



Surge Protection Devices

Controls

DSF, DSB and DSC

Surge Protection Devices

Carlo Gavazzi range of Surge Protection Devices has been developed in order to fulfil any application requirement for residential and renewable energies protection from overvoltages.

Current statistics and estimates of damages show that about one third of all claims on above mentioned systems, excluding outage and collaterals, were caused by surges. In case of Photovoltaic systems damage on equipment is even higher. Systems are always placed outside thus exposed to atmospheric discharges, furthermore they are grid connected and can be subject to mains over-voltages.

The DSB, DSC and DSF Surge Protection Devices protect from any type of over-voltages: TOVs, switching overvoltages or lightning strikes. Lightning over-voltages can be caused by direct or indirect strikes, among Carlo Gavazzi families there are Surge Protection Devices for both types.

The DSx families feature products specific for certain applications such as: protection of RS485 lines, single and three phase AC mains, DC voltages mainly for PV applications. Besides these, Carlo Gavazzi offers a DSB surge arrester which has been specifically developed for the protection of Dupline® and Home Automation systems.



Protect your investment

• Class I and II PV

The DSC54 is currently the Carlo Gavazzi Surge Protection Devices with the highest degree of protection. It is approved Class I and II hence it can be used in PV installations with or without Lightning Protection System, as it is suitable for both direct and indirect lightning strikes.

• Leakage free with GDT

The DSF topology has been studied and developed in order to eliminate the troublesome current leakage problem. MOV surge arresters, due to their construction, are subject to leakage currents from the protected pole to the Ground, on the on the DSF series the unique topology prevents this typical inconvenient.

• Temporary Overvoltages

Temporary overvoltages are defined as exceeded maximum voltage for long periods of time. In this case our DSF devices limit the current flow by means of a particular circuit in series to the MOV that prevents its premature aging and consequent failure.

• Modular concept

Carlo Gavazzi range of Surge Protection Devices is constructed with a modular concept so that, in the case of failure of the cartridge, due to severe surges, the blown cartridge can be easily replaced and the protection can be restored immediately.

• Wide range of products for Renewable Energies

Range of DC Surge Protection Devices is suitable for voltages from 600V up to 1200V. The range of AC Surge Protection Devices is available for single of three phase mains from 150V up to 880V, with or without GDT, for TT, IT, TN-S or TN-C networks.

• Remote contacts

All Carlo Gavazzi Surge Protection Devices provide optional contacts for remote monitoring of the functional status.

DSF...D

- No backup fuse required
- No leakage current
- TOV immunity

The DSF D is Class II Surge Protection Devices specifically designed for PV applications. Their multicomponent construction provides protection against fast overvoltage transients and voltage surges as well as long duration overvoltages. The contact provides remote indication of fault.



DSF A/P

- No backup fuse required
- No leakage current
- TOV immunity

The DSF A and DSF P are Class II Surge Protection Devices for single phase (A) or three phase applications (P). The construction eliminates the risk of leakages between phase to neutral or phase to ground. Protection is provided against both fast and slow overvoltages. Contact provides remote indication of fault.



DSB A/P

- MOV and GDT elements available
- Replaceable cartridges
- Available for all single and three phase Grid types

The DSB A and DSB P are classic MOV Class II Surge Protection Devices suitable for basic protection against indirect lightning discharges and induced voltages of single phase (A) and three phase (P) Ac mains. The devices consist of an high performance Varistor with thermal disconnecter.



DSC...D

- For PV systems with LPS
- High Energy MOVs
- Compact Design

The DSC D Surge Protection Devices is the right choice for PV installations equipped with lightning protection system as it provides protection against direct and indirect lightning strikes. The internal MOV's are doubled for each one of the poles and provide very high protection level.



DSB S/DP

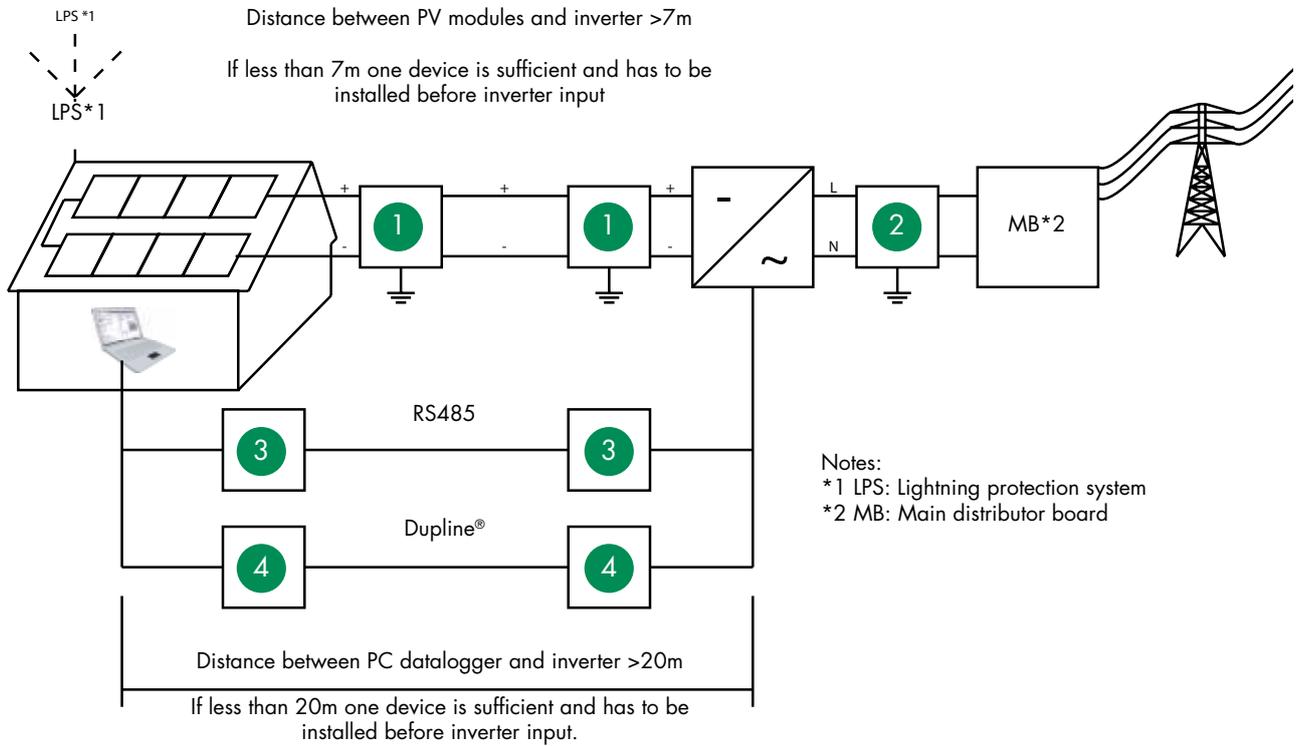
- RS485 and Dupline® Data lines protection
- Dual GDT
- Three stage topology

DSB S and DSB DP arresters provide protection for Serial RS485 and Dupline® communication lines. Their three stage topology protects against fast and slow high energy surges that may be induced on data lines which are typically long hence subject to them.



DSF, DSB and DSC Surge Protection Devices

Model



| | Without lightning protection system | With lightning protection system |
|---|--|---|
| 1 | DSB52CD1000 DSF52CDxxxPV DSF53CD1200PV | DSC54CD1000PV |
| | Single Phase | Three Phase |
| 2 | DSB52CA275 DSF52CA277 | DSB54CP275N DSB53CP275 DSF54CP277 DSF53CP277 |
| 3 | DSB5 1xxS | |
| 4 | DSB5 1xxDP | |

Applications

| Application | Poles | IEC/ EN UL Category | Voltage | Part Number | UL | CSA | CE |
|-----------------|----------|-------------------------|---------|---------------|-----|-----|--------------------|
| AC Single Phase | 1+1 | Class II / Type 2 | 275Vac | DSB52XA275N | - | - | IEC 61643-1 |
| AC Single Phase | 1+1 | Class II / Type 2 | 275Vac | DSB52CA275N | - | - | IEC 61643-1 |
| AC Single Phase | 2+0 | Class II / Type 2 | 275Vac | DSB52XA275 | - | - | IEC 61643-1 |
| AC Single Phase | 2+0 | Class II / Type 2 | 275Vac | DSB52CA275 | - | - | IEC 61643-1 |
| AC Single Phase | 2+0 | Class II / Type 2 | 320Vac | DSB52XA320 | - | - | IEC 61643-1 |
| AC Single Phase | 2+0 | Class II / Type 2 | 320Vac | DSB52CA320 | - | - | IEC 61643-1 |
| AC Three Phase | 3+0 | Class II / Type 2 | 275Vac | DSB53XP275 | - | - | IEC 61643-1 |
| AC Three Phase | 3+0 | Class II / Type 2 | 275Vac | DSB53CP275 | - | - | IEC 61643-1 |
| AC Three Phase | 3+0 | Class II / Type 2 | 440Vac | DSB53XP440 | - | - | IEC 61643-1 |
| AC Three Phase | 3+0 | Class II / Type 2 | 440Vac | DSB53CP440 | - | - | IEC 61643-1 |
| AC Three Phase | 4+0 | Class II / Type 2 | 275Vac | DSB54XP275 | - | - | IEC 61643-1 |
| AC Three Phase | 4+0 | Class II / Type 2 | 275Vac | DSB54CP275 | - | - | IEC 61643-1 |
| AC Three Phase | 4+0 | Class II / Type 2 | 320Vac | DSB54XP320 | - | - | IEC 61643-1 |
| AC Three Phase | 4+0 | Class II / Type 2 | 320Vac | DSB54CP320 | - | - | IEC 61643-1 |
| AC Three Phase | 3+1 | Class II / Type 2 | 275Vac | DSB54XP275N | - | - | IEC 61643-1 |
| AC Three Phase | 3+1 | Class II / Type 2 | 275Vac | DSB54CP275N | - | - | IEC 61643-1 |
| PV | 3 | Class II / Type 2 | 1000Vdc | DSB53XD1000 | - | - | IEC 61643-1, UTE C |
| PV | 3 | Class II / Type 2 | 1000Vdc | DSB53CD1000 | - | - | IEC 61643-1, UTE C |
| PV | 2 | Class I, II / Type 1, 2 | 1000Vdc | DSC54CD1000PV | - | - | IEC 61643-1, UTE C |
| PV | 2 | Class II / Type 2 | 600Vdc | DSF52XD600PV | Yes | Yes | EN 50539-11 |
| PV | 2 | Class II / Type 2 | 600Vdc | DSF52CD600PV | Yes | Yes | EN 50539-11 |
| PV | 2 | Class II / Type 2 | 1000Vdc | DSF52XD1000PV | Yes | Yes | EN 50539-11 |
| PV | 2 | Class II / Type 2 | 1000Vdc | DSF52CD1000PV | Yes | Yes | EN 50539-11 |
| PV | 2 (Y) | Class II / Type 2 | 1200Vdc | DSF53XD1200PV | Yes | Yes | EN 50539-11 |
| PV | 2 (Y) | Class II / Type 2 | 1200Vdc | DSF53CD1200PV | Yes | Yes | EN 50539-11 |
| AC Single Phase | 1 | Class II / Type 2 | 277Vac | DSF51XA277 | Yes | Yes | IEC 61643-1 |
| AC Single Phase | 1 | Class II / Type 2 | 277Vac | DSF51CA277 | Yes | Yes | IEC 61643-1 |
| AC Single Phase | 2 | Class II / Type 2 | 277Vac | DSF52XA277 | Yes | Yes | IEC 61643-1 |
| AC Single Phase | 2 | Class II / Type 2 | 277Vac | DSF52CA277 | Yes | Yes | IEC 61643-1 |
| AC Single Phase | 2 | Class II / Type 2 | 385Vac | DSF52CA385 | Yes | Yes | IEC 61643-1 |
| AC Single Phase | 2 | Class II / Type 2 | 440Vac | DSF52CA440 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 3 | Class II / Type 2 | 277Vac | DSF53XP277 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 3 | Class II / Type 2 | 277Vac | DSF53CP277 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 3 | Class II / Type 2 | 385Vac | DSF53CP385 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 3 | Class II / Type 2 | 440Vac | DSF53CP440 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 3 | Class II / Type 2 | 550Vac | DSF53CP550 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 4 | Class II / Type 2 | 277Vac | DSF54XP277 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 4 | Class II / Type 2 | 277Vac | DSF54CP277 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 4 | Class II / Type 2 | 385Vac | DSF54CP385 | Yes | Yes | IEC 61643-1 |
| AC Three Phase | 4 | Class II / Type 2 | 440Vac | DSF54CP440 | Yes | Yes | IEC 61643-1 |
| RS485 | + SH + S | C1/C2/C3 | 5Vdc | DSB51XXS | - | - | 61643-21 |
| DUPLINE | + SH + S | C1/C2/C3 | 15Vdc | DSB51XXDP | - | - | 61643-21 |

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