

Surge and line noise protection for critical equipment



There is an increasing need (or requirement) of surge protection and line filtering in today's distribution systems.

Studies have shown that the failure to protect sensitive electronic loads cost the American manufacturing, commercial and services industries more than \$39 billion per year in lost time and revenue. This underscores the need for facility-wide surge protection applied at all stages of the electrical distribution system, from the electrical service entrance down to critical single-phase loads.

With a broad-range of devices, Eaton's Innovative Technology™ in-line filters are helping original equipment manufacturers (OEMs) adopt best-in-class surge and line protection solutions that meet specific requirements in global commercial and industrial applications to support reliable operation and reduced maintenance costs due to damaged electrical equipment.

Eaton's Innovative Technology in-line filters deliver a higher level of system protection

Surge suppressors are like a "pressure relief valve" on the electrical system. Although effective at handling high-energy disturbances, internal components will not activate until the disturbance reaches a designated clamping voltage.

These in-line hybrid filters react instantly to changes in voltage regardless of phase angle or polarity. In comparison to other line filters, this technology provides a higher level of suppression, reliability and life expectancy.

By providing surge protection and filtering, Innovative Technology protective devices can suppress the noise and transients prevalent throughout the power distribution system to help ensure critical equipment is always operating in peak condition in applications including:

- Instrumentation
- Water treatment facilities

- Pulp and paper operations
- HVAC systems
- Petrochemical and refinery installations
- Food processing
- Textiles
- Automotive assembly
- Manufacturing operations
- Medical and lab testing equipment
- PLC control systems

No matter where transients originate, application of Innovative Technology in-line units on critical control panels and other microprocessor dependent devices will help ensure that equipment is protected with the safest and most reliable surge and line protective devices available. Units are available in common single-phase voltages, and in a variety of surge current capacity ratings and levels of line filtration. Mounting and remote indication options are also available.



Powering Business Worldwide

Standards and certifications

UL® 1449 4th Edition is the latest and most significant set of safety tests a surge protection device (SPD) manufacturer must pass before a product can be used to protect devices connected to the power distribution system. UL 1283 7th Edition is the standard for electromagnetic interference (EMI) filters connected to 600 V or lower circuits.

Customers needing a line filter incorporating both surge protection and EMI filtering should look for devices that are UL 1449 4th Edition-certified and complementary listed to UL 1283 7th Edition. These types of line filters employ surge suppression circuitry and filtering to prevent downtime and equipment damage due to transients and electrical line noise.

Features

- Compact design with multiple mounting options
- Meets new UL safety standards for surge and filtering protection
- AC models available with up to 80 kA surge current capacity ratings
- DIN rail mounting available on most models
- Contains no replaceable parts or items that require periodic maintenance
- Alarm contact available
- Five- to ten-year warranty standard dependent on model; warranty extended an additional five years if registered
- RoHS compliant

The breadth of the Innovative Technology PH, PV, CF and CN series features, options and configurations ensures that the correct unit is available for all critical electrical applications, including control panels, security systems, measurement systems, lab equipment and other point-of-use applications.

Configurations

Eaton Innovative Technology in-line protection devices are available in a wide range of features and ratings for a variety of applications.

Catalog numbering system

Product family	Protection/filtering	Voltage	Amperage	Options
IT	PH = Premium protection with hybrid filtering	120 = 120 Vac 240 = 240 Vac	03 = 3 A 05 = 5 A 10 = 10 A 15 = 15 A 20 = 20 A	
	PV = Premium protection with filtering	120 = 120 Vac 240 = 240 Vac	01 = 1 A 03 = 3 A 05 = 5 A	
	CF = Critical protection with filtering	120 = 120 Vac 240 = 240 Vac	10 = 10 A	DIN2 = DIN mount (1-inch wide) CP = Compact ①
		024 = 24 Vdc 048 = 48 Vdc	10 = 10 A	DIN = DIN mount (2.5-inch wide)
		230 = 230 Vac	15 = 10 A	Optional DIN mount kit DINRAILKIT-30ITCF
		120 = 120 Vac 230 = 230 Vac	30 = 30 A 60 = 60 A ②	RJ = Telcom protection and Form C status contacts RJ = Telcom protection and Form C status contacts Optional DIN mount kit DINRAILKIT-30ITCF
	CN = Critical protection without filtering	120 = 120 Vac 230 = 230 Vac 024 = 24 Vdc 048 = 48 Vdc	30 = 30 A	

① Only available in the 10 A, 120 Vac CF version.

② Only available in the 120 Vac version.



Summary

Specifications	PH	PV	CF	CN
Voltage	120/240 Vac	120/240 Vac	120/240 Vac ① 24/48 Vdc	120/230 Vac ① 24/48 Vdc
Current range	3–20 A	1–5 A	10–60 A	30 A
DIN mounting	Yes	Yes	Yes ②	No
UL 1283 7th Edition and UL 1449 4th Edition	Yes	Yes	Yes ③	Yes ③
Filtering	Yes	Yes	Yes	No
EMI/RFI filtering attenuation at 100 kHz	75 dB	50 dB	40 dB	N/A
L to G, L to N and N to G protection modes	Yes	Yes	Yes	Yes
Peak kA per phase / mode	60/30	40/20	80/40	80/40
UL nominal discharge current (I _n)	5 kA	5 kA	5 kA	5 kA
UL voltage protection rating (VPR) L–G / L–N ④	330/400	330/400	500/500	500/500
Short-circuit current rating (SCCR)	5 kA	5 kA	10 kA	10 kA
Alarm contacts	Yes	No	Yes ⑤	No
Standard warranty / registered warranty (years)	10/15	10/15	5/10	5/10
Communication line protection (UL 497A)	No	No	Yes ⑤	No

① Voltage rating of 240 Vac applies to CF24010-DIN2 unit only. Voltage rating of 230 Vac applies to 15 and 30 A units.

② Standard on 10 A, optional on 15 A, 30 A and 60 A with DIN mounting kit.

③ Vac models only.

④ Ratings shown for 120 Vac models; other voltages listed in Technical Data.

⑤ Optional on 30 A and 60 A models only.

PH and PV specifications

Specification	PH 120 Vac	PH 240 Vac	PV 120 Vac	PV 240 Vac
	3, 5, 10, 15, 20 A	3, 5, 10, 15, 20 A	1, 3, 5 A	1, 3, 5 A
DIN mounting	Yes	Yes	Yes	Yes
UL 1283 7th Edition and UL 1449 4th Edition	Yes	Yes	Yes	Yes
RoHS compliant	Yes	Yes	Yes	Yes
Filtering	Yes	Yes	Yes	Yes
EMI/RFI filtering attenuation at 100 kHz	75 dB	75 dB	50 dB	50 dB
L–G, L–N and N–G protection modes	Yes	Yes	Yes	Yes
Peak kA per phase/mode	60/30	60/30	40/20	40/20
UL nominal discharge current (I _n)	5 kA	5 kA	5 kA	5 kA
UL voltage protection rating (VPR) L–G / L–N / N–G	330/400/330	600/700/600	330/400/330	600/700/600
MCOV	150	275	150	275
Short-circuit current rating (SCCR)	5 kA	5 kA	5 kA	5 kA
Alarm contacts	Yes	Yes	No	No
Standard warranty / registered warranty (years)	10/15	10/15	10/15	10/15
Communication line protection (UL 497A)	No	No	No	No



CF specifications

Specifications	CF 24 Vdc		CF 48 Vdc		CF 120 Vac				CF 230 Vac		CF 240 Vac
	10 A	10 A	10 A	10 A	10 A	10 A	30 A	60 A	15 A	30 A	10 A
DIN mounting	Yes	No	Yes	No	Yes	No	Yes ①	Yes ①	No	Yes ①	Yes
UL 1283 7th Edition and UL 1449 4th Edition	—	—	—	—	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS compliant	—	—	—	—	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IEC 61000-4.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	—	—	Yes
Filtering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
EMI/RFI filtering attenuation at 100 kHz	40 dB	40 dB	40 dB	40 dB	40 dB	40 dB	40 dB	40 dB	40 dB	40 dB	40 dB
L-G, L-N and N-G protection modes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Peak kA per phase/mode	6/2	6/2	20/6	20/6	30/10	40/20	80/40	80/40	120/60	120/60	30/10
UL nominal discharge current (I _n)	N/A	N/A	N/A	N/A	3 kA	5 kA	5 kA	5 kA	3 kA	3 kA	3 kA
UL voltage protection rating (VPR) L-G / L-N / N-G	N/A	N/A	N/A	N/A	500/500/500	500/500/500	500/500/500	500/500/500	800/800/800	800/800/800	990/980/960
MCOV	30	30	50	50	150	150	150	150	275	275	275
Short-circuit current rating (SCCR)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	N/A
Alarm contacts	No	No	No	No	No	No	No	No	No	No	No
Standard warranty / registered warranty (years)	5/10	5/10	5/10	5/10	5/10	5/10	5/10	5/10	5/10	5/10	5/10
Communication line protection (UL 497A)	No	No	No	No	No	No	Yes ①	Yes ①	No	Yes ①	No

① Optional.

CN specifications

Specifications	24 Vdc	48 Vdc	120 Vac	230 Vac
	30 A	30 A	30 A	30 A
DIN mounting	No	No	No	No
UL 1449 4th Edition	—	—	Yes	Yes
RoHS compliant	—	—	Yes	Yes
Filtering	No	No	No	No
L-G, L-N and N-G protection modes	Yes	Yes	Yes	Yes
Peak kA per phase/mode	20/6	46/20	80/40	80/40
UL nominal discharge current (I _n)	N/A	N/A	5 kA	3 kA
UL voltage protection rating (VPR) L-G / L-N / N-G	N/A	N/A	500/500/500	800/800/800
MCOV	30	50	150	275
Short-circuit current rating (SCCR)	10 kA	10 kA	10 kA	10 kA
Alarm contacts	No	No	No	No
Standard warranty / registered warranty (years)	5/10	5/10	5/10	5/10
Communication line protection (UL 497A)	No	No	No	No

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

© 2018 Eaton
All Rights Reserved
Printed in USA
Publication No. PA158004EN / Z21478
September 2018

Eaton is a registered trademark.

All other trademarks are property of their respective owners.