OFF" position, for maintenance purposes. Telergon uses this range of switches in all standardised enclosed applications for PV.

Product Image	ZFV 2P	ZFV 4P	IP65

Product Code (Open Switch)	Product Code (Plastic Enclosure IP65)	Voltage	Amps	Poles	Size	Conn.
ZFV16 SMAH1 A40	-	1000V DC	16A	2	00	
ZFV25 SMAH1 A4B	**ZFV25PFH4 A4B**	1000V DC	25A	4	00	
ZFV32 SMAH1 A4B	**ZFV32PFH4 A4B**	1000V DC	32A	4	00	
ZFV40 SMAH1 A40	**ZFV40 PFH4 A40**	1000V DC	40A	4	0	
ZFV55 SMAH1 A40	**ZFV55 PFH4 A40**	1000V DC	55A	4	0	

*[1] Switch + bridging links + padlock-able handle.

DC Switch-disconnectors For Photovoltaic Applications

Handle and Switch disconnection	Switch disconnection S5000 DC 4P connection	Direct and panel mount handle (Extension Shaft) Size 3 &4

External Handle — Direct Handle

Shaft

For photovoltaic applications in direct current. Base mounting by screws. | Direct or external handle, blue colour. | **Ue MAX. 1000V DC the MAX. 3150A DC 21B.**

S5000 DC Switch-disconnector for DC Current 4P (1000V DC)

S5 DC Switches S5000 (40 - 3150 A) (O - I)				Handle Options (There are three options to choose from)				
On-Off Switch 4Pole [P1]	Description			Direct Handle Blue	External Handle Blue with standard shaft included		External Handle Blue without standard shaft[2]	Extended Shafts Options for External Handle

Product Code	Amps	Size	Voltage	Product Code	Product Code	Shaft Length	Product Code	Product Code Type 1 & 2[3]	Shaft Length
S5-01604PB0	40A	0	900V DC	DS-SI01	DS-SA01	177mm	DS-SA03	DS-EP04	250mm
S5-01604PS0	40A	0	900V DC					DS-EP05	347mm
S5-01254PR0	100A	1	1000V DC	DS-SI11	DS-SA11	227mm	DS-SA14	DS-EP14	376mm
S5-02004PR0	160A	1	1000V DC						
S5-03154PR0	250A	1	1000V DC					DS-EP15	536mm
S5-04004PC0	400A	1	1000V DC						
S5-06304PR0	500A	2	1000V DC	DS-LI21	DS-LA21	195mm	DS-LA24	DS-EP23	345mm
S5-08004PC0	630A	2	1000V DC					DS-EP24	345mm
S5-12504PC0	850A	3	1000V DC	DS-LI31	DS-LA31	186mm	DS-LA33	DS-EP23	345mm
								DS-EP24	345mm
S5-18004PS0	1250A	4	1000V DC	DS-LI41	DS-LA41	239mm	DS-LA43	DS-EP44	485mm
								DS-EP45	635mm

telergon
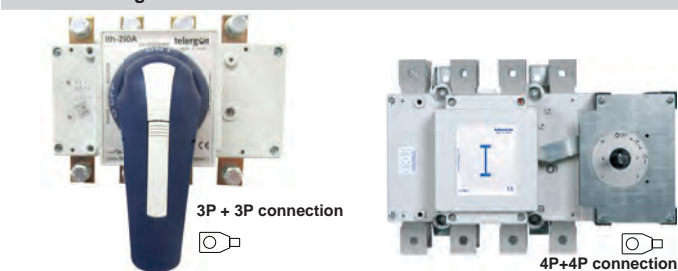
(P1)4 poles simultaneous breaking | (2)External Handle has the options of a couple of types of shafts. | (3)The difference between type 1 option and type 2 is the lengths of the shafts.

S5000M DC Switch-disconnector for DC Current 3P+3P 4P+4P (1500V DC)

NEW 1500V DC

| Base Mounting Switches | | Handle Options (There are Three option to choose from) | | | |

3P + 3P connection

4P+4P connection

On-Off Switch 3P + 3P		On-Off Switch 4P + 4P*(1)	Description			Direct handle	External Handle Blue with standard shaft included (2)		External Handle Blue without std. shaft(2)	Extended shafts options for External Handle	
Product Code	Amps	Product Code	Amps	Size	Voltage	Product Code	Product Code	L mm	Product Code	Product Code Type 1 & 2(3)	Shaft Length
S5M063033R0	400A	S5M063044R0	500A	2	1500V DC	DS-LI22	DS-LA22	239	-	-	-
S5M125033C0	600A	S5M125044C0	800A	3	1500V DC	DS-LI41	DS-LA41	239	DS-LA43	DS-EP44	485mm
S5M180033S0	1000A	S5M180044S0	250A	4	1500V DC	DS-LI41	DS-LA41	239		DS-EP45	635mm

(P1)4 poles simultaneous breaking | (2)External Handle has the options of a couple of types of shafts. | (3)The difference between type 1 option and type 2 is the lengths of the shafts. Ue MAX. 1500V DC 21B.

S5000 DC Accessories

Shield Protection

Terminal Shrouds

Product Code	Terminal Shrouds	Product Code	Terminal Shrouds	Description	Size(2)
DS-CU01	-	DS-CU01	Bottom	Shield Protection	0
DS-CU18	Top	DS-CU19	Bottom	Terminal Shrouds (2 pieces) *	1
DS-CU10	Top	DS-CU11	Bottom	Terminal Shrouds (2 pieces) *	1
DS-CU28	Top	DS-CU29	Bottom	Terminal Shrouds (2 pieces) *	2
DS-CU20	Top	DS-CU21	Bottom	Terminal Shrouds (2 pieces) *	2
DS-CU38	Top	DS-CU39	Bottom	Terminal Shrouds (2 pieces) *	3
DS-CU30	Top	DS-CU31	Bottom	Terminal Shrouds(2 pieces) *	3
DS-CU48	Top	DS-CU49	Bottom	Terminal Shrouds (2 pieces) *	4
DS-CU40	Top	DS-CU41	Bottom	Terminal Shrouds (2 pieces) *	4
DS-CU18	Top	DS-CU10	Bottom	Terminal Shrouds (2 pieces) *	1
DS-CU28	Top	DS-CU20	Bottom	Terminal Shrouds (2 pieces) *	2
DS-CU38	Top	DS-CU30	Bottom	Terminal Shrouds (2 pieces) *	3
DS-CU48	Top	DS-CU40	Bottom	Terminal Shrouds (2 pieces) *	4
DS-CU18	Top	DS-CU10	Bottom	Terminal Shrouds (2 pieces) *	1
DS-CU28	Top	DS-CU20	Bottom	Terminal Shrouds (2 pieces) *	2

*For the switches 3P+3P, 4P+4P the shrouds can only be fitted in the frontal switch. | (1) Please consult for connection. ETL Product Code adding 0U: DS-CU**0U | (2)To ensure you order the correct Terminal shroud for your Swtich - disconnector, refer to the sizes column.

Bridging Links (2 pieces)

Bridging links

Product Code	Size (2)	Product Code	Size (2)	Product Code	Size (2)	Product Code	Size (2)	Fits With
DS-PI05	0	DS-PI11	1	DS-PI21	2	DS-PI41	4	4P

santon

DS-PI01	0	DS-PI14	1	DS-PI31	3	-	-

(2)To ensure you order the correct Terminal shroud for your Swtich - disconnector, refer to the sizes column.

Field DC Isolators (Enclosed)

Santon has developed a range of DC safety switches for the protection of Photo voltaic solar systems. This standard range is called the Silios range

Black handle

Product Code 750V	Product Code 800V	Product Code 1000V	Current	No. Of Poles
D1-G-W.750V	D1-G-W.800V	*D1-G-W.1000V	16A	2
D1-G-W.750V	D1-G-W.800V	*D3-G-W.1000V	25A	2
D2-G-W.750V	D3-G-W.800V	*D3-G-W.1000V	32A	2
D14-G-W.750V	D14-G-W.800V	*D14-G-W.1000V	16A	4
D14-G-W.750V	D14-G-W.800V	-	25A	4
D24-G-W.750V	-	-	32A	4

* Stocked and available

Red handle

Product Code 750V	Product Code 800V	Product Code 1000V	Current	No. Of Poles
D1-H-W.750V	D1-H-W.800V	D1-H-W.1000V	16A	2
D1-H-W.750V	D1-H-W.800V	D3-H-W.1000V	25A	2
D2-H-W.750V	D3-H-W.800V	D3-H-W.1000V	32A	2
D14-H-W.750V	D14-H-W.800V	D14-H-W.1000V	16A	4
D14-H-W.750V	D14-H-W.800V	-	25A	4
D24-H-W.750V	-	-	32A	4

DC Switches - Panel and Rear Mount (Dual)

Product Code	Voltage**	Current	Poles	H	Product Code	Voltage	Current	No. Of Poles	H
XA60.16B2	600V	16A	2	2	XA60.25B8	600V	25A	8	8
XA60.16B4	600V	16A	4	4	XA75.25B2	750V	25A	2	2
XA60.16B6	600V	16A	6	6	XA75.25B4	750V	25A	4	4
XA60.16B8	600V	16A	8	8	XA75.25B6	750V	25A	6	6
XA85.16B2	850V	16A	2	2	XA75.25B8	750V	25A	8	8
XA85.16B4	850V	16A	4	4	*XA100.25B2	1000V	25A	2	3
XA85.16B6	850V	16A	6	6	*XA100.25B4	1000V	25A	4	6
XA85.16B8	850V	16A	8	8	XA100.25B6	1000V	25A	6	9
*XA100.16B2	1000V	16A	2	3	XA60.32B2	600V	32A	2	2
*XA100.16B4	1000V	16A	4	6	XA60.32B4	600V	32A	4	4
XA100.16B6	1000V	16A	6	9	XA60.32B6	600V	32A	6	6
XA60.25B2	600V	25A	2	2	*XA100.32B2	1000V	32A	2	3
XA60.25B4	600V	25A	4	4	*XA100.32B4	1000V	32A	4	6
XA60.25B6	600V	25A	6	6	-	-	-	-	-

*Stocked and available. **DC21 IEC 60947

Fire Fighter Safety Switch

Product Code	Description
FSS-A300-FU	Basic IEC The box design enables easy installation and optimal access to switch connections.
FSS-A300-FTU	Express IEC Developed for quick installation and easy string connections, Pre-wired on spring terminals

D*-G-W

D*-H-W

XA*

FSS-A300-FRU

FSS-B5

santon
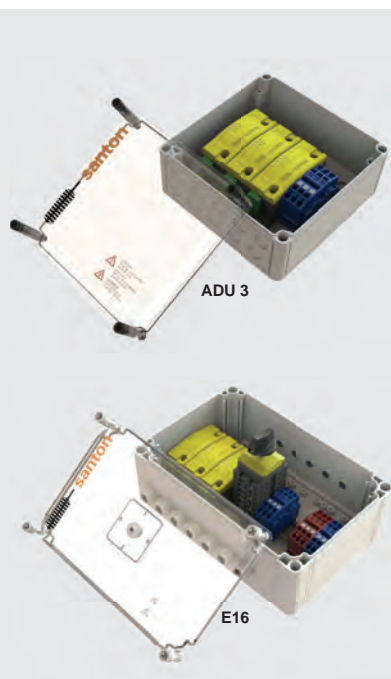
|	
FSS-A300-FRU	Retrofit IEC Ideal for integrating into existing PV systems. Comprises: Pre-wired cables directly on switch poles optionally cables can be equipped with solar connectors (MC4)
FSS-B5	Push button / key switch for switch control, Positive feedback through LED's, 2x cable glands M20 for control signals

Arc Fault Detection Unit

The Arc fault Detection Unit (ADU) offers extra safety, efficiency and convenience to any PV system. The electronic device developed specifically for PV systems detects arc faults within a string and gives both visual and acoustic feedback the moment an arc fault.

ADU 3

ADU on DIN R0ail in IP65 box

Product Code	Description
ADU 1	For 1 string, 5x M16 Cable Glands, 1x Spring Terminal 6mm^2
ADU 2	For 2 strings, 9x M16 Cable Glands, 2x Spring Terminals 6mm^2
ADU 3	For 3 strings, 13x M16 Cable Glands, 3x Spring Terminals 6mm^2

E16

Silios E: ADU in IP65 Box and X-Type DC Switch For Max. 32A / 1000V DC

Product Code	Description
E1	For 1 string and 2 poles, 5x M16 Cable Glands, 3x Terminals 6mm^2
E14	For 2 strings and 4 poles, 9x M16 Cable Glands, 5x Terminals 6mm^2
E16	For 3 strings and 6 poles, 13x M16 Cable Glands, 9x Terminals 6mm^2

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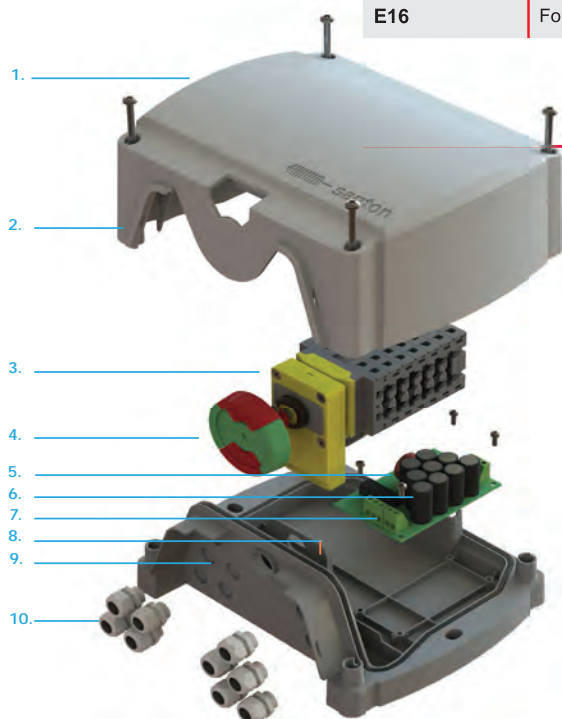
Domestic Firefighter Safety Switch

1. Robust enclosure

IP65 watertight / UV resistant / Designed for optimal switch access and ease of installation

2. Safety seal

Possible placement of safety seal for controlled maintenance

3. Motor-driven X-TYPE switch

Santon's reliable X-type switch / Switch disconnection within 3m.sec / minimum arc / maximum lifetime

4. Mechanical position indication

Visual feedback of the switch position (GREEN / OFF and RED / ON)

5. Temperature sensor

The DFS will automatically switch to the off position in case the temperature rises above 100˚C

6. Power supply (UPS)

Power supply unit for remotely operating the switch

7. Power connection

AC power connection for charging the power backup and for optional integration with a fire alarm system

8. Pressure equalising valve

Avoids condensation inside the enclosure and ensures maximum endurance and lifetime

9. Knock outs

The DFS is supplied with 10 x 12mm knockouts

10. Cable glands or MC4 connectors

The DFS can be ordered pre-wired with MC4 connectors or with separately delivered cable glands M12

Ratings according to IEC 60947-1&3 DC21 B based on switching both the positive and the negative pole:

Voltage	1000V DC	850V DC	800V DC	650V DC
Amps	16A	20A	25A	32A

Product Code	No. Of Strings	No. Of Poles	Description
DFS-1	1	2	Unit with Knock Outs
DFS-1-W	1	2	Unit with Cable Glands 5x M12
DFS-1-MC4	1	2	Unit pre-wired with 4x MC4 connectors & 1x M12 Cable Gland for AC
DFS-14	2	4	Unit with Knock Outs
DFS-14-W	2	4	Unit with Cable Glands 9x M12
DFS-14-MC4	2	4	Unit pre-wired with 8x MC4 connectors and 1x M12 Cable Gland for AC

telergon
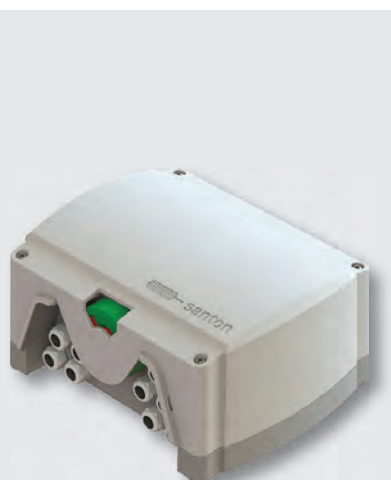
Switch-disconnectors(AC)

On-Off Switch panel mounting with 4 screws padlockable handle IP66

Product Code	Amps (Ith)	Plate	Poles	
ZBK20EHN4A3	20A	64mm	3P	4 pole available on request
ZBK25EHN4A3	25A	64mm	3P	4 pole available on request
ZBK40EHN4A3	40A	64mm	3P	4 pole available on request
ZBK63EHN4A3	63A	64mm	3P	4 pole available on request
ZBK80EHN4A3	80A	64mm	3P	4 pole available on request
ZBK125EHN4A3	125A	64mm	3P	4 pole available on request

Disconnectors And Changeover Switches (AC)

On-Off Switch DIN Rail Mounting Modular Padlockable Handle IP40

Product Code	Amps (Ith)	Plate	Poles	
ZBK20SMAHN1A3	20A	52 x 45mm	3P	4 pole available on request
ZBK25SMAHN1A3	25A	52 x 45mm	3P	4 pole available on request
ZBK40SMAHN1A3	40A	52 x 45mm	3P	4 pole available on request
ZBK63SMAHN1A3	63A	52 x 45mm	3P	4 pole available on request
ZBK80PFHN4A3	80A	52 x 45mm	3P	4 pole available on request
ZBK125SMAHN1A3	125A	78 x 45mm	3P	4 pole available on request

Enclosed Isolators (AC)

On-Off Switch plastic enclosure padlockable handle IP65

Product Code	Amps (Ith)	Plate	Poles	
ZBK20PFHN4A3	20A	64mm	3P	4 pole available on request
ZBK25PFHN4A3	25A	64mm	3P	4 pole available on request
ZBK40PFHN4A3	40A	64mm	3P	4 pole available on request
ZBK63PFHN4A3	63A	64mm	3P	4 pole available on request
ZBK80PFHN4A3	80A	64mm	3P	4 pole available on request
ZBK125PFHN4A3	125A	64mm	3P	4 pole available on request

Auxiliary Contacts (AC Enclosed Isolators Accessories)

RUBICON

Product Code	1NO+1NC	A / Amps (Ith)
ZBKLH11	-	20 - 125A

Rotary Enclosed Change Over Switches (AC)

Cable Capacity (3 POS rotary handle centre off) - (IP65, PVC Enclosure)

Product Code	(A) AC21	AC23A 240V AC	AC3 400V AC	Solid	Stranded	Dimensions	No. Of Poles
IC220	20A	3kW	4kW	1-16mm²	0,75-10mm²	125 x 100 x 120mm	2
IC232	32A	6,5kW	12kW	1-16mm²	0,75-10mm²	180 x 120 x 137mm	2
IC240	40A	7,5kW	15kW	1-16mm²	0,75-10mm²	180 x 120 x 137mm	2
IC263	63A	15kW	22kW	4-50mm²	2,5-35mm²	255 x 170 x 215mm	2
IC280	80A	17kW	23kW	4-50mm²	2,5-35mm²	255 x 170 x 215mm	2
IC2100	100A	18,5kW	30kW	4-50mm²	2,5-35mm²	255x 170 x 215mm	2
IC420	20A	3kW	4kW	1-16mm²	0,75-10mm²	125x 100 x 120mm	4
IC432	32A	6,5kW	12kW	1-16mm²	0,75-10mm²	180 x 120 x 137mm	4
IC440	40A	7,5kW	15kW	1-16mm²	0,75-10mm²	180 x 120 x 137mm	4
IC463	63A	15kW	22kW	4-50mm²	2,5-35mm²	255 x 170 x 215mm	4
IC480	80A	17kW	23kW	4-50mm²	2,5-35mm²	255 x 170 x 215mm	4
IC4100	100A	18,5kW	30kW	4-50mm²	2,5-35mm²	255 x 170 x 215mm	4

AC Enclosed Isolators

ZBKLH11

2 Pole

4 Pole

RUBICON
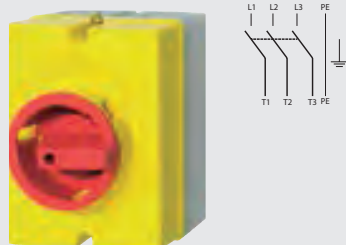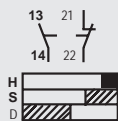
ECCO Charger / PWM Charger

The 20A PWM Solar controller is for off-grid solar systems and control the charging and discharging of the battery.
The intelligent charging process has been optimized for long battery life and improved system performance.

Major functions

- Automatic identification system voltage, 12 volts/24 volts
- Humanized LCD displaying and double button operation of man-machine interface
- High efficiency intelligent PWM 3stage charging
- The load control mode can be selected; the timer function can be reset for street light at night
- Reliable over voltage protection: short circuit protection, over load protection, overcharge protection, over-discharge protection
- Accurate temperature compensation, correcting the charging and discharging voltage automatically, improving the battery lifetime
- Roundly reverse connected protection
- Solar panels, battery, solar charge controller positive poles are all connected together, adopting negative MOSFET in series control circuit

Ordering Information

Product Code	ECCO20A	ECCO30A
Max. Charge Current	20A	30A
Max. Discharge Current	20A	20A
System Voltage	12V / 24A	12V / 24A
PV Max. Input Voltage	55V	55V
Self - Consumption	≤12mA	≤12mA
LVD	11V ADJ. 9V...12V; x2 / 24V	
LVR	12,6V ADJ. 11V...15V; x2 / 24V	
Boost Voltage	14,4V; x2 / 24 Battery voltage less than 12,6V auto boost 2hours	
Battery Over Voltage Disconnection Voltage	16,5V; x2 / 24V	
Reverse Connection Protection	Yes	
Load Over Current Protection	Yes, each 30s auto restart again	
Charge Type	PWM	
Temperature Compensation	-24mV / °C for 12V system; x2 / 24V	
Working Temperature	-20°C --- +50°C	
Terminal Scale	14 ---6 AWG 10mm^2	
Waterproof Grade	IP32	
Size	168 x 92 x 34mm	
Weight	320g	

*Please under rated power using under high temperature environment.

STÄUBLI

PV Connectors

Stäubli MC4 MULTILAM Technology:

MULTILAM are specially formed, resilient copper-alloy contact elements that are silver or gold plated depending on their application, and are float mounted in a groove. Thanks to their constant spring pressure, MULTILAM louvres maintain continuous contact with the contact surface, resulting in a low and constant contact resistance. MULTILAM technology allows us to meet a very broad range of requirements and to find solutions within the severest constraints, including electrical (up to several kA), thermal (up to 350°C), and mechanical, with contact durability of up to 1 million mating cycles.

MC4 MULTILAM Technology
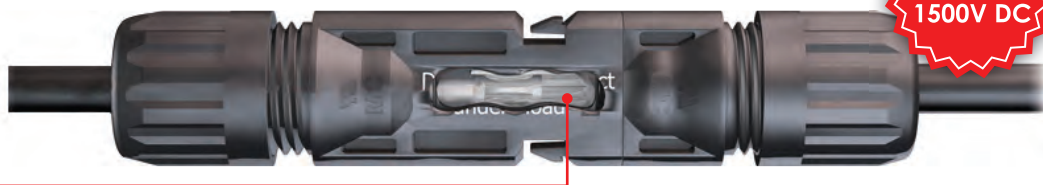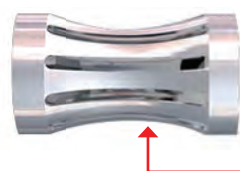
NEW 1500V DC

- Snap-in lock
- Locking by safety lock clip PV-SSH4 in accordance with NEC 2011, can be released only with a tool
- Proven MULTILAM technology with high long-term stability, which ensures consistently low performance loss throughout the entire service life of the plug connector

- Tried and tested plug connectors, 12 years of experience in the field
- Available for assembly with cross-sections of 10mm²

Female And Male Cable Coupler MC4-EVO 2 (1500V DC)

Female and male cable coupler as individual part (including insulating part)

Product Code	Description
32.0082P0001-UR	PV-KBT4-EVO 2 / 2,5I-UR, Female cable coupler, Crimp (1,5mm² - 2,5mm²), Cable (OD 4,7mm - 6,1mm)
32.0083P0001-UR	PV-KST4-EVO 2 / 2,5I-UR, Male cable coupler, Crimp (1,5mm² - 2,5mm²), Cable (OD 4,7mm - 6,1mm)
32.0086P0001-UR	PV-KBT4-EVO 2 / 6I-UR, Female cable coupler, Crimp (4mm² - 6mm²), Cable (OD 4,7mm - 6,1mm)
32.0087P0001-UR	PV-KST4-EVO 2 / 6I-UR , Male cable coupler, Crimp (4mm² - 6mm²), Cable (OD 4,7mm - 6,1mm)
32.0092P0001-UR	PV-KBT4-EVO 2 / 10III-UR, Female cable coupler, Crimp (10mm²), Cable (OD 7,7mm - 8,5mm)
32.0093P0001-UR	PV-KST4-EVO 2 / 10III-UR, Male cable coupler, Crimp (10mm²), Cable (OD 7,7mm - 8,5mm)

MC4 Inline Connectors (1000V DC)

The MC4 is the benchmark solar connector. Easy to use and constructed of high quality materials. The patented multilam insert ensures the best possible electrical connection for 1000V DC connections. Available for PV cable sizes 4mm² – 10mm².

Product Code	Description
*32.0014P0001-UR	PV-KST4 / 6I-UR, MC4 Inline, Female, Crimp (4mm² - 6mm²), Cable (OD 3mm - 6mm)
*32.0015P0001-UR	PV-KBT4 / 6I-UR, MC4 Inline, Male, Crimp (4mm² - 6mm²), Cable (OD 3mm - 6mm)
*32.0016P0001-UR	PV-KBT4 / 6II-UR, MC4 Inline, Female, Crimp (4mm² - 6mm²), Cable (OD 5,5mm - 9mm)
*32.0017P0001-UR	PV-KST4 / 6II-UR, MC4 Inline, Male, Crimp (4mm² - 6mm²), Cable (OD 5,5mm - 9mm)
*32.0034P0001	PV-KBT4 / 10II, MC4 Inline, Female, Crimp (10mm²), Cable (OD 5,5mm - 9mm)
*32.0035P0001	PV-KST4 / 10II, MC4 Inline, Male, Inline, Crimp (10mm²), Cable (OD 5,5mm - 9mm)

*Please contact us for volume pricing! *Available and stocked

MC4 Panel Mount Connectors

The panels mount MC4 is commonly used in combiner box manufacture or as the connector of choice for inverter manufactures. The connector comes complete with the lock-ring and is available for PV cable sizes 4mm² – 10mm² for 1000V DC connections.

Product Code	Description
*32.0076P0001-UR	PV-ADBP4-S2 / 2,5-UR, MC4 Female, Crimp (1,5 - 2,5mm²)
*32.0077P0001-UR	PV-ADSP4-S2 / 2,5-UR, MC4 Male, Crimp (1,5 - 2,5mm²)
*32.0078P0001-UR	PV-ADBP4-S2 / 6-UR, MC4 Female, Crimp (4 - 6mm²)
*32.0079P0001-UR	PV-ADSP4-S2 / 6-UR, MC4 Male, Crimp (4 - 6mm²)

*Please contact us for volume pricing! *Available and stocked

STÄUBLI

MC4 Branch Connectors (1500V DC)

The MC4 Y-connectors make it possible to parallel wire PV modules with Stäubli output cables. Maximum current rating allowed through connectors is 30A. Rated for 1000V DC. Connectors have an IP68 dust / waterproof rating.

Product Code	Description
*32.0018	PV-AZB4, MC4 In-Line branch connector: 1 male – 2 female
*32.0019	PV-AZS4, MC4 In-Line branch connector: 2 male – 1 female
*Please contact us for volume pricing! *Available and stocked	

NEW
1500V DC

MC4 Safety Lock Clip PV-SSH4 MC4 (MC4 Accessories)

Safety lock – Locks the male and female MC4 connectors together to ensure they are not disconnected under load. The lock will require a special tool to unlock.

Product Code	Description
32.5280	PV-SSH4, MC4 Safety Clip (Requires PV-MS... Tool to unlock)

Sealing Caps MC4 (MC4 Accessories)

Sealing Caps – Seals the male and female MC4 when not in use to protect against dust, water and insects.

Product Code	Description
32.0716	PV-BVK4, Suitable for MC4 Socket Side
32.0717	PV-SVK4, Suitable for MC4 Plug Side
*Material TPE. *Degree of protection: IP67	

Test Plug (MC4 Accessories)

This test plug is used to control the correct engagement of the contact in the insulation when assembling MC4

Product Code	Description
*32.6028	PV-PST Test Plug
*Available and stocked	

Test plug MC4-Evo2

This test plug is used to control the correct location of the MC4-Evo2 contact in the insulation.

Product Code	Description
32.6073	PV-EVO-PST Test Plug

MC4 Type Connectors System

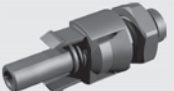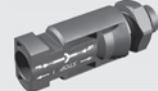| Product Code 4mm² Leads	Product Code 6mm² Leads	Description Pre – Assembled Leads
XPMC4PV1F4/2M	XPMC4PV1F6/2M	2m, Male to Female MC4
XPMC4PV1F4/5M	XPMC4PV1F6/5M	5m, Male to Female MC4
XPMC4PV1F4/8M	XPMC4PV1F6/8M	8m, Male to Female MC4
XPMC4PV1F4/10M	XPMC4PV1F6/10M	10m, Male to Female MC4
XPMC4PV1F4/12M	XPMC4PV1F6/12M	12m, Male to Female MC4
*Other configurations available to order, please enquire.		

32.0018

32.0019

32.5280

32.0716

32.0717

32.6028

32.6073

MC FEMALE

MC MALE

STÄUBLI
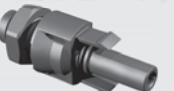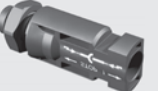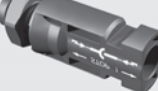
Moulded Cable Assemblies

Rubicon's moulded cable assemblies are designed to facilitate the fast, cost effective string combination of a PV installation. Commonly used on thin-film installations, they provide a good solution to combining many panels without the necessity of full combiner boxes. They are ideally suited to thin-film modules, where string currents are relatively low and module voltages are relatively high.

Cable Assemblies Ordering Form

According to customer request

Please complete Online customer Cable Assemblies form.

Side 1

MC4

☐ PV-KBT4

☐ PV-KST4

☐ PV-ADBP4-S2

☐ PV-ADSP4-S2

MC4-Evo2

☐ PV-KBT4

☐ PV-KST4

☐ PV-ADBP4-S2

☐ PV-ADSP4-S2

Cable lug

☐ Ø ____

☐ Ø ____

Isolation: ☐ without ☐ with

Partial stripping

☐ **Partial stripping**

Length ____ max. 45mm

☐ **Not stripped**

☐ **Other**

Cable

Cable cross section (mm²):

☐ 2,5 ☐ 4 ☐ 6 ☐ 10

Length of Cable

____ cm

Cable cross section (mm²):

☐ 2,5 ☐ 4 ☐ 6 ☐ 10

Length of Cable

____ cm

Cable cross section (mm²):

☐ 2,5 ☐ 4 ☐ 6 ☐ 10

Length of Cable

____ cm

Cable cross section (mm²):

☐ 2,5 ☐ 4 ☐ 6 ☐ 10

Length of Cable

____ cm

Side 2

MC4

PV-KBT4 ☐

PV-KST4 ☐

PV-ADBP4-S2 ☐

PV-ADSP4-S2 ☐

MC4-Evo2

PV-KBT4 ☐

PV-KST4 ☐

PV-ADBP4-S2 ☐

PV-ADSP4-S2 ☐

Cable lug

☐ Ø ____

☐ Ø ____

Isolation: ☐ without ☐ with

Partial stripping

☐ **Partial stripping**

Length ____ max. 45mm

☐ **Not stripped**

☐ **Other**

MC4 Overview

MC4 PV cable connectors require special tools to properly attach the connectors. Single-purpose tools from Stäubli work with only that type of connector and are often the best option for installers who work only with modules that have that same connector type.

MC4 Crimping Tools - Crimping Pliers for Private us PV-CZM-BS

Product Code	Description	Qty.
*32.6025	PV-CZM-BS, MC4 Crimping tool including die for 2,5mm², 4mm² and 6mm² wire sizes	1
*Available and stocked	Suitable for the assembly of products approved by TUV in small amounts.	

Stripping Pliers

With length stop for conductor cross sections 1,5 mm², 2,5 mm², 4 mm², 6 mm² and 10 mm². Specially adapted for the Flex-Sol-Evo... PV cable, for stripping small cable quantities on the roof.

Product Code	Description
32.6027-156	PV-AZM-156, Pliers with Insert for cable cross section wire sizes 1,5; 2,5; 4; 6mm²
32.6027-410	PV-AZM-410, Pliers with Insert for wire sizes 4; 6; 10mm²
32.6057-156	PV-M-AZM-156, Spare insert for wire sizes, 1,5; 2,5; 4; 6mm²
32.6057-410	PV-M-AZM-410, Spare insert for wire sizes, 4; 6; 10mm²

Crimping Pliers For Industrial Use PV-CZ...

Only the tools stated below may be used for the assembly of UL- and TÜV-approved products. These are suited for the processing of high numbers of pieces and can be adjusted to the product to be processed with the help of changeable locators and crimp inserts.

Product Code	Type	Designation	Crimp Range		Suitable For	
			mm²	AWG	MC4	MC4-Evo2
32.6020-18100	PV-CZM-18100	Crimping pliers incl. locator and insert	1,5; 2,5; 4	14; 12	×	
32.6020-19100	PV-CZM-19100		2,5; 4; 6	14; 12; 10	×	
32.6020-20100	PV-CZM-20100		4; 10	–	×	
32.6020-21100	PV-CZM-21100		6; 10	–	×	
32.6020-22100	PV-CZM-22100		–	12; 10; 8	×	
32.6020-40100	PV-CZM-40100		1,5; 2,5; 4	16; 14; 12		×
32.6020-41100	PV-CZM-41100		2,5; 4; 6	14; 12; 10		×
32.6020-42100	PV-CZM-42100		4; 10	12; 8		×

Individual Parts, only for PV-CZM...

Product Code	Type	Designation	Crimp Range		Suitable For	
			mm²	AWG	MC4	MC4-Evo2
32.6021-18100	PV-ES-CZM-18100	Insert	1,5; 2,5; 4	14; 12	×	
32.6021-19100	PV-ES-CZM-19100	Insert	2,5; 4; 6	14; 12; 10	×	
32.6021-20100	PV-ES-CZM-20100	Insert	4; 10	–	×	
32.6021-21100	PV-ES-CZM-21100	Insert	6; 10	–	×	
32.6021-22100	PV-ES-CZM-22100	Insert	–	12; 10; 8	×	
32.6021-40100	PV-ES-CZM-40100	Insert	1,5; 2.5; 4	16; 14; 12		×
32.6021-41100	PV-ES-CZM-41100	Insert	2,5; 4; 6	14; 12; 10		×
32.6021-42100	PV-ES-CZM-42100	Insert	4; 10	12; 8		×
32.6040	PV-LOC	Locator	universal		×	
32.6055	PV-LOC-B	Locator	–	12; 10; 8	×	
32.6056	PV-LOC-C	Locator	universal			×

Solar Connector Spanner

Product Code	Description
*32.6024	PV-MS, suitable for MC4, 2 Open-end plastic spanners,
*32.6058	PV-MS-PLS, MC4, MC4-EVO3 unlocking tool, incl. belt pouch 2 Open-end spanners, metal
9410888400	PV-MS-PLS/G, Unlocking tool
32.6075	PV-MS-EVO AC, MC4-EVO3, Unlocking tool

32.6025

32.6027*

32.6057-156   32.6057-410

PV-CZM*

32.6021-18100

32.6021-19100

32.6021-20100

32.6056

32.60*

RUBICON

Econo Solar Crimp Set

Product Code	Description
*SOLARCRIMP	MC4 Economy Crimping Set (Crimps 4mm and 6mm cable)

*Available and stocked. The set includes strippers, plastic spanner and zip tool bags and crimper.

STÜTTA

Wire Strippers

This is a HS series cable stripper, which is an electrician tool and is suitable for peeling the external layer foreskin of a cable, comprising a knife frame, a knife blade arranged in the knife frame, a fixing and regulating mechanism for the knife blade, a tailstock connected with the knife frame, etc. The cable stripper has reasonable structure, and the peeled cable thread end is orderly. The utility model has convenient operation, is labor saving and safe and can not damage cable wires and human bodies.

CB-HS-700D

Product Code	Description
CB-HS-700D	Wire stripper (0,25-2,5mm) automatic

1416*

Cutters

Cable Cutter PVC Pattern

High leverage jaws with shear cut blade. | Compact cutter fits into most tool pouches.

KSEIBI

Product Code	Length
141640	160mm
141645	200mm
141650	250mm

RUB-COMB-100KW-1

RUB-COMB-300KW-1

Grey option is now available!

FB500-12

AC Combiner Box For Commercial Projects

Specification:
A 3 compartment design, allowing clear, neat and spacious reticulation.

A PV AC combiner supplied complete with:

- Class 1 surge protection
- Emergency shutdown function as standard (E-stop)
- Adjustable main grid interface circuit breaker
- 10kA 3 pole distribution miniature circuit breakers for each inverter
- Production metering with CT's

- Optional temperature controlled forced air cooling
- **Version 1:** Includes centre busbar chamber for distribution connections
- **Version 2:** No centre busbar chamber (distribution directly from AC MCCB) but includes a separate Instrumentation chamber for metering, monitoring, modems, ethernet equipment or any other sensitive equipment

Product Code	Description
RUB-COMB-100KW-1	100kW Combiner Board, with centre busbar compartment
RUB-COMB-200KW-1	200kW Combiner Board, with centre busbar compartment
RUB-COMB-300KW-1	300kW Combiner Board, with centre busbar compartment
RUB-COMB-450KW-1	450kW Combiner Board, with centre busbar compartment
RUB-COMB-100KW-2	100kW Combiner Board, with instrumentation compartment
RUB-COMB-200KW-2	200kW Combiner Board, with instrumentation compartment
RUB-COMB-300KW-2	300kW Combiner Board, with instrumentation compartment
RUB-COMB-450KW-2	450kW Combiner Board, with instrumentation compartment
IP65 Outdoor enclosure, complete, user to specify distribution MCB quantity and sizes.	
*For fan cut outs add -F to end of product code (Includes ball-bearing fans in each compartment with thermostat and 1 vented side)	
*(IP20) For vented side only add -V to end of part number (IP20)	

DC Fuse Box For Commercial Projects

Specification:

DC string fusing for large scale PV projects, used where inverters do not include string fusing and where combiner boxes are not used.

- Powder coated steel enclosure
- IP65

- 30A fuse holders on both + and - of each string
- Standard fuse size: 15A (others on request)

Product Code	Description
FB500-12	12 String Fuse Box
FB500-24	24 String Fuse Box

DC Emergency Shutdown Box For Commercial Projects

Specification: DC string emergency cutout

- **Powder coated steel enclosure**
- **IP65**
- **NOARK 1000V DC MCBs with UVT**
- **riggering with E-stops or by AC MCB auxiliary**
- **1000V DC per string**

Product Code	Description
RUB-SOL-ESD6-16	6 String 1000V DC Shutdown Box, 16A per string
RUB-SOL-ESD6-25	6 String 1000V DC Shutdown Box, 25A per string

RUBICON

RUB-SOLAR-CB04-130VDC-DDF

DC Combiner Boxes

Updated! Rubicon's popular DC string combiner boxes have been updated to include double pole fusing and DC disconnection devices.

Features:
- Type 2 Surge protection
- DC disconnector + and – pole fusing on each string
- MC4 string connections

Ordering Information

Product Code	Description
RUB-SOLAR-CB04-130VDC-DDF	Solar String Box - 4 String, 130V DC, disconnect, double fused
RUB-SOLAR-CB04-600VDC-DDF	Solar String Box - 4 String, 600V DC, disconnect, double fused
RUB-SOLAR-CB05-130VDC-DDF	Solar String Box - 5 String 130V DC, disconnect, double fused
RUB-SOLAR-CB06-1KVDC-DDF	Solar String Box - 6 String 1kV DC, disconnect, double fused

Custom sizes available up to 16 string and voltages up to 1500V – contact us for a quote on your configuration requirement.

HTSCB031 with lid off

HTSCB031 with lid on

DC Combiner Boxes

Benefits
- 1000V DC gPV Fuses on positive (Size to be specified on order)
- 4kV 20kA surge protector with optional health monitor on Modbus
- Individually certified and tested
- Optional IP65 disconnect switch
- Optional individual blown fuse led indicator
- Optional Modbus RS485 Interface with individual current monitoring of each string

Product Code	Description
HTSCB031	3IN-1OUT - Fuse protection with 1000V DC T2 SPD only, no isolator
HTSCB051	5IN-1OUT - Fuse protection with 1000V DC T2 SPD only, no isolator
HTSCB061	6IN-1OUT - Fuse protection with 1000V DC T2 SPD and 1000VDC 63A isolator

Combiners
AVAILABLE
Please enquire

SEAWARD
Experts in what we do

Test Kit

With the Solarlink test kit, there is no need for several different instruments, at the press of a button the PV150 solar tester conducts all of the required electrical safety tests, and now Solarlink™ connectivity with the supplied Survey 200R multifunction irradiance meter enables the PV150 to wirelessly receive and record irradiance and temperature measurements in real time as required by international standards and best practise recommendations.

- Combines all PV electrical test functions into one tester
- Records irradiance and temperature simultaneously to electrical tests being conducted

- USB download to PC
- Simple, fast and comprehensive PV testing
- Stores up to 200 complete test records

388A915

Product Code	Description
396A910	The Solar Survey 100 / 200R Irradiance Meters (Basic version)
396A914	The Solar Survey 100 / 200R Irradiance Meters (Built in compass and inclinometer)
396A961	Solar Power Clamp meter
388A910	SolarCert Software
388A915	PV150 Solar PV Installation Tester
389A915	PV200 Solar PV Installation Tester with IV curve tracer
MinIR80	Thermal camera

389A915

APOLLO
solar electric

Apollo GEM-C

Produces free hot water from your Solar PV System. If you own a solar PV system it is probable that 50% or more of the electricity generated will be exported, that is given away, to the electricity grid. The Apollo GEM is an innovative solar energy management product that will use all the surplus power generated by your PV system to produce hot water. Every unit of power used to heat the hot water in this way reduces imported energy by the same amount resulting in a significant saving in imported energy costs.

GEM will work with any solar PV system and uses a standard immersion heater to produce free hot water. The advanced GEM controller ensures maximum usage of PV power that would have been exported. The system is simple to install and will not affect your feed-in tariff payments. GEM works with wind generation systems too!

How does GEM work?

SOLAR PANELS

CONSUMER Unit

APPLIANCES

FEED INTO GEM

POWER SENSOR

HOT WATER

GRID

PP9044-V01

Import
Export
Heater
Max Temp

Boost

Solar PV Immersion Heater Controller

APOLLO
Wireless GEMC
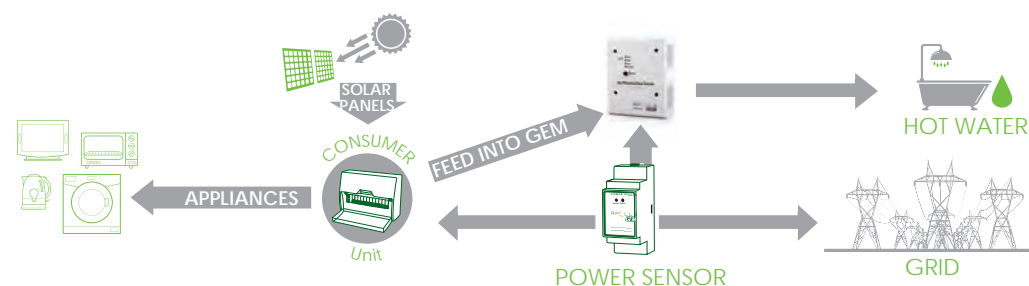
The GEM system works by accurately monitoring the power being imported or exported and always diverts sufficient power into the hot water system in order to keep the exported power to as near zero as possible whilst at the same time ensuring that no additional power is ever imported to supply the hot water store. Priority is always given to the energy demands of the household appliances and only surplus energy that would have otherwise been exported is stored in the hot water system.

Specifications

Product Code	Description	Max. Load	Input Vol.	Output	Power Adjustment Period	Boost Function	Power Use	Dimensions H x W x Dmm
PP9044-V01	Apollo GEM-C (Compact & wireless)	3200W	215V - 255V AC	50W - 3200W	Every 2 Sec	1 or 2 Hrs	1W	145 x 115 x 50mm

Display: 4x LEDs – Import Power, Export Power, Heater Power, Max. Temperature

Transmitter		Current	
Power	**Range**	**Current Sensor**	**Current Rating**
215-255V AC	30-40M Indoor Range	Non-invasive clip-on, 16mm max. cable diameter (35mm^2 CSA)	100A

Solar-Log™

Solar-log 300 / 1200 / 2000

255574   255591

255592

Just the right Solar-Log™ system for optimum monitoring, from small domestic installations to large your plant or what conditions are present on site, Solar-Log™ monitoring systems can be customised to your needs.

All Solar-Log™ devices are available with several different options and features for plant capacities up to 15kWp, 100kWp or 2000kWp. They are equipped with numerous features and options such as Touch screen Display, Power Management and mobile modems.

Product Code	Product	Type	Peak Power	Used With	Display
255574	Solar-log 300	Standard	Up to 15kWp	Small domestic installations	Mono info. LCD
255591	Solar-log 1200	Standard	Up to 100kWp	Small domestic installations and medium-sized plants	Mono info. LCD and colour production statistics
255592	Solar-log 2000	Standard	Up to 2000kWp	Solar power stations and large-scale PV plants	Mono info. LCD and colour production statistics

Sensor Box Professional Plus IP65

220060

The Sensor Box Professional Plus is equipped with a high-quality Mono-crystalline solar Cell. This very reliable and rugged sensor as well as the component parts are designed for long lasting outdoor use (IP65).

The Solar-Log™ continuously compares the production of the PV - Plant with the measurements of the sensor. If the Solar-Log™ detects a definable difference an error message will be generated.

Product Code	Supply Current	Operating Temp.	Dimensions W x H x D	Housing Material	Weight
220060	10mA	-20°C to +70°C	145 x 85 x 40mm	Powder-coated aluminum	360g

Sensor Box Professional Plus IP65 Accessories

220061

Product Code	Description
220061	Wind sensor for connection to the Sensor Box Professional Plus
220062	Ambient temperature sensor for connection to the Sensor Box Professional Plus

Solar-Log™ Utility Meter

220061

The Solar-Log™ Utility Meter is a universal metering device. It can be integrated in both low- and medium-voltage networks (via a transformer) and is needed for various tasks. In addition to voltage-dependent reactive power control Q(U),

it is also used for reactive power control at the feeding point and to record the data that is needed to send signals to the grid operator. It is also suited as a consumption meter for heavy loads.

Product Code	Description
255385	Janitza Utility Energy meter (requires Current Transformers – not included)

255385

Accessories

255422

Product Code	Description
255346	Solar-Log Pro 1 Single Phase Energy Meter 45A
255913	Solar-Log Pro 380 3PH Energy Meter 100A
255422	Installation Housing for outdoor use, IP65
RUB-SL1	Solar-log Web Commercial portal 1 - 3kWp annual subscription (only required for commercial use)
RUB-SL2	Solar-log Web Commercial portal 4 - 10kWp annual subscription (only required for commercial use)
RUB-SL3	Solar-log Web Commercial portal 11 - 20kWp annual subscription (only required for commercial use)
RUB-SL4	Solar-log Web Commercial portal 21 - 50kWp annual subscription (only required for commercial use)
RUB-SL5	Solar-log Web Commercial portal 51 - 200kWp annual subscription (only required for commercial use)
RUB-SL6	Solar-log Web Commercial portal 201 - 1000kWp annual subscription (only required for commercial use)

smappee

Home Energy Monitor

COMFORT PLUGS

CURRENT CLAMP when open

CURRENT CLAMP when locked

SMAPPEE PRO

Smappee detects all of the important electric appliances in your home, as each one has a unique electrical signature. Via the app. you'll get real-time readings of their use and cost, on your tablet or Smartphone. In short: Smappee makes saving easy, because you'll know exactly where your energy is going.

Product Code	Description
COMFORT PLUGS 3-PACK	3 Plugs for remote control with Smappee+1 Remote Control
COMFORT PLUGS 6-PACK	6 Plugs for remote control with Smappee+2 Remote Controls
CURRENT CLAMP, 100A, 16MM	Alternative current clamp for larger cables / Current supplies
CURRENT CLAMP, 200A, 24MM	Alternative current clamp for larger cables / Current supplies
SMAPPEE	1 / 3 P, without solar. 3x 50A Current Transformers included
SOLAR SMAPPEE	1 / 3 P, with solar. 6x 50A Current Transformers included
SMAPPEE PRO	For commercial solar monitoring

Smappee Plus

- Our most efficient energy monitor for households.

- Know exactly how much it costs you to charge your electric car.

- See how much your heat pump consumes in real-time.

- Check the output of your solar panels.

- Save up to 30% on your energy bill.

- Remotely control your electrical appliances.

- Suitable for single-, two- and three-phase connections.

New Energy Services

Real-time data with NIL

HVAC

Energy Efficient Buildings

BACnet Open Therm

Blockchain

Node.js

Smart lighting

Bluetooth MQTT

Energy Trading / Microgrids

Modbus

Smart Homes

Storage

Grid power

KNX

Sensors

Smappee Switch

OCPP

EV

Demand Response

Self-Consumption

The Smappee Plus energy monitor has up to 9 dedicated inputs for CT's. Depending on your electrical installation, you can measure 6 to 8 sub-circuits that consist of certain appliances or a group of appliances separately. It's the perfect solution to gather the most accurate energy data down to appliance level and to know more about appliances with a variable capacity, such as a heat pump or an EV charger.

MONSOL

PV String Monitoring Hardware

Established in 2005, Monsol specialises in the design and manufacturing of (PV) energy monitoring software and devices

RS485

DIN0
DIN1
DIN_com

24v
GND

1500 V / 30 A

Temperature
-30° to +70° C

Improved security
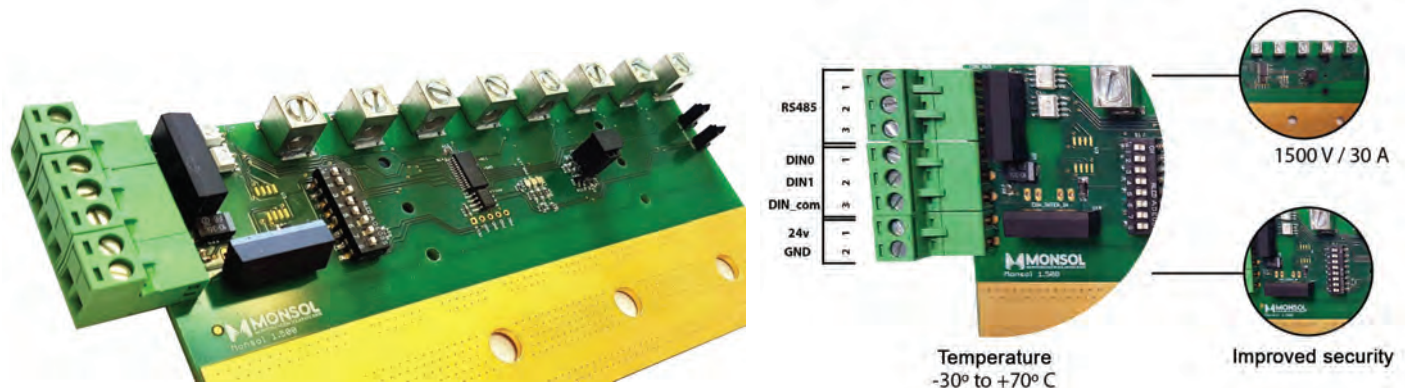
- **Non-intrusive current measuring by Hall effect system (shunt version avail. on request)**
- **1000V and 1500V DC compatible**
- **Exhaustive monitoring: 60 readings per minute and per string**
- **Standard Modbus RTU protocol**
- **Transient voltage protected**
- **Surge protection**
- **3kV isolation**
- **Manual selection of Modbus address by microswitch**
- **LEDs for Power indication and data flow**

- **Surge protection**
- **Transient voltage protected**
- **Polarity reversal protection**
- **PCB thickness of 2mm suited for industrial handling**
- **Innovative High Current PCB manufacturing technology**
- **Busbar current up to 240A without external copper busbar**
- **Electroless nickel immersion gold finish for maximum conductivity**
- **Auto-detection of extension modules (Plug and Play)**
- **2 years warranty**
- **Security epoxy resin over moulding and tropicalised PCB**
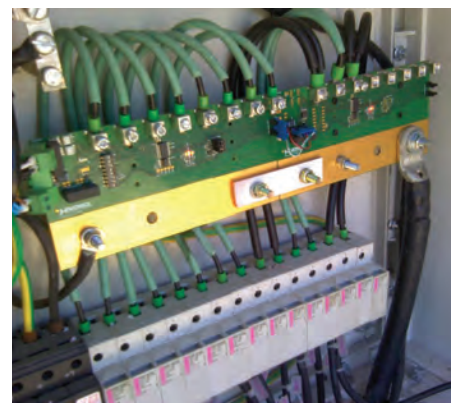
Features And Performance

Each device monitors up to 32 strings (1 master +3 slaves)

Monsol 1000 / 1500 (String current monitoring)

NEW
1500V DC

Number Of Channels	Up to 32 channel
Number Of Strings	Up to 64 strings
Max. Current Per Channel	30A DC (2 strings parallel)
Max. Measurement Range	±20A
Rated Voltage	Up to 1,500V
Current Measurement Error	±1% (14 bits)
Communication	Modbus RTU over RS485
Number Of Digital Inputs	2 Optoisolated digital inputs
Number Of Analogue-To-Digital Inputs	1 Input for the external temperature sensor (PT100)
Elevation	2,000m
Operating Temperature	Min. -30ºC, Max. 70ºC
Supply Voltage	24V DC ± 10% with 3kV isolation
Extras	Monsol Meteo® extension 4,20mA module with 3 high accuracy inputs (4...20mA)

Monsol 1500 Volt® extension module for voltage measuring up to 1500V DC

Ordering Information

Product Code	Description
M15HM	Hall Master Device
M15HS	Hall Slave Device
M15HV	Hall Voltage Device
M15S24	Shunt Device
M15PSDC	1500V DC / 24V DC Power Source
CCM1	Current sensor Submetering single-phase (pending of data sheet)
CCM2	Current sensor Submetering three-phase (pending of data sheet)

Loggers

Higeco's GWC loggers are the most flexible, user friendly RS485 MODBUS loggers on the market, suitable for a multitude of tasks. Out of the box, they can log temperature, power, energy, pressure, wind speed or any other parameter from a supported Modbus slave device. Included is native support for a variety of energy meters, inverters and other devices. With both self-contained local logging or optional cloud-based paid storage and remote management, GWC loggers work in every situation.

They also support input / output devices on the bus, which can be used for management of loads according to specified conditions – for example, turning lighting or A / C on and off according to your needs.

GWC 4 DIN

GWC 2 DIN

Features

Product Code	GWC 4 DIN	GWC 2 DIN
Maximum Slave Devices	256	5
Display	2 line LCD	-
Rs485 Modbus Interface	1 + 1	1
Ethernet Interface	Y	Y
Usb Host	Y	Y
GSM / 3G	Optional USB	Optional USB
Local Input	3	2
Local Output	1	1

Optional Software Add-ons:

- 1 year remote monitoring subscription
- Energy logger specialty package
- PV logger specialty package

- Remote monitoring and unlimited logger storage
- Optional dedicated energy monitoring interface
- Optional PV monitoring interface

Ordering Information

Product Code	Description
GWC 4 DIN	Fully functional basic logger, up to 128 Slaves
GWC 2 DIN	Fully functional basic logger, up to 5 Slaves

Popular devices and brands compatible with GWC2 / 4 Loggers:

- **SMA inverters and sensors**
- **ABB / PowerOne string inverters**
- **Friem Centralised inverters**
- **Studer inverters and charge controllers**
- **ITRON meters**
- **Kaco inverters**
- **Landis meters**
- **Fronius inverters**

- **Dixell I / O**
- **Delta PLCs**
- **Danfoss inverters**
- **AEG inverters**
- **Victron**
- **Various circuit breakers, string boxes and environmental sensors**
- **Many other devices…**

QEED

MODBUS Slave Devices

QEED provide many HIGECO supported slave sensors, which measure parameters, gather data and provide it to the GWC loggers for storage / analysis over MODBUS RS485.

3-Phase Energy Analysers

QEED's 3 phase energy analyses provide all standard 3-phase energy parameters both locally on a display and to the logger over MODBUS, including: Voltage, current, active, reactive and apparent power, power factor, frequency, active and reactive energy.

QC-POWER-T-TA

Product Code	Description
QC-POWER-T-TA	Up to 90A direct measurement analyser, 7 DIN (No CT's required)
QC-POWER-T-RS485	9999A external CT analyser, 4 DIN (1 x 5A CT required per phase)
QC-POWER-3PC	2000A external CT analyser, 4 DIN (1 x 5A CT required per phase) bi-directional

Detailed data sheets available on request for all analysers.

QC-POWER-T-RELE

QC-POWER-T-RS485

Passive Current Transformers

Traditional current transformers, used for non-invasive, non-contact measuring current in AC conductors. All have a 5A secondary winding, except the Rogowski coil.

Product Code	Description
QI-SC-24-100/5	100 / 5A Split Core Current Transformer
QI-SC-24-200/5	200 / 5A Split Core Current Transformer
QI-SC-36-300/5	300 / 5A Split Core Current Transformer
QI-SC-36-400/5	400 / 5A Split Core Current Transformer
QI-SC-36-500/5	500 / 5A Split Core Current Transformer
QI-SC-36-600/5	600 / 5A Split Core Current Transformer
QI-50/5-1	50 / 5A Fixed CT Primary Circuit at 50A, hole 20mm
QI-60/5-1	60 / 5A Fixed CT Primary Circuit at 60A, hole 20mm
QI-80/5-1	80 / 5A Fixed CT Primary Circuit at 80A, hole 20mm
QI-100/5-1	100 / 5A Fixed CT Primary Circuit at 100A, hole 20mm
QI-1505-1	150 / 5A Fixed CT Primary Circuit at 150A, hole 20mm
QI-200/5-1	200 / 5A Fixed CT Primary Circuit at 150A, hole 23mm
QI-300/5-1	300 / 5A Fixed CT Primary Circuit at 150A, hole 23mm
QI-400/5-1	400 / 5A Fixed CT Primary Circuit at 150A, hole 30mm
QI-500/5-1	500 / 5A Fixed CT Primary Circuit at 150A, hole 30mm
QI-600/5-1	600 / 5A Fixed CT Primary Circuit at 150A, hole 30mm
QI-800/5-1	800 / 5A Fixed CT Primary Circuit at 150A, hole 30mm
QI-ROG-300	300mm Rogowski coil for QE-CURRENT

QC-POWER-3PC

MODBUS Slave Devices

Active current transformers with voltage and or power measurement:

Single current transformer and voltage measurement terminals, all with integrated Modbus communication.
All are DIN rail or foot mounted and require 24V DC.

Product Code	Description	Example Usage
QI-50.V-485	TRMS AC / DC, 50A, 0 - 10V	Inverter output current (requires transformer for voltage measurement).
QI-300.V-485	TRMS, 230A AC / 300A DC, 0 - 10V	House current usage (requires transformer for voltage measurement).
QI-POWER-485	50A AC / DC, 800V AC or 1000V DC, Irms, Vrms, Watt, Var, Va, Vpk, IPk, Frequency, Cosφ, Bidirectional energy and THD.	• Solar string monitoring • AC energy and power analysis
QI-POWER-485-300	300A AC / 400A DC, 800V AC / 1000V DC, Irms, Vrms, Watt, Var, Va, Vpk, IPk, Frequency, Cosφ, Bidirectional energy and THD.	• Solar combiner output • AC energy and power analysis
QI-POWER-485-300-LV	300A AC / 400A DC, 80V AC / 100V DC.	Battery bank monitoring

*These devices require user to have a Q-USB or similar USB-RS485 serial converter to program bus addresses or other parameters. See accessories.

QI-SC

QI-SC-36
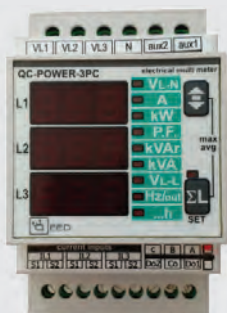
Other Bus Slaves And Signal Converters

Various other supported interfaces are available for monitoring industry standard field instruments and sensors. All are DIN rail mounted modular format and require 24V DC.

QI-300.V-485

QI-50I

QE-CURRENT-485

QA-VI

Product Code	Description	Input	Output
QA-VI	Isolated Voltage and Current Converter, Analogue Output, Relay	0 - 10V and 0 - 20mA DC	RS - 485 Modbus 0 - 10V and 0 - 20mA DC Dry contact USB
QA-TEMP	Isolated Universal Temperature Converter (RTD, TC), Analog Output, Relay	Pt100, Pt500, Pt1000, Ni100, J, K, R, S, T, B, E, N type thermocouples	RS-485 Modbus 0 - 10V and 0 - 20mA DC Dry contact USB
QA-OMNI	Isolated Universal Signal Converter (V, I, Frq, Temp, Potentiometer)	0 - 10V and 0 - 20mA DC Pt100, Pt500, Pt1000, Ni100, J, K, R, S, T, B, E, N type thermocouples. Frequency.	RS-485 Modbus 0 - 10V and 0 - 20mA DC Dry contact USB
QA-POWER-M	Single phase power analyser / meter	1000V DC / 600V AC, 10A AC / DC (more with external CTs)	RS - 485 Modbus 0 - 10V and 0-20mA DC Dry contact USB
QE-CURRENT-485	All-in-one current converter / analyser.	1A / 5A or + / -10V DC 0,333V DC transducers, Rogowski probe	RS - 485 Modbus

*These devices require user to have a Q-USB or similar USB-RS485 serial converter to program bus addresses or other parameters. See accessories.

Accessories

Product Code	Description
Q-USB	USB to Serial Converter for programming QEED devices (bus address etc.)

Q-USB-485

Power Supply (1000V DC and 1500V DC)

1000V DC

High voltage DC / DC power supply unit with wide input range, designed to supply monitoring devices of photovoltaic power plants directly from the generator strings. Low self-consumption / Safe separation of primary – secondary circuits / secondary circuits SELV type / LED operation indication / DIN rail mount.

1500V DC

High voltage DC / DC power supply unit. Safe separation of primary and secondary circuits, secondary circuits SELV type. LED operation indication / DIN rail mount.

NEW 1500V DC

SS-10-240.DIN

SS-10-240.DIN.1K5

Technical Parameters

	Product Code	SS-10-240.DIN	SS-10-240.DIN.1K5
Input data	Input Voltage	300V DC - 1000V DC	300V DC - 1500V DC
	Input Current	DC 40mA max.	DC 40mA max.
	Reverse Polarity Protection	Yes	Yes
	Input Fuse	Yes (internal)	Yes (internal)
	Input Voltage Start Ramp	Any Slope	Any Slope
Output Data	Output Voltage	24V DC (+ / -7%) including line and load regulation	24V DC (+ / -7%) including line and load regulation
	Output Current	400mA max.	400mA max.
	Output Power	10W	10W
	Power Derating	-2% / °C from 50°C - 70°C	-2% / °C 50°C to 70°C
	Short-Circuit Protection	Yes (auto resume)	Yes (auto resume)
	Max. Residual Ripple	<200mV	<150mV

SS-10-240/DIN_1k5_LC without EMC protection Avaiable upon request

NOArK
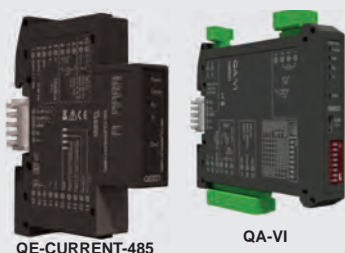
DC Miniature Circuit Breakers, 6kA (DIN Rail Mount) (10kA available on demand)

Benefits

- Rated insulation voltage = 1000V DC
- Rated impulse withstand voltage = 4Kv
- Device width = 18mm (per pole) height = 83mm (89mm width DIN dip)
- Terminal capacity = 1 - 35mm²

K-Characteristic, 1- pole, 250V DC

Product Code	Rated Current	Width	Characteristic	Type
*101654	10A	1 MU	K	Ex9BP-N 1P K 10A
102360	13A	1 MU	K	Ex9BP-N 1P K 13A
*101655	16A	1 MU	K	Ex9BP-N 1P K 16A
*101656	20A	1 MU	K	Ex9BP-N 1P K 20A
*101657	25A	1 MU	K	Ex9BP-N 1P K 25A
101658	32A	1 MU	K	Ex9BP-N 1P K 32A
*101659	40A	1 MU	K	Ex9BP-N 1P K 40A
101660	50A	1 MU	K	Ex9BP-N 1P K 50A
*101661	63A	1 MU	K	Ex9BP-N 1P K 63A
*Available and stocked				

101654 - 101661

K - Characteristic, 2 Pole, 500V DC (6kA)

Product Code	Rated Current	Width	Characteristic	Type
*101662	10A	2 MU	K	Ex9BP-N 2P K 10A
102361	13A	2 MU	K	Ex9BP-N 2P K 13A
*101663	16A	2 MU	K	Ex9BP-N 2P K 16A
101664	20A	2 MU	K	Ex9BP-N 2P K 20A
*101665	25A	2 MU	K	Ex9BP-N 2P K 25A
101666	32A	2 MU	K	Ex9BP-N 2P K 32A
*101667	40A	2 MU	K	Ex9BP-N 2P K 40A
101668	50A	2 MU	K	Ex9BP-N 2P K 50A
*101669	63A	2 MU	K	Ex9BP-N 2P K 63A
*Available and stocked				

101662 - 101669

K - Characteristic, 3 Pole, 750V DC (6kA)

Product Code	Rated Current	Width	Characteristic	Type
101670	10A	3 MU	K	Ex9BP-N 3P K 10A
102362	13A	3 MU	K	Ex9BP-N 3P K 13A
101671	16A	3 MU	K	Ex9BP-N 3P K 16A
101672	20A	3 MU	K	Ex9BP-N 3P K 20A
101673	25A	3 MU	K	Ex9BP-N 3P K 25A
101674	32A	3 MU	K	Ex9BP-N 3P K 32A
101675	40A	3 MU	K	Ex9BP-N 3P K 40A
101676	50A	3 MU	K	Ex9BP-N 3P K 50A
101677	63A	3 MU	K	Ex9BP-N 3P K 63A

101670 - 101677

K - Characteristic, 4 Pole, 1000V DC (6kA)

Product Code	Rated Current	Width	Characteristic	Type
101678	10A	4 MU	K	Ex9BP-N 4P K 10A
102363	13A	4 MU	K	Ex9BP-N 4P K 13A
101679	16A	4 MU	K	Ex9BP-N 4P K 16A
101680	20A	4 MU	K	Ex9BP-N 4P K 20A
101681	25A	4 MU	K	Ex9BP-N 4P K 25A
*101682	32A	4 MU	K	Ex9BP-N 4P K 32A
*101683	40A	4 MU	K	Ex9BP-N 4P K 40A
*101684	50A	4 MU	K	Ex9BP-N 4P K 50A
*101685	63A	4 MU	K	Ex9BP-N 4P K 63A
*Available and stocked				

101678 - 101685

NOARK

Accessories

Non-polarised, suitable for general DC as well as Photovoltaic applications

Product Code	Description	
100540 ***100542**	Auxiliary Contacts Auxiliary Contacts	AX3111 (1N / O + 1N / c) *AX3122(2N / O + 2N / c)
00541	Alarm Contact	AL3111
100543	Auxiliary and alarm contact	AXL31
100544-100546, **100547-100549**	Shunt Trip Releases Shunt Trip Releases	SHT31, SHT3111 SHT31, SHT3111
100550-100551, **100552-100553,** **100554-100555**	Under Voltage Releases Under Voltage Releases Under Voltage Releases	UVT31, UVT3101, UVT3110

Max. number of installed accessories is 3 pcs of one contact units (AX3111, AL3111) or 2 pcs of two contact units (AX3122, AXL31) and 2 pcs of releases (SHT31, UVT31)

Converter

Product Code	Type	Description
102351	PVPS DC 1000V converter	Input: 210 - 41200 - 120mA
Output: DC 24V - 625mA- 10 000V DC		

Switch-disconnectors / Isolators (3kA)

Schneider Electric

The switch-disconnectors are used for:
 Control (opening and closing of circuits under load).

Disconnection of on-load electrical circuits already protected against overloads and short-circuits

Product Code	Rating (Ie)	Voltage Rating (Ue)	Width In 9mm Modules	Pole
EZ9S16163	63A	230V, 50 / 60 Hz	2	1
EZ9S16263	63A	400V, 50 / 60 Hz	4	2
EZ9S16363	63A	400V, 50 / 60 Hz	6	3
EZ9S16463	63A	400V, 50 / 60 Hz	8	4

Circuit Protection (3kA) Pole 1 and 2

18mm Miniature Circuit Breaker

Product Code	Rating (In)	Kiloampere	Width In 9mm Modules	Curve	Pole
EZ9F53106	6A	3kA	2	C	1
EZ9F53110	10A	3kA	2	C	1
EZ9F53116	16A	3kA	2	C	1
EZ9F53120	20A	3kA	2	C	1
EZ9F53125	25A	3kA	2	C	1
EZ9F53132	32A	3kA	2	C	1
EZ9F53140	40A	3kA	2	C	1
EZ9F53150	50A	3kA	2	C	1
EZ9F53163	63A	3kA	2	C	1
EZ9F53206	6A	3kA	4	C	2
EZ9F53210	10A	3kA	4	C	2
EZ9F53216	16A	3kA	4	C	2
EZ9F53220	20A	3kA	4	C	2
EZ9F53225	25A	3kA	4	C	2
EZ9F53232	32A	3kA	4	C	2
EZ9F53240	40A	3kA	4	C	2
EZ9F53250	50A	3kA	4	C	2
EZ9F53263	63A	3kA	4	C	2

Left margin labels: 100542, 102351, EZ9S16163, EZ9S16263, EZ9S16363, EZ9S16463, 1 pole, 2 pole

Schneider Electric
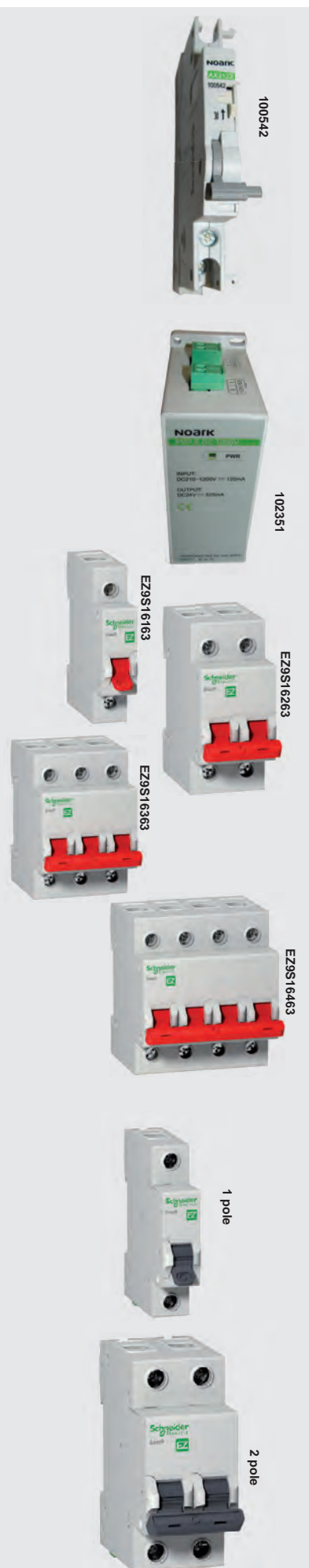
Circuit Protection (3kA) - Pole 3 and 4

18mm Miniature Circuit Breaker

Product Code	Rating (In)	Kiloampere	Width In 9mm Modules	Curve	Pole
EZ9F53306	6A	3kA	6	C	3
EZ9F53310	10A	3kA	6	C	3
EZ9F53316	16A	3kA	6	C	3
EZ9F53320	20A	3kA	6	C	3
EZ9F53325	25A	3kA	6	C	3
EZ9F53332	32A	3kA	6	C	3
EZ9F53340	40A	3kA	6	C	3
EZ9F53350	50A	3kA	6	C	3
EZ9F53363	63A	3kA	6	C	3
EZ9F53406	6A	3kA	8	C	4
EZ9F53410	10A	3kA	8	C	4
EZ9F53416	16A	3kA	8	C	4
EZ9F53420	20A	3kA	8	C	4
EZ9F53425	25A	3kA	8	C	4
EZ9F53432	32A	3kA	8	C	4
EZ9F53440	40A	3kA	8	C	4
EZ9F53450	50A	3kA	8	C	4
EZ9F53463	63A	3kA	8	C	4

DIN Miniature Circuit Breakers (6kA) (SABS Approved)

IC6OA

Product Code				Amps	Width	Type
1 Pole	2 Pole	3 Pole	4 Pole			
A9F64101	A9F64201	A9F64301	A9F64401	1A	9mm modules	C-curve
A9F64102	A9F64202	A9F64302	A9F64402	2A	9mm modules	C-curve
A9F64103	A9F64203	A9F64303	A9F64403	3A	9mm modules	C-curve
A9F64106	A9F64206	A9F64306	A9F64406	6A	9mm modules	C-curve
A9F64110	A9F64210	A9F64310	A9F64410	10A	9mm modules	C-curve
A9F64114	A9F64216	A9F64316	A9F64416	16A	9mm modules	C-curve
A9F64120	A9F64220	A9F64320	A9F64420	20A	9mm modules	C-curve
A9F64125	A9F64225	A9F64325	A9F64425	25A	9mm modules	C-curve
A9F64132	A9F64232	A9F64332	A9F64432	32A	9mm modules	C-curve
A9F64140	A9F64240	A9F64340	A9F64440	40A	9mm modules	C-curve
A9F64150	A9F64250	A9F64350	A9F64450	50A	9mm modules	C-curve
A9F64163	A9F64263	A9F64363	A9F64463	63A	9mm modules	C-curve

Earth Leakage Protection (3kA)

- Residual current circuit breakers AC
- Tripping in case of leakage current only.
- One RCCB protects several circuits when fitted upstream, a group of circuit breakers

Product Code	Phase	Rating (In)	Milliampere	Width In 9mm Modules	Voltage Rating (Ue)	Pole
EZ9R03263	Single phase	63A	30mA	4	230V, 50 Hz	4
EZ9R03463	Three phase	63A	30mA	8	400V, 50 Hz	8

3 pole

4 pole

A9F64301

A9F64201

A9F64301

A9F64401

EZ9R03463

EZ9R03263

Comb busbars Cutable

A9XPE110

QF-2* Samite Circuit Breakers

QF-1* Samite Circuit Breakers

QF-S-* Switch Disconnectors

QA17C Earth Leakages

Comb Busbars

Acti 9 – Cutable

- Comb busbars make it easier to implement Schneider Electric products
- Can be sawn and cut in a single pass, using Busbar chocks
- Supplied with two IP20 lateral end-pieces
- The end-pieces are compulsory during cutting
- The phases are identified by symbols on each side of the comb Busbar
- Cutting marks on the insulating material
- The spare teeth can be insulated with tooth covers Power supply by connector recommended

Product Code	Modules	Type	Sets Of	Poles
A9XPH112	12 modules of 18mm	L1...	1	1
A9XPH312	12 modules of 18mm	L1L2L3...	1	3
A9XPH124	24 modules of 18mm	L1...	1	1
A9XPH324	24 modules of 18mm	L1L2L3...	1	3

End-piece Comb Busbars Accessories

Lateral end-pieces providing IP20 protection

Product Code	Sets Of	Poles
A9XPE110	10	1
A9XPE310	10	3

Samite Circuit Breakers (C-curve / 6kA)

13mm per pole width

1 Pole Product Code	2 Pole Product Code	3 Pole Product Code	1 Pole+N Product Code	3 Pole+N Product Code	Amps
QF-1(13)-5A	QF-2(13)-5A	QF-3(13)-5A	QF-N-2(13)-5A	QF-4-(13)-5A	5A
QF-1(13)-10A	QF-2(13)-10A	QF-3(13)-10A	QF-N-2(13)-10A	QF-4-(13)-10A	10A
QF-1(13)-15A	QF-2(13)-15A	QF-3(13)-15A	QF-N-2(13)-15A	QF-4-(13)-15A	15A
QF-1(13)-20A	QF-2(13)-20A	QF-3(13)-20A	QF-N-2(13)-20A	QF-4-(13)-20A	20A
QF-1(13)-25A	QF-2(13)-25A	QF-3(13)-25A	QF-N-2(13)-25A	QF-4-(13)-25A	25A
240V AC	415V AC	415V AC	240V AC	415V AC	_

Switch-disconnectors (6kA) (Isolators) (SAMITE)

13mm width per module

1 Pole Product Code	2 Pole Product Code	3 Pole Product Code	4 Pole Product Code	Amps
QF-S-1(13)-63	QF-S-2(13)-63	QF-S-3(13)-63	QF-S-4(13)-63	63A

Earth Leakages (30M / A) (SAMITE)

Product Code 1 Pole+N	Product Code 3 Pole+N	Amps
QA17C	QA36CW	63A
26mm width	78mm width	63A
240V AC	415V AC	63A

3Pole+N (Without Overload Protection)	3 Pole+N (Without Overload Protection)	Amps
SF360-80	SF36A-80	80A

Accessories

Product Codes	Description
SF1002601	Dummy - 26mm Single Pole
SAEB000	Safety Blank - 13mm Module, Clips Into Mini Rail
SAMR100	Heinemann Clip Tray to Samite
2356208	Escutcheon Blank (6,5mm) Module 12x6,5mm Strip
SFEB000	Escutcheon Blank (26mm) Module clips into DB aperture
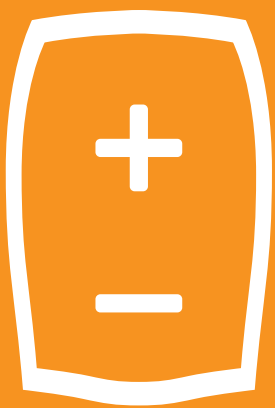
Energy Storage

Tesla Powerwall 2 is a fully-integrated AC battery system for residential or light commercial use. The fully rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, load shifting and backup power. It also has a built in battery inverter, and comes with an energy gateway for managing Tesla and distribution board communications.

Tesla Powerwall 2 achieves market leading energy density in a compact design, enabling the owner to fully utilise their clean power production. Powerwall 2 can be installed with new solar installations or existing installations and can be wall or floor mounted. Please contact us for information on compatibility with a new or existing solar inverter system.

TESLA
ENERGY
AUTHORIZED RESELLER

Tesla Powerwall 2

Product Code	Description
Powerwall2	Tesla Powerwall 2, 13,5kWh, Li-ion battery pack, Tesla Backup Gateway is included

*Please note: Tesla products and kitted solutions may only be sold to Tesla Powerwall Certified Installers

Systems Components

Solar Inverter

PV Module

Monitor your energy from the comfort of your phone

TESLA
ENERGY
AUTHORIZED RESELLER

Systems Layout

755mm

1150mm

155mm

Performance Specifications

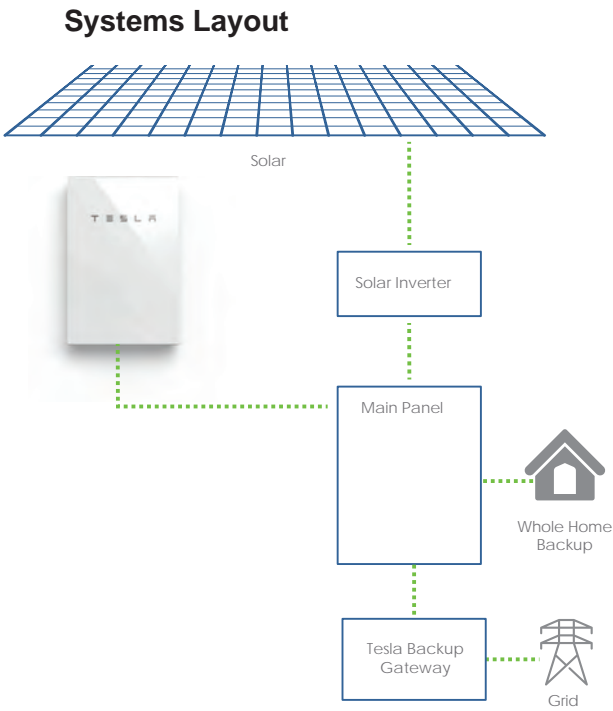|	
AC Voltage (Nominal)	230V
Feed-In Type	Single
Grid Frequency	50 Hz
AC Energy¹	13,5kWh
Real Power, Max. Continuous²	5kW (charge and discharge)
Real Power, peak (10 s)²	7kW (discharge only)
Apparent Power, Max. Continuous²	5,8kVA (charge and discharge)
Apparent Power, Peak (10 s)²	7,2kVA (discharge only)
Imbalance for Single-Phase Loads	100%
Power Factor Output Range	+ / – 1,0 adjustable
Power Factor (Full-rated power)	+ / – 0,85
Depth of Discharge	100%
Internal Battery DC Voltage	50V
Round Trip Efficiency¹, ³	90,0%
Warranty	10 years

¹Values provided for 25°C, 3,3kW charge / discharge power.

²Values region-dependent. | ³AC to battery to AC, at beginning of life.

Backup Gateway Specifications

User Interface	Tesla App
Connectivity	Wi-Fi, Ethernet, 3G
AC Meter	Revenue grade
Operating Modes	Support for wide range of usage scenarios
Backup Operation	Optional automatic disconnect switch
Modularity	Supports up to 10 AC-coupled Powerwalls

Environmental Specifications

Operating Temp.	-20°C to 50°C
Storage Temperature	–30°C to 60°C
Operating Humidity (RH)	Up to 100%, condensing
Maximum Altitude	3 000m
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R
Ingress Rating	IP67 (Battery & Power Electronics) IP56 (Wiring)
Noise Level @ 1m	<40 dBA at 30°C

Mechanical Specifications

Dimensions	1150 x 755 x 155mm
Weight	122kg
Mounting Options	Floor or Wall Mount

Compliance Information

Safety	UL 1642, UL 1741, UL 1973, UL 9540, UN 38.3, IEC 62109-1, IEC 62619, CSA C22.2.107.1
Grid Standards	Worldwide Compatibility
Emissions	FCC Part 15 Class B, ICES 003, EN 61000 Class B
Environmental	RoHS Directive 2011/65/EU, WEEE Directive 2012/19/EU, 2006/66/EC
Seismic	AC156, IEEE 693-2005 (high)

xStorage Home Single Phase System Combinations Overview

EAT•N
Powering Business Worldwide

NISSAN

Features

- Increasing power bills
- Variable electricity rates
- Power outages

- Potential natural disasters
- Intermittent solar pv production
- Decreasing incentives for solar pv production

How xStorage Works?

Used to provide Grid Services: xStorage Home could charge from the grid or discharge to the grid in order to generate the flexibility needed to further increase the penetration of renewable energy

Renewables: xStorage Home can store energy from your renewables installation (Solar panels, wind power, subfloor heating…) and allow to use that energy for your home when you need it

XStorage Home: The battery stocks both grid and renewable energy during the day, allowing you to source it how you want and when you want. Thanks to Nissan + Eaton technology, you have the power (and can even give some back to the grid as well).

Redistribute over production of renewables: Sometimes, your renewables are producing more energy than needed to power the load. Therefore, xStorage Home injects the energy back into the grid when the demand is high.
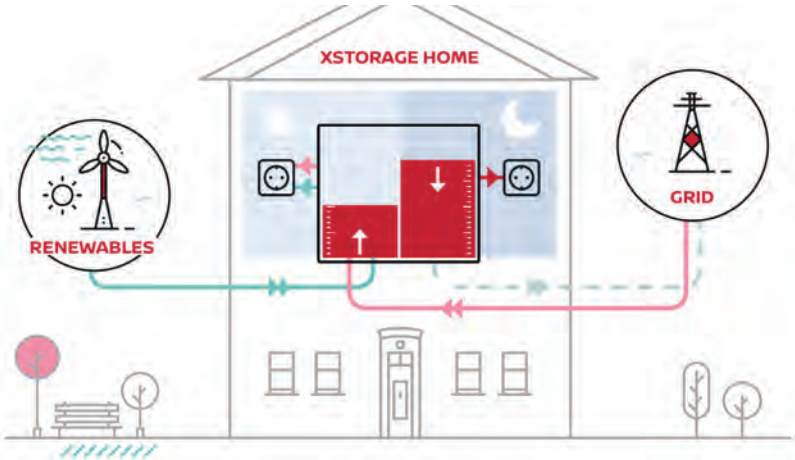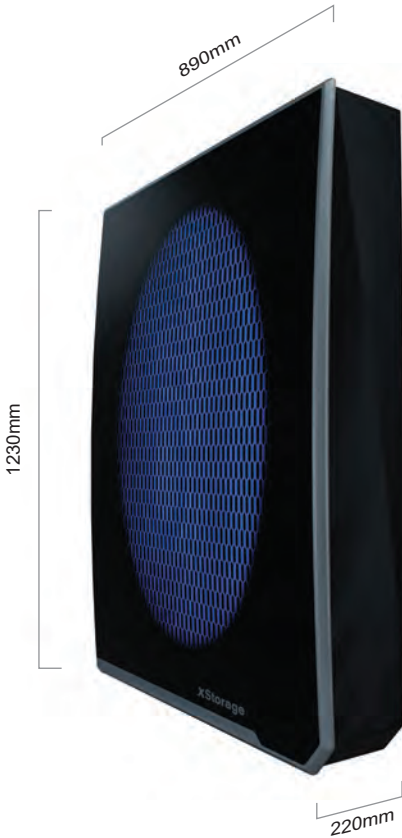
Ordering Information

Product Code	Battery Capacity (nominal)	AC Inverter Power (nominal)	Max. Recommended PV Input Power	Full System Weight (appr.)	Full System Dimensions (appr.) (HxWxD)
X Storage 6-6	6kWh	6kW	4.8kW	135kg	1230x890x220mm
X Storage 6-7.5	7.5kWh	6kW	4.8kW	135kg	1230x890x220mm

Battery Pack

Nominal	6kWh
Cell Chemistry	NMC (lithium nickel manganese cobalt oxide)
Max Charge/Discharge Current DC	54A
DC Battery Input Voltage	74.4 - 98.4V
Overcharge Protection	Fuse + Contractor
DoD	90%
Warranty – Battery Life Time	10 years (1 full cycle per day i.e., charge and discharge)
Dimensions(HxWxD)	442x781x175mm
Weight	83kg

Hybrid Inverter For 6kWh Battery Pack

PV Input (DC)	Inverter Power Range	6kW
	Max. DC power	4.8kW
	Maximum DC Voltage	500V
	Nominal DC Operating Voltage	100 - 500V
	MPPT Max. Voltage Range	240 - 500V
	Max. Input Current	20A
	Initial Feeding Voltage	150V
	Number of MPP Trackers	1

Load/Grid Output (AC)	Nominal Output Power	6000W
	Nominal AC Output Current	26.1A
	Max. AC Current	29A
	AC Wiring System	Single phase/N/PE, TN, TT, IT (additional fuse or CB required)
	Power Factor	0.99 (Grid-Tie), ±0.9 (Off-Grid)

Efficiency	MPPT Efficiency	>99%
	Maximum Efficiency (Battery to AC)	>90%
	PV to Grid Max. Efficiency	97%
	Standby Losses	<10W

Physical Properties	Dimensions (HxWxD)	515x796x182mm
	Weight	37kg

Delta All-In-One Storage Solutions

The Hybrid E5 energy storage system consists of a single phase 5kW hybrid inverter, a separate battery cabinet equipped with a high capacity 6kWh Li-Ion battery, Power Meter and Smart Monitor. The Hybrid E5 storage system has been designed to integrate seamlessly with the battery and features dual MPPT, a standalone function and a high charging efficiency of up to 97%. This is made possible as the inverter can send DC electricity generated by the PV system directly to the battery, without any additional power conversion steps or equipment required. The E5 inverter and battery cabinet are compact and separate from each other, allowing for greater flexibility and simplified installation. The Power Meter measures energy flow and displays the data on the Smart Monitor, which can be used to control the system operation modes to maximise use of self-generated solar energy.

1. Hybrid Inverter

The E5 inverter is a true hybrid battery-ready inverter. Acting as a traditional inverter with the one exception that it can deliver energy during a power outage provided your solar array is generating electricity, even without batteries.

2. Battery

Pair the BX6.0 to the E5 and you have instant "Energy Security" for when the grid lets you down. Also, saving you money by storing your free solar energy for use later on.

3. Power Meter

The P1E and P3E can measure your energy purchased, exported, stored and self consumed. The R4 will display this in real time as it happens. P1E is for single-phase systems and P3E for three-phase systems.

4. Smart Monitor

The R4 brings a new dynamic to managing your energy. Choose when and how you want energy delivered. View the real time status of your battery and consumption.

Input / Output Interface

Integrated AC / DC Switch | PV String 2 / PV String 1 | Battery Input | Standalone Button / RS485 | Manual Bypass Switch

Battery Communication
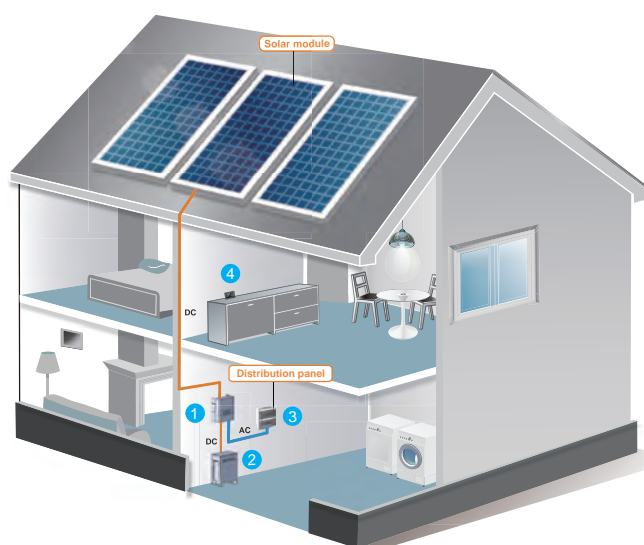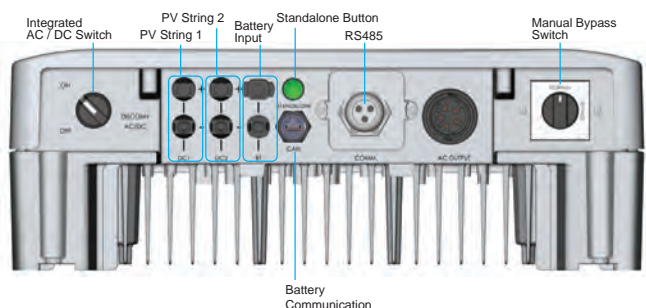
Designed For Battery Safety

- Safe and Powerful
- Floor or Wall Mounted
- Water-resistant and dustproof
- Extremely Quiet
- Solid Protection

Hybrid Inverter

BX6.0

Model: E5		Product Code	**BX6.0**
DC Input		Rated Voltage	370V DC
		Recommended PV Power	7kW
		MPPT	2
		Max. Input Current	2x 12A DC
		Operating Voltage Range	100V DC ~ 550V DC
		MPP Voltage Range	220V DC ~ 450V DC

AC Output		Rated Output Power	5000VA
		Rated Voltage	230V AC
		THD	< 3% at rated power

Standard Power With Battery & Solar	28A (on critical load)
Maximum Power Only Solar*	5,0kW
Standalone Power With Battery Only	3,6kVA
Nighttime Consumption	<30W with battery; without battery <10W
Communication	Wi-Fi (option) / RS-485
Dimensions(Unit)	510 x 445 x 177mm
Weight	27kg

RPI502E121000

Battery

Product Code	**RPI502E121000**
Battery Supplier	Panasonic
Nominal Capacity	6kWh
Maximum Capacity	6,4kWh
Usable Capacity (80% DoD)	4,8kWh
Cycle Stability (80% DoD)	6000
Voltage Range	85 ~ 104V DC
Nominal Charging Power	2,5kW
Nominal Discharging Power	3kW
Max. Charging Current	30A
Max. Discharging Current	35A
Battery Technology	Li-ion
Dimensions	552 x 596 x 200mm
Weight	75kg
Enclosure Rating	IP55
Installation Type	Indoor / outdoor (For longer battery life it is recommend the battery is used indoors)

PPM P1E-000   **PPM P3E-000**

Power Meter

Model	**PPM P1E-000**	**PPM P3E-000**
Phase	1	3
Communication	Wi-Fi (N1) / RS-485	Wi-Fi (N1) / RS-485
Operating Voltage Range (L – N)	85V AC ~ 264V AC	130V AC ~ 260V AC
Power Consumption	Max. 2 Watt	Max. 3 Watt
Power Consumption with N1	Max. 4 Watt	Max. 6 Watt

Smart Monitor

Module	**PPM-R4**
Rated Operating Voltage	12V DC (12V power supplied by E5 inverter via RS485 cable)
Power Consumption	< 6 Watt (Without USB port)
Information	LCD Display
	Touch resistive screen
	7 inch TFT LCD, 800 x 480
	Pixel, 24 bit RGB
Communication	RS-485 / Wi-Fi

PPM-R4

SUNLIGHT
Reliable Battery Solutions

RES Advance Range

Technical Information

Systems Sunlight are manufacturers of high grade industrial and renewable energy batteries. Locally stocked and supported are their specifically developed RES- OPZS and RES-OPZV renewable energy series' of batteries. Sunlight's high quality, long life and excellent performance are make renewables projects perform at their peak.

	RES SOPZS 2V Cell	RES SOPZV 2V Cell
Capacity C120, 1,85Vpc, 20°C	180 - 1200Ah	150 - 1360Ah
Technology	Vented (VLA)	Valve regulated (VRLA)
Positive Plate	Tubular	Tubular
Container / Lid	Translucent Polypropylene	Polypropylene
Electrolyte	Liquid	Gel
Cycle Life (60% DoD @ 20°C)	2000 Cycles @ 60% DOD	2000 Cycles @ 60% DOD
Design Life (under float conditions)	18 years	15 years

RES 4 SOPZS 720

RES 3 SOPZV 425

DC12-*

Capacity And Ordering Information

SOPzS Liquid Filled 2V Cells

Product Code	C120 Capacity @ 20˚C	C12 Capacity @ 20˚C
RES 2 SOPZS 215	215	156
RES 3 SOPZS 310	310	227
RES 3 SOPZS 390	390	289
RES 4 SOPZS 500	500	375
RES 5 SOPZS 605	605	455
RES 4 SOPZS 720	720	558
RES 5 SOPZS 860	860	673
RES 6 SOPZS 965	965	771
RES 7 SOPZS 1270	1270	976
RES 8 SOPZS 1380	1380	1075

OPZV Gel 2V Cells, Maintenance Free

Product Code	C120 Capacity @ 20˚C	C12 Capacity @ 20˚C
RES 2 SOPZV 150	150	126
RES 3 SOPZV 225	225	189
RES 2 SOPZV 280	280	244
RES 3 SOPZV 425	425	366
RES 4 SOPZV 565	565	488
RES 5 SOPZV 710	710	611
RES 6 SOPZV 850	850	733
RES 7 SOPZV 990	990	855
RES 8 SOPZV 1135	1135	977
RES 7 SOPZV 1190	1190	1024
RES 8 SOPZV 1360	1360	1170

Other sizes and series are available on request.

AGM Deep Cycle

CB SOLAR

Product Code	Voltage	Amp Hr	Dimension L x W x Hmm	Total Height	Terminal	Max. Discharge	Max. Charge	Int. Resistance
DC12-100	12V	100AH	328 x 172 x 222	222	F5 / F12	1000A	30A	5
DC12-150	12V	150AH	483 x 170 x 240	240	F5 / F12	1500A	45A	4,2
DC12-200	12V	200AH	522 x 240 x 219	240	F16	2000A	60A	4,0
DC12-260	12V	260AH	520 x 268 x 220	225	F14	2600A	78A	3,5

*Other sizes available on request

BLUE NOVA
energy

BlueNova LiFePO4 Batteries

BlueNova's range of Lithium-Ion batteries achieve robustness, safety and reliability through the use of LiFeYPO4 (Lithium Iron Yttrium Phosphate) cell chemistry and careful engineering. With a design life well in excess of 10 years, this is a technology worth investing in.

Convenient features such as on-board display for monitoring performance variables, integrated energy meter and serial communication over CANBUS.
While compatible with leading inverters, they can be used in managed or in unmanaged configurations for drop-in replacement of lead batteries*.
The convenient Automatic pre-charge circuit and built-in fuse & DC isolator make it hard to beat.

BN13V-154-2k mini

BN13V-310-4k Classic

BN26V-310-8k

BN26V-1540-40k

BN52V-310-16k

BN52V-1250-65k
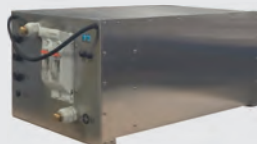
Ordering Information

Product Code	Description	Cycle Life @ 100% DOD	Warranty
12V equivalent:			
BN13V-77-1k micro	13V 1kWH	> 3600 cycles	5 years
BN13V-154-2k mini	13V 2kWH	> 3600 cycles	5 years
BN13V-310-4k Classic	13V 4kWH	> 3600 cycles	10 years
24V equivalent:			
BN26V-77-2k mini	26V 2kWH	> 3600 cycles	5 years
BN26V-154-4k Classic	26V 4kWH	> 3600 cycles	10 years
BN26V-230-6k	26V 6kWH	> 3600 cycles	10 years
BN26V-310-8k	26V 8kWH	> 3600 cycles	10 years
BN26V-460-12k	26V 12kWH	> 3600 cycles	10 years
BN26V-1540-40k	26V 10kWH	> 3600 cycles	10 years
48V equivalent:			
BN52V-77-4k TeleC	52V 4kWH	> 3600 cycles	10 years
BN52V-77-4k Classic	52V 4kWH	> 3600 cycles	10 years
BN52V-154-8k	52V 8kWH	> 3600 cycles	10 years
BN52V-230-12k	52V 12kWH	> 3600 cycles	10 years
BN52V-310-16k	52V 16kWH	> 3600 cycles	10 years
BN52V-460-24k	52V 24kWH	> 3600 cycles	10 years
BN52V-770-40k	52V 40kWH	> 3600 cycles	10 years
BN52V-1250-65k	52V 65kWH	> 3600 cycles	10 years

* Inverter / charger may need reconfiguring.

IMPI

BlueNova's Impi all-in-one Inverter-charger- battery solution is a market first, with many convenient features, even including outlet sockets.
It can be used with or without PV modules, depending on your requirements.

Impi

Xtenda

Product Code	Description
Impi-26V-3000VA-600W-2k	24V 3kva inverter, 600W MPPT, 2kWH LiFePO4 battery
Impi X-26V-3000VA-1500W-2k	24V 3kva inverter, 1500W MPPT, 2kWH LiFePO4 battery
Xtenda module	2kWH LiFePO4 battery
Xtenda X module	2kWH LiFePO4 battery, 100V 30A MPPT charger

RUBICON

Rubicon Hybrid Inverters

Hyper Series Hybrid Inverter

The Hyper 5000 is a high-performance solar-battery hybrid inverter for homes.
Hyper Series can operate in both on-grid and off-grid modes, which is ideal for all the areas whether there is grid or not.

RB-5KW-HB-65
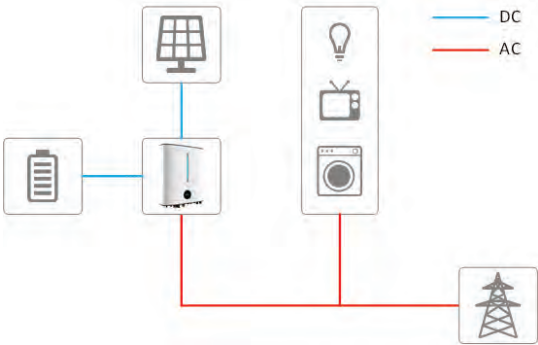
	Product Code	RB-5KW-HB-65
AC Ratings	Rated AC Power	5000VA
	Rated AC Voltage	230V AC
	AC Voltage Range	180 – 264V AC
	AC Frequency	50 / 60Hz
	Max. AC Current To Grid	21,7A
	Max AC Current To Grid	30A
	Power Factor Range	-0,8~+0,8

	Rated AC Power	5000VA
EPS Ratings	Rated AC Voltage	230V AC
	AC frequency	50 / 60Hz
	Max. AC Current	21,7A
	Changeover Time	2s in EPS Mode, 10ms in UPS Mode
	Power Factor Range	-0,8~+0,8

	Model Name	Hyper 5000
PV Input	Max PV Input	5400W
	Max PV Voltage	550V
	MPPT Voltage Range	125 – 500V
	PV Start Voltage	100V
	Max PV Current	10A
	No. MPPTs	2
	String Inputs Per MPPT	1

	Battery Type	Lithium
Battery Ratings	Nominal Voltage	48V
	Voltage Range	40 – 60V
	Max. Charge Current	100A
	Max. Discharge Current	100A
	Communication Interfaces	RS485 / CAN

	Weight	35kg
General Information	Dimensions	415 x 675 x 145mm
	Operating Temperature	-20~+60 Degrees C
	IP Rating	IP65

	Product Item	Product Code
Ordering Information	Hybrid Inverter	**RB-5KW-HB-65**
	LiFEPO4 Battery, 4.5kwh	**RB-R16-4.5KW-65**
	Mounting Kits	**RB-AIO-5KW**

RUBICON

Rubicon Lithium Batteries:

Indoor Batteries

LIFEP04

SUPERIOR RANGE

Australian Designed and Engineered,
IP21 Expandable, to grow with you
Compatible with all mainstream Hybrid
Inverters 10,000 cycles at 90% DOD
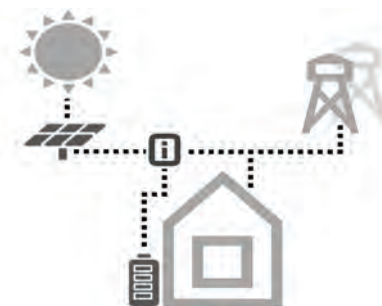
RB-4.5KWH-IP21

Product Code	RB-2KWH-IP21	RB-4.5KWH-IP21
Total Energy	2kWh	4,5kWh
Usable Energy	1,8kWh	4,05kWh
Nominal Voltage	51,2V	51,2V
Nominal Capacity	40AH	90AH
Operation Range	40V - 58,4V	40V - 58,4V
Nominal Discharge Current	40A (1C)	90A (1C)
Nominal Charge Current	40A (1C)	90A (1C)
Peak Discharge Current	60A (1,5C)	100A (1,1C)
Weight	33kg	38kg
Dimensions	210 x 489 x 339mm	150 x 592 x 317mm
Installation	Wall or ground mounted	Wall or ground mounted
Calendar Life	20 years @ 25C, 15 years @ 35C, 10 years @ 45C	
Communications	RS485 / CAN	RS485 / CAN
Temperature	0 – 45C charge	0 – 45C charge
	- 20 – 55C discharge	- 20 – 55C discharge
Enclosure IP Rating	IP21	IP21
Standard Warranty	10 000 cycles @ 90% DOD or 10 years	

Outdoor Batteries

RB-4.5KWH-LFP

	RB-2KWH-IP65	RB-4.5KWH-IP65
Total Energy	2kWh	4,5kWh
Usable Energy	1,8kWh	4,05kWh
Nominal Voltage	51,2V	51,2V
Nominal Capacity	40AH	90AH
Operation Range	40V - 58,4V	40V - 58,4V
Nominal Discharge Current	40A (1C)	90A (1C)
Nominal Charge Current	40A (1C)	90A (1C)
Peak Discharge Current	60A (1,5C)	120A (1,2C)
Weight	33kg	38kg
Dimensions	414 x 387 x 183mm	414 x 586 x 175mm
Installation	Wall or ground mounted	Wall or ground mounted
Calendar Life	20 years @ 25C, 15 years @ 35C, 10 years @ 45C	
Communications	RS485 / CAN	RS485 / CAN
Temperature	0 – 45C charge	0 – 45C charge
	- 20 – 55C discharge	- 20 – 55C discharge
Enclosure IP Rating	IP65	IP65
Standard Warranty	10 000 cycles @ 90% DOD or 10 years	10 000 cycles @ 90% DOD or 10 years

RUBICON

Commercial Batteries

The Future Of Clean Energy Is Here
Introducing The Rubicon Commercial Battery Storage Range

3,45KWH Module
RB-HV-3,45-Superior
Australian Designed and Engineered.
Expandable, to grow with you.
Virtual Power Plant Ready.
10 year Warranty.
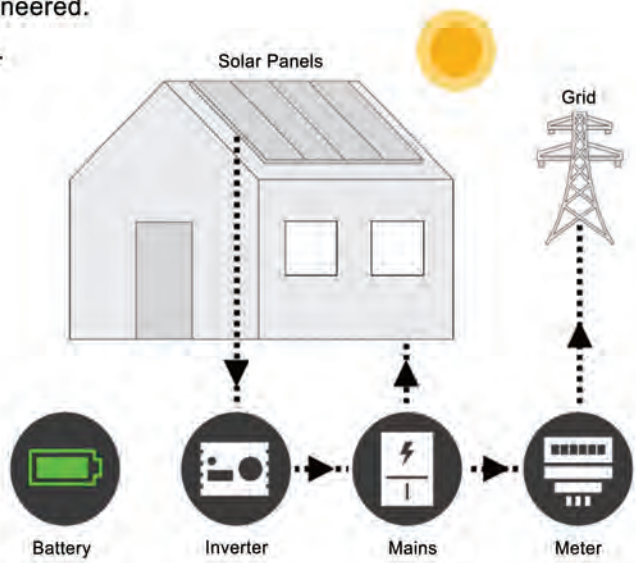
RB-HV-3.45-Superior

Ordering Information

Product Code	RB-HV-3.45-Superior
Cell Technology	LiFePO4
Nominal Capacity	3,45kWh
Useable Capacity	90% DOD, 3,1kWh
Nominal Voltage	38,4V
Voltage Range	34,8V - 42,7V
Rated Current	90A(1C)
Max Charge/Discharge Current	90A(1C)
Protection	Over / Under Voltage, Over Current, Over Temperature etc.
Communication	CAN / RS485
Charge Temperature Range	0 - 40 C
Discharge Temperature Range	- 20 - 55 C
IP Rating	IP20
Calendar Life Years	20 years @ 25 C, 15 years @ 35 C,10 years @ 45 C
Cycling Performance	7,000 cycles at 90% DOD
Size W*H*D	465 x 143 x 320mm
Weight KG	30kg
Standard Warranty	10 years materials & workmanship
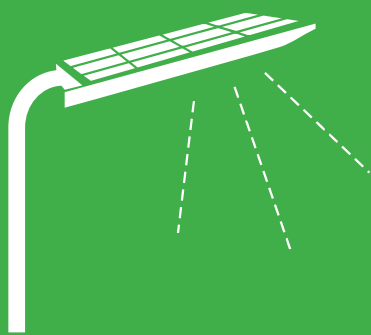
Solar Lighting

iSSL+ All in one solar streetlight

HORIZONTAL SOLAR PANELS

Dedicated to inter-tropical and tropical areas.
Anti dust and self cleaning coating.
No dirt accumulation.

HIGH PERFORMANCE NIMH BATTERY

12 years lifespan (40°C constants) according
IEC 61427 standards.

SUNNACORE

Smart lighting and battery management system.
Patented algorithms to maximise energy use and
battery lifetime preservation.
Connection via bluetooth to a mobile phone application,
the Sunnapp'.

LED MODULE

0° to 30° tilting

VANDAL-PROOF

Anti-theft screws (optional)

Key Features

- No blackout feature
- Remote monitoring and communication
- Plug and play
- Unique resistance to extreme climates

Lighting

Efficiency	Up to 164lm / W
Colour Temperature	5700K (3000K et 4000K available on demand)
Life Span	50 000 hours (12 years)
Max. Power	Up to 25W*
Nominal Power	10W
Motion Sensor	Optional

*autonomy will depend on lighting power

Photovoltaic Panels

Technology	Mono-crystalline photovoltaic panels
Power	50Wp
Life Span	25 years

Battery

Technology	NiMH high temperature Nickel metal hydride
Voltage	12V
Autonomy	2 days at nominal power
Life Span	12 years

General

Dimensions	1050 x 375 x 105mm
Fixation	Top or Side Mounting, Ø60mm
Weight	13kg (without pole)
Protection	IP65
Working Temperature	-20°C to +70°C
Connectivity	Bluetooth
Remote monitoring	Optional

Order Information

Product Code	Description
SD4003 08 00 0	iSSL+
SD4100 100 000	iSSL+ - motion sensor

6 years warranty

iSSL+

iSSL+

Uniformity > 0,4

	Eav	Emax
3m	15 lux	23 lux
4m	8 lux	13 lux
5m	5 lux	8 lux

5m — 4 * H
5m — 4 * H
6m — 4 * H

H

Luminous flux — 1,600 - 2800* lumens

* Available with motion sensor
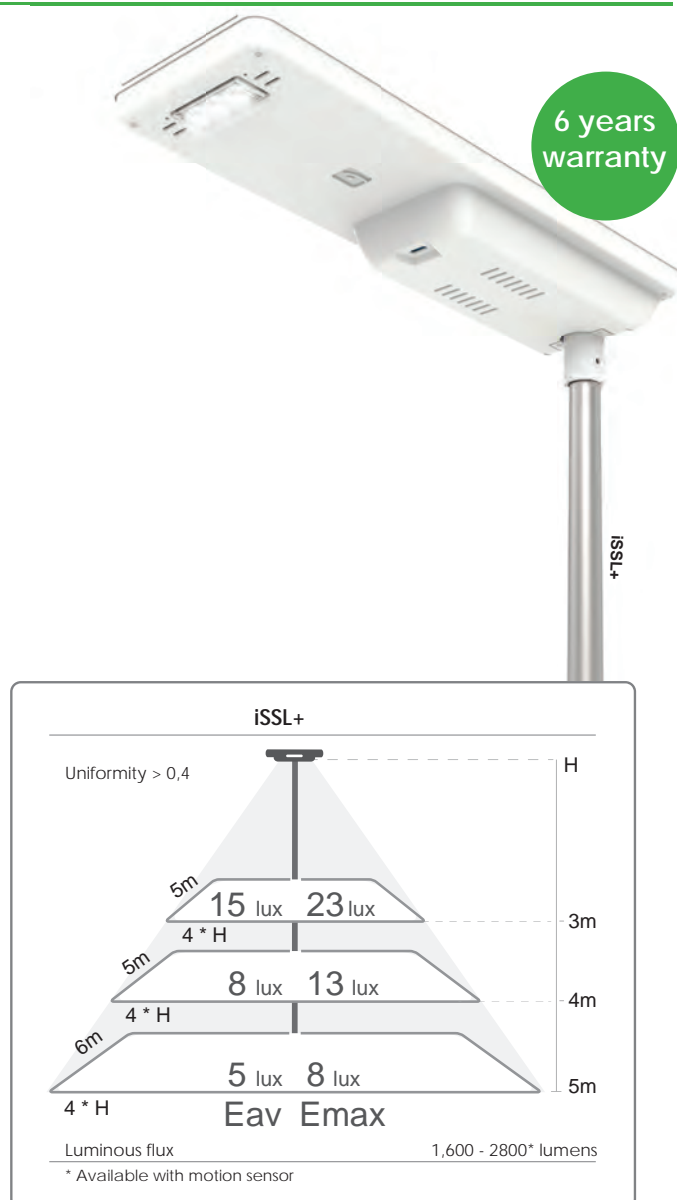
iSSL Maxi ROAD All In One Solar Streetlight

HORIZONTAL SOLAR PANELS
Dedicated to inter-tropical and tropical areas.
Anti dust and self cleaning coating.
No dirt accumulation.

HIGH PERFORMANCE NIMH BATTERY
12 years lifespan (40°C constants) according
IEC 61427 standards.

SUNNACORE
Smart lighting and battery management system.
Patented algorithms to maximise energy use and
battery lifetime preservation.
Connection via bluetooth to a mobile phone application,
the Sunnapp'.

LED MODULE
0° to 30° tilting

VANDAL-PROOF
Anti-theft screws (optional)

Key Features

- No blackout feature
- Remote monitoring and communication
- Plug and play
- Unique resistance to extreme climates

Lighting

Efficiency	Up to 164lm / W
Colour Temperature	5700K (3000K et 4000K available on demand)
Life Span	50 000 hours (12 years)
Max. Power	Up to 50W*
Nominal Power	20W
Motion Sensor	Optional

*autonomy will depend on lighting power

Photovoltaic Panels

Technology	Mono-crystalline photovoltaic panels
Power	80Wp (2x 40Wp)
Life Span	25 years

Battery

Technology	NiMH high temperature Nickel metal hydride
Voltage	24V
Autonomy	2 days at nominal power
Life Span	12 years

General

Dimensions	820 x 755 x 105mm
Fixation	Top on a pole, Ø60mm
Weight	19kg (without pole)
Protection	IP65
Working Temperature	-20°C to +70°C
Connectivity	Bluetooth
Remote Monitoring	Optional

Order Information

Product Code	Description
SD4200 000 000	iSSL maxi - ROAD
SD4200 100 000	iSSL maxi - ROAD – motion sensor

iSSL maxi ROAD

6 years warranty

iSSL Maxi ROAD

Uniformity > 0,4

6m	**10** lux	**15** lux
4 * H		
6m	**7** lux	**11** lux
4 * H		
7m	**5** lux	**8** lux
4 * H	**Eav**	**Emax**

		H
		5m
		6m
		7m

Luminous flux — 3,200 - 56,000* lumens
* Available with motion sensor.
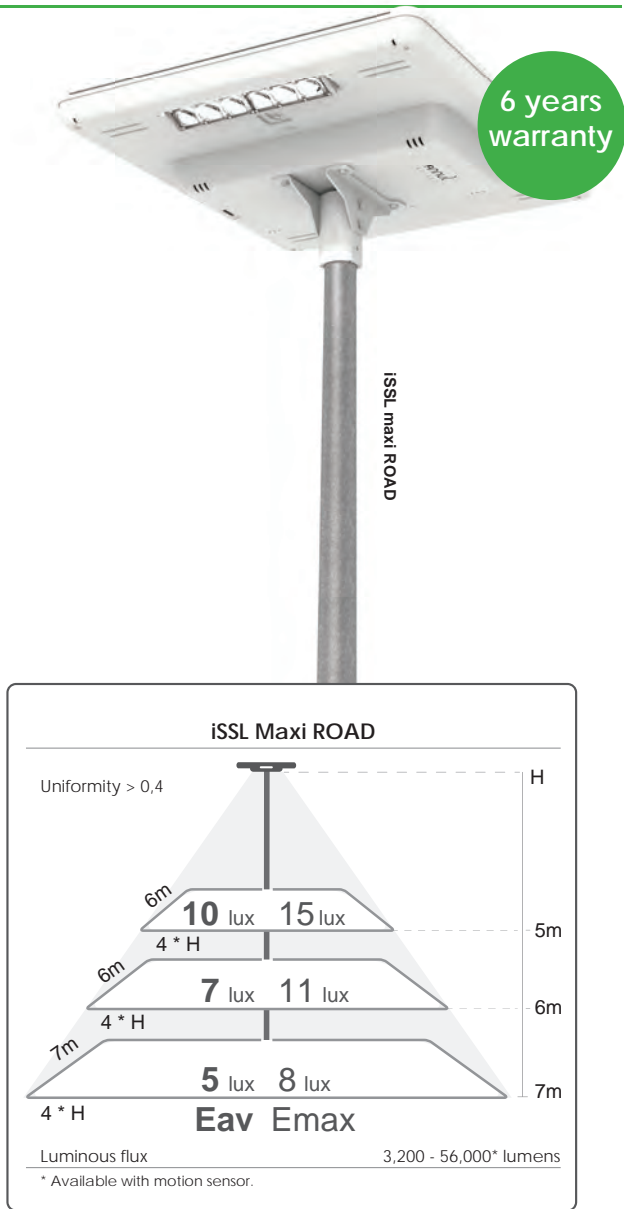
iSSL Maxi AREA All In One Solar Streetlight

HORIZONTAL SOLAR PANELS

Dedicated to inter-tropical and tropical areas.
Anti dust and self cleaning coating.
No dirt accumulation.

HIGH PERFORMANCE NIMH BATTERY

12 years lifespan (40°C constants) according
IEC 61427 standards.

SUNNACORE

Smart lighting and battery management system.
Patented algorithms to maximise energy use and
battery lifetime preservation.
Connection via bluetooth to a mobile phone application,
the Sunnapp'.

LED MODULE

0° to 30° tilting

VANDAL-PROOF

Anti-theft screws (optional)

Key Features

- No blackout feature
- Remote monitoring and communication
- Plug and play
- Unique resistance to extreme climates

Lighting

Efficiency	Up to 164lm / W
Colour Temperature	5700K (3000K et 4000K available on demand)
Life Span	50 000 hours (12 years)
Max. Power	Up to 50W*
Nominal Power	20W
Motion Sensor	Optional

*autonomy will depend on lighting power

Photovoltaic Panels

Technology	Mono-crystalline photovoltaic panels
Power	80Wp (2x 40Wp)
Life Span	25 years

Battery

Technology	NiMH high temperature Nickel metal hydride
Voltage	24V
Autonomy	2 days at nominal power
Life Span	12 years

General

Dimensions	820 x 755 x 105mm
Fixation	Top on a pole, Ø60mm
Weight	19kg (without pole)
Protection	IP65
Working Temperature	-20°C to +70°C
Connectivity	Bluetooth
Remote Monitoring	Optional

Order Information

Product Code	Description
SD4007 16 00 0	iSSL maxi - AREA
SD4220 100 000	iSSL maxi - AREA – motion sensor

6 years warranty

iSSL Maxi AREA

iSSL Maxi AREA

Uniformity > 0,4

	H
5m — **8** lux **12** lux	4m
4 * H	
6m — **5** lux **8** lux	5m
4 * H	
6m — **3** lux **5** lux	6m
4 * H	

Eav Emax

Luminous flux   3,200 - 56,000* lumens

* Available with motion sensor.
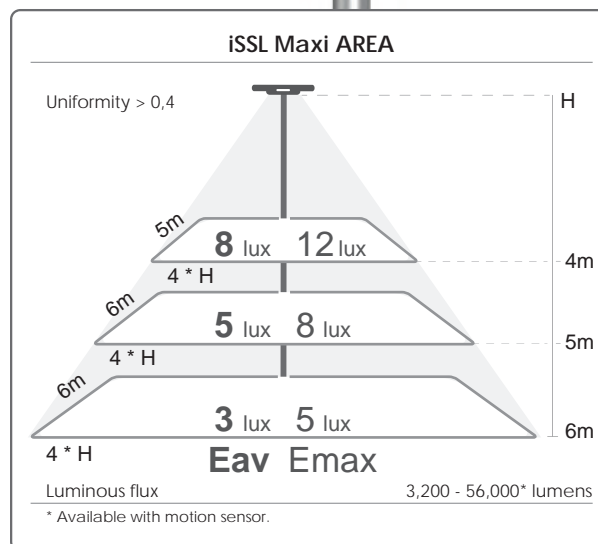
iSSL Maxi 4 All In One Solar Streetlight

HORIZONTAL SOLAR PANELS

Dedicated to inter-tropical areas.
Anti dust and self cleaning coating.
No dirt accumulation.

HIGH PERFORMANCE NIMH BATTERY

12 years lifespan (40°C constants) according
IEC 61427 standards.

SUNNACORE

Smart lighting and battery management system.
Patented algorithms to maximise energy use and
battery lifetime preservation.
Connection via bluetooth to a mobile phone application,
the Sunnapp'.

LED MODULE

0° to 30° tilting

VANDAL-PROOF

Anti-theft screws (optional)

Key Features

- No blackout feature
- Remote monitoring and communication
- Plug and play
- Unique resistance to extreme climates

Lighting

Efficiency	Up to 164lm / W
Colour Temperature	5700K (3000K et 4000K available on demand)
Life Span	50 000 hours (12 years)
Max. Power	Up to 80W*
Nominal Power	40W
Motion Sensor	Optional

*autonomy will depend on lighting power

Photovoltaic Panels

Technology	Mono-crystalline photovoltaic panels
Power	160Wp (4x 40Wp)
Life Span	25 years

Battery

Technology	NiMH high temperature Nickel metal hydride
Voltage	24V
Autonomy	2 days at nominal power
Life Span	12 years

General

Dimensions	1684 x 753 x 300mm
Fixation	Top on a pole, Ø76mm
Weight	42kg (without pole)
Protection	IP65
Working Temperature	-20°C to +70°C
Connectivity	Bluetooth
Remote Monitoring	Optional

Order Information

Product Code	Description
SD4260 000 000	iSSLmaxi 4

6 years warranty

iSSL Maxi 4

Uniformity > 0,4

	Eav	Emax
7m / 4 * H	**10** lux	16 lux
8m / 4 * H	**7** lux	12 lux
8m / 4 * H	**6** lux	10 lux

Luminous flux — 6,400 - 11,200* lumens

* These products will be defined according to project specifications.

UP1 Ultra performance solar streetlight

ANTI BIRD SPIKES (Optional)

TILTED SOLAR PANELS
Dedicated to temperate areas.
Anti dust and self cleaning coating.
No dirt accumulation.

HIGH PERFORMANCE NIMH BATTERY
12 years lifespan (40°C constants)
according IEC 61427 standards

SUNNACORE
Smart lighting and battery management system.
Patented algorithms to maximise energy use and
battery lifetime preservation.
Connection via bluetooth to a mobile phone application,
the Sunnapp'.

VANDAL-PROOF
Anti-theft screws (optional)

HIGH EFFICIENCY LED LANTERN
164 lm / W

Key Features

- No blackout feature
- Remote monitoring and communication
- Plug and play
- Unique resistance to extreme climates

Lighting

Efficiency	Up to 164lm / W
Colour Temperature	5700K (3000K et 4000K available on demand)
Life Span	50 000 hours (12 years)
Max. Power	Up to 50W*
Nominal Power	20W
Motion Sensor	Optional

*autonomy will depend on lighting power

Photovoltaic Panels

Technology	Mono-crystalline photovoltaic panels
Power	50Wp
Life Span	25 years

Battery

Technology	NiMH high temperature Nickel metal hydride
Voltage	24V
Autonomy	2 days at nominal power
Life Span	12 years

General

Dimensions	1050 x 375 x 105mm
Fixation	Top on a pole, Ø60mm
Weight	12kg (without pole)
Protection	IP65
Working Temperature	-20°C to +70°C
Connectivity	Bluetooth
Remote Monitoring	Optional

Order Information

Product Code	Description
SD4140 000 000	UP1
SD4140 100 000	UP1 - motion sensor

6 years warranty

UP1

UP1

Uniformity > 0,4

5m	**15** lux	**23** lux	H / 3m
4 * H		
5m	**8** lux	**13** lux	4m
4 * H		
6m	**5** lux	**8** lux	5m
4 * H	**Eav**	**Emax**

Luminous flux   1,600 to 2,800* lumens
* Available with motion sensor.

UP2 Ultra performance solar streetlight

ANTI BIRD SPIKES (Optional)

TILTED SOLAR PANELS

Dedicated to temperate areas.
Anti dust and self cleaning coating.
No dirt accumulation.

HIGH PERFORMANCE NIMH BATTERY

12 years lifespan (40°C constants)
according IEC 61427 standards

SUNNACORE

Smart lighting and battery management system.
Patented algorithms to maximise energy use and
battery lifetime preservation.
Connection via bluetooth to a mobile phone application,
the Sunnapp'.

VANDAL-PROOF

Anti-theft screws (optional)

HIGH EFFICIENCY LED LANTERN

164 lm / W

Key Features

- No blackout feature
- Remote monitoring and communication
- Plug and play
- Unique resistance to extreme climates

Lighting

Efficiency	Up to 164lm / W
Colour Temperature	5700K (3000K et 4000K available on demand)
Life Span	50 000 hours (12 years)
Max. Power	Up to 50W*
Nominal Power	20W
Motion Sensor	Optional
*autonomy will depend on lighting power	

Photovoltaic Panels

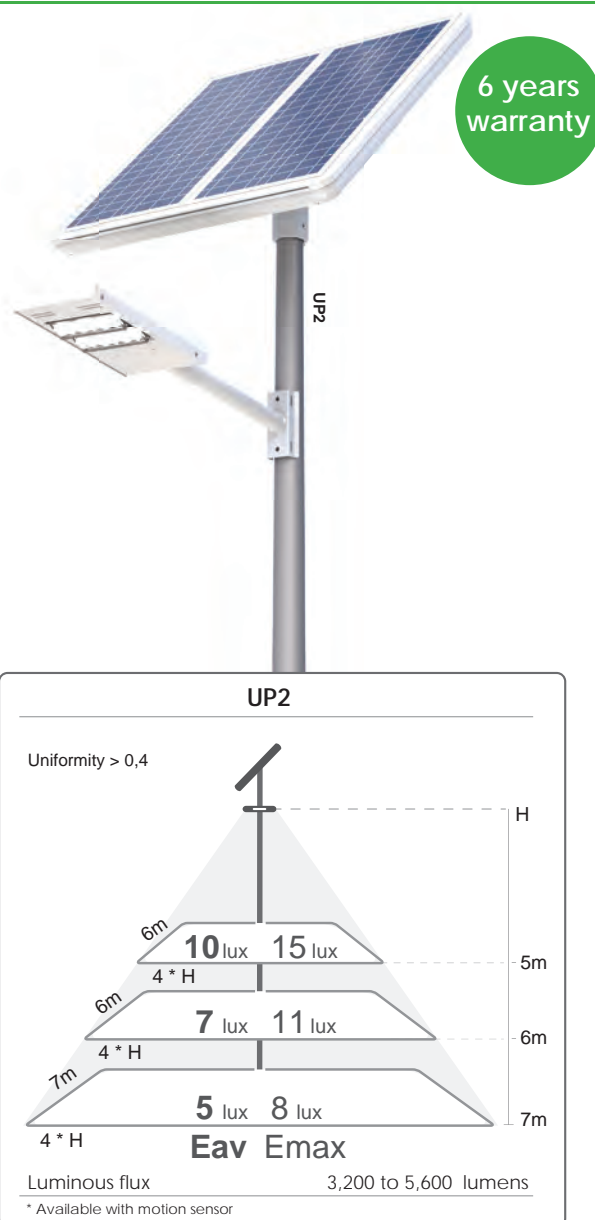|	
Technology	Mono-crystalline photovoltaic panels
Power	80Wp (2x 40Wp)
Life Span	25 years

Battery

Technology	NiMH high temperature Nickel metal hydride
Voltage	24V
Autonomy	2 days at nominal power
Life Span	12 years

General

Dimensions	820 x 755 x 105mm
Fixation	Top on a pole, Ø60mm
Weight	19kg (without pole)
Protection	IP65
Working Temperature	-20°C to +70°C
Connectivity	Bluetooth
Remote Monitoring	Optional

Order Information

Product Code	Description
SD4240 000 000	UP2
SD4240 100 000	UP2 - motion sensor

6 years warranty

UP2

UP2

Uniformity > 0,4

	10 lux	15 lux	5m
	4 * H		
	7 lux	11 lux	6m
	4 * H		
	5 lux	8 lux	7m
4 * H	**Eav**	**Emax**	

Luminous flux	3,200 to 5,600 lumens
* Available with motion sensor	

UP4 Ultra performance solar streetlight

ANTI BIRD SPIKES (Optional)

TILTED SOLAR PANELS
Dedicated to temperate areas.
Anti dust and self cleaning coating.
No dirt accumulation.

HIGH PERFORMANCE NIMH BATTERY
12 years lifespan (40°C constants)
according IEC 61427 standards

SUNNACORE
Smart lighting and battery management system.
Patented algorithms to maximise energy use and
battery lifetime preservation.
Connection via bluetooth to a mobile phone application,
the Sunnapp'.

VANDAL-PROOF
Anti-theft screws (optional)

HIGH EFFICIENCY LED LANTERN
164 lm / W

Key Features

- No blackout feature
- Remote monitoring and communication
- Plug and play
- Unique resistance to extreme climates

Lighting

Efficiency	Up to 164lm / W
Colour Temperature	5700K (3000K et 4000K available on demand)
Life Span	50 000 hours (12 years)
Max. Power	40W to 80W*
Nominal Power	20W

*Only available if specified in advance

Photovoltaic Panels

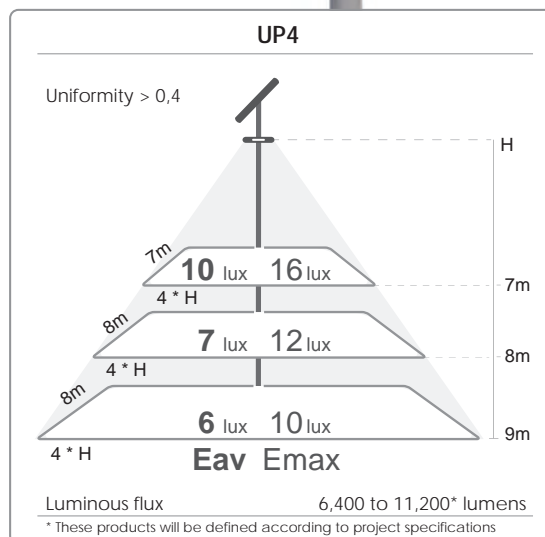|	
Technology	Mono-crystalline photovoltaic panels
Power	160Wp (4x 40Wp)
Life Span	25 years

Battery

Technology	NiMH battery, maintenance free, very high temperature resistance
Voltage	24V
Autonomy	-
Life Span	12 years

General

Dimensions	820 x 755 x 105mm
Fixation	Solar engine: Top mounting Ø76 mm; Luminaire: horizontal bracket
Weight	42kg (without pole)
Protection	IP65
Working Temperature	-20°C to +70°C
Connectivity	Bluetooth
Remote Monitoring	Optional

Order Information

Product Code	Description
SD4280 000 000	UP4

6 years warranty

UP4

UP4

Uniformity > 0,4

	Eav	Emax	
	10 lux	**16** lux	7m
	7 lux	**12** lux	8m
	6 lux	**10** lux	9m

Luminous flux   6,400 to 11,200* lumens

* These products will be defined according to project specifications

Sunnapp' Supports You

- INSTALLATION AND COMMISSIONING SUPPORT
- LIGHTING PROFILES MANAGEMENT
- DATA LOG & PERFORMANCES MONITORING
- REGISTRATION AND MAPPING OF INSTALLED DEVICES

Sunna Cloud: Remote Management

This web management platform gives an overview on products localization and data collected via the Sunnapp'. It's a complete solution for devices management, allowing to track performances and to help distributors or local technicians in case of problems with the lights.

AVAILABLE Q3 2018

PROJECTS DATABASE

REMOTE MANAGEMENT

REMOTE MONITORING

TRACKING OF INCIDENTS

Innovative Lighting Program

LED

100%

Dimming

0%

Motion detection (optional)

Dusk   Night   Dawn
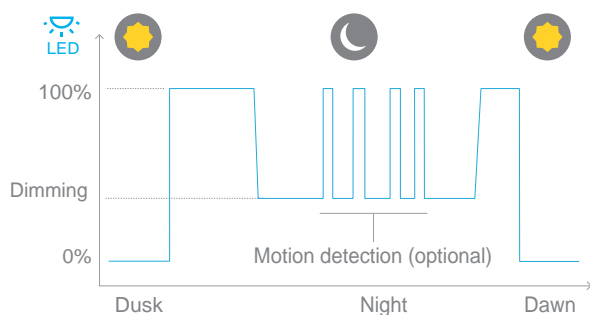
The Sunnacore powers the Led modules using a smart lighting profile to avoid blackouts during the night. Nights are divided into 3 phases during which lighting level will depend on charge level.

Thanks to a dynamic and smart energy consumption, our products will work all year long and in any weather condition.

To maximise energy consumption. Our products can have a motion sensor in option. The lighting level will increase as soon as a vehicle or a pedestrian is detected.

Anti-Theft

Vandalism is a major risk for solar street lights. Most competitors face troubles because they are using valuable and standard components such as standards sized solar panels or batteries. Sunna products are using only very specific components. They can't be used separately making them less valuable. Nevertheless, every Sunna product can be secured by using anti-theft fixations such as anti-theft screws and self-breaking nuts. This option can be purchased separately.

Screws with antitheft pattern

Self-breaking lock nuts

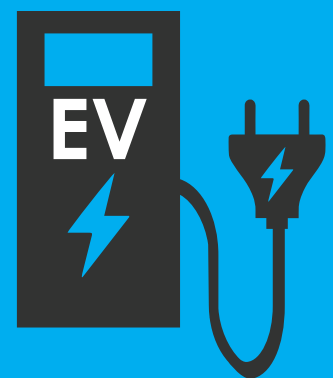iSSL+ - Secondary Road, South Africa

iSSLmaxi AREA - Packing lots, Area Mayotte

UP2 - Urban streets, Bénin

Electric Vehicles

EVBOX

EVBox products are manufactured in the Netherlands and North America, and offer a complete range of charging solutions. Customers can choose from our full range of AUTOSTART devices or "online" devices. The below overview indicates our base models according to application.

HomeLine

Technical Features

Charging Capacity Per Connector	3,7kW, 7,4kW, 11kW, 22kW
Charge Mode	Mode 3, Z.E. Ready
Connector Type	Type 2
Number Of Connectors	1
CE Certified	Yes
Output Power	1-phase or 3-phase, 230V – 400V, 16A and 32A
Temperature Range	-25°C to +60°C
Moisture (Non-Regulating)	Max. 95%
Authorization	Auto START / Keyfob / RFID card
Information Status	LED ring
Communication	GPS / GSM / UMTS / GPRS Modem / Controller with RFID reader
Communication Protocol	OCPP 1,2, 1,5 and 1,6

Physical Properties

Designed According To	IEC 61851-1 (2010), EC 61851-22 (2002), Renault Z.E. Ready guidelines
Protection	IP54, IK09
Installation Instructions	NEN 1010, IEC 61851-1 (2010), IEC 61851-22 (2002), IEC 60364-4-41 (2007), EN 62196-1 (2003), EN 60335-1 (2012), AC (2014)
Housing	Polycarbonate (Bayblend)
Dimensions (L x W x H)	490 x 315 x 170mm
Weight	8kg (Max.)
Mounting	Wall or pole
Standard Colours	RAL 6024 (light green), RAL 6007 (dark green), RAL 5017 (blue), RAL 7042 (light grey),RAL 7016 (dark grey), RAL 9016 (white)
Optional	6 or 8 meter fixed cable

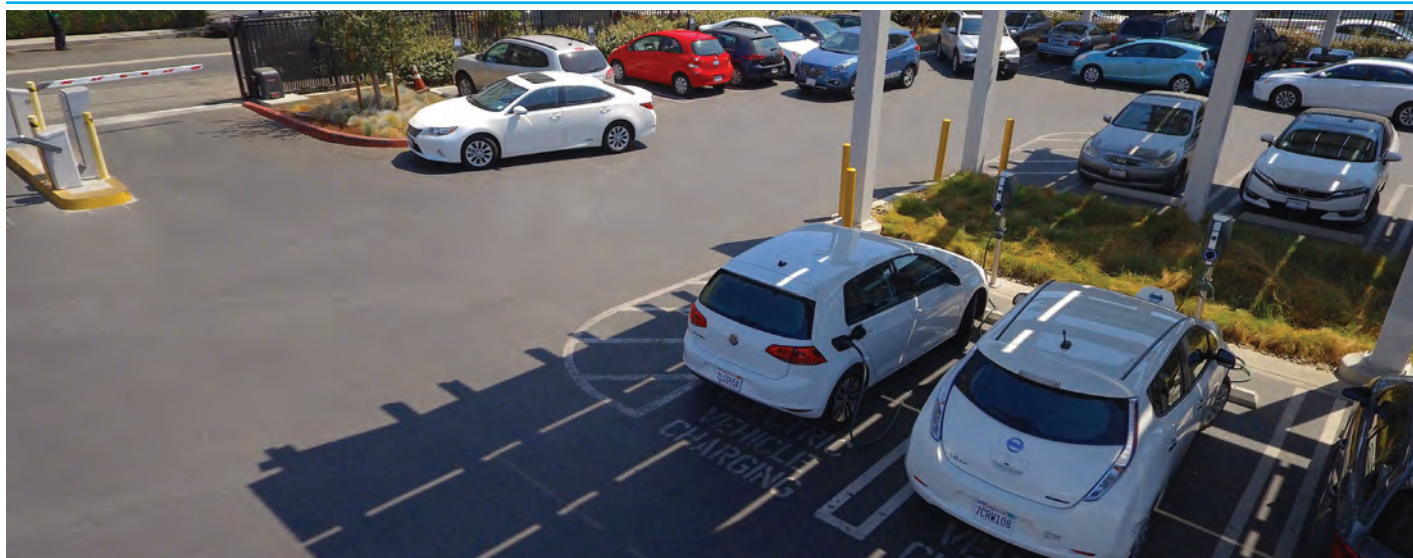All online charging stations include a MID-certified kWh meter.

Ordering Information For 3,7kW - 22kW

Product Code				Description
EVB-H3.7	**EVB-H7.4**	**EVB-H11**	**EVB-H22**	EV Home Charger Station

EVBOX

BusinessLine

Technical Features

Charging Capacity Per Connector	3,7kW, 7,4kW, 11kW, 22kW
Charge Mode	Mode 3, Z.E. Ready
Connector Type	Mode 3, Z.E. Ready
Connector Type	Type 2
Number Of Connectors	1 or 2
CEe Certified	Yes
Output Power	1-phase or 3-phase, 230V – 400V, 16A and 32A
Temperature Range	-25°C to +60°C
Moisture (Non-Regulating)	Max. 95%
Authorization	Auto START / Keyfob / RFID card
Information Status	LED ring
Communication	GPS / GSM / UMTS / GPRS Modem / Controller with RFID reader
Communication Protocol	OCPP 1,2, 1,5 and 1,6

Physical Properties

Designed According To	IEC 61851-1 (2010), EC 61851-22 (2002),Renault Z.E. Ready guidelines
Protection	IP54, IK09
Installation Instructions	NEN 1010, IEC 61851-1 (2010), IEC 61851-22 (2002),IEC 60364-4-41 (2007), EN 62196-1 (2003),EN 60335-1 (2012), AC (2014)
Housing	Polycarbonate (Bayblend)
Dimensions (L x W x H)	600 x 255 x 410mm (double socket)
	600 x 255 x 205mm (single socket)
Weight	11kg (Max.)
Mounting	Wall or pole
Standard Colours	RAL 6024 (light green), RAL 6007 (dark green)
	RAL 5017 (blue), RAL 7042 (light grey)
	RAL 7016 (dark grey), RAL 9016 (white)
Optional	6 or 8 meter fixed cable

All online charging stations include a MID-certified kWh meter.

Ordering Information For 3,7kW - 22kW

Product Code				Description
EVB-B3.7	**EVB-B7.4**	**EVB-B11**	**EVB-B22**	EV Business Charger Station

EVBOX

PublicLine

Technical Features

Charging Capacity Per Connector	11kW, 22kW
Charge Mode	Mode 3, Z.E. Ready
Connector Type	Type 2
Number Of Connectors	2
CE Certified	Yes
Out Power Power	3-phase, 400V, 16A and 32A
Temperature Range	-25°C to +60°C
Moisture (Non-Regulating)	Max. 95%
Authorization	RFID card
Information Status	LED ring
Communication	GPS / GSM / UMTS / GPRS Modem / controller with RFID reader
Communication Protocol	OCPP 1,2, 1,5 and 1,6

Physical Properties

Designed According To	IEC 61851-1 (2010), EC 61851-22 (2002),Renault Z.E. Ready guidelines
Protection	IP54, IK10
Installation Instructions	NEN 1010, IEC 61851-1 (2010), IEC 61851-22 (2002),IEC 60364-4-41 (2007), EN 62196-1 (2003),EN 60335-1 (2012), AC (2014)
Housing	Stainless steel
Dimensions (L x W x H)	1250 x 350 x 225mm
Weight	30kg (Max.)
Mounting	On foundation
Standard Colours	RAL 7024 (graphite grey)

Ordering Information For 11kW and 22kW

Product Code		Description
EVB-P11	**EVP-H22**	EV Public Charger Station

EO CHARGING

Designed and manufactured in the UK, EO Charging build smart energy technologies. Electric Vehicle charging points designed for homes, workplaces and destinations. Plus eoHUB, their revolutionary smart energy device – which puts up to 30 chargers online, unlocking EO's software capabilities and in the near future - solar battery storage, smart-grid and smart-home integration.

Basic Chargers For Home, Work & Destination

EO MINI

The eoMini is the smallest fast charger on the market; designed and built specifically for charging-up at home.

Features

- Power Ratings: 3,6kW / 7,2kW
- Plug Type: Universal Socket (charges every EV on the market)
- Standard Colours: Silver / Black / White
- Branding Options: Pick any colour and add your logo
- 3 year product warranty

Product Code	Product	kW	Amps	Connectivity
EM001	eoMINI home charger - socket	3,6kW	16A	Nil
EM002	eoMINI home charger - socket	7,2kW	32A	Nil

eoBASIC

The eoBASIC charger is designed for charging-up at home. With no software, just plug in and instantly get a charge. No nonsense. Just a simple plug and play charging solution.

eO
CHARGING

Features

- Power Ratings: 3,6kW / 7,2kW
- Plug Types: Universal Socket / Type 1 Tethered / Type 2 Tethered
- Standard Colours: White

- Unique installation mechanism for quick deployment and future upgrades
- Key Lock Option Available on Socket
- 3 year product warranty

Product Code	Product	kW	Amps	Connectivity
EG009	eoBASIC home charger - socket	3,6kW	16A	Nil
EG009-T1	eoBASIC home charger - 5m tethered Type 1	3,6kW	16A	Nil
EG009-T2	eoBASIC home charger - 5m tethered Type 2	3,6kW	16A	Nil
EG010	eoBASIC home charger - socket	7,2kW	32A	Nil
EG010-T1	eoBASIC home charger - 5m tethered Type 1	7,2kW	32A	Nil
EG010-T2	eoBASIC home charger -5m tethered Type 2	7,2kW	32A	Nil

eoBASIC 3-phase

The eoBASIC 3-Phase EV Charger is designed to fast charge every EV on the market. It's super easy to install and is perfect for charging-up at work or on-the-go. With no software; it's just a simple plug and play charging solution.

Features

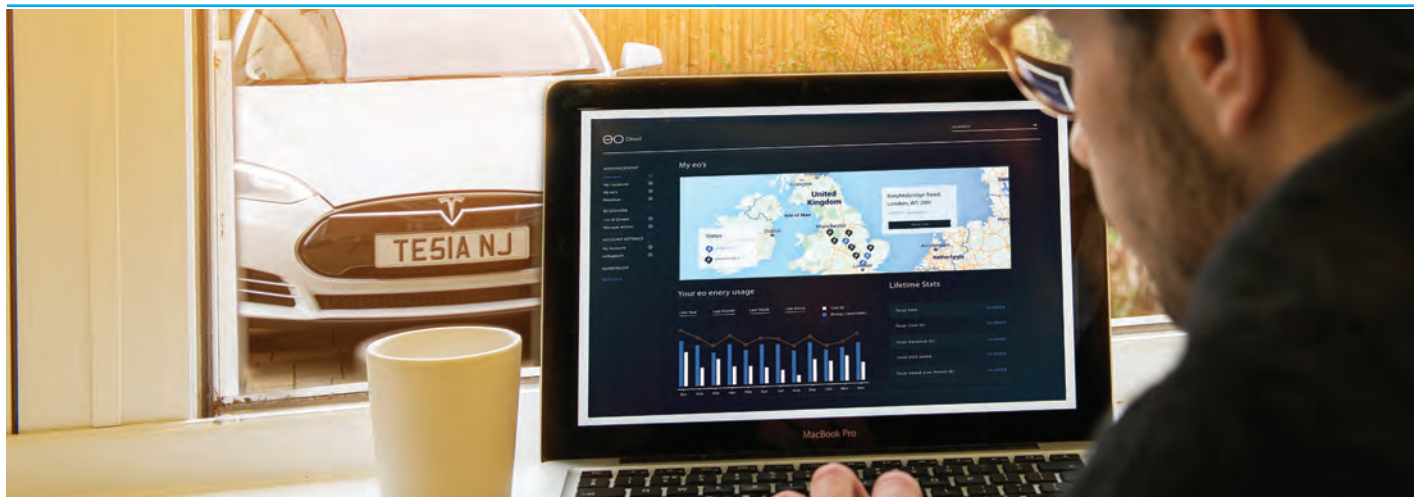- Power Ratings: 11kW / 22kW
- Plug Types: Universal Socket (every EV on the market)
- Standard Colours: White

- Unique installation mechanism for quick deployment and future upgrades
- 3 year product warranty

Product Code	Product	kW	Amps	Connectivity
EO003	eoBASIC 3-phase - socket	11kW	16A	Nil
EO004	eoBASIC 3-phase - socket	22kW	32A	Nil

eO
CHARGING

Smart Chargers For Home, Work & Destination

EO GENIUS

Coupled with eoHUB, our Genius Charger is supersmart. Genius is designed for charging-up at home, work and on-the-go (i.e. hotels and car parks). eoHUB connects the eoGenius to eoCloud software platform and eoApp.
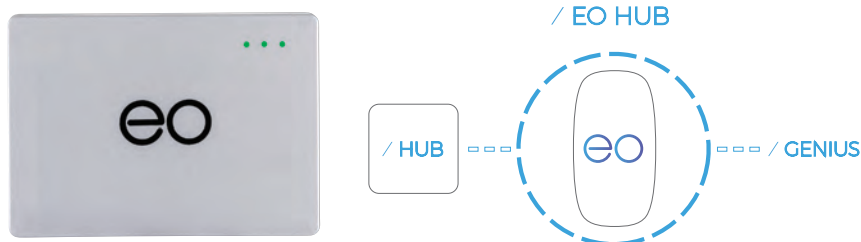

Features

- Manage your chargers from eoCloud
- Control from your smartphone (eoAPP)
- Over-the-air remote software upgrades

- Power Ratings: 3,7kW / 7kW / 11kW / 22kW
- Plug Types: Universal Socket (every EV on the market)
- Standard Colours: White
- 3 year product warranty

Product Code	Product	kW	Amps	Connectivity
EG001	Genius - Pro socket	3,6kW	16A	With eoHUB
EG002	Genius - Pro socket	7,2kW	32A	With eoHUB
EG003	Genius 3-phase - Pro socket	11kW	16A	With eoHUB
EG004	Genius 3-phase - Pro socket	22kW	32A	With eoHUB

EO HUB

eoHUB is a little internet connected box that plugs into a Genius charger and puts it online. One eoHUB can connect up to 30 Genius chargers, making installing multiple smart chargers super cost effective. eoHUB allows you to control your Genius chargers via eoCloud and eoAPP.

/ EO HUB

/ HUB — — / GENIUS

Features

- For maximum safety eoHUB monitors a buildings power supply and actively manages the load on multiple chargers.

- Hardwire internet connection or GSM connection available.
- Coming Soon – Solar PV, Battery Storage and Smart-Grid Integration

Product Code	Product	kW	Amps	Connectivity
EH001	eoHUB	-	-	Yes
INT	Intelligence: 3yr software + data package	-	-	-

EO CLOUD

EO APP

Use eoApp to control your charger from anywhere in the world.
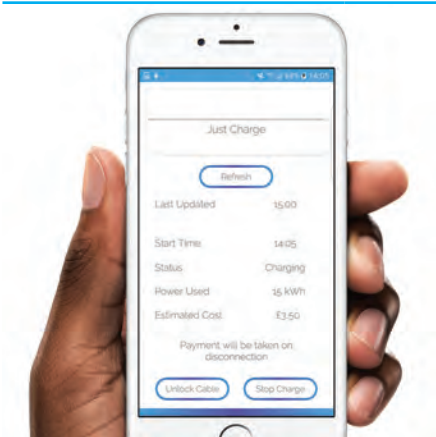Start, stop, pay-for and schedule charge — all from the palm of your hand.

- Monitor your electricity consumption
- Restrict access to specific individuals
- Set pricing and generate revenue'
- Links home & work charging to record benefit-in-kind tax

- Navigate to your nearest available EO
- Pay for charging on-the-go
- View your charging history
- Charge session notifications

Accessories: Stainless Steel Floor Mounted Pedestal

Mount one charger on it's own or two back-to-back. Our robust Stainless Steel Floor Mounted Pedestal is the perfect solution for car parks, where wall mounting is not an option.

Product Code	Product	kW	Amps	Connectivity
SSPS	Stainless Steel Post - single	-	-	-
SSPD	Stainless Steel Post - double	-	-	-

Accessories: Charging Cables

Designed to charge your electric car or electric motorbike from home, work and public charge points.

Cable types
& lengths
avaible
on request
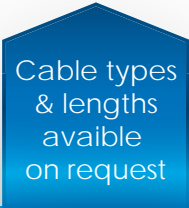
- Dust proof and waterproof to IP54 rating (when mated)
- Compatible with 16A and 32A public and home charge points

- Type 2 (IEC 62196-2) to Type 1 (SAE J1772)
- Type 2 (IEC 62196-2) to Type 2 (IEC 62196-2
- 24 month warranty against manufacturing defects
- Security locking hole

Delta DC Wallbox EV Charger

Key Features

- CCS* / CHAdeMO dual charging ports
- DIN 70121 / CHAdeMO compliance
- Max. output power: 25kW
- Output voltage range: 50 - 500V DC (Combo); 50 - 500V DC (CHAdeMO)
- Max. 94% power efficiency
- RFID card reader for user authentication
- Network connectivity (OCPP)
- IP55 protection and IK10 vandal-proof casing

Product code		EVDC-25
Power Input	Input Rating	380 ~ 415 V AC; 50 / 60Hz; Three-phase / L1, L2, L3, N, PE
	Power Factor	> 0,98
	Current THD	Compliant with IEC 61000-3-12
	Efficiency	94%
Power Output	DC Output #1*	IEC CCS DC Level 2, 50 - 500 V DC, 60A max., 25kW max. (Optional: SAE DC)
	DC Output #2	CHAdeMO, 50-500V DC, 60A max., 25kW max.
Protection	Protection	Over current, Under voltage, Over voltage, Residual current, Surge protection, Short circuit, Over temperature, Ground fault
User Interface & Control	Display	2,7" OLED screen
	Support Language	English (Other languages available upon request)
	Push Buttons	Multi-functional buttons (LED light: Orange, Blue) / Emergency stop button (Red)
	Charge Options	Charge options to be provided upon request: Charge by duration, Charge by energy
	User Authentication	ISO/IEC 14443 Type A / B RFID for user authentication
Communication	Network Interface	Ethernet (standard); 3G (optional); Wi-Fi (optional)
Environmental	Operating Temperature	-30ºC to +50ºC
	Storage Temperature	-40ºC to +85ºC
	Humidity	< 95% relative humidity, non-condensing
	Altitude	Up to 2000m
Mechanical	Ingress Protection	IP55
	Enclosure Protection	IK10
	Cooling	Forced air
	Charging Cable Length	4m
	Dimension (W x H x D) / Weight	680 x 430 x 230mm, excluding plug and cable / 47kg
Regulation	Certificate	CE
	Compliance	CHAdeMO / IEC 61851-1 / IEC 61851-23
Compatibility	Compatible vehicle brands	CCS: BMW, GM, Volkswagen; CHAdeMO: Nissan, Toyota, Mitsubishi, Peugeot, Citroen

* SAE DC is optional, Maximum current is 65A. Specifications are subject to change without notice.

Ultra Fast Charger

The ultra fast charger supports the quick charge standards of all European, Asian and North American electric vehicle (EV) manufacturers, supporting actual and future generations of EV which are demanding higher charge capacity than 50kW. The charger enables simultaneous charging up to four cars. Two charge points are available for DC quick charging up to 150kW, and two charge points are available for AC charging up to 65kW. The DC charging concept is based on a modular rectifier platform offering the scalability up to 150kW DC. The modularity, quality, product reliability and remote supervision maximise the uptime of the charge service.

The charger supports a variety of access and payment systems and is very simple and intuitive to use.

The charger is the optimal solution to establish a universal quick charge network to build the quick charge infrastructure for fleet operation such as taxi, car sharing and also for utility companies and car dealers who want to provide a value addition to their customers. Delta provides also back-office solutions with the related services.

Product Code	**EV-UFC120**	120kW Ultra Fast Charger
	EV-UFC150	150kW Ultra Fast Charger

Input	AC Connection	3L + N + PE
	AC Voltage	400 VRMS (L-L) + / - 10%
	Frequency	50 / 60Hz
	Current Nominal	312 $ARMS$ @ $150kW_{DC}$ + $65kW_{AC}$ charge
	Power Factor	0,99
	MAINS TERMINAL	Terminal blocks 3L + N + PE
	Transient OVP	Class II / C protection

DC Charge Points – CCS & CHAdeMO	DC Output Voltage Range	$170 - 500V_{DC}$
	Maximum Charge Current	$300A_{DC}$
	Maximum charge power	$150kW_{DC}$
	Cable / Access Length	3,5m / 2,5m
	Protections	Over current circuit breaker, Low-voltage protection, Short circuit protection, Isolation monitoring, Over voltage protection, Earth monitoring

DC Charge Point – CCS	Compliance	IEC 61851-23 / -24, IEC 62196-3, DIN 70121
	Rating Cable & Gun	$200A_{DC}$ / $850V_{DC}$

DC Charge Point – CHAdeMO	Compliance	IEC 61851-23 / -24, JEVS G 105, Rev. 1,0.1 compliant
	Rating Cable & Gun	$125A_{DC}$ / $500V_{DC}$

Main features

Modular scalability to charge next generation cars

Simultaneous charging up to four cars

Dynamic power management to minimise charge time

Easy to install, operate and service

Two DC charge points – total up to 150kW$_{DC}$

- CCS up to 100kW$_{DC}$

- CHAdeMO up to 62,5kW$_{DC}$

Two AC charge points – total up to 65kW$_{AC}$

- Type 2 plug 43kW

- Type 2 socket 22kW

Local authentication by RFID

Back-office system integration with OCPP 1,5

Different plug configurations available

AC Charge Points	Operating Temperature	-10°C to +50°C (standard); -30°C to 50°C (optional)
	Storage Temperature	-40°C to +70°C
	Humidity	< 95% relative humidity, non-condensing
	Altitude	Up to 1828,8m

AC Charge Points	Compliance	IEC 61851-22
	AC plug 43kW Charge Point	IEC 62196-2 Mode 3, Type 2
	AC socket 22kW Charge Point	IEC 62196-2 Mode 3, Type 2
	Nominal AC voltage	400 VRMS
	Maximum Charge Current / Power	3 x 63 ARMS @ 43kW point / 3 x 32 ARMS@ 22kW point
	Cable / Access Length	3,5m / 2,5m
	Protections	RCD Type B, Overcurrent circuit breaker, Earth monitoring

User Interface	Display	7" colour display
	Keypad	5 buttons – back-light
	Local Authentication	RFID reader

Connectivity	Connectivity	Fixline: Ethernet, Wireless: GPRS / 3G modem
	Back Office Interface	OCPP 1,5

General	Height$_{(overall)}$ x Width$_{(body)}$ x Depth$_{(overall)}$	2079 x 852 x 998mm
	Weight, System	400kg
	Protection	IP55
	Enclosure Protection	IK 10
	Efficiency Rectifier	94%
	Ambient Temperature	- 25 to +45°C
	Relative Humidity	95% maximum, non cond.
	Compliance & Safety	IEC 61851-1
	EMC	IEC 61851-21-2, IEC 61851-21-2, EN 61000-6-1 / -2 / -4

Cable Ratings

3 & 4 Core copper PVC / SW / PVC 600 / 1000V cables -SABS 1507 / 1990

Electrical Properties					Gland Size Type ACG		
	Current Ratings			**Volt Drop**			
Cable size	Ground	Duct	Air	(mV / A / m)	3 core	4 core	5 core
1,5mm²	23A	18A	18A	25,080	0	0	0
2,5mm²	30A	24A	24A	15,363	0	0 / 1	2
4mm²	38A	31A	32A	9,561	1	1	2
6mm²	48A	39A	40A	6,391	1	2	3
10mm²	64A	52A	54A	3,793	2	2	-
16mm²	82A	67A	72A	2,390	2	2 / 3	-
25mm²	126A	101A	113A	1,515	3	3	-
35mm²	147A	120A	136A	1,097	3	¾	-
50mm²	176A	144A	167A	0,817	4	4	-
70mm²	215A	175A	207A	0,576	4	4 / 5	-
95mm²	257A	210A	253A	0,427	4 / 5	5	-
120mm²	292A	239A	293A	0,348	5	5 / 6	-
150mm²	328A	369A	336A	0,294	5	6	-
185mm²	369A	303A	384A	0,250	6	6	-
240mm²	422A	348A	447A	0,211	6	7	-
300mm²	472A	397A	509A	0,189	6 / 7	7	-

Degree Of Protection (IP Rating)

1st Numeral Digit		2nd Numeral Digit	
Protection against contact + penetration of solid bodies		**Protection against penetration of liquids**	
1	Protection against solid objects more than 50mm	1	Protection against vertical falling drops of water
2	Protection against solid objects more than 12mm	2	Protection against drops of water falling up to 15°
3	Protection against solid objects more than 2,5mm	3	Protection against rain at up to 60°
4	Protection against solid objects more than 1,0mm	4	Protection against projections of water from all directions
5	Protection against dust (limited ingress)	5	Protection against jets of water from all directions
6	Protection against dust (total protection)	6	Protection against heavy seas
7	-	7	Protection against the effects of immersion
8	-	8	Protection against continuous immersion

Volt Drop Measurement Table And Glands Sizing For Cable - 3 / 4 Core

					Gland Size		
Size	AirP	Volt Drop MV / A / M	Duct	Volt Drop MV / A / M	3 Core	4 Core	5 Core
1mm	17A	35	12A	35	0	0	0
1,5mm	22A	23	16A	23	0	0	0
2,5mm	31A	14	21A	14	0	0 / l	2
4mm	41A	9	28A	9	1	1	2
6mm	52A	6	36A	6	1	2	3
10mm	66A	3,5	50A	3,5	2	2	-
16mm	88A	2,2	66A	2,2	2	2 / 3	-
25mm	115A	1,4	87A	1,4	3	3	-
35mm	140A	1	110A	1,1	3	3 / 4	-
50mm	160A	0,70	135A	0,78	4	4 / 5	-
4 / 5	200A	0,47	165A	0,59	4 / 5	5	-
95mm	240A	0,34	200A	0,47	5	5 / 6	-
120mm	280A	0,28	230A	0,40	5	6	-
150mm	320A	0,23	265A	0,34	6	6	-
185mm	365A	0,19	300A	0,30	5	5 / 6	-
240mm	425A	0,16	355A	0,27	6	6	-
300mm	450A	0,13	410A	0,25	6 / 7	7	-

RUBICON

Renewables Catalogue 2019

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