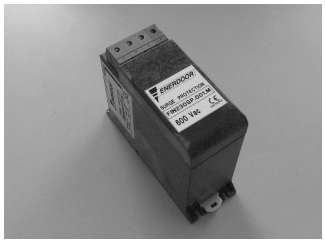
3-PHASE PARALLEL RFI FILTERS AND SURGE PROTECTION

FIN130SP / FIN230SP / FIN730 / FIN735 / FIN740



APPLICATION GUIDE

The FIN 130SP, 230SP, 730, 735 and 740 series parallel filters are 3-Phase RFI Filters for parallel connection with 3-Phase power supply systems; they therefore draw only a small current from the mains. These filters are usually connected to the output of the 3-Phase power breaker of the system. The FIN 130SP, 230SP, 730, 735 and 740 series filters are designed for both screw and DIN rail installations.

The FIN 730, 735, 740 filters reduce interferences in the frequency range from 100 kHz to 10 MHz. They have been developed particularly so as to greatly reduce the interference below the standard frequency limit of 150 kHz, which can be particularly important in some industrial environments.

The FIN 130SP and 230SP filters have a resonance point around 150 kHz, and provide a great reduction of the interferences particularly in the frequency range between 50 kHz and 5 MHz.

These anti interference filters provide a protection circuit against the surges of atmospheric origin (surge protection), due typically to lightning and characterised by high levels and short duration.

The above features make the FIN 230SP filter suitable for protection of electronic control systems devices of automatic industrial machines.

A particular, specially designed technological solution, provides fast and efficient surge reduction (reacting in a few of microseconds for current spikes of a few kA) and therefore adequate protection of all industrial electronic devices (inverters, controllers, brushless, etc.) that can be damaged by impulsive surges above 1000 Volts.

The FIN 130SP, 230SP, 730, 735 and 740 filters can be used in parallel with FIN 1200 and FIN 1500 filters in environments with a high level of EMC interferences. Being of parallel type, they have no current related restrictions and can be therefore used even with loads above 1000 A.

FIN 130SP and FIN 230SP are particulary indicated for high energy transient immunity test or Surge test (EN 61000-4-5). This test are now included in the new generic immunity standard for residential environment (EN 61000-6-1) and industrial environment (EN 61000-6-2).

ELECTRIC CHARACTERISTICS

Capacitor dielectric	**Film Polypropilene**
Capacitor electrodes	**Vaacum deposited aluminium layers**
Capacitor Construction	**Extended double side metallized carrier film with internal series connection and metallized film**
Resistor construction	**Metallic layer**
Coating	**Solvant resistant (UL94 V-I) plastic case with flame retardant (UL94 V-0) epoxy resin sealing**
Standard Reference	**IEC 68**
Resistance power	**3 W**
Voltage category	**Nominal Voltage at 85° C**
Max repetive pulse rise time	**650 V/µs**
Max non repetive pulse rise time	**1000 V/µs**
Capacitor dissipation factor	**<5x10 $^{-4}$ measured at 1 kHz / 25±5°C**
Insulation resistance	**>30 GΩ between terminals after 1 minute of energisation at 100 V / 25±5°C**
Climatic class	**–25 / +85 °C**

FIN130SP/230SP - PARALLEL 3-PHASE FILTER

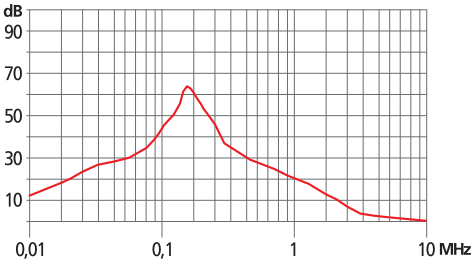
ELECTRIC CHARACTERISTICS

RoHS COMPLIANT 2002/95/EC

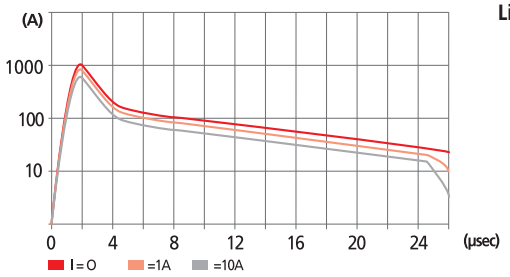
c UL us

FIN130SP	Nominal Voltage 50/60 Hz	Nominal Voltage	Phase to Ground Test Voltage	Phase to Phase Test Voltage	C1 Rated Capacitance	Rated Resistance
.001.M	600 VAC	1000 VDC	2250 V	3000 V	7µF ±10% at 1kHz	3,3MΩ ±20% at 1kHz
Leakage current for phase at 230 V phase to ground 50 Hz / 40°C						< 25mA

RESONANCE CIRCUIT RESPONSE

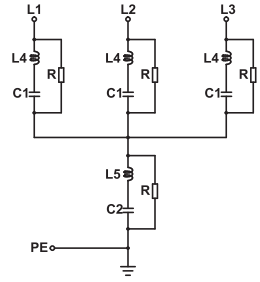


RESPONSE TO CURRENT PULSE



ELECTRIC DIAGRAM

Line



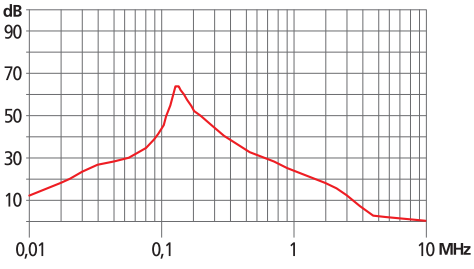
ELECTRIC CHARACTERISTICS

RoHS COMPLIANT 2002/95/EC

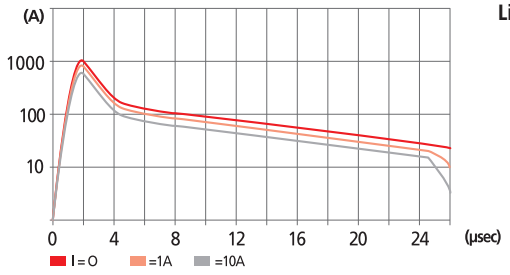
c UL us

FIN230SP	Nominal Voltage 50/60 Hz	Nominal Voltage	Phase to Ground Test Voltage	Phase to Phase Test Voltage	C1 Rated Capacitance	Rated Resistance
.001.M	600 VAC	1000 VDC	2250 V	3000 V	10µF ±10% at 1kHz	3,3MΩ ±20% at 1kHz
Leakage current for phase at 230 V phase to ground 50 Hz / 40°C						< 25mA

RESONANCE CIRCUIT RESPONSE

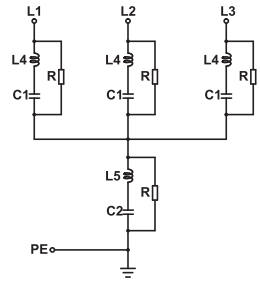


RESPONSE TO CURRENT PULSE



ELECTRIC DIAGRAM

Line

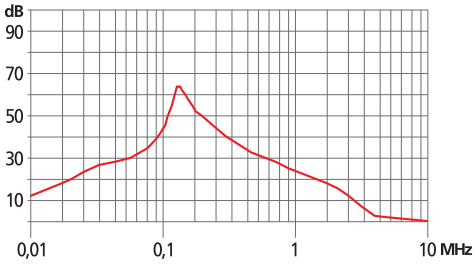


FIN730/735/740 - PARALLEL 3-PHASE FILTER

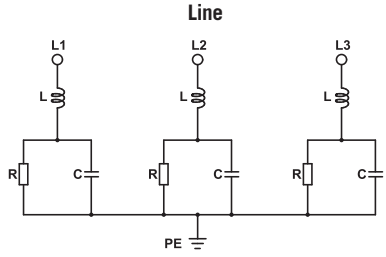
ELECTRIC CHARACTERISTICS

FIN730	Nominal Voltage 50/60 Hz	Nominal Voltage	Phase to Ground Test Voltage	Phase to Phase Test Voltage	C1 Rated Capacitance	Rated Resistance
.001.M	750 VAC	1200 VDC	2800 V	3800 V	1µF ±10% at 1kHz	3,3MΩ ±20% at 1kHz
.002.MC	600 VAC	1000 VDC	2250 V	3000 V	1µF ±10% at 1kHz	3,3MΩ ±20% at 1kHz
.001.MLCP	480 VAC	800 VDC	1950 V	2600 V	1µF ±10% at 1kHz	3,3MΩ ±20% at 1kHz
Leakage current for phase at 230 V phase to ground 50 Hz / 40°C						< 75mA

RESONANCE CIRCUIT RESPONSE



FIN 730 ELECTRIC DIAGRAM

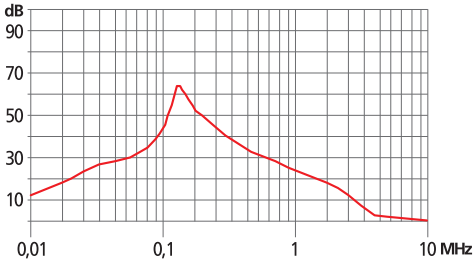


RoHS COMPLIANT 2002/95/EC

ELECTRIC CHARACTERISTICS

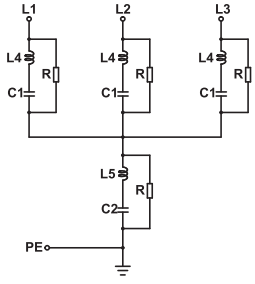
FIN735	Nominal Voltage 50/60 Hz	Nominal Voltage	Phase to Ground Test Voltage	Phase to Phase Test Voltage	C1 Rated Capacitance	Rated Resistance
.001.M	650 VAC	1100 VDC	3000 V	2250 V	10µF ±10% at 1kHz	3,3MΩ ±20% at 1kHz
Leakage current for phase at 230 V phase to ground 50 Hz / 40°C						< 25mA

RESONANCE CIRCUIT RESPONSE



FIN 735 ELECTRIC DIAGRAM

Rete - *Line*

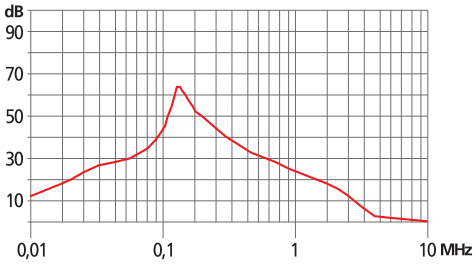


RoHS COMPLIANT 2002/95/EC

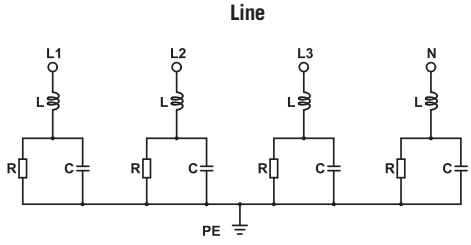
ELECTRIC CHARACTERISTICS

FIN740	Nominal Voltage 50/60 Hz	Nominal Voltage	Phase to Ground Test Voltage	Phase to Phase Test Voltage	C1 Rated Capacitance	Rated Resistance
.068.M	480 VAC	800 VDC	1950 V	2600 V	0,68µF ±10% at 1kHz	1MΩ ±20% at 1kHz
Leakage current for phase at 230 V phase to ground 50 Hz / 40°C						< 25mA

RESONANCE CIRCUIT RESPONSE



ELECTRIC DIAGRAM

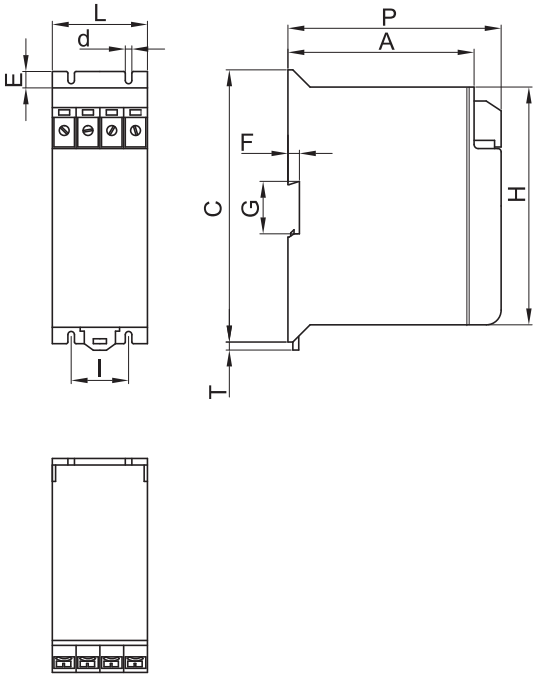


RoHS COMPLIANT 2002/95/EC

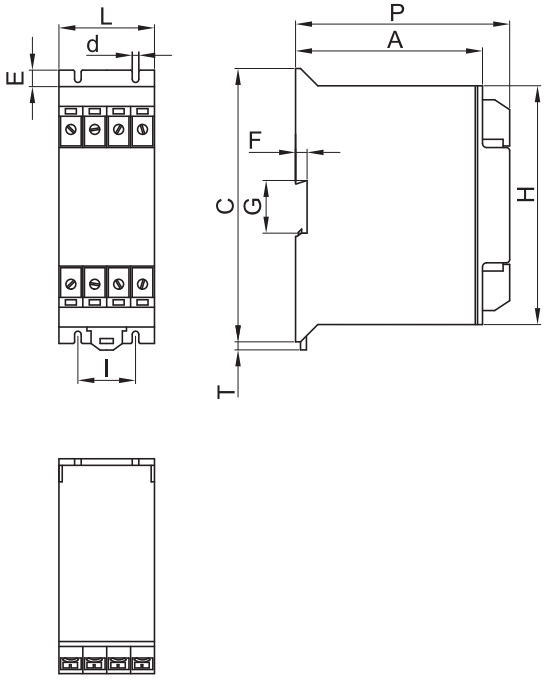
MECHANICAL DIMENSIONS (MM)

Model	L	d	E	I	P	A	C	T	G	F	H	Weight Kg	Case
FIN 130SP.001.M	59	4,5	10	35	130	112	166	4	37,5	7	146	1,15	1
FIN 230SP.001.M	59	4,5	10	35	130	112	166	4	37,5	7	146	1,15	1
FIN 730.001.M	59	4,5	10	35	130	112	166	4	37,5	7	146	1	1
FIN 730.002.MC	59	4,5	10	35	130	112	166	4	37,5	7	146	1	1
FIN 730.001.MLCP	59	4,5	10	35	130	112	166	4	37,5	7	146	1	1
FIN 735.001.M	59	4,5	10	35	130	112	166	4	37,5	7	146	1	1
FIN 740.068.M	59	4,5	10	35	130	112	166	4	37,5	7	146	1	2

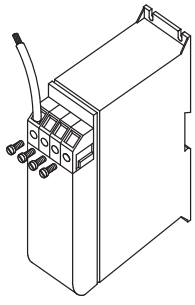
CASE 1



CASE 2



CASE 1 ASSEMBLING



CASE 2 ASSEMBLING