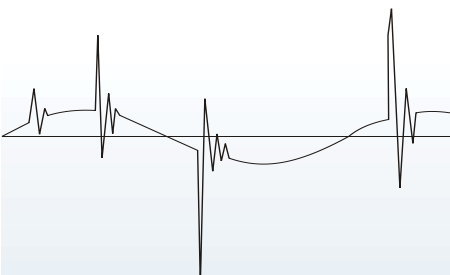


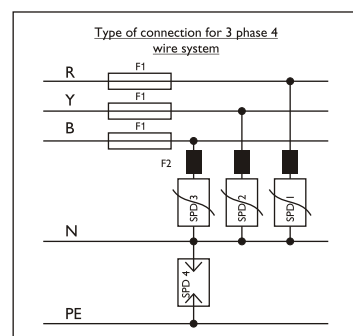


TRABTECH Power & Signal Quality

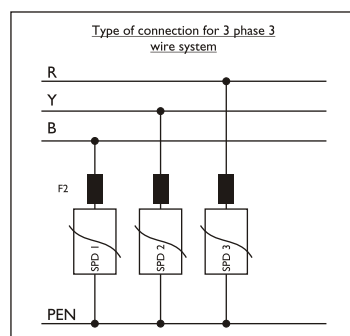


DESCRIPTION	VAL-MS 60 AC ST	VAL-MS 120 AC ST	VAL-MS 230 AC ST	VAL-MS 320 AC ST	VAL-MS BE	VAL-MS BE/FM	Article No.
Plug for	24 V	60 V	120 V	230 V	320 V		
Base element	VAL-MS BE	VAL-MS BE	VAL-MS BE	VAL-MS BE	VAL-MS BE	VAL-MS BE/FM	
Potential free contact	VAL-MS BE/FM	VAL-MS BE/FM	VAL-MS BE/FM	VAL-MS BE/FM	VAL-MS BE/FM	VAL-MS BE/FM	

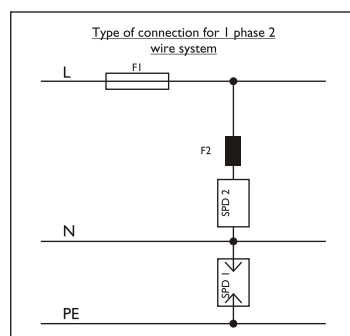
Technical data	VAL-...120	VAL-...230	VAL-...320	Technical data	...24AC	...60AC	...120AC	...230AC
IEC category/VDE requirement class:	II / C	II / C	II / C	IEC category/VDE requirement class/EN type:	III / D / T3	III / D / T3	III / D / T3	III / D / T3
Nominal Voltage U _N :	120V AC	230V AC	277V AC	Nominal voltage U _N :	24 V AC	60 V AC	120 V AC	230 V AC
Arrester rated voltage U _C :	DC/AC	200 V/150 V	350 V/275 V AC	Arrester rated voltage U _C :	34 V AC	100 V AC	150 V AC	253 V AC
Discharge current to PE at U _C :	≤0.3 mA	≤0.3 mA	≤0.3 mA	Nominal current I _N /30 °C:	26 A	26 A	26 A	26 A
Nominal discharge surge current I _p (8/20) μs: asym. (↓)	20 kA	20 kA	20 kA	Nominal discharge surge current I _p (8/20) μs:	1 kA	2.5 kA	2.5 kA	3 kA
Max. discharge surge current I _{max} (8/20) μs: asym. (↓)	40 kA	40 kA	40 kA	Max. discharge surge current I _{max} (8/20) μs:	2 kA	6.5 kA	10 kA	10 kA
Voltage protection level at U _C :	asym.	≤1.35 kV	≤1.6 kV	Combined surge U _{OC} :	2 kV	4 kV	6 kV	6 kV
Residual voltage at 5 kA	L-N/L-↓/N-↓	550 V	1 kV	Protection level: [V]	≤ 180/≤ 550	≤ 400/≤ 700	≤ 620/≤ 850	≤ 1100 /≤ 1500
Response time t _r :	asym. (↓)	≤25 ns	≤25 ns	Back-up fuse:	25 A gL	25 A gL	25 A gL	25 A gL
Max required back-up fuse:	125 A gL/gG	125 A gL/gG	125 A gL/gG	Discharge current to / operating current: [μA / mA]	≤ 1/≤ 1.5	≤ 1/≤ 1.5	≤ 1/≤ 1.5	≤ 1/≤ 1.5
Remote ind. contact: PDT max. perm. operating voltage U _{max}	250VAC/125 VDC	250VAC/125 VDC	250VAC/125 VDC	Temperature range:		-40 °C to +85 °C		
max. perm. operating current I _{max} AC (W/Ind.)	1 A/1 A	1 A/1 A	1 A/1 A	Degree of protection in acc. with IEC 529/ EN 60 529:		IP 20		
max. perm. operating current I _{max} DC (W/Ind.)	0.2 A/30 mA	0.2 A/30 mA	0.2 A/30 mA	Insulation housing:		PA		
Temperature range:	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C	Inflammability class in acc. with UL 94:		V0		
Protection type acc. to IEC 60 529/ EN 60 529:	IP 20	IP 20	IP 20	Thread:		M3		
Insulation housing / Inflammability class acc. to UL 94:	PA/V0	PA/V0	PA/V0	Torque:		0.8 Nm		
Stripping length : Biconnect terminal block/remote indicator contact	14.5/7 mm	14.5/7 mm	14.5/7 mm	Approvals:				
Screw thread : Biconnect connector/remote indicator contact	M 5/M 2	M 5/M 2	M 5/M 2	Test standards:				
Torque : Biconnect connector/remote indicator contact	4.5Nm/0.25 Nm	4.5Nm/0.25 Nm	4.5Nm/0.25 Nm					
Approvals :	UL 1449 ed.2	UL 1449 ed.2	UL 1449 ed.2					
Test standards :	IEC 61643-1:1998-02	IEC 61643-1:1998-02	IEC 61643-1:1998-02					
	E DIN VDE 0675 part 6:1989-11/	E DIN VDE 0675 part 6:1989-11/	E DIN VDE 0675 part 6:1989-11/					
	A1:1996-03/A2:1996-10	A1:1996-03/A2:1996-10	A1:1996-03/A2:1996-10					
	UL 1449 ed.2	UL 1449 ed.2	UL 1449 ed.2					



Class C



Class C



Class C

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Surge Protection for PLC, CNC & Drive Systems

What causes power surges and why are they dangerous for electrical & electronics system

Why use SURGE PROTECTION?

Power surges are short duration voltage and current spikes that occur continuously in the electrical environment. The sources of these electromagnetic phenomena can be natural or man-made. Normal utility and electrical activity, such as load switching, motor drives, contactors and capacitor bank switching can cause power surges.

With the ever increasing dependence on electronics and communications for every facet of our daily lives, electronic reliability is an important issue. When equipment fails, the repair costs often run much higher than that of the equipment itself. When considering cost of downtime, troubleshooting, lost production and cost of hardware replacements, the true costs can be astronomical.

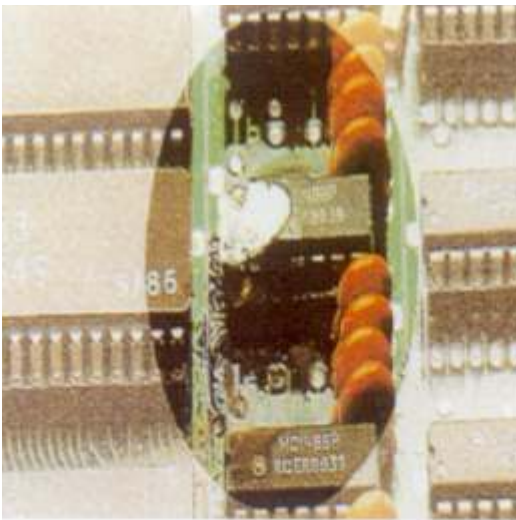
To prevent power surges from destroying AC power circuits, electrical and electronic systems all the interfaces at risk (such as control and data signals, communication and video signals) must be connected to surge protection devices. Different surge protection components and approaches are used depending on the application.

Equipment SUSCEPTIBILITY

How much damage will a power surge cause? The increasing integration of electronic circuits into smaller packages has led to an increased sensitivity to surge voltage conditions. Energy levels as low as microjoules can easily causes failures to integrated circuits.

Damage to electronics and integrated circuits isn't always immediately destructive in nature. Dissipative and disruptive damage are also costly effects from surge events. Dissipative damage is the cumulative effect of low-energy switching transients that "wear-out" the internal strength of interrupted data flow and generally result in system lock-up related to computer & microprocessor based system.

Disruptive	Symptoms: Confused logic, lost files, data stream disruption and /or corruption, system lock-up. Disruptive effects are common place to most PLC/CNC user but are generally blamed on software or hard problems.
Dissipative	Symptoms: Little or no visible damage, but components will not function properly. "Bad IC's" is usually the diagnosis. Dissipative effects are the cumulative result of electronic stress usually caused by internally generated, lower energy, but constantly present switching events.
Destructive	Symptoms: Very visible damage: burnt boards, traces and components, Some components literally blown off the board. Wire insulation melted and metallic parts deformed. Destructive effects are generally associated with severe impulse (lightning activity) events.

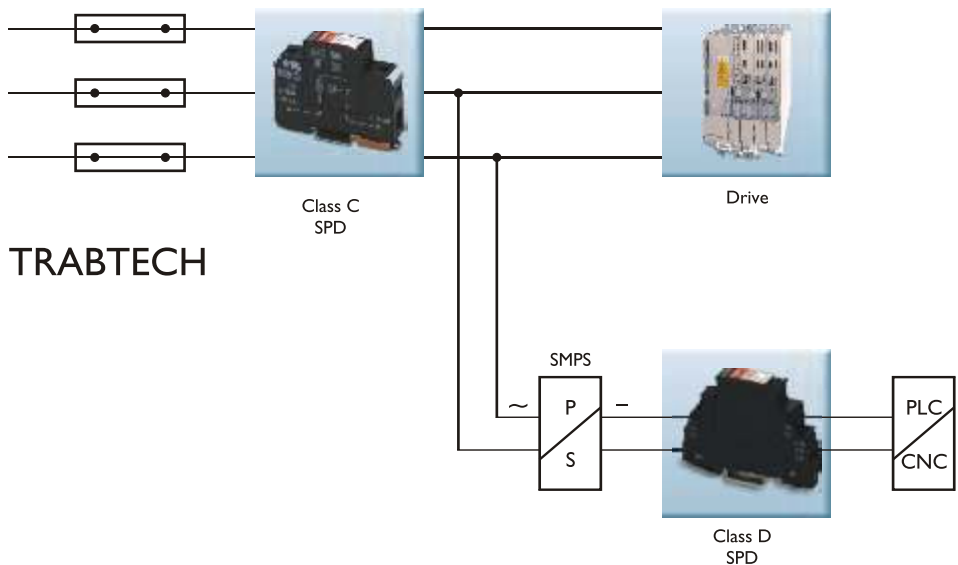


Trabtech offers all type of protective device thus adding new dimension in performance and protection

Surge Voltage Protection

TRABTECH offers all type of protective devices for signal interface and power supply units for the control technology in mechanical and plant engineering. Downtimes are usually seen as a result of surge voltages which can be prevented effectively with a comprehensive protection system.

Availability & Performance of system is enhanced. A two stage protection is recommended for the PLC/ CNC & Drives.



CLASS C - VALVETRAB at Control Panel Input of the Power Supply.

The test standards met by such surge arresters are according to IEC 61643-1 & VDE 0675 standards.

Features of Class C type surge arrester:

- Single high capacity MOV based surge arrester for phase to neutral & spark gap for neutral to earth.
- Rated voltage to suit Indian condition and TT power supply network.
- Connections parallel to the circuit- no disconnection of load.
- Pluggable MOV for easy replacement & testing.
- Visual as well as remote indication for monitoring its health status.
- Nominal repeated discharge current of 20KA, 8/20μs.
- Maximum discharge current of 40KA, 8/20μs.
- RoHS Compliance.

CLASS D - PLUGTRAB for Device Power Supply Protection

Features of Class D MAINS PLUGTRAB

- Connection in series with the supply.
- Combination of MOV and Gas Discharge tube.
- Rated voltage as per the requirement of the electronic circuit.
- Pluggable type for easy replacement without disconnection of the circuit.
- Visual as well as remote indication for monitoring its health status.
- Nominal repeated discharge current of 10KA, 8/20μs.
- Maximum discharge current of 20KA, 8/20μs.
- RoHS Compliance.