



LPI® DLSF Surge Filters

Features

- High performance surge protector
- Designed to withstand fault and over-voltage conditions as per IEC61643
- Impulse discharge current 25kA + 25kA 8/20µs Ph-N
- Three stage protection provides highest level of protection for sensitive electronic equipment

Product Description



- Designed to suit single phase TT, TN-S and TN-C-S distribution systems
- Can be employed on select split-phase or phase-phase systems
- Provides protection in all modes: L1-L2, L1-GND, L2-GND. Provides full common mode and differential (transverse) mode protection
- Primary (25kA 8/20µs) and secondary (25kA 8/20µs) surge protection for L1-L2 mode
- High L - GND protection rating – 25kA 8/20µs
- Non-saturating inductors – dv/dt of the incoming surge reduced by up to 100 times
- Internal thermal fusing of protection elements ensures safe end-of-life operation
- Power and Status indication with voltage free alarm contacts

Electronic equipment is highly susceptible to damage from lightning and other transient pulses (including man made switching transients), which arrive via the powerlines through direct strike, or inductive and capacitive coupling. Efficient filtering and clamping at the point of entry of power feeds to sensitive electronic equipment is essential to mitigate physical equipment damage, loss of operations and economic loss.

The LPI Dinline Surge Filter (DLSF) provides multiple stage protection against incoming surges & transients and shall be installed in series with the incoming single phase mains power supply to the equipment. Shunt-only clamping alone is not sufficient, as it does not limit the excessive wavefront characteristic of the pre-clamped waveform. As well as limiting the over-voltages, the LPI Dinline Surge Filter will reduce the rate of rise of voltage (dv/dt) as seen by the equipment being protected.

The LPI Dinline Surge Filter is designed for multi-stroke impulse events and comes with primary protection rated at 25kA 8/20µs as the first stage to absorb the majority of the energy. The high level of primary protection provided by the DLSF ensures the ultimate level of safety and reliability whilst retaining optimum protection levels critical for electronic equipment.

The second stage consists of low pass non-saturating inductors and capacitors (L-C Filtering) which further attenuates the let-through voltage already clamped by the primary stage. The filter attenuates noise and any harmonics present on the power system and is designed to attenuate transverse and common mode noise. The third stage consists of further surge diverters rated at 25kA 8/20µs connected across the load side. These are designed to suppress surges generated by load side equipment.

The LPI Dinline Surge Filter is available in a four different voltage and three current ratings, ensuring there is a unit to suit your application.

LPI® Dinline Surge Filters

DLSF-XXA-20V DLSF-XXA-230V DLSF-XXA-385V DLSF-XXA-480V

	DLSF-XXA-20V	DLSF-XXA-230V	DLSF-XXA-385V	DLSF-XXA-480V
Nominal Operating Voltage, U_n :	12-24V _{DC}	110V _{AC} (50/60Hz)	240V _{AC} (50/60Hz)	277V _{AC} (50/60Hz)
Max Continuous Operating Voltage U_c :	26V _{DC} 20V _{AC}	230V _{AC}	385V _{AC}	480V _{AC}
Maximum Load Current, I_L DLSF-8A-xxxV DLSF-16A-xxxV DLSF-20A-xxxV			8A 16A 20A	
Performance:	< 80V	< 700V	< 1200V	< 1500V
Power distribution systems:	Low Voltage DC		TT, TN-S, TN-C-S (MEN)	
Maximum Surge Rating, I_{MAX} (8/20 μ s) L – L L – GND	8kA + 8kA 8kA		25kA + 25kA 25kA	
Nominal Surge Rating, I_n (8/20 μ s) L – L L – GND	4kA + 4kA 4kA		10kA + 10kA 10kA	
Protection Modes:	Common mode (L1-L2) and Transverse mode (L1-GND, L2-GND)			
Inductor:	Non-saturating, low pass, power and noise filtering			
Capacitor type:	Self healing metal film			
Operating time:	< 1ns			
Protection status indication:	LED indicators for POWER and PROTECTION OK.			
Remote Status indication:	Optically isolated triac output Maximum rating 400V, 100mA			
Mounting:	35mm DIN rail			
Operating temperatures:	-40°C to +50°C, 0 – 95% humidity			
Conductor size:	Accepts up to 4mm ²			
Dimensions:	85mm (H) x 70mm (W) x 66mm (D)			
Weight:	355g			
Surge rated to meet:	IEEE C62.41 Cat A, B & C; AS1768 Cat A, B & C1/C2			
Warranty:	5 Years manufacturer's warranty			

Ordering Code	Description	Rated Voltage L-L	Rated Current
DLSF-8A-20V	Surge Filter, 1Ph, 20V, 8A, 8kA+8kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	12 - 24V _{DC}	8A
DLSF-16A-20V	Surge Filter, 1Ph, 20V, 16A, 8kA+8kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	12 - 24V _{DC}	16A
DLSF-20A-20V	Surge Filter, 1Ph, 20V, 20A, 8kA+8kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	12 - 24V _{DC}	20A
DLSF-8A-230V	Surge Filter, 1Ph, 230V, 8A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	100 – 120V (50-60Hz)	8A
DLSF-16A-230V	Surge Filter, 1Ph, 230V, 16A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	100 – 120V (50-60Hz)	16A
DLSF-20A-230V	Surge Filter, 1Ph, 230V, 20A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	100 – 120V (50-60Hz)	20A
DLSF-8A-385V	Surge Filter, 1Ph, 385V, 8A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	200 – 240V (50-60Hz)	8A
DLSF-16A-385V	Surge Filter, 1Ph, 385V, 16A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	200 – 240V (50-60Hz)	16A
DLSF-20A-385V	Surge Filter, 1Ph, 385V, 20A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	200 – 240V (50-60Hz)	20A
DLSF-8A-480V	Surge Filter, 1Ph, 480V, 8A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	220 – 277V (50-60Hz)	8A
DLSF-16A-480V	Surge Filter, 1Ph, 480V, 16A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	220 – 277V (50-60Hz)	16A
DLSF-20A-480V	Surge Filter, 1Ph, 480V, 20A, 25kA+25kA 8/20 μ s L-L, Power & Status Indication, Alarm Contacts	220 – 277V (50-60Hz)	20A

Indication

Power On status is indicated by a RED LED indicator on the front panel. Protection status of the DLSF range is indicated via a GREEN LED indicator. In the event of failure at end-of-life of one of the internal surge protection modules, the GREEN LED will extinguish and the normally closed alarm contact will go open and send a signal to a remote monitoring point (if connected). These indicators signal that the unit should be replaced immediately.

The remote signal contacts consist of an optically isolated triac output. When all protection modes are fully operational and the unit is working OK, this triac will be turned on. Maximum ratings for the remote alarm contacts are 400V (when open), 100mA (when closed).

Installation

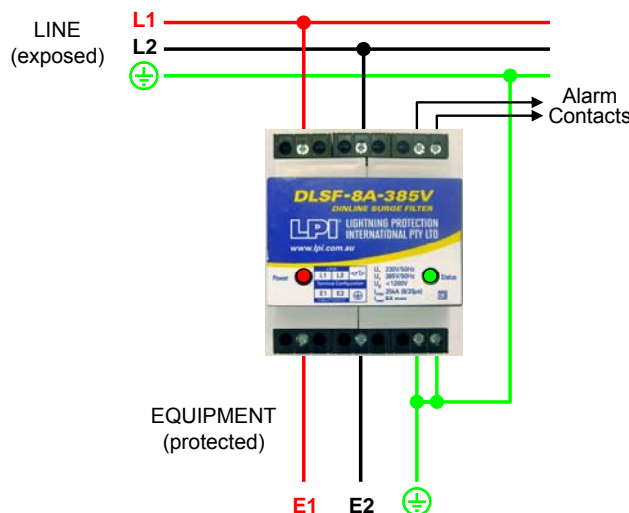
All installation work must be carried out by licensed electrical personnel in accordance with local standards and regulations.

The power must be disconnected. Ensure no dangerous voltages exist prior to commencing installation work.

The purpose of the filter is to remove surges and other overvoltage disturbances, which may be caused by induction or direct injection. It is therefore vital to segregate input and output cabling. Do not run these cables in a common duct; treat the input cabling as "dirty".

1. The LPI DLSF is designed to clip on to a standard 35mm DIN rail (DIN43800).
2. All units are to be installed in series with the circuit being protected. Polarity is important; line and equipment side connections as shown below should be observed.
3. Unprotected cabling should be connected to the line side terminals, marked "L1" and "L2". Where the DLSF is being connected to a standard single phase supply, the PHASE conductor should be connected to L1 and the NEUTRAL conductor to L2.
4. The EARTH conductor should be connected to either of the two earth terminals (these are connected internally).
5. Protected cabling should be connected to the equipment side terminals, marked "E1" and "E2"
6. Connect any remote alarm signals to the alarm terminals.
7. Apply power and check that both the red POWER LED and the green STATUS OK LED are illuminated.

Check continuity and insulation with a hand held multimeter. DO NOT Perform a Megger test. A Megger test will cause the surge suppression components to operate, which will produce a test result that indicates excessive leakage.



LPI LIGHTNING PROTECTION INTERNATIONAL PTY LTD
ABN 11 099 190 897

PO Box 379 Kingston, Tasmania, Australia 7051
49 Patriarch Drive, Huntingfield, Tasmania, Australia 7055
■ Phone: +61 3 6227 1955 ■ Fax: +61 3 6229 1900
■ Email: info@lpi.com.au ■ Web: www.lpi.com.au