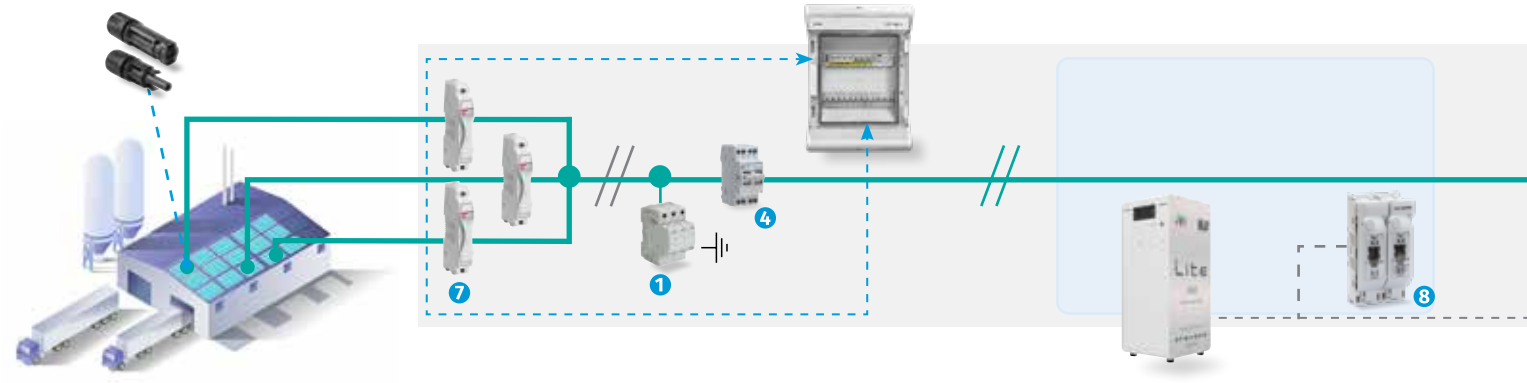
Balance of System for Renewable Generation

ElectroMechanica

This brochure provides a comprehensive guide to the portfolio of products designed for renewable/solar generation. It features a carefully curated selection of products from the 2023 EM catalogue into one complete guide for easy reference.



Surge protection devices *(1000/1500 VDC photovoltaic SPD)* ❶

PV surge protection devices (SPDs) are specialised electrical components designed to protect photovoltaic (PV) systems from electrical surges and transient overvoltages caused by lightning, switching events or other electrical disturbances.

Technical specifications:

Voltage range:	1000 - 1500 VDC
Type:	Type 1+2 , 2+3
Reference standards:	EN 50539-11, UL 1449 certified


PSM3-40/1500 PV


PSM3-40/1000 PV


900071


PSM3-40/1000 PV

PSM-40/1000 PV

Catalogue page: N-14, N-16

MCBs *(Miniature Circuit Breakers)* and MCCBs *(Molded Case Circuit Breakers)* ❷

MCBs and MCCBs are high-quality circuit breakers designed for reliable and efficient protection in a wide range of applications, including PV. Providing reliable protection against overcurrents and short circuits, while also offering easy installation and maintenance.

Technical specifications:

Current rating:	MCB (0.5 - 125A) and MCCB (16 - 1600A)
Breaking capacity:	MCB (3 - 15kA) and MCCB (25 - 70kA)
Reference standards:	EN 50539-11, UL 1449 certified


90126


MA240Z


90132


852557

90130

Catalogue page: B-2, B-17...18, B-25...26 *(AC and DC versions available)*

Changeover switches: ❸

EM's range of changeover switches includes automatic and motorised versions *(up to 1600A)* as well as a compact DIN mountable options. Perfect for manual changeover applications, such as switching from the main network to a standby generator supply.

Technical specifications:

Current rating:	16 -1600 A
Number of poles:	1, 2 , 4
Switching options:	Wide range of accessories for customisation


9364 4012

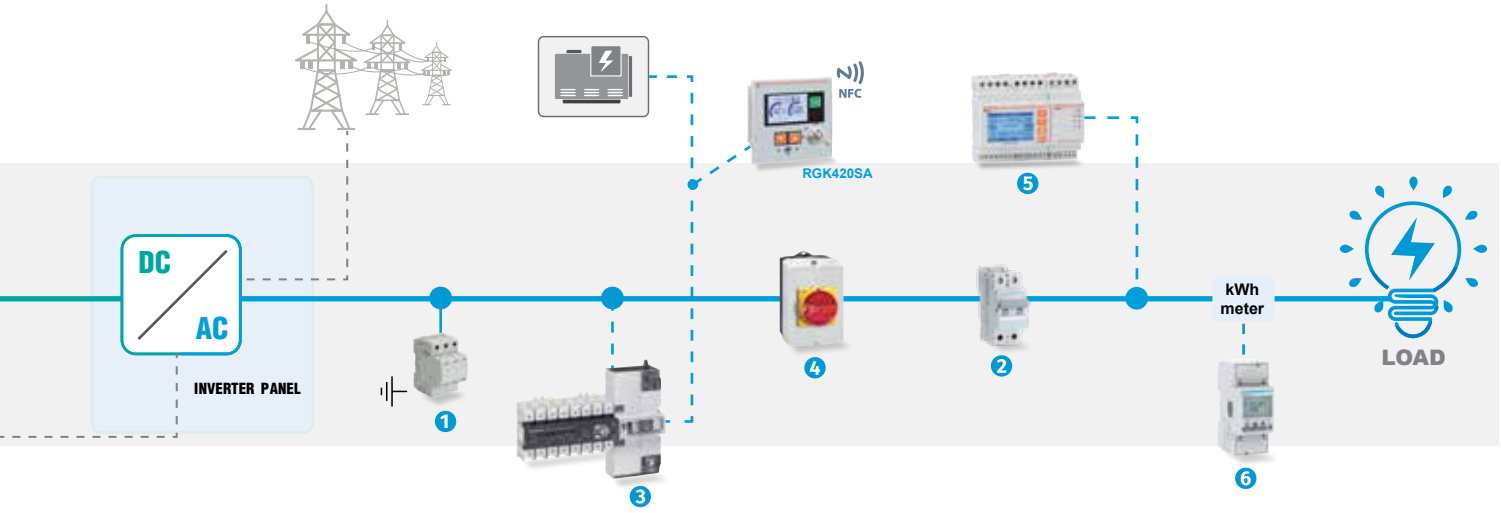

9523 4016


GA025ET6


SFT240

SF263

Catalogue page: B-8, B-36...37, A-20



Load break switches: *(switch disconnectors)* ❹

Load break switches provide a way to safely disconnect the PV system from the grid or other sources of power, protecting the system against overloads and short circuits and allows for switching between different power sources.

Technical specifications:

Current rating:	16 - 3200 A
Number of poles:	3, 4 poles *(via attachable 4th pole)*
Mounting	DIN or black plate mount versions

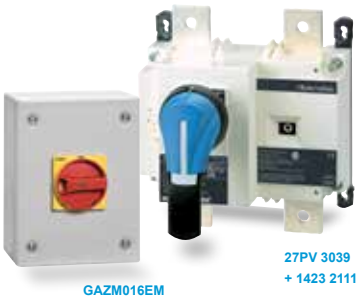

SBN232


SBN399


21PV 3722 + 2119 1012


26PV 2025 + 1423 2111

Catalogue page: B A-19


GAZM016EM

27PV 3039 + 1423 2111

PV interface protection unit ❺

PMVF80 has been designed as grid protection device to disconnect PV systems. It is used when a local generating system is connected in parallel with the electric utility.

According to NRS 097, all EG (Embedded Generator) installations larger than 30 kVA must have a central disconnection device. The PMFV80 from Lovato has been approved by the City of Cape Town to offer this central disconnection. ***(page: E-2)***


PMVF80

Energy meters (kWh) ❻

Energy meters are devices used to measure the amount of electricity generated by photovoltaic (PV) systems. Typically it's installed in between the PV array and the electrical grid and provides a detailed measurement of the energy produced by the system. ***(page: B-14, E-1, E-9)***


4850 3058

DMED120T1

Fuse and bases *(cylindrical and NH Blade)* ❼

DF Electric offers a range of fuses and holders, including cylindrical and blade type fuse links, with different voltage and current ratings that are easy to install and maintain. These components are crucial in safeguarding against overcurrent and short-circuit faults in PV systems. ***(page: B-44...56)***

PV fuses: NH **gPV** fuse links for photovoltaic installations have been developed to offer safety protection solution in sub-array, array or inverter DC input of photovoltaic installations.

Battery fuses: NH **gBat** battery fuses are specifically designed for battery protection in PV applications. Capable of clearing all types of overcurrents, overloads and short circuits, protecting battery, cable and installation switchgear.


492262

492225

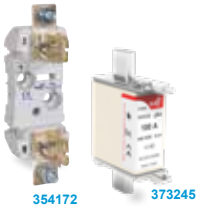
485...

10/14 x 85

Fuse switch disconnector ❽

Fuse switch disconnectors are designed for distribution of electricity and protection of electrical equipment against short-circuits and overloads using industrial NH fuse links. ***(page: B-5...57)***


143018


354172

373245

Distribution / Consumer boards

The Hager range of distribution and consumer boards provides the protection required for photovoltaic applications. This range includes UV stabilised and IP65 surface mounting enclosures, designed specifically for outdoor use.

Vector series: Surface mount boards IP65 *(outdoor application)*

The outdoor Vector range has been specifically designed to withstand the harsh conditions commonly encountered in photovoltaic PV/Solar installations. Built to resist harsh weather, humidity, dust, chemical aggressions, and ultraviolet radiation exposure, making it suitable for installation in a wide range of environments.

This makes the Vector range an ideal choice for protecting and housing PV/Solar systems, ensuring their longevity and optimal performance.


VE...

Technical specifications:

Fixing mode:	Surface mount
Number of ways:	3 (1 x 3).....54 (3 x 18)
Material:	Polycarbonate (PC)


VE...


VE212SN

Catalogue page: H-4

Golf series: Surface mount distribution boards IP40 *(indoor application)*

Golf surface mount enclosures provide a range of benefits that make it an excellent choice for renewable energy applications, particularly popular for indoor PV applications, i.e garage installations.

The enclosures are also easy to install, with pre-cut profiles for cables, conduits, trunking entry, reducing installation time and labour costs. Comes in a variety of sizes, which means they can be customised to suit specific project requirements.


VS212TJ

Technical specifications:

Fixing mode:	Surface mount
Number of ways:	4 (1 x 4)...54 (3 x 18)
Cutouts:	Pre-cut profiles for cable, conduit, trunking entry


VS112TJ


VZ794N


VZ696N

Catalogue page: H-3

Mini Gamma series: Surface shrouds IP30 *(indoor application)*

Insulated surface mounted enclosures, single row which can accommodate 2 to 10 modules with a rigid chassis housing a DIN rail designed for easy installation of components.

The design ensures that the components are simple to wire and connect and can be quickly and easily replaced if necessary. This can help reduce the time and cost associated with installing and maintaining PV installations, making it more cost-effective and accessible.


GD106B

Technical specifications:

Fixing mode:	Surface mount
Number of ways:	2...10
DIN profile:	Incorporated DIN profile and labelling facility


GD104B


GD110B


GP110T

Catalogue page: H-3

Domino series: Modular distribution boards IP66 *(outdoor application)*

Scame's Domino series enclosures are designed to provide protection for electrical equipment in harsh environmental conditions, making it ideal for use in outdoor PV installations. Modular and combinable, its offers a high flexibility of use and considerable expansions possibilities.

Technical specifications:

Fixing mode:	Surface mount
Number of ways:	2 ...48 (3 x 16)
Material:	Thermoplastic


672.2008


672.2012.1102

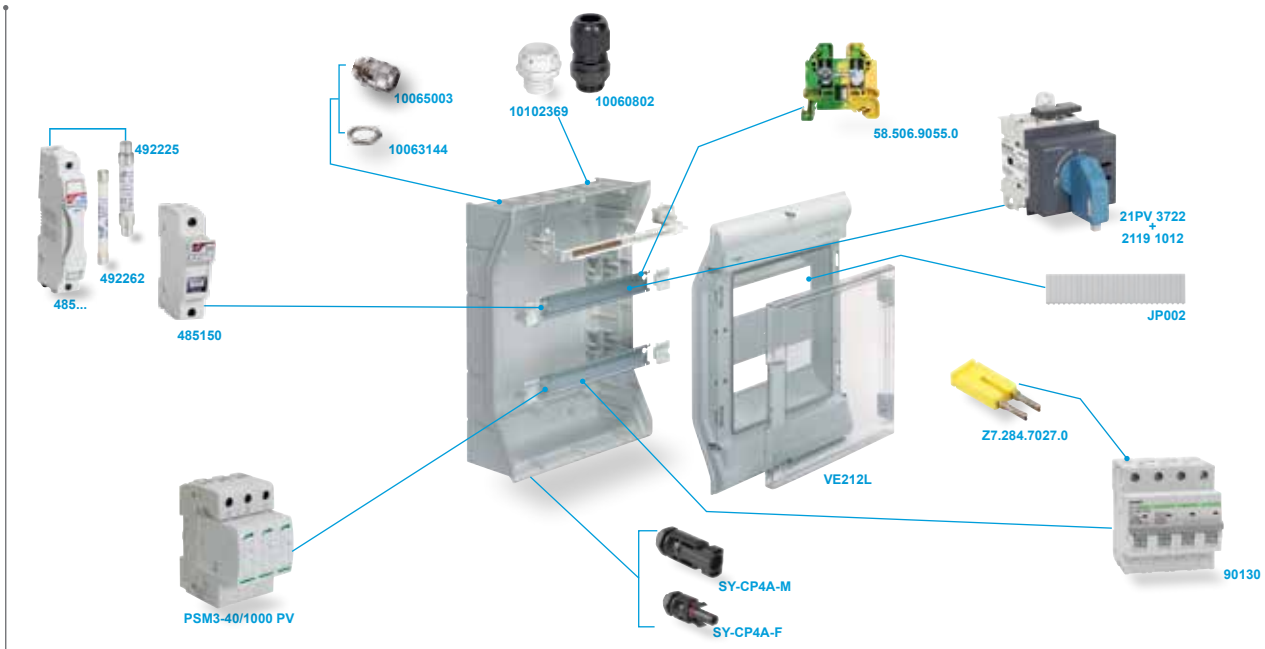

672.4032.1102


672.4032.1102

Catalogue page: I-8

DC Combiner box *(using EM products)*

A combiner box is a critical component in a PV system, as it combines the outputs of multiple solar panels into a single output for connection to the inverter. A typical PV combiner box includes over-current protection, lightning protection, solar connectors, and monitoring capabilities, as well as safety features like fuses or circuit breakers to help prevent damage to the panels or the inverter.



Modular junction boxes (IP67)

Wiska COMBI junction boxes provide ultimate protection from environmental conditions in a compact, very attractive format, suitable for extreme outdoor and indoor installations.

– Weather proof - ultraviolet resistant - shatter proof - impact resistant - flame retardant - halogen free
– Self-sealing membranes on the rear enable a clean assembly for cable outputs from the wall

Scan to watch video


COMBI 304


COMBI 308


COMBI 407

Catalogue page: I-8

Cable management & tools

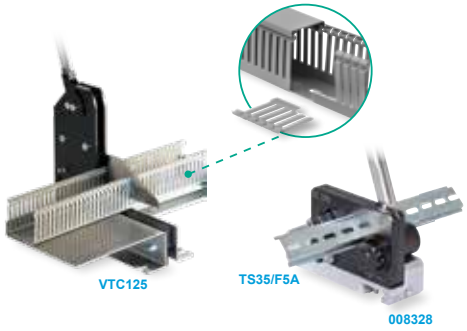
Slotted cable ducting / DIN mounting rails

Ezi Canal permits easy access to wiring control panels. Meets maximum wire capacity requirements and space constraints to provide effective support for demanding wire management solutions.

DIN mounting rail *(plain or perforated)* are designed for securely attaching electrical and industrial control products - such as circuit breakers, terminal blocks, power supplies, actuators, etc

TSL040040N	TSL060040N	TSL060060N	TSL060080W
TS35	TS35/F5A	TS35/C	ADR1200/F5A

Catalogue page: L-11, L-13



Standard / Stainless steel cable ties

Nylon and stainless steel cable ties provides excellent protection from UV rays, offering excellent strength and durability for securing cables and wires in PV/Solar installations.

Ideal for securing tie-on tags, labels and holders to electrical wiring, pipes and conduit. Smooth surface, rounded edges assure cable protection and worker safety.

– Standard cable ties: Halogen free - polymide 6.6
– Stainless steel: **AISI 304** *(general purpose)* / **AISI 316** *(epoxy coated for extra corrosive environments)*

LH-M-100UV	LH-E-HD-265B	SST4/25-04	SSTP4/30-16

Catalogue page: L-15...16

Corrugated conduit (flexible)

Corrugated conduit also referred to as "Sprague" is a popular option for protecting and routing cables and wires in PV/Solar applications due to its flexibility, resistance to moisture, chemicals, and extreme temperatures. Its corrugated design allows it to bend and flex without breaking, making it easy to install in tight spaces and around corners.

Catalogue page: L-27 *(UV version available on request)*

Wire end sleeves / Pre-insulated terminals / Cable crimping lugs

Wire end sleeves, pre-insulated terminals, and crimping lugs are essential components for PV/Solar applications as they provide secure and reliable electrical connections.

These components ensure that the wire strands are securely held together, preventing any accidental disconnections and protecting against damage from vibrations

– **Wire-end sleeves** - insulated / uninsulated, single, twin wire, belt strips
– **Pre-insulated terminals** - ring, fork, pin, ferrule/butt, flat/hook blade,male/female disconnect terminals
– **Heavy duty crimping lugs** - 1.5mm² - 240mm²

Catalogue page: L-17...23

Identification and safety

Cembre MG4 is a crucial component for PV/Solar applications as it allows for quick and easy identification of cables and wires, during installation and maintenance. This ensures that the correct connections are made and facilitates troubleshooting, reducing downtime and ensuring optimal performance of the system.

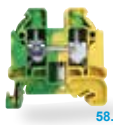
MG4	42092B	90010	41494

Catalogue page: L-47...55

Rail mount terminals

Rail mount terminals are flexible, space-saving solutions optimised for simple handling and fast installation, even in restricted spaces and challenging conditions, and is available with screw-in, push-in, and tension clamp technology.

– Compact dimensions - uniform design - universal marking system
– A large selection of DIN rail mount terminals and related accessories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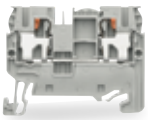
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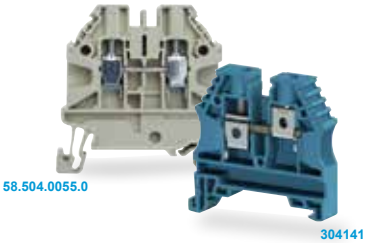
375692


476302

Catalogue page: L-1...10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304141

Photovoltaic connectors (IP68)

Solar PV connectors manufactured in high quality materials offering extremely high impact strength and chemical resistance with excellent UV and weather properties guaranteeing long-term stability and reliability, lower contact resistance and higher current transfer capability ensuring high product efficiency.

– TUV approved and quick and easy to install (IEC1500V)
– Stable connection and reducing maintenance cost
– Locking system - NEC locking type *(requires a tool to open)*


PVBN101A-F2-M

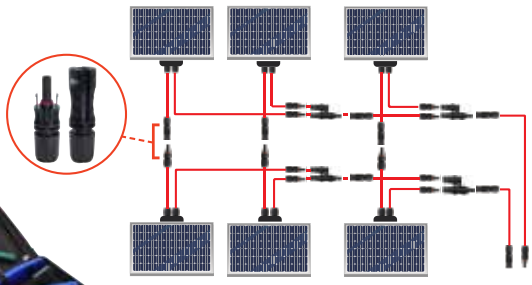

SY-CP4A-M


PVBN101A-F2-F


SY-CP4A-F


MTT2AB


TB006



PV toolkit comprising:

- *PV crimping tool for 2.5/4/6 mm² cables*
- *Wire cutter, wire stripper for 2.5/4/6 mm² cables*
- *Pair open end universal spanners with unlocking tool*

Catalogue page: I-16

Pilot and signalling devices

Comprehensive range of pilot devices; emergency stops, pilot lights, push buttons and selector switches which play an important role in PV/Solar applications by providing visual and audible signals to indicate the status of the system.

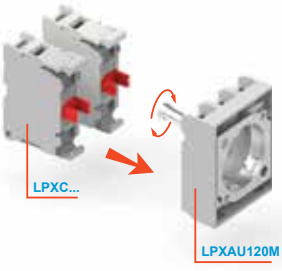
These devices help to quickly identify and troubleshoot any issues, reducing downtime and ensuring optimal performance of the PV/solar system.


AD22-22DSG02


LPS B2104


GQ10T-JN/02/R


SVN126


LPXC...

LPXAU120M

METAL Ø22mm LPS


LPS...

Catalogue page: B-13, D-1...8, D-13...16

Additional components:


PJ-SWB-06


PMGB40-32

MGM32-22


ISO...


JD-HFT060-0


TMS...


P01651904


HT45-E


HNKE50


30200

30900


P01157151


MC 25


KITB500-1

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12-04-PV1