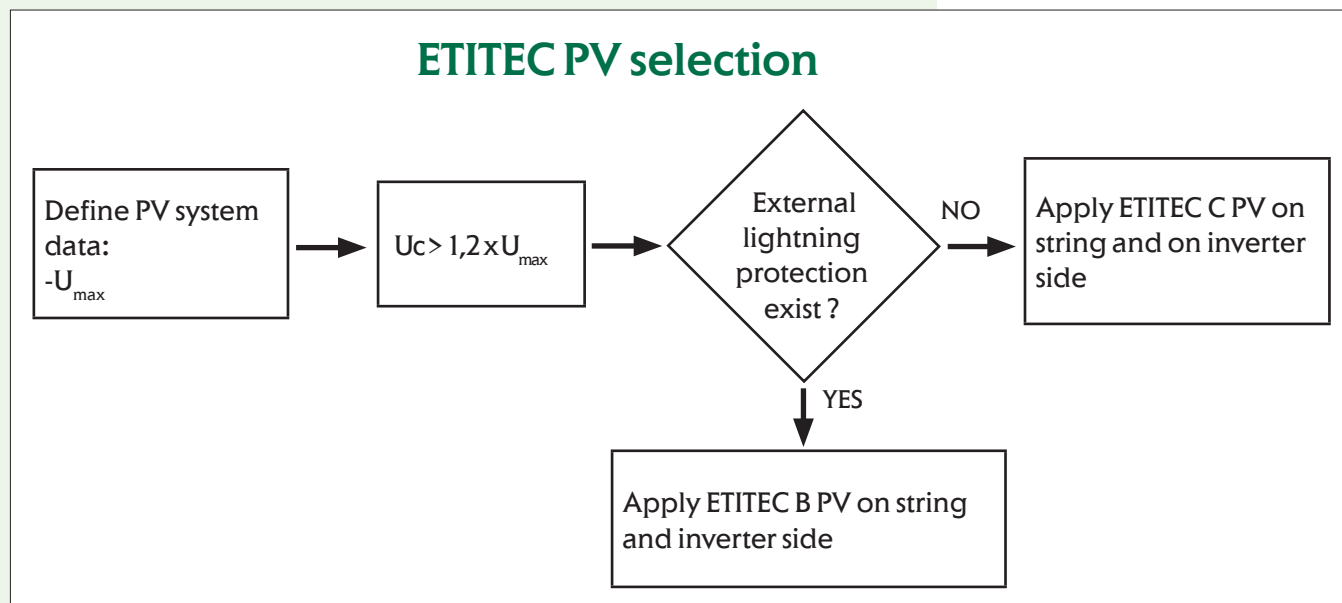
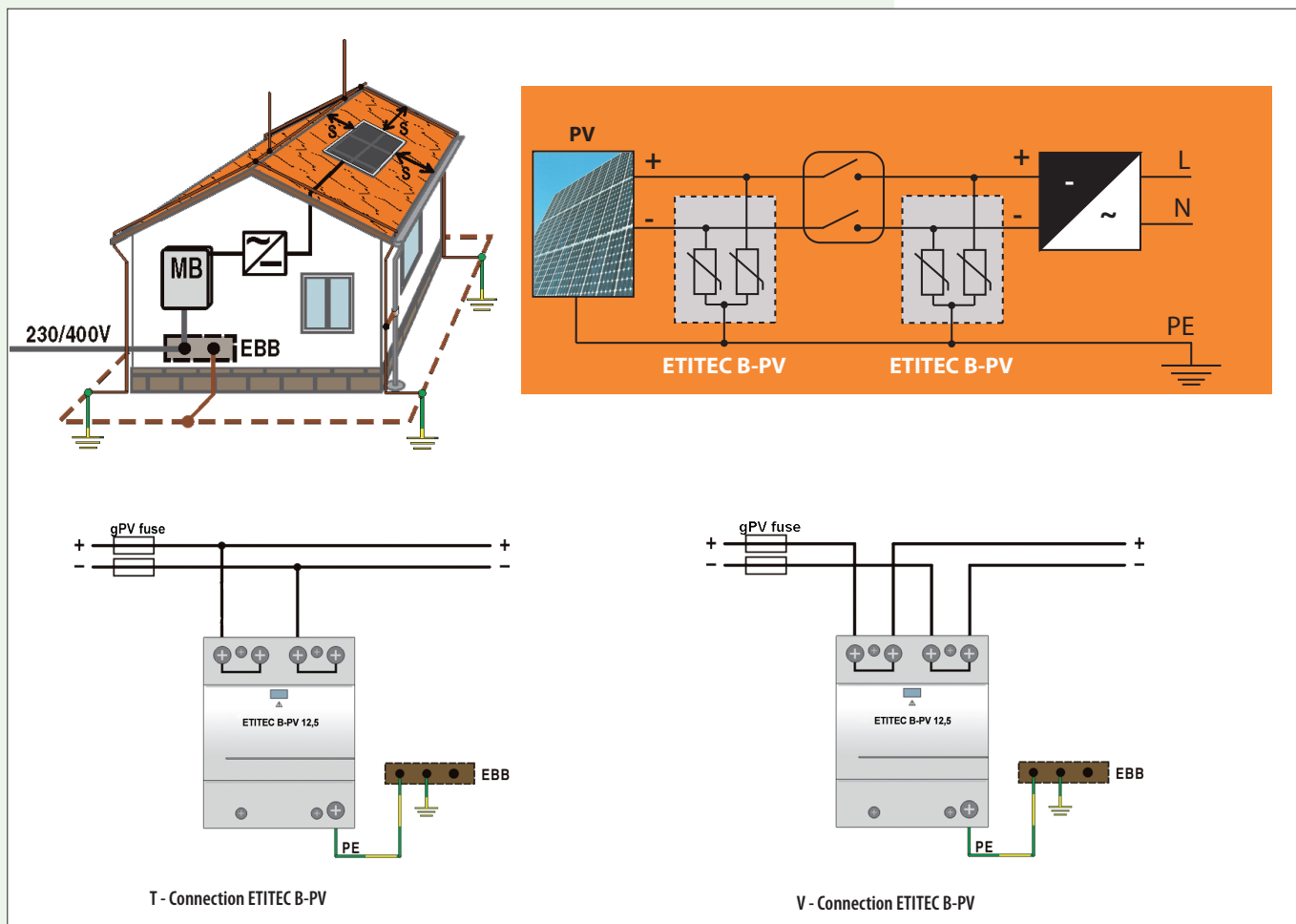


# ETITEC - Lightning and Surge Arresters

## Overvoltage protection selection



## ETITEC B-PV for photovoltaic system on a building with External Lightning Protection



Note: If distance between string and inverter is less than 7 m, then you need only one ETITEC (B,C).

ETITEC B-PV series of overvoltage surge protective devices has been developed to protect against direct and indirect lightning discharges and is intended to protect photovoltaic systems. The circuit topology consist of two varistors stages each protected by a thermal disconnection device.

#### General characteristics

Category IEC/EN/VDE Class I, II/Type 1,2/B+C	High surge discharge ratings: $I_{imp} = 12,5kA/\text{per pole}$ , $I_{max} = 40kA/\text{per pole}$
Location of use: Photovoltaic systems- PV module side	Internal protection and safety: Separate thermal disconnector for each MOV block
Protective element : High Energy MOVs	Status indication: Mechanical flag + remote signalization contacts (RC)

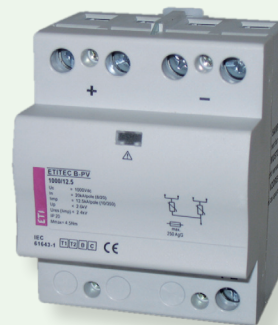
#### ETITEC B - PV

Type	Code No.	$U_c$ [V DC]	$I_{imp}$ [kA]	Weight [g]	Packaging [pcs]
ETITEC B-PV 550/12,5 (10/350)	002445202	550	12,5	300	1/3
ETITEC B-PV 1000/12,5 (10/350)	002445203	1000		350	
ETITEC B-PV 550/12,5 (10/350) RC	002445204	550		310	
ETITEC B-PV 1000/12,5 (10/350) RC	002445205	1000		360	

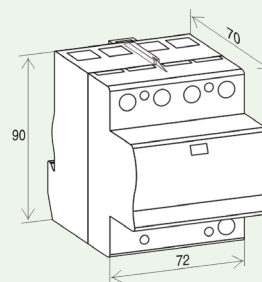
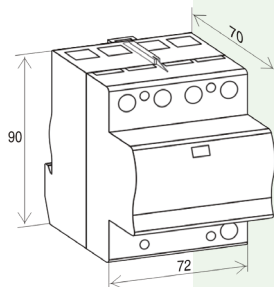
RC - Remote signalization contacts



ETITEC B-PV 550/12,5 (10/350)



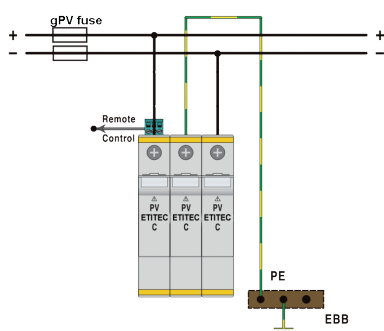
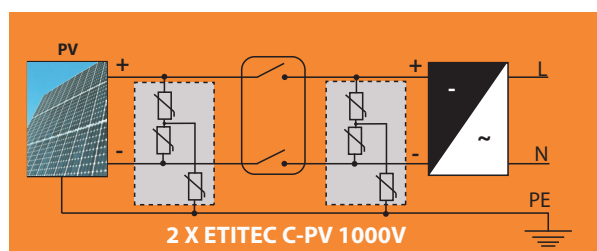
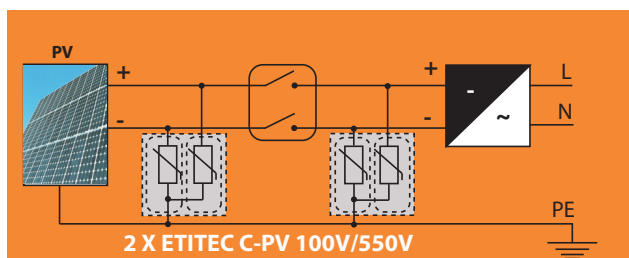
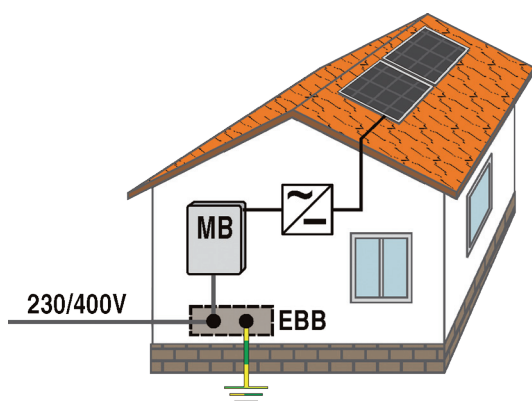
ETITEC B-PV 1000/12,5 (10/350)



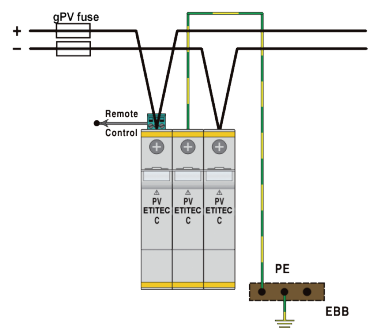
### Technical data

Type	ETITEC B-PV xxxx/12,5 (10/350)	
	550 V	1000 V
In accordance with	IEC-61643-1	
Max. continuous operating voltage $U_c$ (DC)	550 V	1000 V
Nominal discharge current $I_n$ (8/20)	20 kA	20 kA
Max. discharge current $I_{max}$ (8/20)	40 kA	40 kA
Impulse current $I_{imp}$ (10/350)	12,5 kA	12,5 kA
Specific energy	39 kJ/ $\Omega$	39 kJ/ $\Omega$
Charge	6,25 As	6,25 As
Protection level $U_p$ at $I_n$ (8/20)	< 2,0 kV	< 2,6 kV
Protection level $U_p$ at $I_{imp}$ (10/350)	< 1,7 kV	< 2,4 kV
Follow current $I_f$	No	
Response time $t_n$	< 25 ns	
Residual current at $U_c$	< 2,5 mA	
Thermal protection	yes	
Short-circuit withstand current	25 kA / 50 Hz	
Temperature range	-40°C ... +80°C	
Terminal cross section	35 mm <sup>2</sup> (solid) / 25 mm <sup>2</sup> (stranded)	
Terminal screw torque	Max. 4,5 Nm	
Mounting EN 60715	35 mm top-hat rail	
Degree of protection	IP20	
Housing material	Thermoplastic, extinguishing degree UI 94 V-0	
Dimensions DIN 43880	4 TE	
Remote contacts - type ...RC		
Contacts ratings	AC 250 V / 0,5 A; 125 V / 3 A	
Terminal cross section	Max. 1,5 mm <sup>2</sup>	
Terminal screw torque	0,25 Nm	
Packaging dimensions	108 mm x 79 mm x 76 mm	

### ETITEC C-PV for photovoltaic system on a building without External Lightning Protection



T connection ETITEC C-PV



V connection ETITEC C-PV

Note: If distance between string and inverter is less than 7 m, then you need only one ETITEC (B,C).

ETITEC C-PV series of overvoltage surge protective devices has been developed to protect against indirect discharges and is intended to protect photovoltaic systems.

The circuit topology consist of two (three) varistors stages each protected by a thermal disconnection device.

#### General characteristics

Category IEC/EN/VDE Class II/Type 2/C	High surge discharge ratings: $I_{in} = 20\text{kA}/\text{per pole}$ , $I_{max} = 40\text{kA}/\text{per pole}$
Location of use: Branch sub-distribution boards	Internal protection and safety: Thermal disconnecter for each MOV block
Protective element : High Energy MOVs	Status indication: Mechanical flag + remote signalization contacts (RC)

#### ETITEC C - PV

Type	Code No.	Uc [V DC]	$I_{imp}$ [kA]	Weight [g]	Packaging [pcs]
ETITEC C-PV 100/20	002445206	100	20	200	1/7
ETITEC C-PV 550/20	002445207	550		255	1/7
ETITEC C-PV 1000/20	002445208	1000		365	1/5
ETITEC C-PV 100/20 RC	002445209	100		210	1/7
ETITEC C-PV 550/20 RC	002445210	550		265	1/7
ETITEC C-PV 1000/20 RC	002445211	1000		375	1/5
MODULE ETITEC C-PV 100/20	002445221	100		52	12/24
MODULE ETITEC C-PV 550/20	002445222	550		52	12/24
MODULE ETITEC C-PV 1000/20	002445223	1000		52	12/24

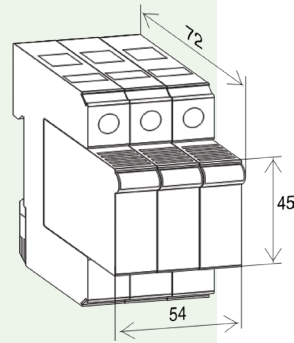
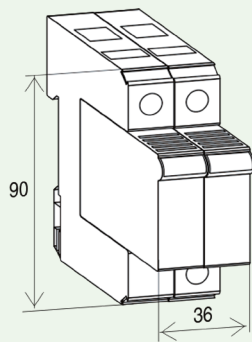
RC - Remote signalization contacts



ETITEC C-PV 100, 550/20



ETITEC C-PV 1000/20



### Technical data

Type	ETITEC C-PV xxxxx/20 (8/20)		
	100 V	550 V	1000 V
In accordance with	IEC-61643-1		
Max. continuous operating voltage $U_c$ (DC)	100 V	550 V	1000 V
Nominal discharge current $I_n$ (8/20)	20 kA	20 kA	20 kA
Max. discharge current $I_{max}$ (8/20)	40 kA	40 kA	40 kA
Impulse current $I_{imp}$ (10/350)	-	-	-
Specific energy	-	-	-
Charge	-	-	-
Protection level $U_p$ at $I_n$ (8/20)	< 0,7 kV	< 2,1 kV	< 4,0 kV
Protection level $U_p$ at $I_{imp}$ (10/350)	-	-	-
Follow current $I_f$	No		
Response time $t_A$	< 25 ns		
Residual current at $U_c$	< 1,5 mA		
Thermal protection	yes		
Short-circuit withstand current	25 kA / 50 Hz		
Temperature range	-40°C ... +80°C		
Terminal cross section	35 mm <sup>2</sup> (solid) / 25 mm <sup>2</sup> (stranded)		
Terminal screw torque	Max. 4,5 Nm		
Mounting EN 60715	35 mm top-hat rail		
Degree of protection	IP20		
Housing material	Thermoplastic, extinguishing degree UI 94 V-0		
Dimensions DIN 43880	2 TE	2 TE	3 TE
Remote contacts - type ...RC			
Contacts ratings	AC 250 V / 0,5 A; 125 V / 3 A		
Terminal cross section	Max. 1,5 mm <sup>2</sup>		
Terminal screw torque	0,25 Nm		
Packaging dimensions	108 mm x 79 mm x 76 mm		

**NEW!**

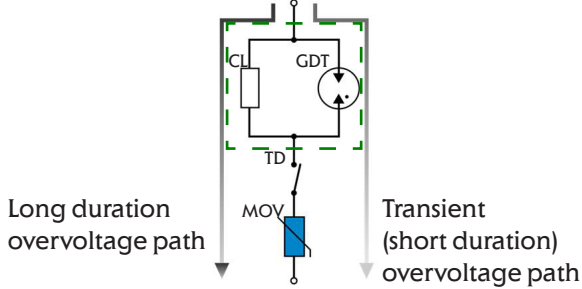


**Advantages:**

- Current limiting for long duration; overvoltage path through mov – no degradation, long life guaranteed
- Improved thermal disconnection mechanism - rotating barrier, secure arcing shutdown, no risk of fire

**7 YEAR WARRANTY!**

**NEW DESIGN-IMPROVED TECHNOLOGY**



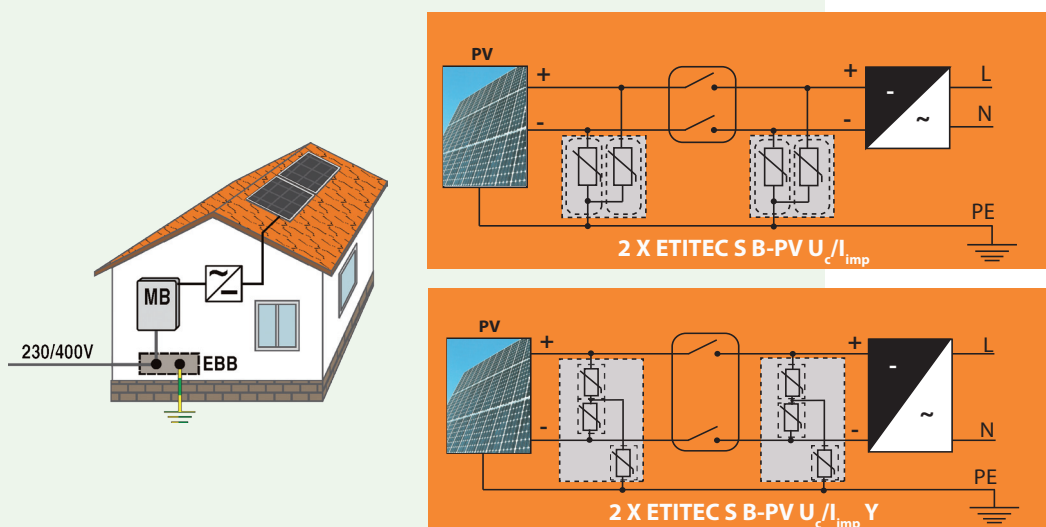
- Gas Discharge Tube - GDT
- Current Limiter - CL
- Thermal Disconnecter - TD
- Metal Oxide Varistor - MOV



**ETITEC S B-PV (EN/IEC/VDE: T1, I, B) with  $I_{imp} = 12,5$  kA/pole**

ETITEC S B-PV series of overvoltage surge protective devices has been developed to protect against direct and indirect lightning discharges and is intended to protect photovoltaic systems. The circuit topology consist of two(V configuration) or three(Y configuration) varistor stages each protected by a thermal disconnection device.

## ETITEC S B-PV for photovoltaic system on a building with External Lightning Protection



Note: If distance between string and inverter is less than 10 m, then you need only one SPD

### General characteristics

Category IEC/EN/VDE Class I/Type 1/B	High surge discharge ratings: $I_{imp} = 12,5 \text{ kA/pole}$ $I_{max} = 40 \text{ kA/pole}$
Location of use: PV systems	Internal protection and safety: Current limiter, GDT and thermal disconnecter with arc cutter for each MOV block
Protective element: High Energy MOVs	Status indication: Mechanical flag + remote signalization contacts (RC)

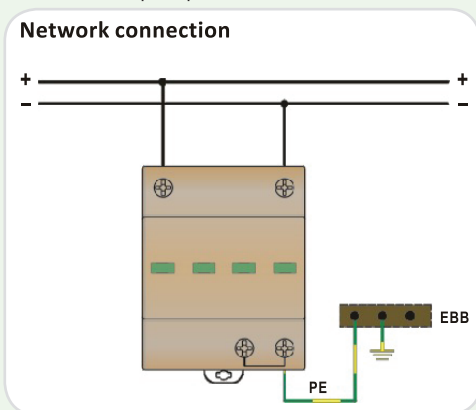
### ETITEC S B - PV

Type	Code No.	$U_c$ [V DC]	$I_n$ [kA]	Weight [g]	Packaging [pcs]
ETITEC S B-PV 300/12,5	002440258	300	12,5	147	3
ETITEC S B-PV 300/12,5 RC	002440259	300		149	3
ETITEC S B-PV 600/12,5	002440260	600		154	3
ETITEC S B-PV 600/12,5 RC	002440261	600		155	3
ETITEC S B-PV 600/12,5 Y	002440262	600		295	2
ETITEC S B-PV 600/12,5 Y RC	002440263	600		300	2
ETITEC S B-PV 1000/12,5	002440264	1000		267	3
ETITEC S B-PV 1000/12,5 RC	002440265	1000		269	3
ETITEC S B-PV 1000/12,5 Y	002440266	1000		315	2
ETITEC S B-PV 1000/12,5 Y RC	002440267	1000		320	2
ETITEC S B-PV 1200/12,5 Y	002440268	1200		550	2
ETITEC S B-PV 1200/12,5 Y RC	002440269	1200		555	2
ETITEC S B-PV 1500/12,5 Y	002440270	1500		580	2
ETITEC S B-PV 1500/12,5 Y RC	002440271	1500		585	2

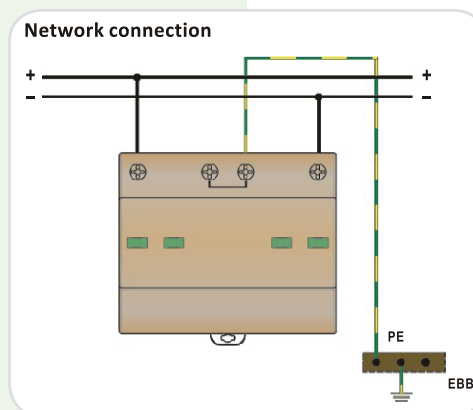
\*RC - Remote signalization contacts

$U_c > 1,2 \times U_{ocstc}$  (open circuit voltage under standard test conditions)

LF - Leakage free version available upon request



V configuration  
ETITEC S B-PV  $U_c / I_{imp}$



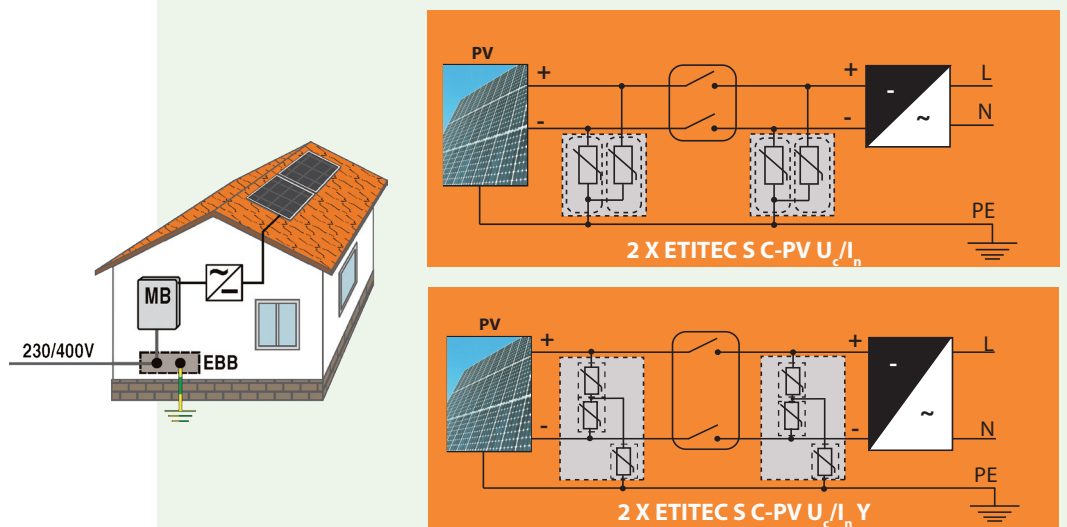
Y configuration  
ETITEC S B-PV  $U_c / I_{imp} Y$

Type	ETITEC S B-PV U <sub>c</sub> /I <sub>imp</sub>			ETITEC S B-PV U <sub>c</sub> /I <sub>imp</sub> Y			
	300	600	1000	600	1000	1200	1500
<b>Electrical characteristics</b>							
Max. continuous operating voltage U <sub>c</sub> (DC)	300V	600V	1000V	600V	1000V	1200V	1500V
Nominal discharge current I <sub>n</sub> (8/20)	20kA			12.5kA			
Max. discharge current I <sub>max</sub> (8/20)	40kA			50kA			
Impulse current I <sub>imp</sub> (10/350)	12.5kA			20kA			
Short circuit withstand I <sub>SCPV</sub>	200A						
Protection level U <sub>p</sub>	< 1.5kV	< 2.2kV	< 2.8kV	< 3.0kV	< 3.3kV	< 3.8kV	< 4.5kV
Residual voltage at I <sub>imp</sub> U <sub>res</sub>	< 1.3kV	< 2.0kV	< 2.6kV	< 3.0kV	< 3.3kV	< 3.8kV	< 4.5kV
Follow current I <sub>f</sub>	NO						
Response time t <sub>A</sub>	< 25ns						
Thermal protection	YES						
<b>Mechanical characteristics</b>							
Temperature range	-40°C ... +80°C						
Terminal screw torque	max. 4.5Nm						
Terminal cross section	35mm <sup>2</sup> (solid)/25mm <sup>2</sup> (stranded)						
Mounting EN 60715	35mm top-hat rail						
Degree of protection	IP 20						
Housing material	Thermoplastic; extinguishing degree UL 94 V-0						
Remote contacts	YES						
Contact ratings	AC: 250V/0.5A; 125V/3A						
Terminal cross section	max. 1.5mm <sup>2</sup>						
Remote terminal torque	0.25Nm						

## ETITEC S C-PV (EN/IEC/VDE: T2, II, C) with I<sub>n</sub>=20kA/pole

ETITEC S C-PV series of overvoltage surge protective devices has been developed to protect against indirect discharges and is intended to protect photovoltaic systems. The circuit topology consist of two (V configuration) or three (Y configuration) varistor modules, each protected by a thermal disconnection device. For additional protection, modules have built in current limiter, high performance GDT, thermal control function and mechanical arc prevention (cutter).

### ETITEC S C-PV for photovoltaic system on a building without External Lightning Protection



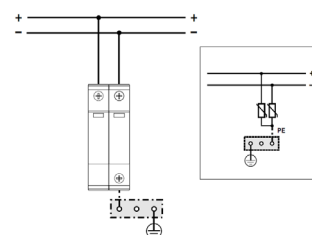
Note: If distance between string and inverter is less than 10 m, then you need only one SPD



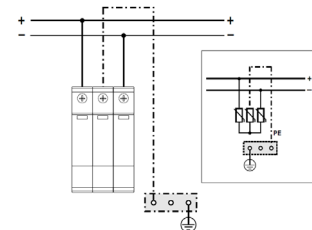
General characteristics	
Category IEC/EN/VDE Class II/Type 2/C	High surge discharge ratings: $I_n = 20\text{kA}/\text{per pole}$ , $I_{\text{max}} = 40\text{kA}/\text{per pole}$
Location of use: PV systems	Internal protection and safety: Current limiter, GDT and thermal disconnector with arc cutter for each MOV block
Protective element: High Energy MOVs	Status indication: Mechanical flag + remote signalization contacts (RC)

ETITEC S C - PV					
Type	Code No.	Uc [V DC]	$I_n$ [kA]	Weight Estimated [g]	Packaging [pcs]
ETITEC S C-PV 75/20 RC	002445301	75	20	132	1
ETITEC S C-PV 75/20	002445302	75		130	1
ETITEC S C-PV 300/20 RC	002445303	300		202	1
ETITEC S C-PV 300/20	002445304	300		200	1
ETITEC S C-PV 600/20 RC	002445305	600		280	1
ETITEC S C-PV 600/20	002445306	600		278	1
ETITEC S C-PV 1000/20 RC	002445307	1000		290	1
ETITEC S C-PV 1000/20 Y RC	002445308	1000		398	1
ETITEC S C-PV 1000/20	002445309	1000		288	1
ETITEC S C-PV 1000/20 Y	002445310	1200		396	1
ETITEC S C-PV 1200/20 Y RC	002445311	1200		386	1
ETITEC S C-PV 1200/20 Y	002445312	1500		388	1
ETITEC S C-PV 1500/20 Y RC	002445313	1500		402	1
ETITEC S C-PV 1500/20 Y	002445313	1500	400	1	
MODULES					
MOD.ETITEC S C-PV 75/20	002445320	75		78	12
MOD.ETITEC S C-PV 300/20	002445321	300		78	12
MOD.ETITEC S C-PV 600/20	002445322	600		78	12
MOD.ETITEC S C-PV 1000/20	002445323	1000		78	12
MOD.ETITEC S C-PV 1000/20 Y	002445324	1000		78	12
MOD.ETITEC S C-PV 1200/20 Y	002445325	1200		78	12
MOD.ETITEC S C-PV 1500/20 Y	002445326	1500		78	12

\*RC - Remote signalization contacts  
 $U_c > 1,2xU_{ocstc}$  (open circuit voltage under standard test conditions)



ETITEC S C-PV 75...1000/20  
V configuration



ETITEC S C-PV 1000...1500/20 Y  
Y configuration

Type	ETITEC S C-PV xxxx/20				ETITEC S C-PV XXXX/20 Y		
	75	300	600	1000	1000	1200	1500
In accordance with	prEN 50539-11, UTE C 61-740-51						
Max. continuous operating voltage $U_c$ (DC)	75V	300V	600V	1000 V	1000 V	1200 V	1500 V
Nominal discharge current $I_n$ (8/20)	12,5 kA	20 kA	20 kA	15 kA	20 kA	20 kA	20 kA
Max. discharge current $I_{\text{max}}$ (8/20)	25 kA	40 kA	40 kA	30 kA	40 kA	40 kA	40 kA
Protection level $U_p$ at $I_n$ (8/20)	< 0,6 kV	< 1,6 kV	< 2,2 kV	< 2,8 kV	< 4,0 kV	< 4,4 kV	< 4,8kV
Short circuit withstand $I_{\text{scpv}}$	200A						
Follow current $I_f$	No						
Response time $t_r$	< 25 ns						
Thermal protection	yes						
Temperature range	-40°C ... +80°C						
Terminal cross section	35 mm <sup>2</sup> (solid) / 25 mm <sup>2</sup> (stranded)						
Terminal screw torque	Max. 3,0 Nm						
Mounting EN 60715	35 mm top-hat rail						
Degree of protection	IP20						
Housing material	Thermoplastic, extinguishing degree UI 94 V-0						
Dimensions DIN 43880	2 TE	2 TE	2 TE	2 TE	3 TE	3 TE	3 TE
Remote contacts - type ...RC							
Contacts ratings	AC 250 V / 0,5 A; 125 V / 3 A						
Terminal cross section	Max. 1,5 mm <sup>2</sup>						
Terminal screw torque	0,25 Nm						
Packaging dimensions (WxHxL)	76,5 mm x 41,5 mm x 109 mm				76,5 mm x 60 mm x 109 mm		

For signal, control lines and communication SPD protection (Ethernet, RS485) check our catalogue Building and industry(1+2) under program group ETITEC