



# ISOLATORS-PV SERIES



**SCAME**  
feeling connected



## ISOLATORS-PV Series

ISOLATORS-PV is a complete range of switch-disconnectors with thermoplastic enclosure and an exclusively black knob. They are used in photovoltaic applications, where the IEC 60364-7-712 standard prescribes the need to isolate the photovoltaic panel from the rest of the system. This is made possible by disconnectors that operate in DC current, thus ensuring higher performance than those in AC alternating current.

 technical sheet p. 4

## Technical information

### Main characteristics



- |   |   |
|---|---|
| <b>01</b> Door locking with handle in the ON position   | <b>05</b> High visibility handle and plate      |
| <b>02</b> Recessed XXL handle to prevent breakage due to accidental impacts                   | <b>06</b> Knockout cable entries                |
| <b>03</b> PV1/PV2 and DC21 utilization category   | <b>07</b> Reversible base                       |
| <b>04</b> Handle padlockable in the OFF (emergency use) and ON and OFF (general use) position | <b>08</b> External and integrated fixing points |
|   | <b>09</b> Blank side with drilling point marks  |

## ■ FOR GENERAL USE [SINGLE STRING] 450V - DC



Current	Poles	Switch size	IP	Dimensions	Colour	Code	
16A	2P	D1	IP66/IP69	110x150x87mm	■	590.DCGE0416	1/12

Handle padlockable in OFF (3 padlocks) and ON (1 padlock) position.  
Blank side with drilling point marks on top side base.  
Break-through cable entries on bottom side base.  
Reversible base.

Type: GENERAL

## ■ FOR GENERAL USE [SINGLE STRING] 1000V - DC



Current	Poles	Switch size	IP	Dimensions	Colour	Code	
12A	2P	D2	IP66/IP69	110x150x87mm	■	590.DCGE11012	1/12
16A	2P	D2	IP66/IP69	110x150x87mm	■	590.DCGE11016	1/12
20A	2P	D2	IP66/IP69	110x150x87mm	■	590.DCGE11020	1/12
30A	2P	D2	IP66/IP69	110x150x87mm	■	590.DCGE11030	1/12
40A	2P	D2	IP66/IP69	110x150x87mm	■	590.DCGE11040	1/12

Handle padlockable in OFF (3 padlocks) and ON (1 padlock) position.  
Blank side with drilling point marks on top side base.  
Break-through cable entries on bottom side base.  
Reversible base.  
For different voltage values see the related table in the technical info pages.

Type: GENERAL

## ■ FOR GENERAL USE [DOUBLE STRING] 1000V - DC

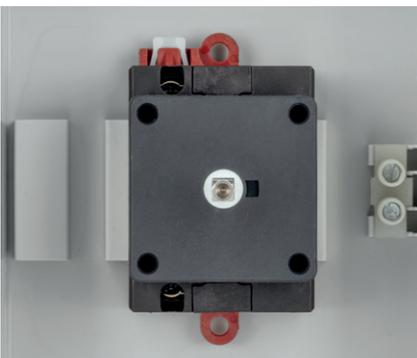


Current	Poles	Switch size	IP	Dimensions	Colour	Code	
12A	4P	D2	IP66/IP69	160x220x115mm	■	590.DCGE21012	1/5
16A	4P	D2	IP66/IP69	160x220x115mm	■	590.DCGE21016	1/5
20A	4P	D2	IP66/IP69	160x220x115mm	■	590.DCGE21020	1/5
30A	4P	D2	IP66/IP69	160x220x115mm	■	590.DCGE21030	1/5
40A	4P	D2	IP66/IP69	160x220x115mm	■	590.DCGE21040	1/5

Handle padlockable in OFF (3 padlocks) and ON (1 padlock) position.  
Blank side with drilling point marks on top side base.  
Break-through cable entries on bottom side base.  
Reversible base.  
For different voltage values see the related table in the technical info pages.

Type: GENERAL

## PV array DC switch-disconnector



The new switches have the highest switching power on the market thanks to the employed materials which have been carefully studied for both, the contacts which are built with an exclusive alloy specifically studied, and the insulated materials used for housing and components with outstanding dielectric characteristics.

Moreover, the speed and force of the contact operations are independent from the manual action of operator.

The internal mechanical switching device stores the energy operation from manual power and releases it in one continuous operation ensuring a very fast break/make movement and reducing the time of the electric arc to better guarantees its extinction.

Each pole has a double rotary knife contact able to break the load at 1000V, 1200V or even 1500V, thus there is no need to connect more poles in series.

The wiring is facilitate by the easy identification to positive (+) and negative (-) inputs, red for positive inputs/outputs and black for negative inputs/outputs. The terminals position permits to connect both the input and output cables in a linear way and a trouble-free use of the screwdriver.

# ISOLATORS-PV SERIES

## ENCLOSED SWITCH-DISCONNECTORS IN DIRECT CURRENT FOR PHOTOVOLTAIC APPLICATION



## REFERENCE STANDARDS

IEC EN 60947-3

IEC 60364-7-712

EN 60529

## MARKINGS AND DIRECTIVES



## QUALITY MARKS



## VERSIONS



General use

## TECHNICAL CHARACTERISTICS

Rated current:	12A-16A-20A-30A-40A
Polarity:	2P (single string) 4P (double string)
Rated operational current at 1000Vdc in PV1 utilization category:	12A-16A-20A-30A-40A
Protection degree:	IP66/IP69
Installation temperature:	-25°C +60°C
Material:	Thermoplastic
Colour:	Grey RAL 7035
Insulation class:	Class II (double insulation) □
Self extinguishing degree (GWT):	650°C (body) 960°C (switch)
Impact resistance:	IK09
Handle lock (with padlock):	OFF (3 padlocks) ON (1 padlock)
Padlock arch diameter to be used:	Single string 6mm Double string 8mm

Equipped with door locking with the switch in ON position.

## BEHAVIOUR WITH CHEMICAL AND ATMOSPHERIC AGENTS

Saline solution	Acids		Bases		Solvents				Mineral oil	UV rays
	Concentrated	Diluted	Concentrated	Diluted	Hexane	Benzol	Acetone	Alcohol		
Resistant	Limited resistance	Resistant	Limited resistance	Resistant	Limited resistance	Not resistant	Not resistant	Limited resistance	Limited resistance	Resistant

Resistance values to chemical agents have to be considered indicative. For further information and specific substances, contact the technical service.

## ENCLOSURE DIMENSIONS AND CABLE ENTRIES

Poles (number of strings)	Enclosure dimensions (mm)	Cable entries		
2P single string	110x150x86	Top/bottom	2xM25	Knock-outs/Blank side
		Rear	1xM25	Knock-outs/Blank side
4P double string	160x220x115	Top/bottom	2xM32	Knock-outs/Blank side
		Rear	1xM32	Knock-outs/Blank side

Special drillings on request.

Reversible base, blank sides with drilling point marks.

## TECHNICAL CHARACTERISTICS 450V DC SWITCH

Switch size				D1
Rated current $I_n$				16A
Rated insulation voltage	$U_i$	VAC		690
Rated impulse withstand voltage	$U_{imp}$	kV		4
Rated thermal current	$I_{the}$	A		30
Nr of poles in series				4
Rated operational current $I_e$	AC21A/B Resistive loads, including moderate overloads	300V DC	A	32
		450V DC	A	16
Short circuit withstand current	$I_{cw} (1s)$	A		400
Flexible wires		mm <sup>2</sup>		1.5-10
Rigid wires		mm <sup>2</sup>		1.5-10

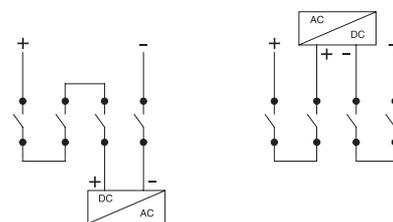
## SWITCH LINKING

In order to make easier the work of the installer, it is possible to choose the manner of wiring of the poles in series.

In this way the incoming and the outgoing can be varied both on the top side and on the bottom side.

In the packaging jumpers are supplied to cover the chosen configuration.

### 590.DCGE0416 - (4 POLES IN SERIES) - 3 JUMPERS SUPPLIED



# ISOLATORS-PV SERIES

## ■ TECHNICAL CHARACTERISTIC 1000V DC SWITCH

Switch size				D2					
Rated operational current at 1000V in PV1 utilization category In				12A	16A	20A	30A	40A	
Rated insulation voltage	<b>Ui</b>	V		1500	1500	1500	1500	1500	
Rated impulse withstand voltage	<b>Uimp</b>	kV		8	8	8	8	8	
Rated thermal current	<b>Ithe</b>	A		50	50	50	50	50	
Rated operational current <b>Ie</b>	<b>PV1</b> Connecting and disconnecting single PV string(s) where reverse currents and significant overcurrent cannot occur	500Vdc	A	PV1-DC21B		50	50		
				PV2					
		600Vdc	A	PV1-DC21B	32				
				PV2	16				
		700Vdc	A	PV1-DC21B			40		
				PV2		16	20	25	
	750Vdc	A	PV1-DC21B	25	32	32			
			PV2	10	12	18			
	800Vdc	A	PV1-DC21B				45		
			PV2				17		
	<b>PV2</b> Connecting and disconnecting PV circuits where significant overcurrents may prevail and where current flow can be in both directions; for example, where several strings are connected in parallel and to the same inverter, or one or more strings with a battery	1000Vdc	A	PV1-DC21B	12	16	20	30	40
				PV2	4	6	10	12	16
	1100Vdc	A	PV1-DC21B			12			
			PV2			5			
	1200Vdc	A	PV1-DC21B		8				
			PV2						
<b>DC21A</b> Switching of resistive loads, including moderate overloads	1250Vdc	A	PV1-DC21B				20	25	
			PV2				8	10	
1500Vdc	A	PV1-DC21B				10	15		
		PV2				5	6		
Short circuit withstand current	<b>Icw (1s)</b>	A		780	780	780	780	780	
Conditional short-circuit current		kA		5	5	5	5	5	
Short-circuit making capacity	<b>Icm</b>	kA		1.4	1.4	1.4	1.4	1.4	
Flexible and rigid wires	Max	mm <sup>2</sup>		2x6	2x6	2x6	2x6	2x6	
Terminal capacity with fork terminals	Max	mm <sup>2</sup>		1x16	1x16	1x16	1x16	1x16	
Screw tightening torque		Nm		1,7 ±10%	1,7 ±10%	1,7 ±10%	1,7 ±10%	1,7 ±10%	

The standard configuration supplied is 1+1 poles.

It is possible to get higher rating wiring more poles in series, contact the technical assistance for further information



ZP01254-EN-1  
8 001636 4 17 196



SCAME PARRE S.p.A.  
Via Costa Erta, 15 - 24020 Parre (BG) Italy  
Tel. +39 035 705000



[www.scame.com](http://www.scame.com)  
[export@scame.com](mailto:export@scame.com)

