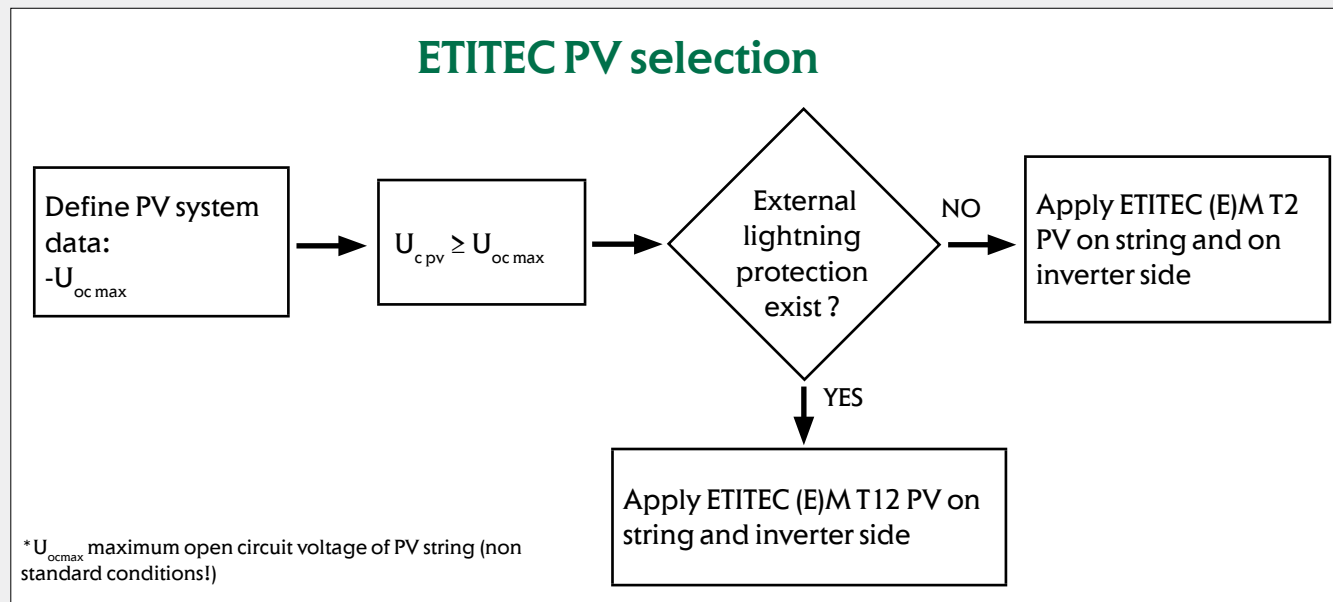


# OVERVOLTAGE PROTECTION FOR PV SYSTEMS



# ETITEC - Lightning and Surge Arresters

## Overvoltage protection selection



ETITEC (E)M T12 PV ..... Y series of overvoltage surge protective devices has been developed to protect against direct and indirect discharges and is intended to protect photovoltaic systems. The circuit topology consist of three varistors stages each protected by a thermal disconnection device.

**Advantages:**

- optical indication of faulty device (green ok, red false)
- remote signalisation (RC version only)
- DIN rail mounting (EN 60715)
- high discharge currents and high degree of protection
- MOV varistor is the protective element
- metal snapper, new way of mounting on DIN rail (easier, quicker)
- modular design
- RoHS compliant
- connection up to 35mm<sup>2</sup>

**ETITEC M T12 PV**

Location of Use: String box, Inverter  
 Mode of Protection:(+) - PE, (-) - PE, (+) - (-)  
 Surge Ratings:  $I_{Total}$  = up to 12.5 kA (10/350  $\mu$ s)  
 $I_{Total}$  = up to 60 kA (8/20  $\mu$ s)  
 EN Category: Type 1+2  
 Protective Elements: High Energy MOV  
 Housing: Pluggable Design  
 Compliance: IEC 61643-31:2018+A1:2014

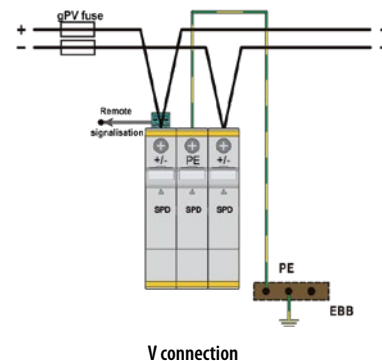
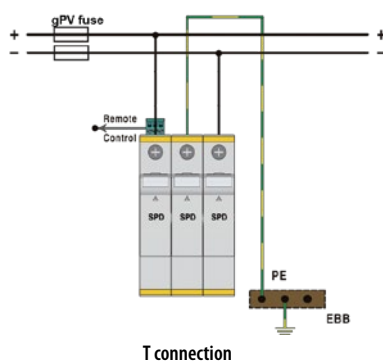
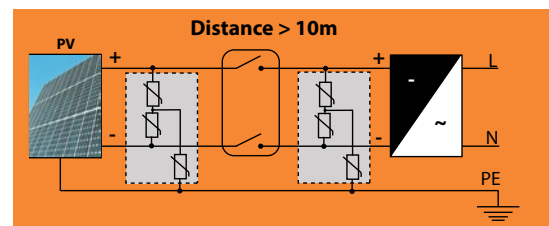
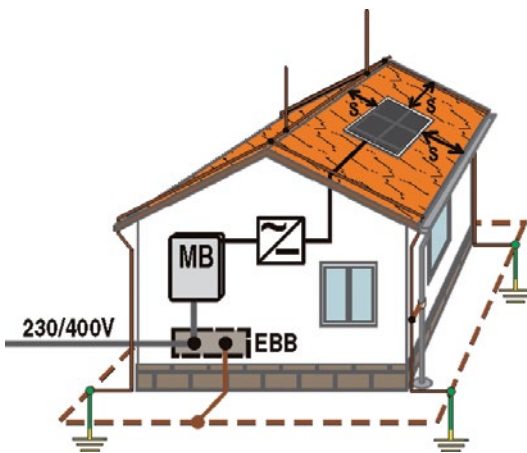
Suitable for green field installations (IEC/EN 61643-32)

**ETITEC EM T12 PV**

Location of Use: String box, Inverter  
 Mode of Protection:(+) - PE, (-) - PE, (+) - (-)  
 Surge Ratings:  $I_{Total}$  = up to 6.25 kA (10/350  $\mu$ s)  
 $I_{Total}$  = up to 65 kA (8/20  $\mu$ s)  
 EN Category: Type 1, Type 2  
 Protective Elements: High Energy MOV  
 Housing: Pluggable Design  
 Compliance: IEC 61643-31:2018+A1:2014

Suitable for roof installations (IEC/EN 61643-32)

**ETITEC (E)M T12 PV ..... Y 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 ETITEC.

ETITEC EM T12 PV								
Type	Code No.	Max PV voltage $U_{cpv}$ [V DC]	$I_{scpv}$ [kA]	$I_{total}$ (10/350) [kA]	$I_{imp}$ [kA]	$I_n$ [kA]	Weight [g]	Packaging [pcs]
ETITEC EM T12 PV 1100/6,25 Y	002440580	1100	11	6,25	6,25	20	397	1/5
ETITEC EM T12 PV 1100/6,25 Y RC	002440581	1100	11	6,25	6,25	20	406	1/5
ETITEC EM T12 PV 1500/5 Y	002440582	1500	11	5	5	20	488	1/5
ETITEC EM T12 PV 1500/5 Y RC	002440583	1500	11	5	5	20	497	1/5

\*RC - remote contact for remote signalisation of bad module (to be replaced)

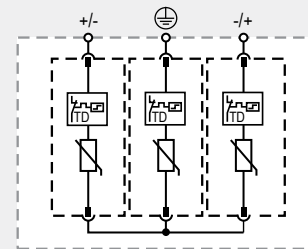
Spare (replacement) modules				
Type	Code No.	Compatible with	Weight [g]	Packaging [pcs]
MOD. EM T12 PV 550/6,25	002440584	ETITEC EM T12 PV 1100/6,25 Y (RC)	79	1/28
MOD. EM T12 PV 750/5	002440585	ETITEC EM T12 PV 1500/5 Y (RC)	87	1/28

Due to serial connection of modules (Y topology),  $U_{cpv}$  voltage of single module is 1/2 of total  $U_{cpv}$  between each pole

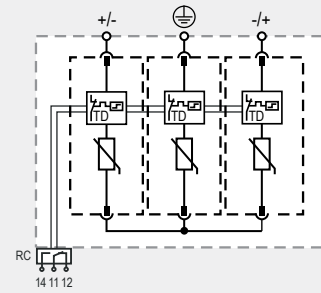
Type	Technical data	
	ETITEC EM T12 PV 1100/6,25 Y (RC)	ETITEC EM T12 PV 1500/5 Y (RC)
	T1,T2 / I,II / B,C/1CA	
Maximum Continuous Operating DC Voltage UCPV	1100 V	1500V
Nominal Discharge Current (8/20 $\mu$ s) In	20 kA	20 kA
Total Discharge Current (8/20 $\mu$ s) ITotal	65 kA	50 kA
Impulse Discharge Current (10/350)	6,25 kA	5 kA
Total Discharge Current (10/350 $\mu$ s) ITotal	6,25 kA	5 kA
Specific Energy W/R	9,77 kJ/ $\Omega$	6,25 kJ/ $\Omega$
Charge	3,125 As	2,5 As
Maximum Discharge Current (8/20 $\mu$ s) Imax	40 kA	30 kA
Voltage Protection Level Up	3,8 kV	5 kV
Response Time tA	< 25 ns	
Number of Ports	1	
Thermal Protection	✓	
Short-Circuit Current Rating SCCR ISCPV	11 kA	
Maximum Permitted DC Voltage Vpvc	1100 V	1500 V
Voltage Protection Rating VPR	2500 V	4000 V
Nominal Discharge Current (8/20 $\mu$ s) In In	20 kA	20 kA
Short-Circuit Current Rating SCCR ISCPV	50 kA	65 kA
Operating Temperature Range Ta	-40°C ... +85°C	
Permissible Operating Humidity RH	5% - 95%	
Altitude (max)	4000 m	
Operating State / Fault Indication	Green Flag / Not Green Flag	
Conductor Cross Section (max)	35 mm <sup>2</sup> (Solid, Stranded) / 25 mm <sup>2</sup> (Flexible)	
Terminal Screw Torque Mmax	max. 4,5 Nm	
Mounting	35 mm DIN Rail, EN 60715	
Degree Of Protection	IP20	
Housing Material	Thermoplastic: Extinguishing Degree UL 94 V-0	
Size	3 modules	
<b>Remote contacts - type ...RC</b>		
Contacts ratings	AC: 250V/1A; 125V/1A; DC: 48V/0,5A, 24V/0,5A, 12V/0,5A	
Terminal cross section	Max. 1,5 mm <sup>2</sup>	
Terminal Screw Torque Mmax	0,25 Nm	
Standards	IEC 61643-31:2018+A1:2014	



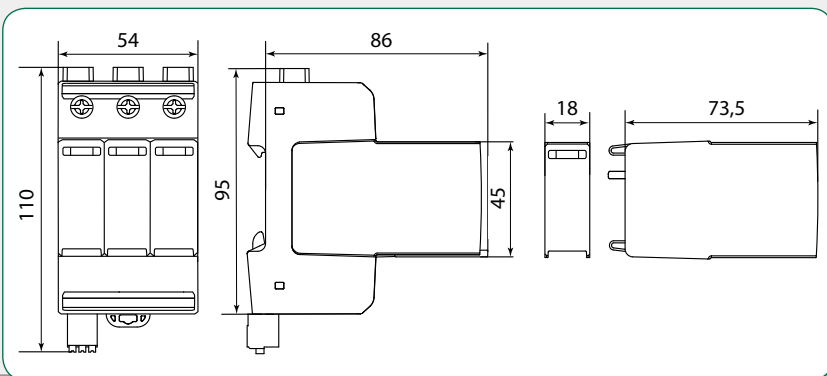
ETITEC EM T12 PV 1100/6,25 Y RC



ETITEC EM T12 PV ... Y



ETITEC EM T12 PV ... Y RC



Overvoltage protection