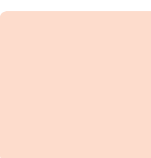


204	Switch-disconnectors
205	Technical characteristics
205	Dimensions
206	Accesories
207	Enclosed switch-disconnectors
208	High-rating DC switch disconnectors
209	Dimensions
209	Technical characteristics and types
210	Accesories
211	Overvoltage surge protector devices
211	General characteristics
212	Overvoltage surge protector devices Class II
213	Overvoltage surge protector devices Class I + II
216	Generator disconnection boxes
220	Generator disconnection boxes for solar parks
223	Customised equipment

Photovoltaic





SOLARtec

Photovoltaic switch-disconnectors

Solartec switches are manual operated multipole load break switch disconnectors. They ensure safe on load opening and closing photovoltaic circuits on small and medium photovoltaic systems.

According to standards

- IEC 60947-3
- EN 60947-3
- IEC 60364-712
- UNE 20460-7-712

General characteristics

- Quick and independent operation mechanism.
- Contacts in series to optimize electrical characteristics.
- External series links mounted from origin.
- Connection by protected cable clamps.
- Silver alloy contacts.
- Contact decks made of selfextinguishing polyester reinforced with glass fiber.
- Switch body degree of protection IP20



Factory assembled contacts in series

Contacts in series to optimise electrical characteristics.



Quick and INDEPENDENT operation mechanism

Released continuous operation, such that the speed and force are independent of the action of the operator (IEC 947-3 §2.12).



Protection degree IP20

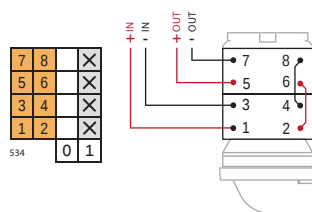
Fingerproof protected cable clamp connection

Technical characteristics

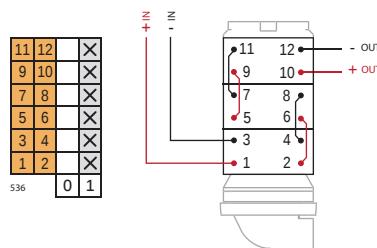
	reference	A-5342PV0	A-5362PV0	A-5382PV0	A-5102PV0
connecting screw		M5	M5	M5	M5
stranded wire	mm ²	10 - 25	10 - 25	10 - 25	10 - 25
flexible wire	mm ²	10 - 16	10 - 16	10 - 16	10 - 16
impulse voltage	Uimp kV	4	4	4	4
cable cross section	AWG	6	6	6	6
tightening torque	Nm	2,5	2,5	2,5	2,5
load duty category DC-21	voltage V				
	300V	35 A	-	-	-
	400V	-	25 A	-	-
	500V	-	20 A	-	-
	600V	-	15 A	25 A	-
	800V	-	-	10 A	-
	900V	-	-	-	25 A

Standard electrical schemes

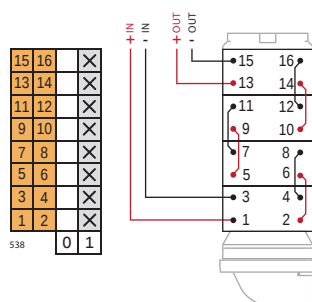
534 4 contacts in series



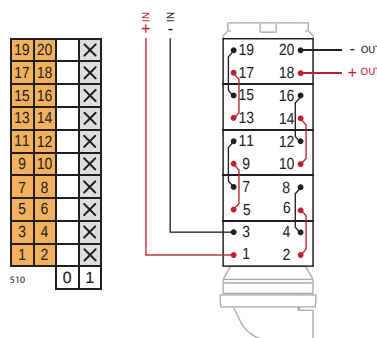
536 6 contacts in series



538 8 contacts in series



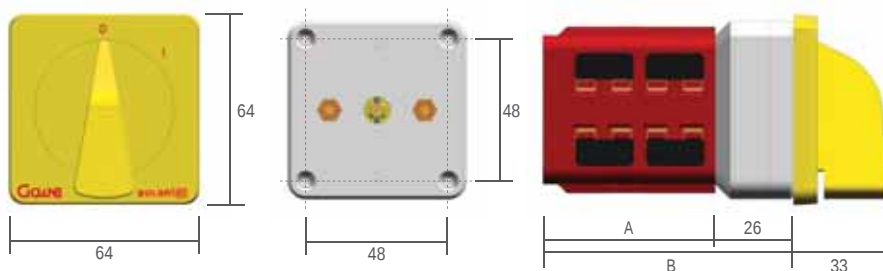
510 10 contacts in series

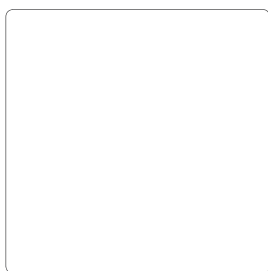


Dimensions

reference	contacts	cells	A	B
A-5342PV0	2+2	2	33,0	60,0
A-5362PV0	3+3	3	45,0	72,0
A-5382PV0	4+4	4	57,0	83,0
A-5102PV0	5+5	5	69,0	95,0

values in mm.

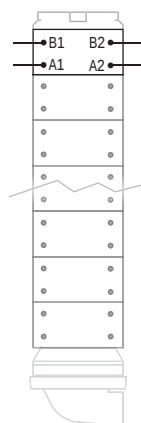
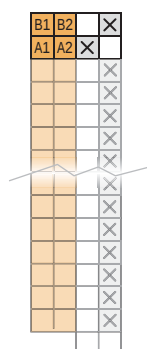




Optional auxiliary contacts

AUXILIARY CONTACTS

Optional



Signalling auxiliary contact mounted from origin. They can be mounted in all references and they are in white color to differentiate from main contacts.

Indicated on the 3rd digit switch code..



Accessories



Padlockable handle

Characteristics	References
Padlockable operation handle	AK1200523



Mounting plates

Characteristics	Mounting on	References
DIN rail mounting plate	DIN rail	AK0100007
Rear panel mounting plate	Rear panel	AK0000003



Clutches

Characteristics	References
Prolongued shaft plus interlock and rear mounting plate for external operation.	AK174003

Enclosed switch-disconnectors

Photovoltaic generation systems are typically designed with multiple local disconnection points in order to minimise no generation costs during maintenance operations.

IS-PV serie has been designed to offer optimum characteristics on these type of installations.

General characteristics

- Original and compact design.
- Enclosure UV resistant.
- Protection degree IP65.
- Base mounting.
- Auxiliary contacts option.

Enclosed switch designated on the last reference digit.



Other options



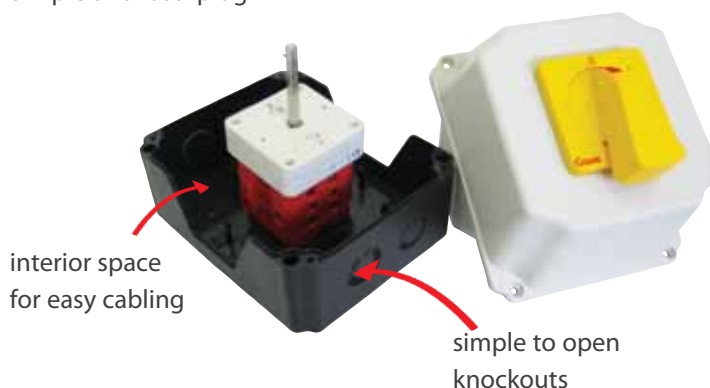
Padlockable disconnection handle

Indicated on the second digit of the reference

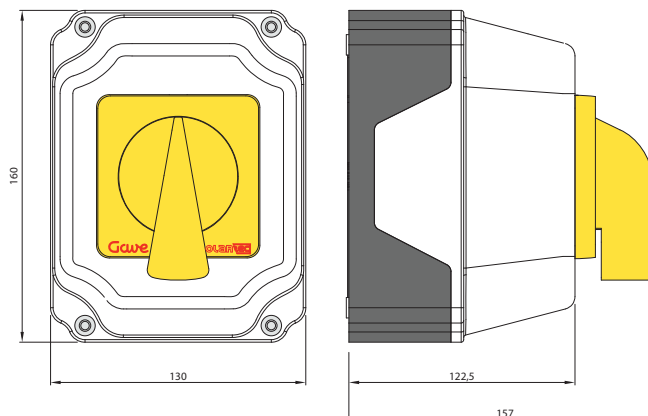


Installation

Simple and fast "plug-in"



Dimensions





High-rating DC switch disconnectors

Serie 55DC switch-disconnectors are manually operated load break switches that provide safety isolation for any low voltage direct current circuit on photovoltaic applications.

According to standards

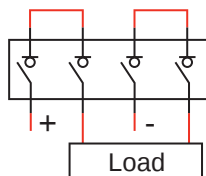
- IEC 60947-3
- EN 60947-3
- VDE 0660-107 (1992)
- IEC 60364-4-410 (Protection to ensure safety against electrical shocks).
- IEC 60364-7-712 .
- DIN VDE 0126

General characteristics

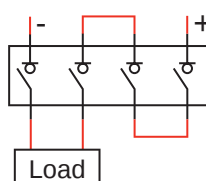
- Fully visible breaking.
- High thermal and dynamic withstand.
- Operational load duty categories DC-21 and DC-22.

Connection

**4 poles
bottom/bottom**



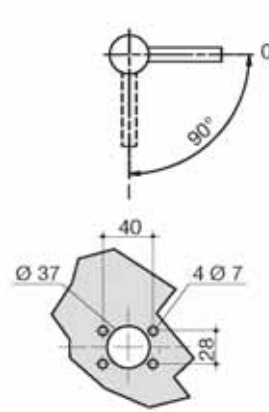
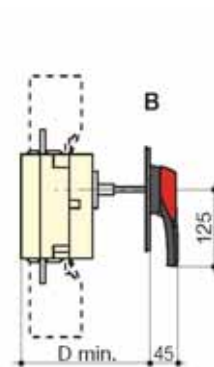
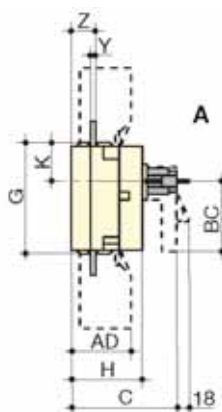
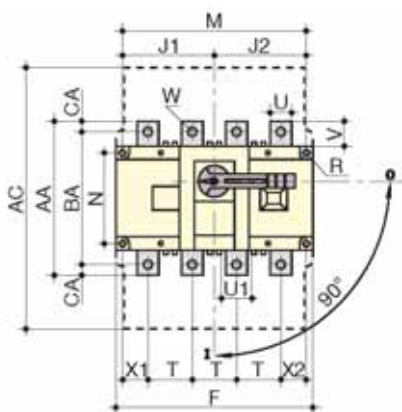
**4 poles
top/bottom**



Technical characteristics and types

reference	poles	Load duty category DC-22			
		220 V	400 V	600 V	800 V
 55DC4014	4	125 A	125 A	80 A	63 A
 55DC4026	4	250 A	250 A	125 A	125 A
 55DC4032	4	315 A	315 A	250 A	250 A

Dimensions



size (A)	Overall dimensions		Terminal shrouds			Switch body					
	C	D min.	AC	AD	F	G	H	J1	J2	K	BC
125	120	125	235	50	170	93	65	75	75	31,5	80
250	130	135	280	60	230	108	75	105	105	34	115
315	160	165	401	89	290	170	110	135	135	55	115

size (A)	Connection terminals														
	M	N	R	T	U	U1	V	W	X1	X2	Y	Z	AA	BA	CA
125	150	65	5,5	36	20	20,5	25	9	22	20	3,5	20,5	135	115	10
250	210	80	5,5	50	25	20,5	30	11	33	27	3,5	22,5	160	130	15
315	270	140	7	65	32	45,5	37,5	11	37,5	37,5	5	36	235	205	15

Accessories



Direct handle

Characteristics	In	References
Easy mounting with frontal access screw Lockable with padlocks.	125A	26995042
	250 and 315A	26995052



Exterior handle

Characteristics	In	References
Easy to mount from the exterior or the interior of the panel. Material highly resistant against UV and aggressive environments. Built-in interlock facility. Padlockable handle.	125 to 315A	1G212118



Prolongued shafts

Characteristics	Length	References
Interlocking bit in Zamac material provides high strength Shafts surface treated against corrosion Multiple length choices	200 mm	14001020
	250 mm	14001025
	320 mm	14001032
	500 mm	14001050



Screen protection

Characteristics	In	References
Easy to install Transparent plastic material permits to check connections visually	125A	26984012
	250A	26984020
	315A	26984050



Auxiliary contacts

Characteristics	Function	References
Early break and signalling functions Easy to install "plug-in"	1st contact	26990031
	2nd contact	26990032



Series bridging

Characteristics	In	References
Electrolytic treatment against oxidation Supplied 2 bridges by reference	125A	41DC4014
	250A	41DC4026
	315A	41DC4032

Overvoltage surge protector devices



Photovoltaic installations typically require extended surface areas therefore being particularly exposed to lightning effects and consequences occasioned surges. Damages caused by lightning surges will diminish system performance and shorten equipment live. Using surge protection devices we avoid system failures we take full advantage on the system operation and therefore maximise outcome and profitability.

Function

Surge protector devices discharge peak transient overvoltages that travel on the line cable conductors originated by atmosphere lightning.

General characteristics

- Protections Class II and Class I+II
- Modular DIN rail mounting
- Voltages 560VDC and 1000VDC
- High discharge capacity
- Visual indicator on the module
- Replacable module
- Optional remote signalling

According to standards

- IEC 61643-1
- EN 61643-11



Easy to replace modules

Easy replacement of protection module with smooth plug-in system.



Window state indicator

Green colour indicates correct operation and red colour indicates module replacement.



Remote signalling

Remote control on the protection with changeover signalling contact operated when module changes state.



Mechanical coding

Plug-in bases and modules have mechanical coding that prevent from installing the wrong module during replacement operations.



DIN rail mounting

Direct mounting on 35mm. symetrical DIN rail.



Marking

Terminals marked in order to permit easy wiring. Modules with all relevant information marked and reference easy to identify.



Modular

Designed to fit on modular enclosures with 45 mm front cut out and 17,5 mm module width.

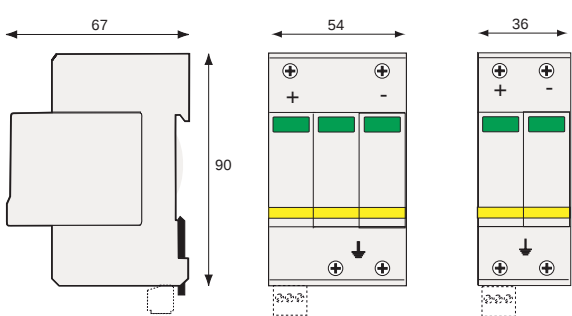
Overvoltage surge protector devices

Class II



Surge protection devices Class II are developed to meet overvoltage protection needs for PV photovoltaic networks against atmosphere lightning. These units must be installed in parallel on the DC networks to be protected and provide common and differential modes protection. The electrical diagram is based on high energy MOVs equipped with specific thermal disconnectors and related failure indicators.

Dimensions

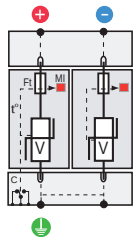


Technical characteristics

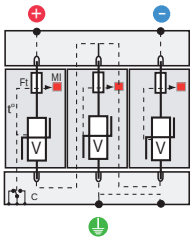
		PST25PV	PST31PV
max. operating voltage category DC-20B	U_c	550VDC	1000VDC
nominal discharge current	I_n	20 kA	20 kA
maximum discharge current	I_{max}	40 kA	40 kA
protection level (at I_n)	U_p	2,2 kV	3 kV
remote signalling (add T at the reference)		PST25PVT	PST31PVT

Connection

PST25PV



PST31PV



V : High energy MOV
Ft : Thermal fuse
t* : Thermal disconnection mechanism
C : Contact for remote signal (Option DS50PVS)

Mechanical characteristics

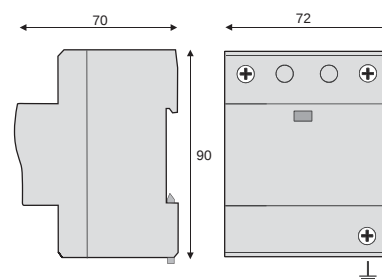
	PST25PV / PST31PV
connection	by screw terminals: 1,5-10mm ² (L/N) o 2,5-25mm ² (PE)
disconnection indicator	2 mecanichal indicators
mounting	symmetrical rail 35 mm
operating temperature	-40/+85°C
protection degree	IP20
material	termoplastic UL94-V0

Overvoltage surge protector devices Class I + II

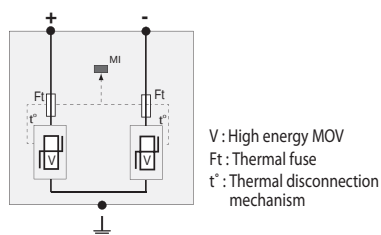


Surge protector devices Class I are recommended at both end of the DC power supply line. Due to its extraordinary high discharge capacity is recommended to be used on installations with elevated risk of direct lightning strikes. The protection is based on high energy MOVs and equipped with specific thermal disconnectors achieving a superior protection level and a lack of follow-up current.

Dimensions



Connection



Technical characteristics

		PST45PV	PST41PV
max. operating voltage category DC-20B	Uc	550VDC	1000VDC
nominal discharge current 15 impulses 8/20 μ s	In	40 kA	40 kA
max. lightning current by pole 1 impulse 10/350 μ s	Iimp	12,5 kA	12,5 kA
residual voltage (at Iimp)	Ures	1.6 kV	1.9 kV
protection level (at In)	Up	1,7 kV	2,4 kV
remote signalling (optional)		output on changeover contact	

related products

Products for alternative current installation



Surge protector devices

- Class II
- Class I + II

see page 140

Fuse protection



A range of fuse links in a 10x38mm package specifically designed for the protection and isolation of photovoltaic strings. The fuse links are capable of interrupting low overcurrents associated with faulted PV (reverse current, multi-array fault) string arrays.

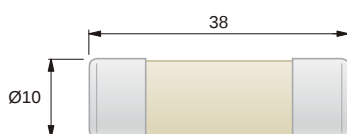
Characteristics

- Rated voltage: 1000Vdc
- Amps: 2A, 4A, 6A, 8A, 10A, 12A and 15A
- Rated breaking capacity: 33kA dc
- Min Interrupting Rating: $1.3 \times I_n$
- Time Constant (L/R): under 1ms

According to

- IEC 60269-1
- IEC 60269-4

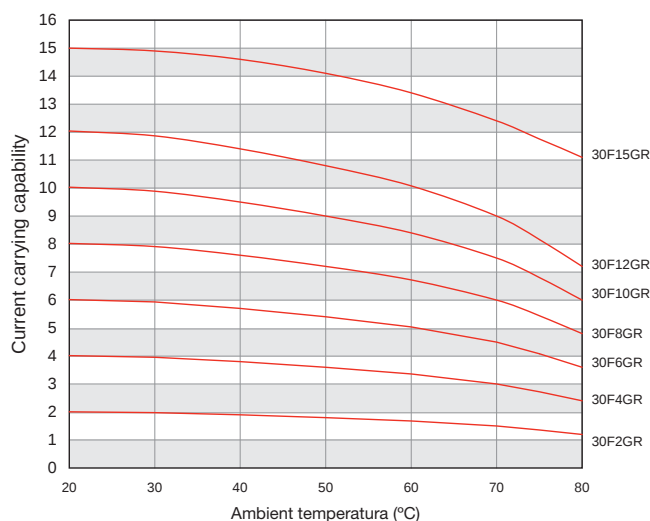
Dimensions



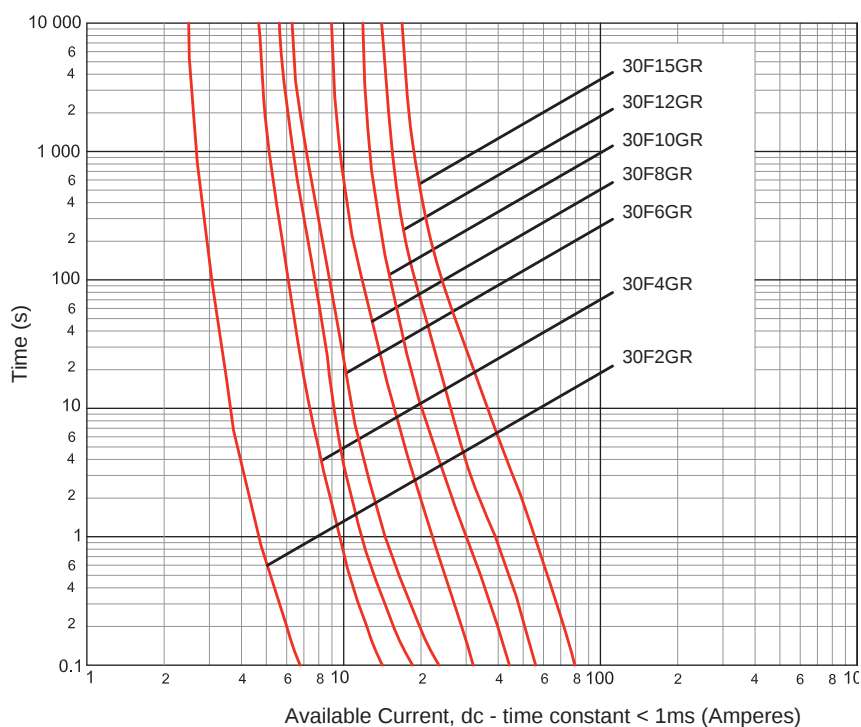
Technical data

Referencia	Current Rating (A)	Energy Integrals I ² t (A ² s)		Power Loss (W)	
		Pre-Arcing	Total at 1000V	$0.8I_n$	I_n
30F2GR	2	1.2	3.4	0.6	1.0
30F4GR	4	9.5	26	1.0	1.3
30F6GR	6	30	90	1.1	1.8
30F8GR	8	3	32	1.2	2.1
30F10GR	10	7	70	1.3	2.3
30F12GR	12	12	120	1.5	2.7
30F15GR	15	22	220	1.7	2.9

Temperature derating



Time-current characteristics



Fuseholders



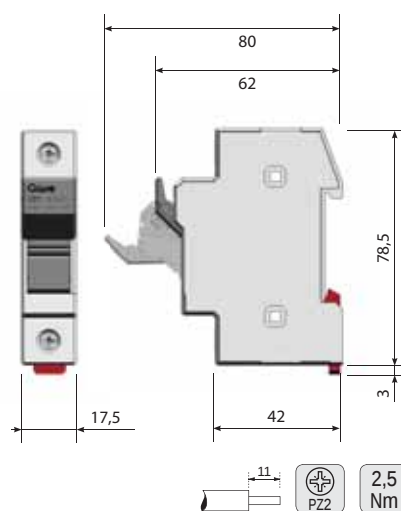
Characteristics

- 1000V cc DC-20B.
- Modular 45 mm cut out - 1 module (17,5mm) X pole.
- Mounting 35mm DIN rail.
- High temperature resistant plastics.
- Elevated insulation characteristics.

According to

- IEC 60947-1
- IEC 60947-3

Dimensions



References	Thermal rating	Fuse size	Poles	Modules	Package
211PV	32 A	10 x 38	1P	1	12

Generator disconnection boxes



Generator disconnection boxes are enclosures where PV arrays are electrically connected and where the isolation function is performed in order to permit maintenance procedures. Overvoltage and overload protection can be located on these boxes if necessary.

According to standards

- IEC 60634-7-712
- UNE 2460-7-712
- IEC 943-7-3
- IEC 61643-11
- EN 60439-1

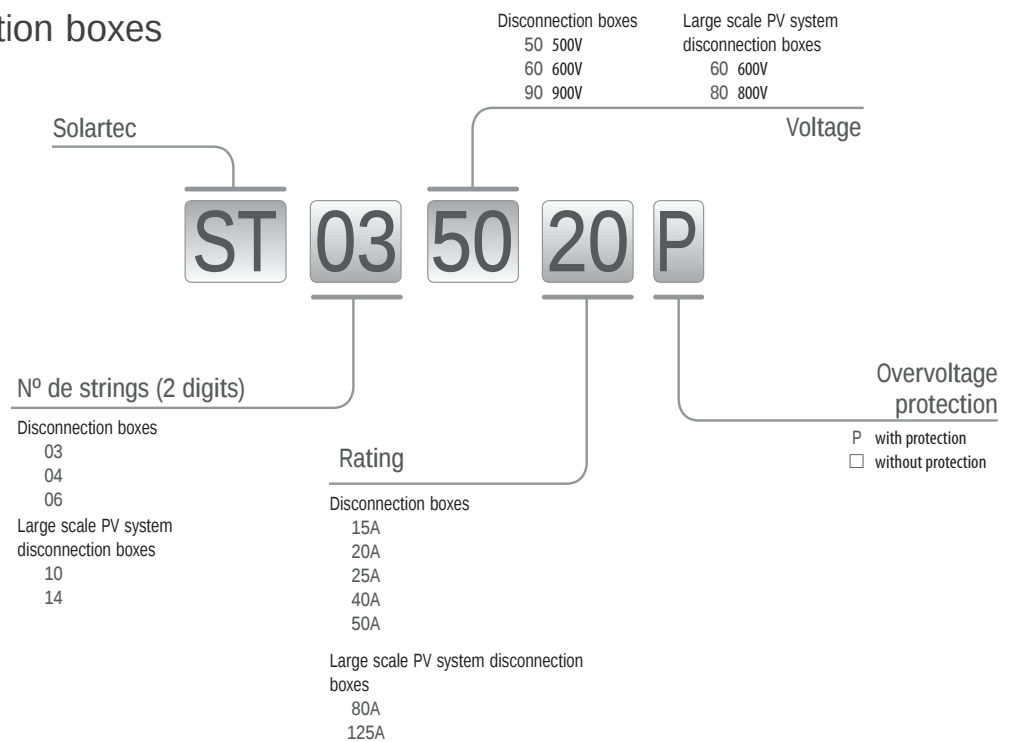
General characteristics

- Enclosures highly resistant to hard weather and environment conditions. Enclosures on GRP material.
- Easy installation and highly accesible on maintenance works.

- Transparent cover for inspection purposes. PC material.
- Load break switches with interlockable exterior handle. Voltages up to 900V.
- Overvoltage protection Class II 1000VDC
- Fuse protection against overloads (10A fuse for standard references).



Codes disconnection boxes

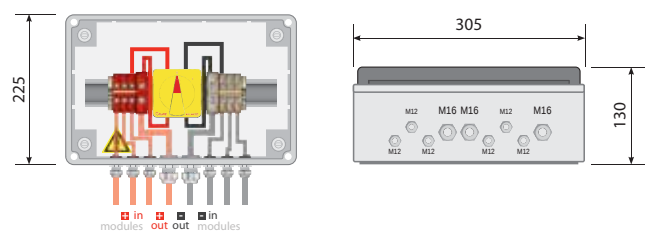


3 strings boxes



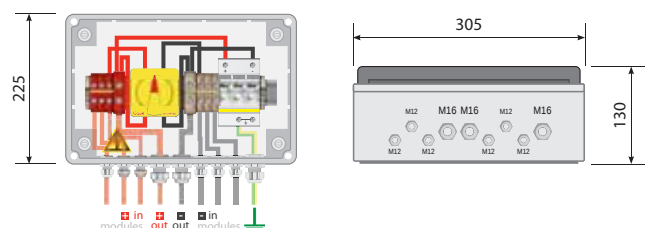
Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST039025	3	900	25 A	No	IP65	ABS/PC

Dimensions



Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST039025P	3	900	25 A	PST31PV	IP65	ABS/PC

Dimensions



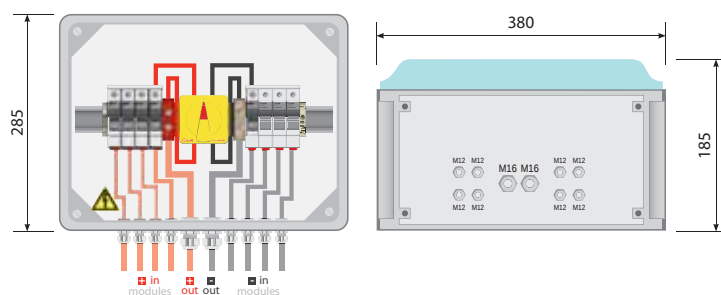
Generator disconnection boxes

4 strings boxes



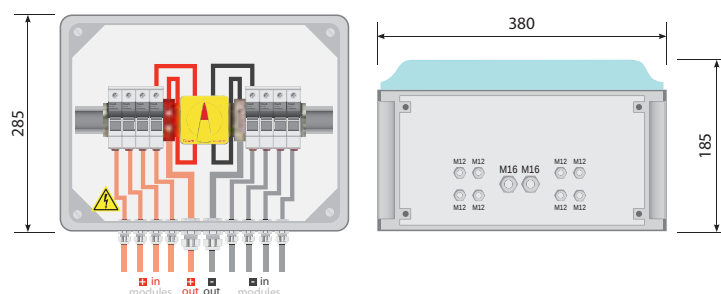
Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST046025	4	600	25 A	No	IP55	GRP/PC

Dimensions



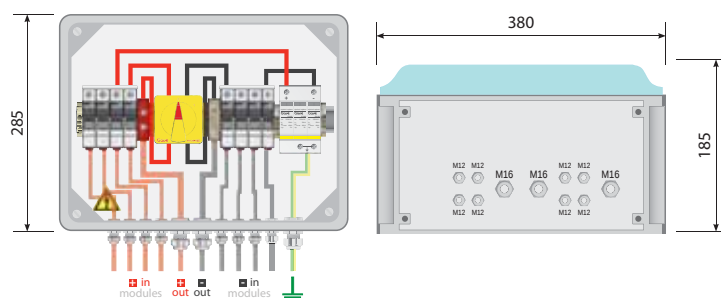
Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST049025	4	900	25 A	No	IP55	GRP/PC

Dimensions



Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST049025P	4	900	25 A	PST31PV	IP55	GRP/PC

Dimensions

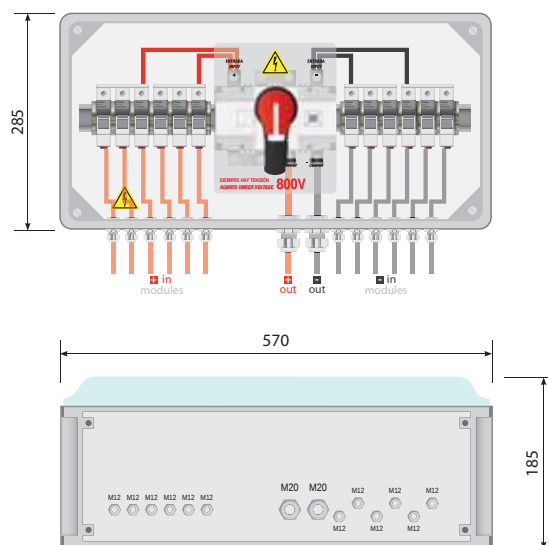


6 strings boxes



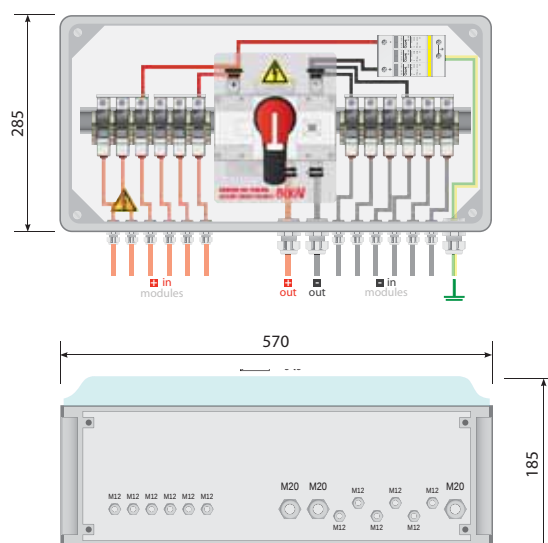
Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST068060	6	800	63 A	No	IP55	GRP/PC

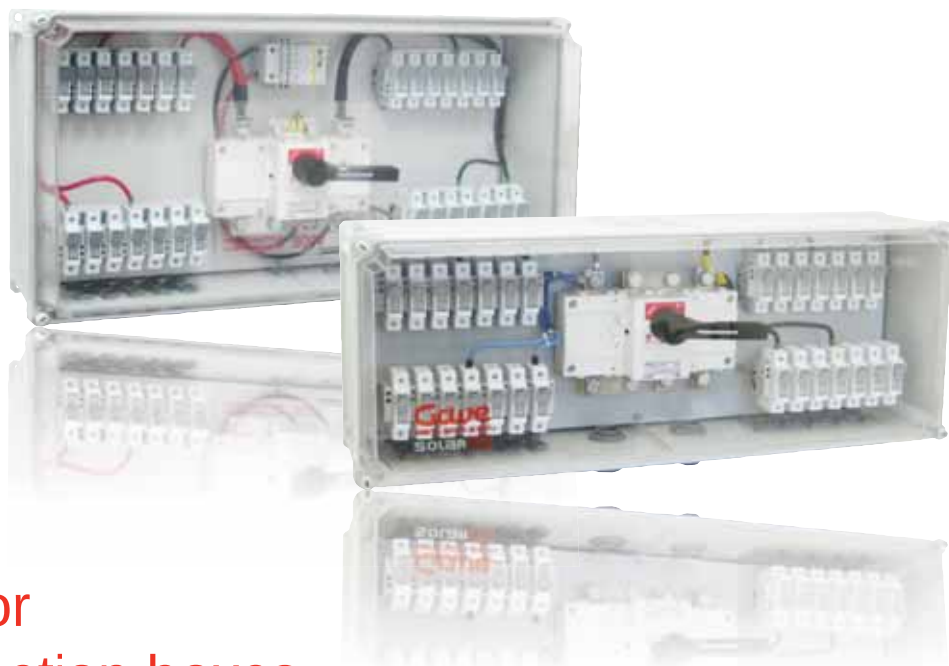
Dimensions



Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST068060P	6	800	63 A	PST31PV	IP55	GRP/PC

Dimensions





Generator disconnection boxes for solar parks

Generator disconnection boxes for solar parks are large enclosures where PV arrays are electrically connected and where the isolation function is performed in order to permit maintenance procedures. Overvoltage and overload protection can be located on these boxes if necessary.

According to standards

- IEC 60634-7-712
- UNE 2460-7-712
- IEC 943-7-3
- IEC 61643-11
- EN 60439-1

General characteristics

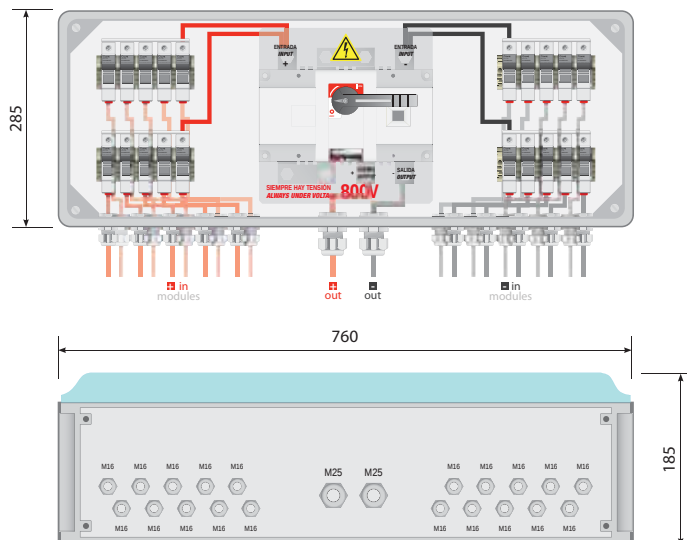
- Enclosures highly resistant to hard weather and environment conditions. Enclosures on GRP material.
- Easy installation and highly accesible on maintenance works.
- Transparent cover for inspection purposes. PC material.
- Load break switches. Voltages up to 800V.
- Overvoltage protection Class II 1000VDC
- Fuse protection against overloads.



10 strings boxes



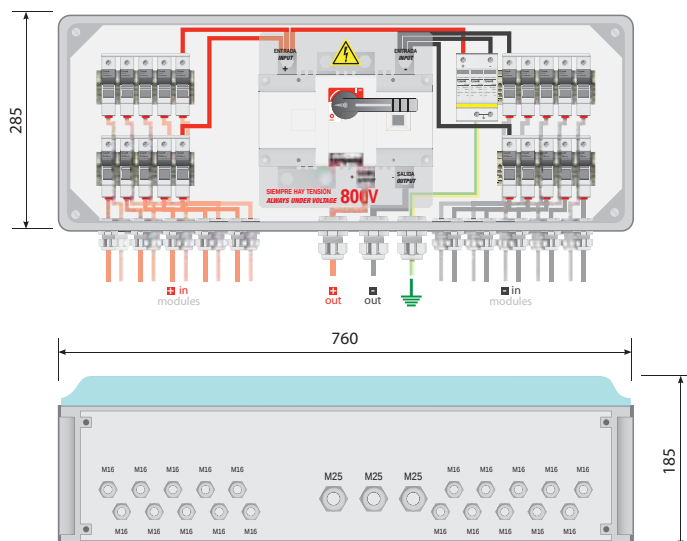
Dimensions



Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST106080	10	600	80 A	No	IP55	GRP/PC



Dimensions

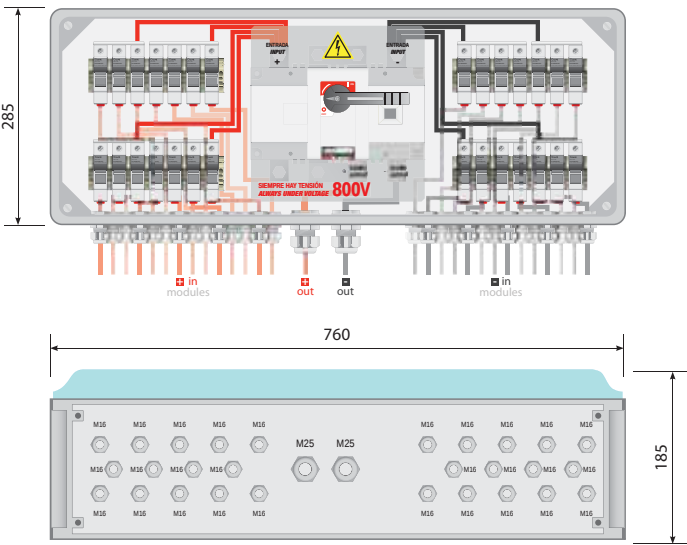


Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST106080P	10	600	80 A	PST31PV	IP55	GRP/PC

14 strings boxes



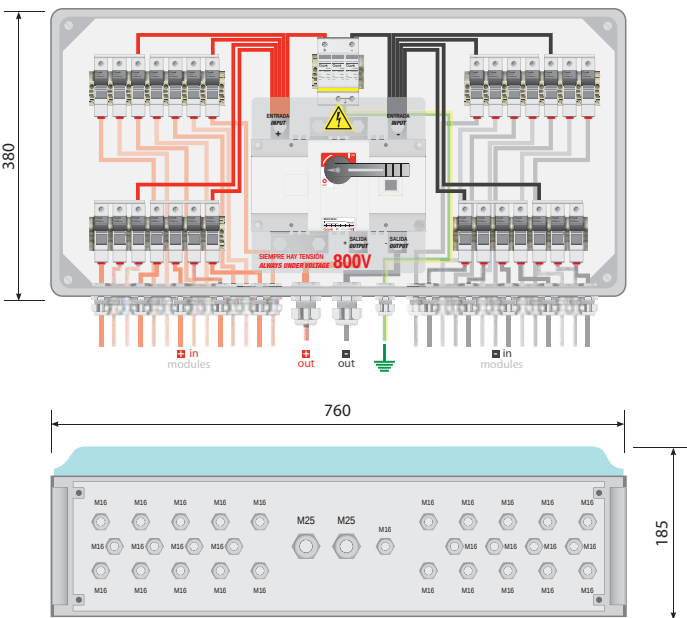
Dimensions



Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST148012	14	800	125 A	No	IP55	GRP/PC



Dimensions



Reference	Strings	V	Isc	Overvoltage protection	Protection degree	Material (housing/cover)
ST148012P	14	800	125 A	PST31PV	IP55	GRP/PC

Customised equipment

Contact data

Contact person _____

Telephone _____

Company _____

Fax _____

Street _____

E-mail _____

Postcode/Town _____ Country _____

Web _____

Product characteristics

Quantity _____

☐ MC connectors

PV current (Isc): ☐ 15A ☐ 20A ☐ 25A

☐ Overvoltage protectors

☐ 40A ☐ 50A

☐ Class II

☐ 80A ☐ 125A

☐ Class I

N° strings _____

☐ Fuse protection

Maximum voltage ☐ 500V ☐ 600V

Comments: _____

☐ 800V ☐ 900V

Exterior handle operation on isolator:

☐ Yes ☐ No

for string monitoring, please contact with technical department.

**Contact our technical
department on
customised solutions**

info@solartec.gave.com

