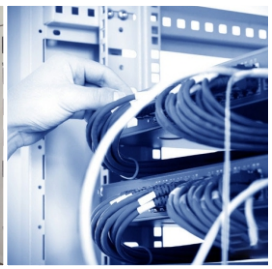
THOR

PROTECTOR OF LIGHTNING PROTECTION

– SINCE 2006 –

Catalogue
Surge Protective Devices

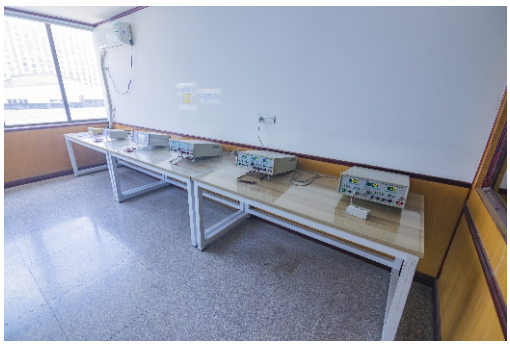





Company Profile

THOR is a manufacturer specialised in the development and production of surge protective devices since 2006. THOR offers a complete range of SPDs, such as AC power SPD, PV system SPD, Signal and network SPD, Coaxial RF SPD, lightning rod, lightning box, etc.

THOR SPDs are applied to lightning protection in different low–voltage system fields, such as industry, solar power generation systems, telecommunications, network data centers, office buildings, and homes, etc.



Semi-automatic welding equipment

- Maintain consistent temperature of welding iron head
- Maintain consistent tin production during welding
- More precise welding positions
- Reduce false soldering caused by manual welding

Semi-automatic factory inspection pressure sensitive tester

- Accurately set the positive and negative tolerances for voltage and leakage current
- Supporting fixtures to improve testing efficiency
- If the detection data exceeds the set range, there is an alarm warning function
- MOV 100% factory inspection

Simulated lightning impact test bench (capable of meeting T2:120KA/T1:25KA)

- By simulating lightning stroke testing, the product's ability to withstand lightning current can be verified. It can guarantee the most reliable and safe high–quality products for users.

Enterprise Certificates

As a manufacturer of surge protective devices that pursues high quality,THOR invests a considerable proportion of its annual revenue in innovation,research and development, and international certification to meet the needs of customers in different fields,obtaining more and more certificates to ensure that our SPDs can be distributed in every corner of the world.

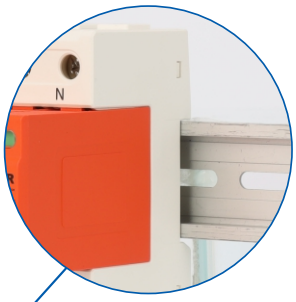
Features of THOR Surge Protective Device

Example: TRS5-B+C

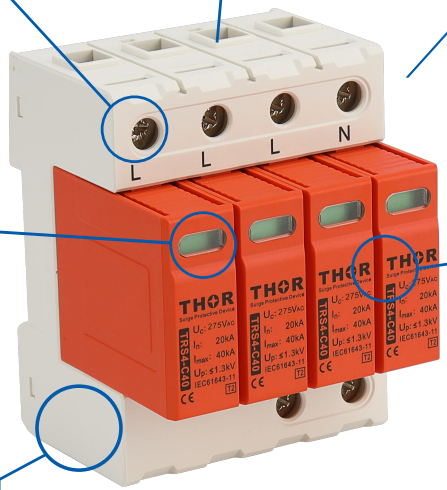
Lock system for fixing of modules

Biconnect terminals

DIN rail 35mm



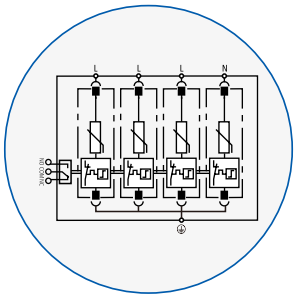
Optical lifetime status indication



Pluggable modules

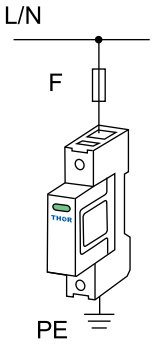
Remote signalling

Circuit diagram

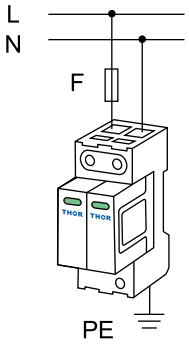


AC SPD Wiring diagram

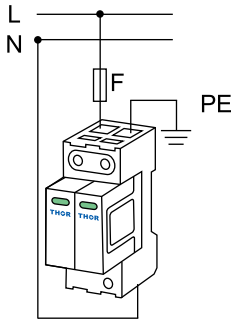
Single phase system



"1+0"
Connection

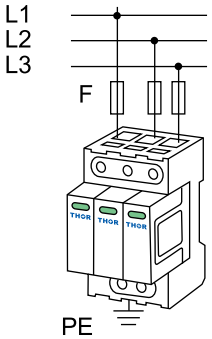


"2+0"
Connection

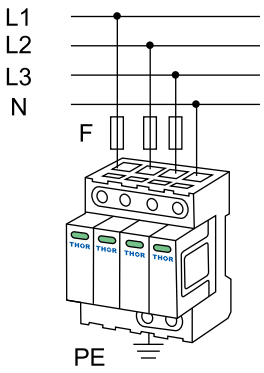


"1+1"
Connection

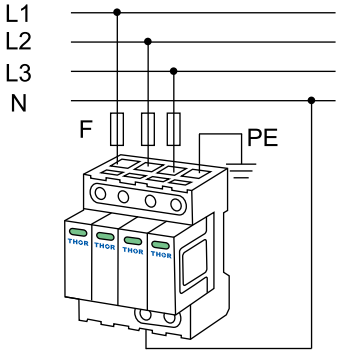
Three phase system



"3+0"
Connection

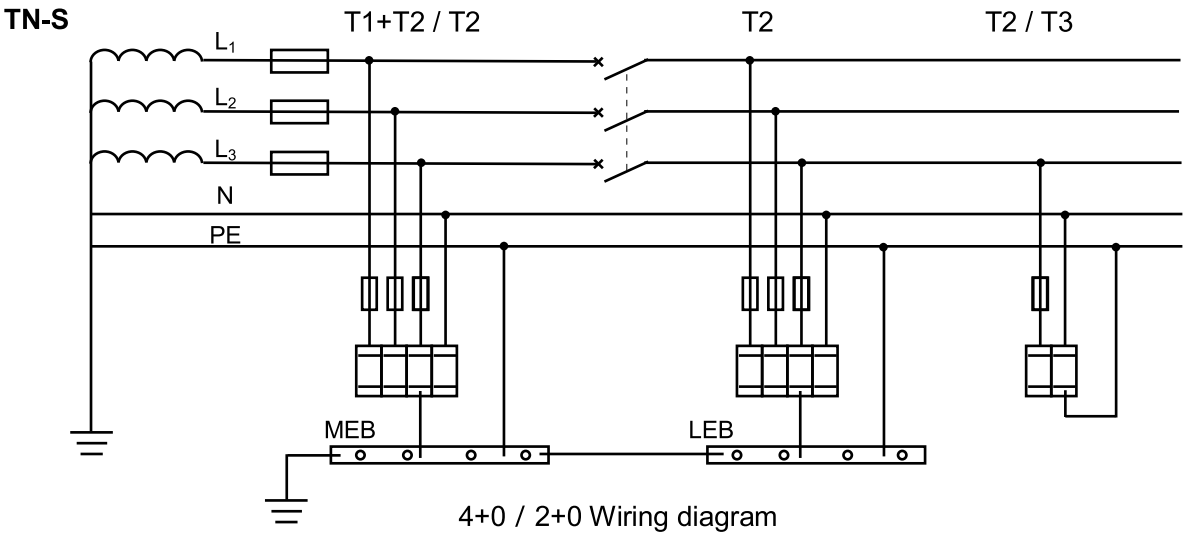


"4+0"
Connection



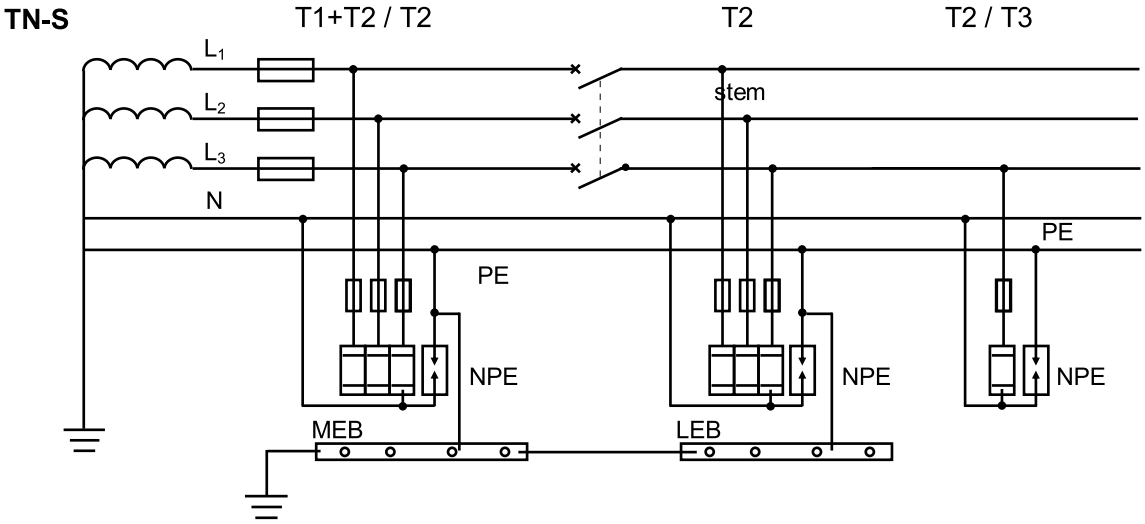
"3+1"
Connection

Connection of AC SPD in networks

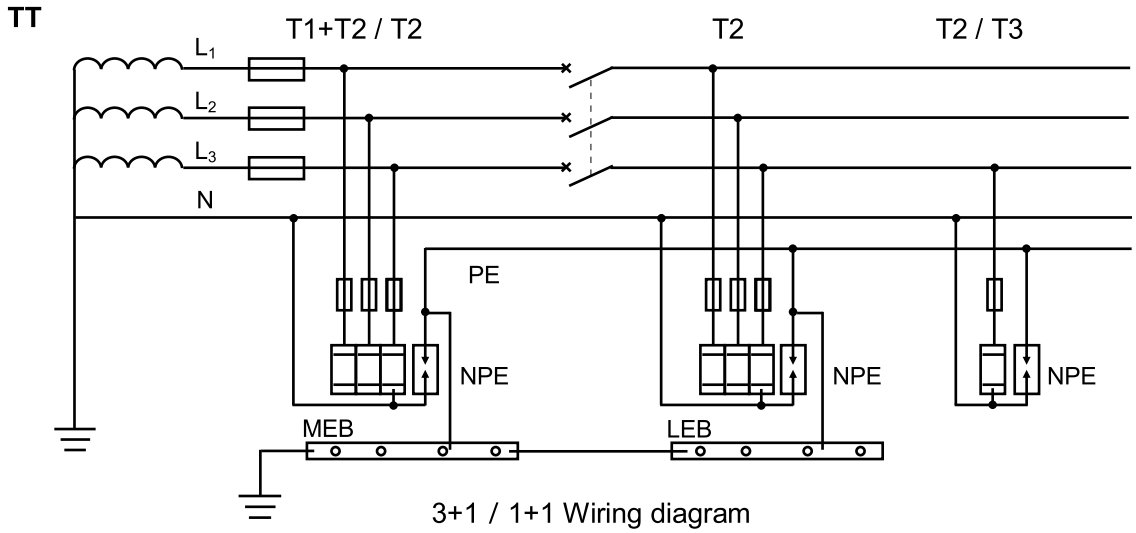


4+0 / 2+0 Wiring diagram

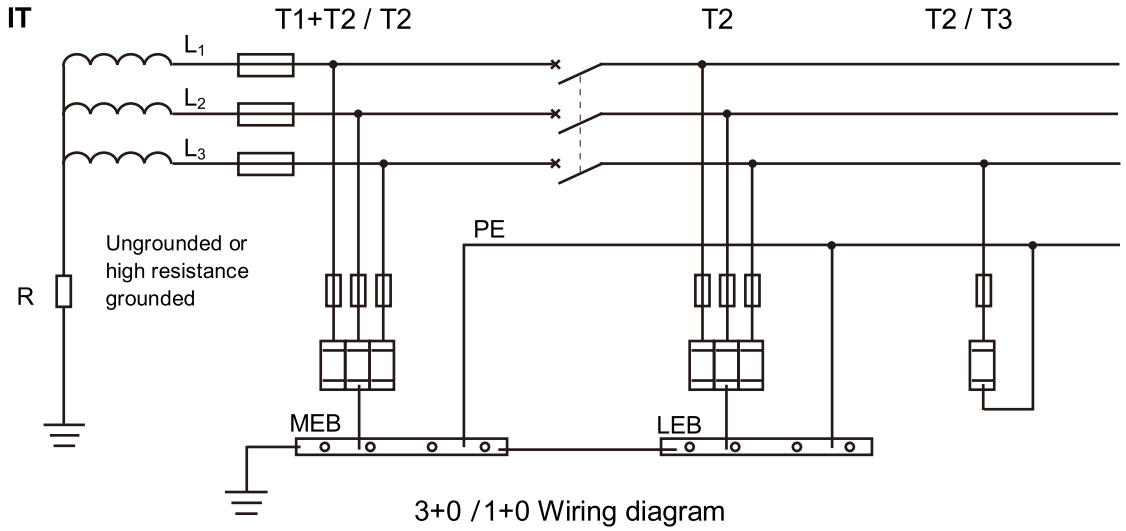
Connection of AC SPD in networks



3+1 / 1+1Wiring diagram



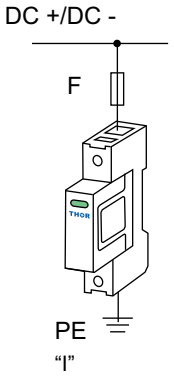
3+1 / 1+1 Wiring diagram



3+0 /1+0 Wiring diagram

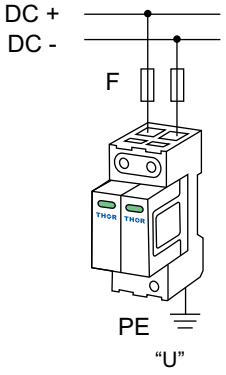
DC SPD Wiring diagram

Photovoltaic system



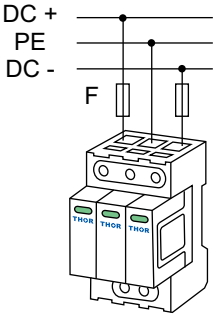
"I"

Connection



"U"

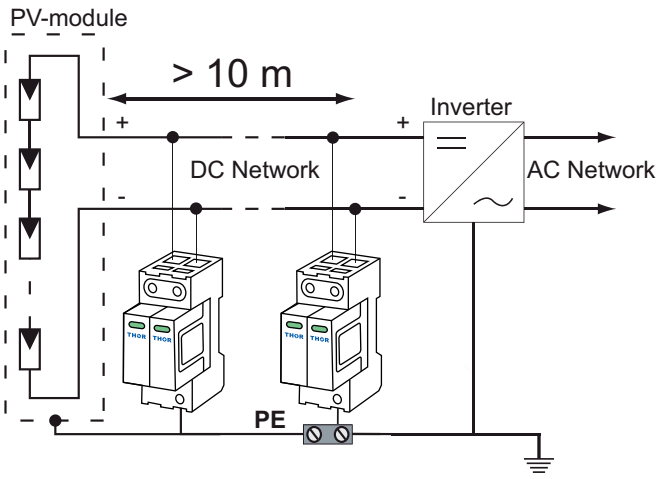
Connection



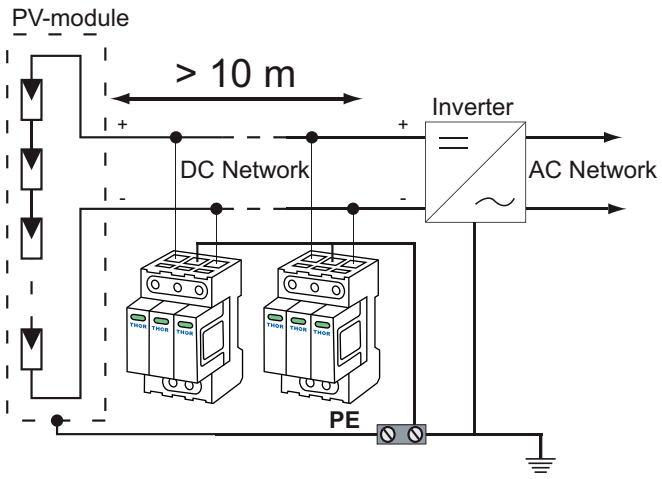
"Y"

Connection

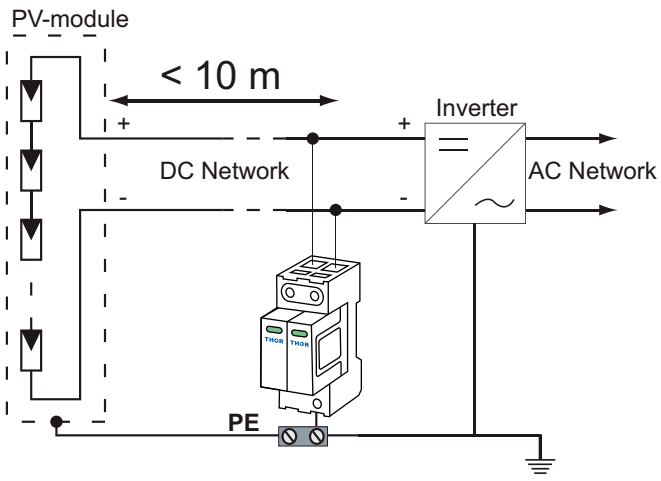
Connection of DC SPD in networks



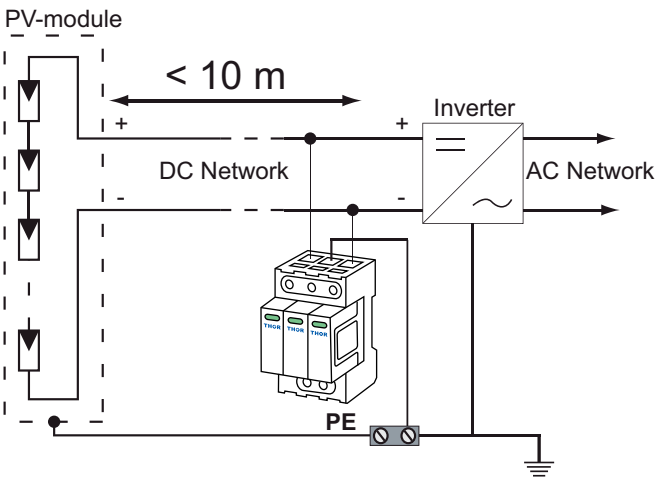
"U" Connection



"Y" Connection



"U" Connection



"Y" Connection

Content

AC SURGE PROTECTION DEVICE

DC SURGE PROTECTION DEVICE

SIGNAL SURGE PROTECTION DEVICE

LIGHTNING ROD

LIGHTNING BOX

TRS–A Series SPD

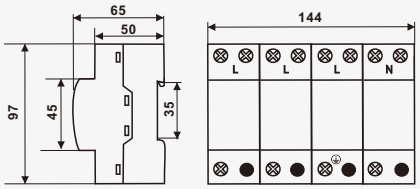
SPD type 1–surge arrester,Graphite gap

visual fault signalling

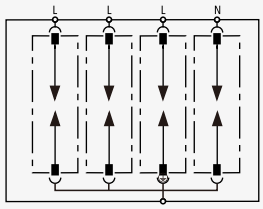
- Graphite gap surge arrester
- Installtion to main distribution boards
- For protection against impact direct or indirect lightning strikes in wide range of applications –houses,office and industrial buildings

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS–A15	TRS–A25	TRS–A50
Nominal volatge	U_n	230V AC		
Maximum operating voltage	U_c	275V AC		
Lightning impulse current (10/350 μs)	I_{imp}	15kA	25kA	50kA
Voltage protection level	U_p	≤2,0kV	≤2,2kV	≤2,5kV
Insulation resistance group		> 100mΩ		
Response time	t_a	< 100ns		
Cross–section of connected conductors solid(min/max)		16mm²/35mm²		
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²		
Fault indication		—		
Degree of protection		IP20		
Range of operating temperatures (min/ max)		–40℃~+85℃		
Humidity range		5%~95%		
Mounting		DIN rail 35 mm		
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T1		
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)		

TRS-B C D Series SPD

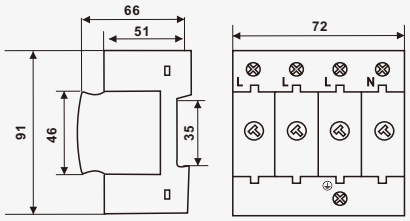
SPD type 2–surge arrester, MOV

Pluggable module, visual fault signalling

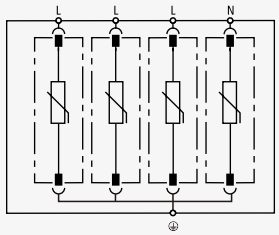
- Varistor surge arrester
- Installtion to sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.

Product

Dimension



Basic circuit diagram



T2 AC SPD

Parameter/Type		TRS–D10	TRS–D20	TRS–C40	TRS–B60
Nominal volatge	U_n	230V AC			
Maximum operating voltage	U_c	275V AC			
Nominal discharge current (8/20μs)	I_n	5kA	10kA	20 kA	30 kA
Maximum discharge current (8/20μs)	I_{max}	10kA	20kA	40kA	60kA
Voltage protection level	U_p	≤0,7kV	≤1,0kV	≤1,5 KV	≤1,8 KV
Response time	t_a	<25ns			
Cross–section of connected conductors solid(min/max)		16mm²/35mm²			
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²			
Fault indication		red indication field			
Degree of protection		IP20			
Range of operating temperatures (min/ max)		–40℃~+85℃			
Humidity range		5%~95%			
Mounting		DIN rail 35 mm			
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2			
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)			

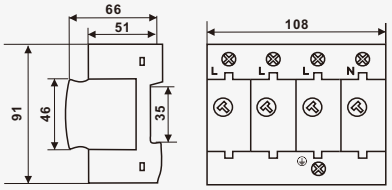
TRS-B Series SPD

SPD type 2–surge arrester, MOV
Pluggable module, visual fault signalling

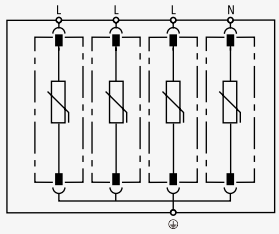
- Varistor surge arrester
- Installtion to sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS–B80	TRS–B100
Nominal volatge	U_n	230V AC	
Maximum operating voltage	U_c	275V AC	
Nominal discharge current (8/20μs)	I_n	40kA	60kA
Maximum discharge current (8/20μs)	I_{max}	80kA	100kA
Voltage protection level	U_p	≤1,8kV	≤2,0kV
Response time	t_a	<25ns	
Cross–section of connected conductors solid(min/max)		16mm²/35mm²	
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²	
Fault indication		red indication field	
Degree of protection		IP20	
Range of operating temperatures (min/ max)		-40℃~+85 ℃	
Humidity range		5%~95%	
Mounting		DIN rail 35 mm	
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2	
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)	

TRS2 Series SPD -Height 91mm

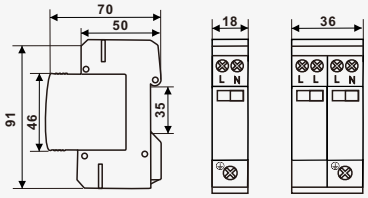
SPD type 2–surge arrester, MOV

Pluggable module, visual fault signalling

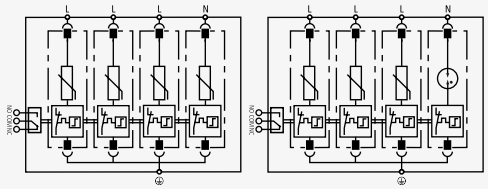
- Varistor surge arrester
- Installtion to sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS2–C40			
Maximum operating voltage		2P/4P		1P+N/3P+N	
Nominal volatge	U_n	230V AC			
Maximum operating voltage	U_c	L/N–PE:275V AC	L/N–PE:320V AC	L–PE:275V AC, N–PE:255V AC	L–PE:320V AC, N–PE:255V AC
Nominal discharge current (8/20μs)	I_n	20kA			
Maximum discharge current (8/20μs)	I_{max}	40kA			
Voltage protection level	U_p	⩽1,3KV	⩽1,5KV	⩽1,3KV	⩽1,5KV
Response time	t_a	< 25ns			
Cross–section of connected conductors solid(min/max)		16mm²/35mm²			
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²			
Fault indication		red indication field			
Remote indication		potential–free change–over contact			
remote indication contacts		250V/0,5A AC,250V/0,1A DC			
Cross–section of remote indication conductors		1,5mm²			
Degree of protection		IP20			
Range of operating temperatures (min/ max)		–40℃~+85℃			
Humidity range		5%~95%			
Mounting		DIN rail 35 mm			
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2			

TRS2 Series SPD -Height 82mm

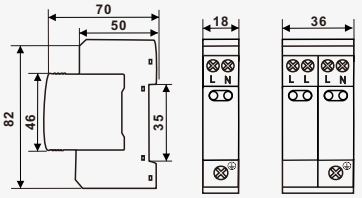
SPD type 2–surge arrester, MOV

Pluggable module, visual fault signalling

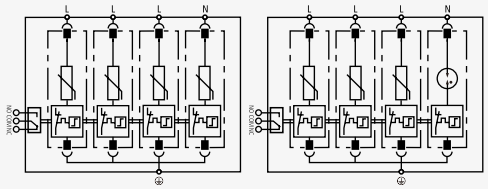
- Varistor surge arrester
- Installtion to sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS2–C40			
Maximum operating voltage		2P/4P		1P+N/3P+N	
Nominal volatge	U_n	230V AC			
Maximum operating voltage	U_c	L/N–PE:275V AC	L/N–PE:320V AC	L–PE:275V AC, N–PE:255V AC	L–PE:320V AC, N–PE:255V AC
Nominal discharge current (8/20μs)	I_n	20kA			
Maximum discharge current (8/20μs)	I_{max}	40kA			
Voltage protection level	U_p	⩽1,3KV	⩽1,5KV	⩽1,3KV	⩽1,5KV
Response time	t_a	< 25ns			
Cross–section of connected conductors solid(min/max)		16mm²/35mm²			
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²			
Fault indication		red indication field			
Remote indication		potential–free change–over contact			
remote indication contacts		250V/0,5A AC,250V/0,1A DC			
Cross–section of remote indication conductors		1,5mm²			
Degree of protection		IP20			
Range of operating temperatures (min/ max)		–40℃~+85℃			
Humidity range		5%~95%			
Mounting		DIN rail 35 mm			
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2			

TRS4 Series SPD

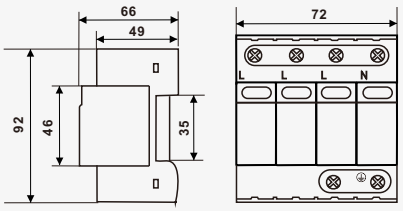
SPD type 2–surge arrester, MOV

Pluggable module, visual fault signalling

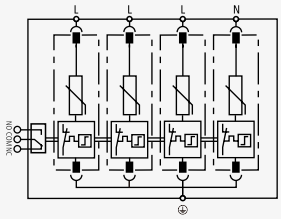
- Varistor surge arrester
- Installtion to sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS4–D20		TRS4–C40		TRS4–B60
Nominal volatge	U_n	230 V AC				
Maximum operating voltage	U_c	275 V AC	320 V AC	275 V AC	320 V AC	275 V AC
Nominal discharge current (8/20μs)	I_n	10kA		20kA		30kA
Maximum discharge current (8/20μs)	I_{max}	20kA		40kA		60kA
Voltage protection level	U_p	≤1,0 KV	≤1,2KV	≤1,5 KV		≤1,8 KV
Response time	t_a	<25ns				
Cross–section of connected conductors solid(min/max)		16mm²/35mm²				
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²				
Fault indication		red indication field				
Remote indication		potential–free change–over contact				
remote indication contacts		250V/0,5A AC,250V/0,1A DC				
Cross–section of remote indication conductors		1,5mm²				
Degree of protection		IP20				
Range of operating temperatures (min/ max)		–40℃~+85℃				
Humidity range		5%~95%				
Mounting		DIN rail 35 mm				
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2				
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)				

T2 AC SPD

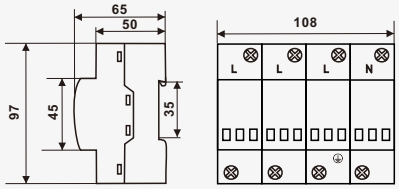
TRS6 Series SPD

SPD type 2–surge arrester, MOV
Pluggable module, visual fault signalling

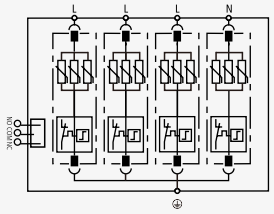
- Varistor surge arrester
- Installtion to sub–distribution boards (Imax:80kA)or main distribution boards (Imax:100kA)
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS6–B80	TRS6–B100
Nominal volatge	U_n	380V AC	
Maximum operating voltage	U_c	385V AC	
Nominal discharge current (8/20μs)	I_n	40kA	60kA
Maximum discharge current (8/20μs)	I_{max}	80kA	100kA
Voltage protection level	U_p	≤2,4kV	≤2,5kV
Response time	t_a	<25ns	
Cross–section of connected conductors solid(min/max)		16mm²/35mm²	
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²	
Fault indication		red indication field	
Remote indication		potential–free change–over contact	
remote indication contacts		250V/0,5A AC,250V/0,1A DC	
Cross–section of remote indication conductors		1,5mm²	
Degree of protection		IP20	
Range of operating temperatures (min/ max)		–40℃~+85℃	
Humidity range		5%~95%	
Mounting		DIN rail 35 mm	
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2	
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)	

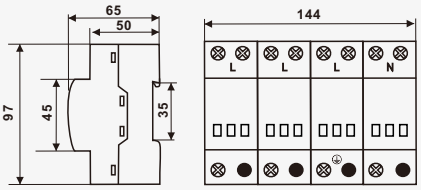
TRS7 Series SPD

SPD type 2–surge arrester, MOV
Pluggable module, visual fault signalling

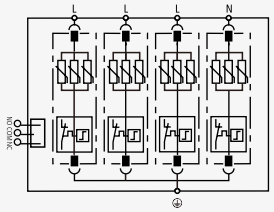
- Varistor surge arrester
- Installtion to sub–distribution boards (Imax:80kA)or main distribution boards (Imax:100kA/120kA/150kA)
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



T2 AC SPD

Parameter/Type		TRS7–B80	TRS7–B100	TRS7–B120	TRS7–B150
Nominal volatge	U_n	380V AC			
Maximum operating voltage	U_c	385V AC			
Nominal discharge current (8/20μs)	I_n	40kA	60kA	80kA	100kA
Maximum discharge current (8/20μs)	I_{max}	80kA	100kA	120kA	150kA
Voltage protection level	U_p	⩽2,4kV	⩽2,5kV	⩽3,0kV	⩽3,5kV
Response time	t_a	<25ns			
Cross–section of connected conductors solid(min/max)		16mm²/35mm²			
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²			
Fault indication		red indication field			
Remote indication		potential–free change–over contact			
remote indication contacts		250V/0,5A AC,250V/0,1A DC			
Cross–section of remote indication conductors		1,5mm²			
Degree of protection		IP20			
Range of operating temperatures (min/ max)		–40℃~+85℃			
Humidity range		5%~95%			
Mounting		DIN rail 35 mm			
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2			
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)			

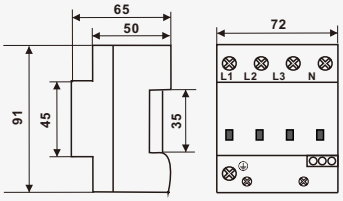
TRS8 Series SPD

SPD type 1+2–surge arrester, MOV+GDT
visual fault signalling

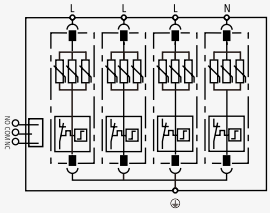
- Varistor and GDT surge arrester
- Installtion to main distribution or sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS8-B+C
Nominal volatge	U_n	230V AC
Maximum operating voltage	U_c	275V AC
Lightning impulse current(10/350μs)	I_{imp}	12,5kA
Nominal discharge current (8/20μs)	I_n	30kA
Maximum discharge current (8/20μs)	I_{max}	60kA
Voltage protection level	U_p	⩽1,5kV
Response time	t_a	<25ns
Cross–section of connected conductors solid(min/max)		16mm²/35mm²
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²
Fault indication		red indication field
Remote indication		potential–free change–over contact
remote indication contacts		250V/0,5A AC,250V/0,1A DC
Cross–section of remote indication conductors		1,5mm²
Degree of protection		IP20
Range of operating temperatures (min/ max)		–40℃~+85℃
Humidity range		5%~95%
Mounting		DIN rail 35 mm
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T1+T2

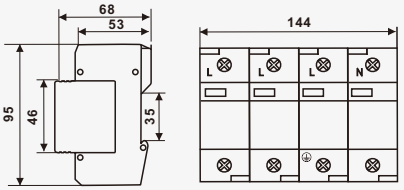
TRS9 Series SPD

SPD type 2–surge arrester, MOV
Pluggable module, visual fault signalling

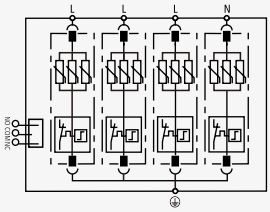
- Varistor surge arrester
- Installtion to sub–distribution boards (Imax:80kA)or main distribution boards (Imax:100kA/120kA/150kA)
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS9–B80	TRS9–B100	TRS9–B120	TRS9–B150
Nominal volatge	U_n	380V AC			
Maximum operating voltage	U_c	385V AC			
Nominal discharge current (8/20μs)	I_n	40kA	60kA	80kA	100kA
Maximum discharge current (8/20μs)	I_{max}	80kA	100kA	120kA	150kA
Voltage protection level	U_p	⩽2,4kV	⩽2,5kV	⩽3,0kV	⩽3,5kV
Response time	t_a	<25ns			
Cross–section of connected conductors solid(min/max)		16mm²/35mm²			
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²			
Fault indication		red indication field			
Remote indication		potential–free change–over contact			
remote indication contacts		250V/0,5A AC,250V/0,1A DC			
Cross–section of remote indication conductors		1,5mm²			
Degree of protection		IP20			
Range of operating temperatures (min/ max)		–40℃~+85℃			
Humidity range		5%~95%			
Mounting		DIN rail 35 mm			
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T2			
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)			

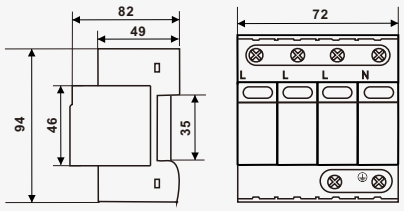
TRS5 Series SPD

SPD type 1+2–surge arrester, MOV
Pluggable module,visual fault signalling

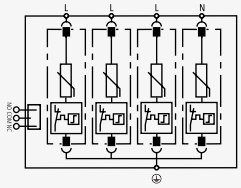
- Varistor surge arrester
- Installtion to main distribution or sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS5-B+C	
Nominal volatge	U_n	230V AC	
Maximum operating voltage	U_c	275V AC	
Lightning impulse current(10/350 μs)	I_{imp}	7kA	12,5kA
Nominal discharge current (8/20μs)	I_n	20kA	
Maximum discharge current (8/20μs)	I_{max}	50kA	
Voltage protection level	U_p	⩽1,3kV	
Response time	t_a	<25ns	
Cross–section of connected conductors solid(min/max)		16mm²/35mm²	
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²	
Fault indication		red indication field	
Remote indication		potential–free change–over contact	
remote indication contacts		250V/0,5A AC,250V/0,1A DC	
Cross–section of remote indication conductors		1,5mm²	
Degree of protection		IP20	
Range of operating temperatures (min/ max)		–40℃~+85℃	
Humidity range		5%~95%	
Mounting		DIN rail 35 mm	
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T1+T2	
Remarks		Other Uc can be customized.(320VAC)	

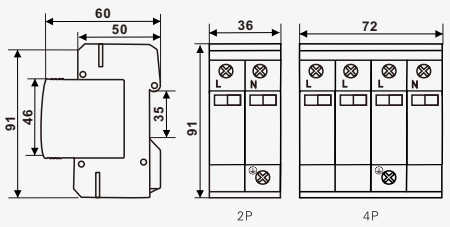
TRS5 Dual Series SPD

SPD type 1+2–surge arrester, MOV
Pluggable module,visual fault signalling

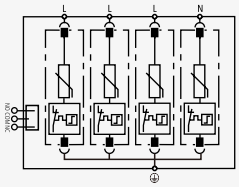
- Varistor surge arrester
- Installtion to main distribution or sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS5-B+C
Nominal volatge	U_n	230V AC
Maximum operating voltage	U_c	275V AC
Lightning impulse current(10/350μs)	I_{imp}	12,5kA
Nominal discharge current (8/20μs)	I_n	20kA
Maximum discharge current (8/20μs)	I_{max}	50kA
Voltage protection level	U_p	⩽1,3kV
Response time	t_a	<25ns
Cross–section of connected conductors solid(min/max)		16mm²/35mm²
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²
Fault indication		red indication field
Remote indication		potential–free change–over contact
remote indication contacts		250V/0,5A AC,250V/0,1A DC
Cross–section of remote indication conductors		1,5mm²
Degree of protection		IP20
Range of operating temperatures (min/ max)		–40℃~+85℃
Humidity range		5%~95%
Mounting		DIN rail 35 mm
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T1+T2
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)

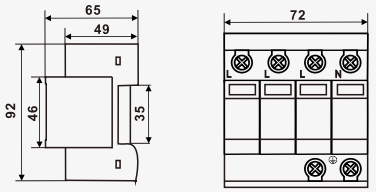
TR30B+C SPD TUV approved

SPD type 1+2–surge arrester, MOV
Pluggable module,visual fault signalling

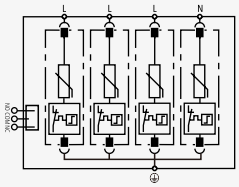
- Varistor surge arrester
- Installtion to main distribution or sub–distribution boards
- For protection of installations and equipments againt impact of induced overvolatge during a lightning strike or switching overvolatges.
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



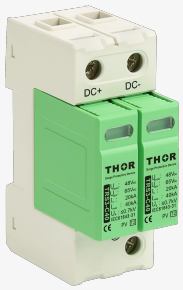
Parameter/Type		TRS30B+C
Nominal volatge	U_n	230V AC
Maximum operating voltage	U_c	275V AC
Lightning impulse current(10/350μs)	I_{imp}	4,5kA
Nominal discharge current (8/20μs)	I_n	30kA
Maximum discharge current (8/20μs)	I_{max}	60kA
Voltage protection level	U_p	⩽1,5kV
Response time	t_a	<25ns
Cross–section of connected conductors solid(min/max)		16mm²/35mm²
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²
Fault indication		red indication field
Remote indication		potential–free change–over contact
remote indication contacts		250V/0,5A AC,250V/0,1A DC
Cross–section of remote indication conductors		1,5mm²
Degree of protection		IP20
Range of operating temperatures (min/ max)		–40℃~+85℃
Humidity range		5%~95%
Mounting		DIN rail 35 mm
According to standard		EN 61643–11:2012,IEC 61643–11:2011/T1+T2
Remarks		Other Uc can be customized.(420VAC,385VAC,320VAC,etc.)

TRS3 Series DC SPD

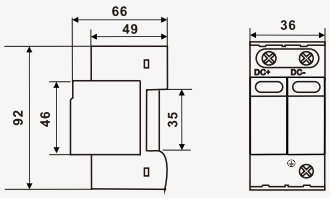
DC Surge Protector for EV Charger / Energy Storage System (ESS) / Telcom Communication

- Varistor surge arrester
- Installtion to DC network
- For protection of DC network where the separating spark–over distance is kept or without LPS
- Optional remote fault signalling(S)

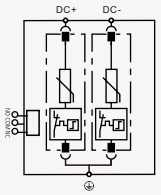
Product



Dimension



Basic circuit diagram



Parameter/Type		TRS3-C40			
Nominal PV Voltage	U_{ocstc}	24V DC	48V DC	75V DC	110V DC
Max. PV Operating Voltage	U_{cpv}	36V DC	65V DC	80V DC	180V DC
Nominal discharge current (8/20μs)	I_n	20kA			
Maximum discharge current (8/20μs)	I_{max}	40kA			
Voltage protection level mode +/PE, –/PE	U_p	≤0,6kV	≤0,7kV	≤0,8kV	≤0,9kV
Short–cicuit current rating	I_{scpv}	10kA			
Response time	t_a	< 25ns			
Cross–section of connected conductors solid(min/max)		16mm²/35mm²			
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²			
Fault indication		red indication field			
Remote indication		potential–free change–over contact			
Remote indication contacts		250V/0,5A AC,250V/0,1A DC			
Cross–section of remote indication conductors		1,5mm²			
Degree of protection		IP20			
Range of operating temperatures (min/ max)		–40℃~+85℃			
Humidity range		5%~95%			
Mounting		DIN rail 35 mm			
According to standard		EN 61643–31:2012,IEC 61643–31:2011/T2			
Remarks		Other U_{CPV} can be customized.			

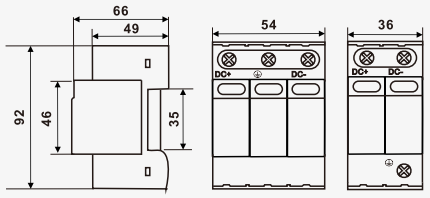
TRS3 Series PV SPD

SPD PV type 2–surge arrester for PV installation
Pluggable module,visual fault signalling

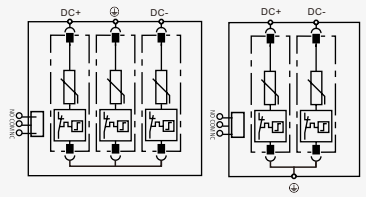
- Varistor surge arrester
- Installtion to PV system
- For protection of PV systems where the separating spark–over distance is kept or without LPS
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



Parameter/Type		TRS3-C40					
PV connection type		U			Y		
Nominal PV Voltage	U_{ocstc}	500V DC	600V DC	800V DC	1000V DC	1250V DC	1500V DC
Max. PV Operating Voltage	U_{cpv}	600V DC	720V DC	960V DC	1200V DC	1500V DC	1800V DC
Nominal discharge current (8/20μs)	I_n	20kA					
Maximum discharge current (8/20μs)	I_{max}	40kA					
Voltage protection level mode +/PE,–/PE	U_p	≤2,0kV	≤2,3kV	≤3,0kV	≤4,0kV	≤5,0kV	≤6,0kV
Short–cicuit current rating	I_{scpv}	10kA					
Response time	t_a	< 25ns					
Cross–section of connected conductors solid(min/max)		16mm²/35mm²					
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²					
Fault indication		red indication field					
Remote indication		potential–free change–over contact					
Remote indication contacts		250V/0,5A AC,250V/0,1A DC					
Cross–section of remote indication conductors		1,5mm²					
Degree of protection		IP20					
Range of operating temperatures (min/ max)		–40℃~+85℃					
Humidity range		5%~95%					
Mounting		DIN rail 35 mm					
According to standard		EN 61643–31:2012,IEC 61643–31:2011/T2					
Remarks		Other U_{CPV} can be customized.					

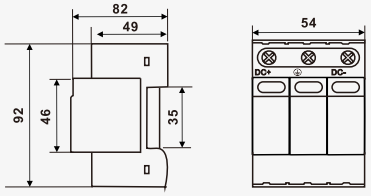
TRS3 Series high modules PV SPD

SPD PV type 1+2–lightning current and surge arresters for PV installation
Pluggable module,visual fault signalling,module locking

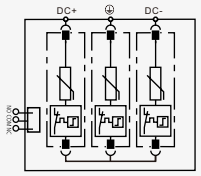
- Varistor surge arrester
- Installtion to PV system
- For protection of PV systems on the roofs,where the separating spark–over distance is not kept (connection to LPS)
- Optional remote fault signalling(s)

Product

Dimension



Basic circuit diagram



T1+T2 PV SPD

Parameter/Type		TRS3-C40		
PV connection type		Y		
Nominal PV Voltage	Uocstc	1000V DC	1250V DC	1500V DC
Max. PV Operating Voltage	U_{cpv}	1200V DC	1500V DC	1800V DC
Lightning impulse current(10/350μs)	I_{imp}	7kA	5kA	5kA
Nominal discharge current (8/20μs)	I_n	20kA		
Maximum discharge current (8/20μs)	I_{max}	40kA		
Voltage protection level mode +/PE,–/PE	U_p	≤4,0kV	≤5,0kV	≤6,0kV
Short–cicuit current rating	I_{scpv}	10kA		
Response time	t_a	< 25ns		
Cross–section of connected conductors solid(min/max)		16mm²/35mm²		
Cross–section of connected conductors stranded(min/max)		16mm²/35mm²		
Fault indication		red indication field		
Remote indication		potential–free change–over contact		
Remote indication contacts		250V/0,5A AC,250V/0,1A DC		
Cross–section of remote indication conductors		1,5mm²		
Degree of protection		IP20		
Range of operating temperatures (min/ max)		–40℃~+85℃		
Humidity range		5%~95%		
Mounting		DIN rail 35 mm		
According to standard		EN61643–31:2012,IEC61643–31:2011/T1+T2		
Remarks		Other U_{CPV} can be customized.(1200VDC,1500VDC,etc.)		

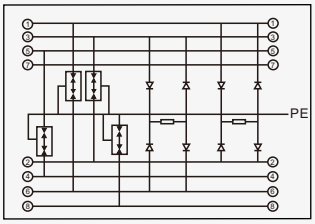
TRSS-RJ45 Series SPD

SPD for Data Networks and Ethernet Applications

- Indeally suited for retrofitting,Protection of all lines
- For installation in conformity with the lightning protection zone concept at the boundaries from OB-2 and higher

Product

Basic circuit diagram



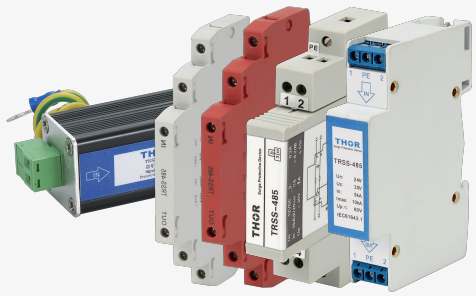
Parameter/Type	TRSS-RJ45	TRSS-RJ45/16 For 19"Cabinet	TRSS-RJ45/24 19"Cabinet
Material/Ports numbers	PA66/Aluminum/single port	Aluminum/16 ports	Aluminum/24 ports
Nominal volatge	48V		
Maximum operating voltage(d.c.)	50V		
Maximum operating voltage(a.c.)	34V		
Maximum operating voltage(d.c)pair-pai(PoE)	57V		
Nominal Current	1A		
Current flow (8/20 μs)(L-L)	5kA		
Current flow (8/20μs)(L-PE)	10kA		
Voltage protection level(L-L)	60V		
Voltage protection level(L-PE)	500V		
Cut-off frequency	250MHz		
Insertion loss at 250 MHz(1000Mpbs)	≤0,5dB		
Connection (inputy output)	Rj45 Socket/RJ45 socket		
Pinning	Data:1/2/3/6;PoE:4/5/7/8		
Response time t_a	<25ns		
Degree of Protection	IP20		
Range of operating temperatures(min/max)	-40℃~+85℃		
Humidity range	5%~95%		
According to standard	EN 61643-21:2012,IEC 61643-21:2011		

TRSS-485 Series SPD

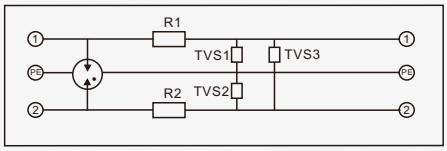
RS485 surge protector. The surge protector is connected in series in front of the protected equipment, and is mainly suitable for communication lines, remote signaling, measurement and control systems, access control intercom systems, automatic control systems, security systems, etc, which can effectively absorb the energy generated by surges Impact, and introduce energy into the earth through the grounding cable.

- Protect a pair of signal lines from lightning surge
- DIN rail installation saves a lot of space
- A variety of protection voltages are available, such as 5V 12V 24V 100V.
- The maximum discharge current is 10kA.

Product



Basic circuit diagram



Parameter/Type		TRSS-485			
Material/ width		Aluminum, PA66/ 7mm, 14mm, 18mm .			
Nominal volatge	U_n	5V	12V	24V	100
Maximum operating voltage	U_c	8V	15V	30V	110
Frequency		30 MHz			
Insertion loss		≤0,5dB			
Standing wave		1,2			
Nominal discharge current (8/ 20μs)	I_n	5 kA			
Maximum discharge current (8/ 20μs)	I_{max}	10 kA			
Voltage protection level	U_p	< 20V	< 40V	< 60V	< 150V
Mounting		DIN rail 35mm			
Degree of protection		IP20			
Range of operating temperatures (min/ max)		-40℃~+85℃			
Humidity range		5%~95%			
According to standard		EN 61643-21:2012, IEC 61643-21:2011			

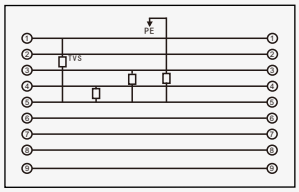
TRSS-DB Series SPD

TRSS–DB serial lightning protection device is designed according to IEC and GB standards, and is widely used in the surge protection of the DB serial communication system in industrial control, telecommunications, local area networks and commercial and military fields. The grounding cable can be grounded through the metal shell of the DB serial port.The grounding path should be as short as possible, and the length should not exceed 1.5 meters.

- Fine protect the communication line
- Fast response, and low limte voltage
- Terminal type: DB9, DB15, DB25
- Low insert loss .

Product

Basic circuit diagram



Parameter/Type		TRSS-DB9/DB15/DB25	
Nominal volatge	U_n	5V	12V
Maximum operating voltage	U_c	8V	15V
Transmission speed	f_g	45 MHz	
Insertion loss		≤0,5 dB	
Nominal discharge current (8/20μs)	I_n	100A	
Voltage protection level	U_p	<80V	
Degree of protection		IP20	
Range of operating temperatures (min/max)		–40℃~+85℃	
Humidity range		5%~95%	
According to standard		EN 61643–21:2012, IEC 61643–21:2011	

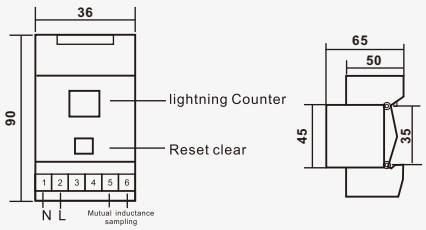
TRSC Lightning counter

TRSC surge protector lightning counter is adopted standard Din–rail style installationt can test and record the discharge frequency of the lighting arresterthat is recording the lighting current rush frequency bevond certain dearee which is convenient for the users to do statistics and analysis on the liahtning situation in specitic area.It can be used accompanying with various liahting arrestersalso it can be used such as the supported product of the surge protection box.

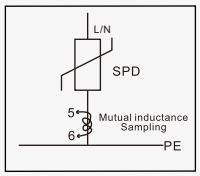
- Counting Precisely
- It has a strongabilityofAnti–interference
- It can preserve the datas for one month after the disconnection of power
- It can be used simply and matched the use of kinds of Power pretectors and equipments

Product

Dimension



Basic circuit diagram



Parameter/Type	TRSC
Rated voltage U_n	220 V
Current	T2(8/20μs): 5–100 kA/ T1(10/350μs): 15–50 kA
Number of Counts (times)	0–99
Sampling mode	Mutual inductance sampling
Degree of protection	IP20
Range of operating temperatures (min/ max)	–40℃~+85℃
Humidity range	5%~95%
Mounting	DIN rail 35mm

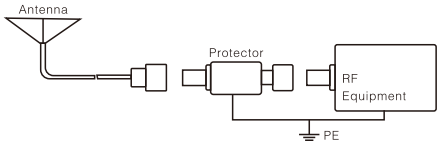
TRSW Series coaxial SPD

TRSW Coaxial cable Surge Protector should be installed between two coaxial cable connectors or two communication equipments to effectively prevent the communication equipments from being damaged by transient forming from nearby strike. This product has high capacity of surge current and a wide frequency range, thus it is ideal protector for various communication equipment.

Installation:

This protector is applicable in indoors, it should be installed between two coaxial cable connectors or two communication equipments, the cross section of grounding wire should no less than 4mm2, and be wired with the earthing terminal of prevented equipment.

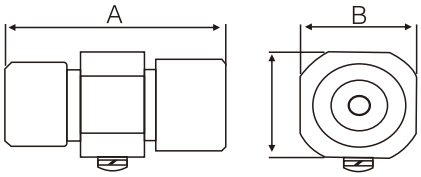
Installing figure:



Features:

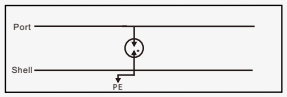
- With replaceable integrated gas discharge tube
- Fast response without interruption
- Metal shell N, SMA, BNC, TNC, F type connectors, easy to install.

Dimension(mm):



Product

Basic circuit diagram



Interface Type	BNC	N	TNC	SMA
A	57.2	59.4	57.2	48.4
B	25	25	25	25
C	25	25	25	25

Parameter/Type	TRSW					
Frequency Range	(BNC: DC–2GHz) (N、TNC、SMA:DC–2.5GHz)					
Impendence	50Ω					
VSWR	<1.2					
Insertion loss	≤0.3dB					
Input Power	< 20W	< 50W	< 100W	< 200W	< 400W	< 500W
Initial Discharge Voltage	≥50V	≥70V	≥120V	≥190V	≥280V	≥280V
Current Capacity	10kA					
Interface Type	BNC; N; TNC; SMA					
Housing material	Brass HPb59–1, GB4425–84					
Degree of protection	IP20					
Range of operating temperatures (min/ max)	–40℃~+85℃					
Humidity range	5%~95%					
According to standard	EN 61643–21:2012, IEC 61643–21:2011					

TRSS-LED Series SPD

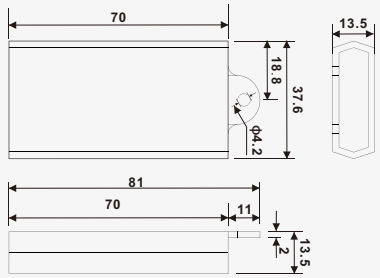
LED Street Lights Power SPD: TRSS–LED designed for protecting LED , Driver and could be connected perfectly with its input port, sealed enclosure, waterproot and dustproof, IP67 protection grade belongs to Class III power SPD. This SPD use common mode, differential mode, full protection with leakage current and cut the overcurrent capabilities.

The product size small,81x 37.6x 13.5mm(Dose not contain the connection linc), using parallel wiring, attached with L, N and PE cable, very convenientin installing. TRSS–LED able to withstand voltage 20kV. the level of protection isbelow 1.1kV, especially good for protecting LED Street lights form lightning surge damaae.

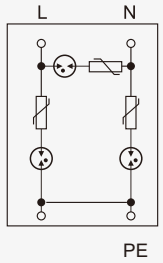
- Protect LED Street lights from lightning surge
- Convenient in installation
- Use parallel wiring, attached with L,N and PE cable
- The maximum discharge current is 10kA

Product

Dimension



Basic circuit diagram



Parameter/Type		TRSS-LED
Rated voltage	U_n	110– 277V AC
Max. Continuous voltage	U_c	390V AC
Norminal discharge current(8/20μs)	I_n	5KA
Max. discharge current(8/ 20μs)	I_{max}	10KA
Nominal discharge voltage	V_n	10KV
Maximum discharge voltage	V_{max}	20KV
Voltage protection level	U_p	1.1KV
Response time	t_a	< 25ns
Cross– section area		1.5mm^2 flexible
Operating temperature range		–40℃~+85℃
Mounting on		Custom
Enclosure material		ABS765A
Size		81x37.6x13. 5mm
Test standards		EN 61643–11:2012,IEC 61643–11:2011
Fault indicator		Indicator can be option
Outer casing protection grade		IP67
Weight		57g

TRSS-LED Series SPD

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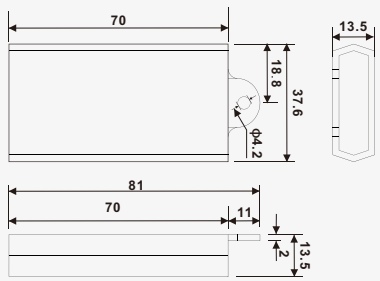
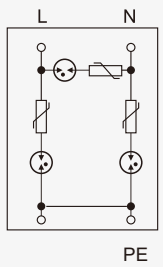
- Protect LED Street lights from lightning surge
- Convenient in installation
- Use parallel wiring, attached with L,N and PE cable
- The maximum discharge current is 10kA

Product

Dimension



Basic circuit diagram



Parameter/Type		TRSS-LED
Rated voltage	U_n	110– 277V AC
Max. Continuous voltage	U_c	390V AC
Norminal discharge current(8/20μs)	I_n	5KA
Max. discharge current(8/ 20μs)	I_{max}	10KA
Nominal discharge voltage	V_n	10KV
Maximum discharge voltage	V_{max}	20KV
Voltage protection level	U_p	1.1KV
Response time	t_a	< 25ns
Cross– section area		1.5mm^2 flexible
Operating temperature range		–40℃~+85℃
Mounting on		Custom
Enclosure material		ABS765A
Size		81x37.6x13. 5mm
Test standards		EN 61643–11:2012,IEC 61643–11:2011
Fault indicator		Indicator can be option
Outer casing protection grade		IP67
Weight		57g

TRSB-Lightning rod

Lightning Rod is used for protecting the buildings to avoid lightning strike. Lightning rod grounding plays an important part of the air termination network of a lightning protection system.
Building Lightning Rod, alternate named lightning protection devices, used for protecting the building when raining and lightning .The lightning rod installed on the building and transfer the electric to earthing metal to protect the building . Our lightning rod comply with UNE 21.186 NFC 17. 102 or EN 50.164/1 EN 62.305 standard . Customized lightning rod available.

Working Principles:

During thunderstorm conditions when the lightning down–leader is approaching ground level, an upward leader may be created by any conductive surface. In the case of a passive lightning rod, the upward leader propagates only after a long period of charge reorganization. In the case of PDC series, the initiation time of an upward leader is greatly reduced. The PDC series generates controlled magnitude and frequency pulses at the tip of the terminal during high static fields characteristic prior to a lightning discharge. This enables the creation of an upward leader from the terminal that propagates towards the downward leader coming from the thundercloud.

Part I: Protection range of direct lightning arrester
Rolling ball radius(R):

Class Ⅰ lightning protection building	30m(National buildings, arsenal, etc.)
Class Ⅱ lightning protection building	45m (Government institutional units, etc.)
Class Ⅲ lightning protection building	60m(civil buildings, etc.)

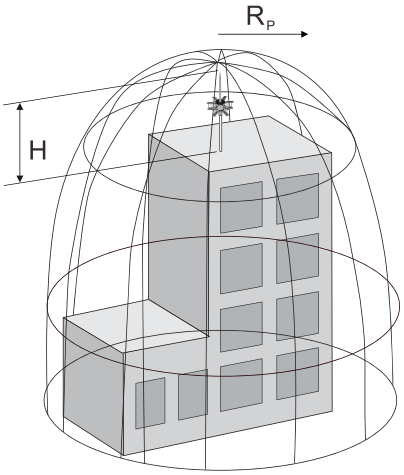
Part Ⅱ: Selection of lightning protection type

Type	R	Lightning Rod height (h)/ protecting range (x)		
Class Ⅰ	30m	30/30	15/25	10/22.3
Class Ⅱ	45m	45/45	22.5/38	10/28
Class Ⅲ	60m	60/60	30/51.9	10/33

Part Ⅲ: Caculation of protecting range

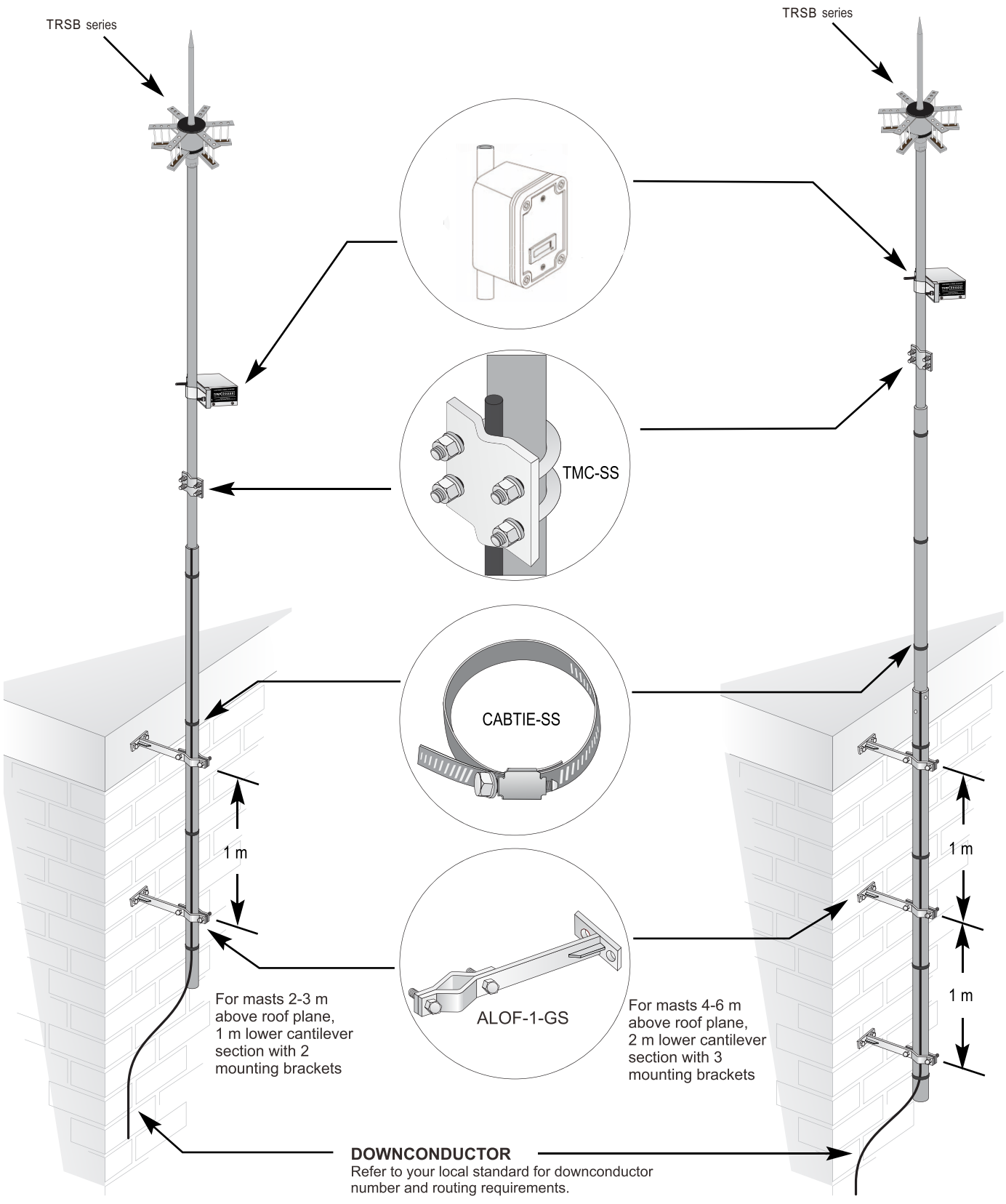
Protecting range X
Lightning rod height H
Rolling ball radius R

Protecting range $X = \sqrt{R^2-(R-h)^2}$



Typical MAST Installation Arrangement

■ For Cantilevered Mast



TRSX Series Lightning box

I:Application

This product is applicable to low-voltage power supply and distribution system with power grid voltage below 1000V and frequency of 50/60Hz. It is connected to the power line of three-phase power supply and distribution system in parallel to prevent damage to power supply system and electrical equipment caused by impulse surge and transient overvoltage caused by lightning stroke.
This product has the advantages of large reserve current capacity, up to a level of 15kA (10/350us), safety and reliability, reasonable structure, and convenient installation. At the same time, it is designed with Kevin wiring method to ensure the best protection effect on the power supply system.
This power supply lightning protection box is widely used for lightning protection and overvoltage protection of the main power supply in communication equipment rooms, computer rooms, communication, power, factories, mines, finance, civil aviation, railways, and other systems.

II:Working principle

Under normal working voltage, the lightning protection module is in a high resistance state, which does not affect the normal operation of the circuit. The failure indicator light of the lightning protection box does not light up (the lightning protector is working normally). When an instantaneous pulse overvoltage occurs on the line due to lightning strikes or switch operations, the lightning arrester module quickly conducts within nanosecond time, and the lightning counter displays a cumulative count of times to short-circuit the overvoltage to the ground and release it. When the pulse overvoltage disappears, the lightning protection module automatically restores the high resistance state, without affecting the user's power supply. When the surge current is too large and the current capacity exceeds the maximum value, the lightning protection module deteriorates. The overcurrent and ovetheat release devices in this module will automatically disconnect the lightning protection module circuit, protecting the power circuit from being affected and preventing fires; At this point, the failure indicator light turns red, indicating that the lightning arrester is faulty and reminding the user to replace it in a timely manner.

III:Installation

(1) The lightning protetion box of this power supply can only be installed by professional personnel, and the installation position is in a place that cannot be directly touched by human hands. Before installation confirm that it is a non live installation and check if the power lightning protection box is intact. After power on, the working indicator light (green light)should light up normally, and the failure indicator light (not lit) should go out. If there is damage or the red indicator light is lit, it cannot be used.
(2) An independent air switch or fuse with a capacity of 32A-63A should be installed at the front of the lightning protection box.
(3) Connect according to the L, N, and PE marked on the lightning protection box. The cross-sectional area of the connecting line of the phase line should not be less than 6mm^2 The cross-sectional area of the wire. connection should not be less than 10mm^2 and should be as short, flat, and straight as possible.

Parameter/Type		TRSX-20	TRSX-40	TRSX-60	TRSX-80	TRSX-100
Protec ted mode		L–PE;N–PE				
Nominal volatge	U_n	380V AC				
Maximum oper ating voltage	U_C	385V AC				
Nominal discharge current (8/20μs)	I_n	10kA	20kA	30kA	40kA	50kA
Maximum discharge current (8/ 20μs)	I_{max}	20KA	40KA	60KA	80KA	100KA
Voltage protection level	U_p	≤1.5kV	≤2.0kV	≤2.0kV	≤2.4kV	≤2.5kV
Response time	t_a	<25ns				
The nominal cross–sectional area of the copper conductor for operation connection		Single or multiple stranded copper wire: 6mm2– 25mm^2				
Fault indication		red indication field				
Degree of protection		IP20				
Range of operating temper atures (min/max)		–40℃~+85℃				
Humidity range		5%~95%				
Mounting		Wall mounted installation				
According to standard		EN 61643–11:2012, IEC 61643–11:2011 / T2				
Remarks		Other Uc can be customized.(420VAC, 385VAC, 320VAC, etc.)				

Cherish resources
Be kind to the environment

Zhejiang THOR Electric Co.,Ltd

ADD: Qianyangdong Industrial Zone Yueqing
Zhejiang Province,China Post code:325604
TEL: +86-577-6267 7705
Main Web:www.thorspd.com
Sub Web:www.thorsurge.com