AEGIS Series line filters and surge protectors

Electronic equipment protection for reliable operations

Introduction

AEGIS delivers a higher level of system protection

Eaton AEGIS™ Series line filters and surge protectors are specifically designed to protect sensitive electronics from hazards that exist within a facility. The AEGIS Series hybrid filter reacts 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.

Increasing importance of surge protection and line filtering

PLC manufacturers and service technicians recommend the use of power line filters and surge suppressors to prevent downtime and equipment damage due to surges and electrical line noise. Studies have shown that failure to protect sensitive electronic loads costs American manufacturing and commercial and service industries over $39 billion per year in lost time and revenue. Preventing these losses is a major cost-saving opportunity.

Features, benefits and functions

AEGIS Series line filters and surge protectors protect against the full spectrum of transient disturbances and are engineered to filter the entire sine wave. As a result, AEGIS devices are effective against both low- and high-energy transients to prevent immediate equipment damage and microprocessor failure over time.

- Compact design with multiple mounting options
- Meets new UL® safety standards for surge and filtering protection
- A range of surge current capacity ratings for a variety of applications
- Range of models with different levels of filtering, allowing flexibility for each application
- Contains no replaceable parts or items that require periodic maintenance

Powering Business Worldwide

Applications

By providing surge protection and line filtering, AEGIS devices can suppress the noise and transients prevalent throughout the power distribution system to support reliable operations in applications including:

- Instrumentation
- Water treatment facilities
- Pulp and paper operations
- Refrigeration and heating plants
- Petrochemical and refinery installations
- Food processing
- Textiles
- Automotive assembly
- Manufacturing operations

No matter where transients originate, the application of AEGIS Series devices throughout a facility will help protect sensitive electronic equipment including:

- Programmable logic controllers (PLCs)
- Scanning devices
- Automatic teller machines (ATMs)
- Cash registers
- Alarm systems
- Microprocessor-controlled
- OEM products
- Robotics
- CAD/CAM systems
- Control equipment
- Medical electronics and devices

AEGIS Series devices are available in common voltages and configurations, and also in a variety of surge current capacity ratings from 20 to 80 kA at 120 Vac.

Standards and certifications

- UL 1449 Third Edition
- UL 1283 Fifth Edition
- Built in an ISO® 9001 facility
- Designed and tested in accordance with:
  - IEEE® C62.41.1
  - IEEE C62.41.2
  - IEEE C62.43-2005
  - IEEE C62.45-2002
  - IEEE C62.48-2005
  - IEEE C62.62-2010

Feature package options

AEGIS PH and PV

The AEGIS Series PH and PV devices are the high-performance line filters in the new line, offering the best EMI/RFI filtering and lowest VPR ratings.

The AEGIS Series PH and PV devices can be used where:

- The lowest let-through voltage (VPR) is desired
- The best filtering of electromagnetic interference (EMI) and radio frequency interference (RFI) is needed
- The longest equipment life and lowest maintenance cost is required
- The value of the equipment protected or process controlled is highest
- 120 or 240 Vac circuits up to 20A are to be protected

Technical data

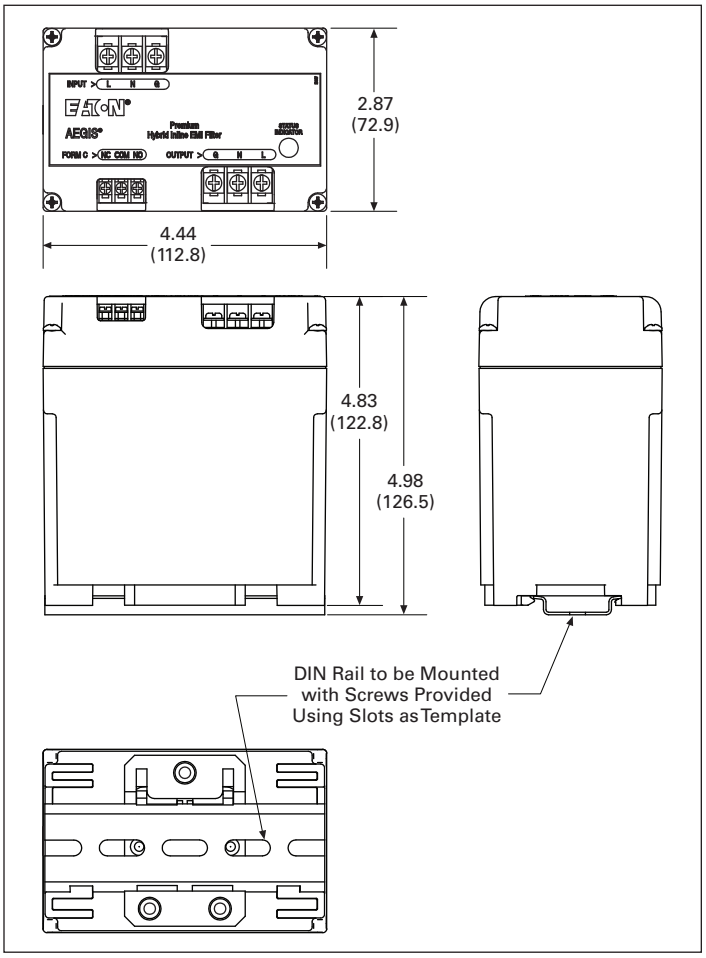

Figure 1. xxPHxxxxx Dimensions

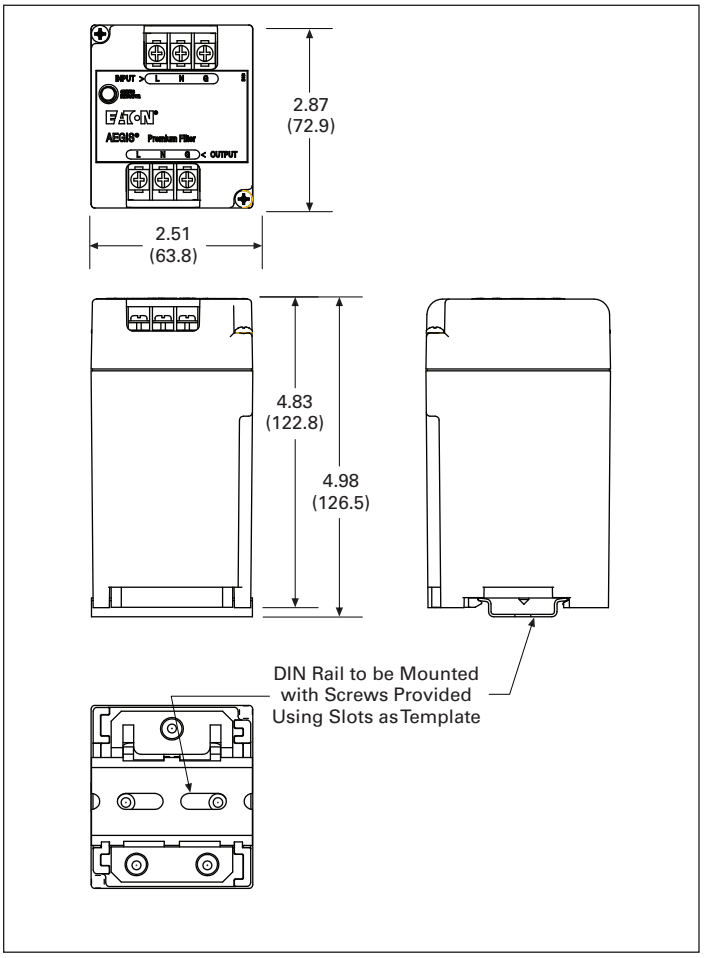

Figure 2. xxPVxxxxx Dimensions

Table 1. AEGIS PH and PV Specifications

	PH 120 Vac	PH 240 Vac	PV 120 Vac	PV 240 Vac
Specification	**3, 5, 10, 15, 20A**	**3, 5, 10, 15, 20A**	**1, 3, 5A**	**1, 3, 5A**
DIN mounting	Yes	Yes	Yes	Yes
UL 1283 5th Edition and UL 1449 3rd Edition	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
Warranty (years) ①	15	15	15	15
Communication line protection (UL 497A)	No	No	No	No

① With product registration.

AEGIS CF

The AEGIS Series CF devices provide the widest current ratings with line filtering and surge protection, and are available with optional communication line protection and status contacts.

The AEGIS CF can be used where:

- Higher kA of protection is required
- Good filtering of electromagnetic interference (EMI) and radio frequency interference (RFI) is desired
- Communication line protection is needed
- 120/240 Vac or 24/48 Vdc circuits up to 60A are to be protected

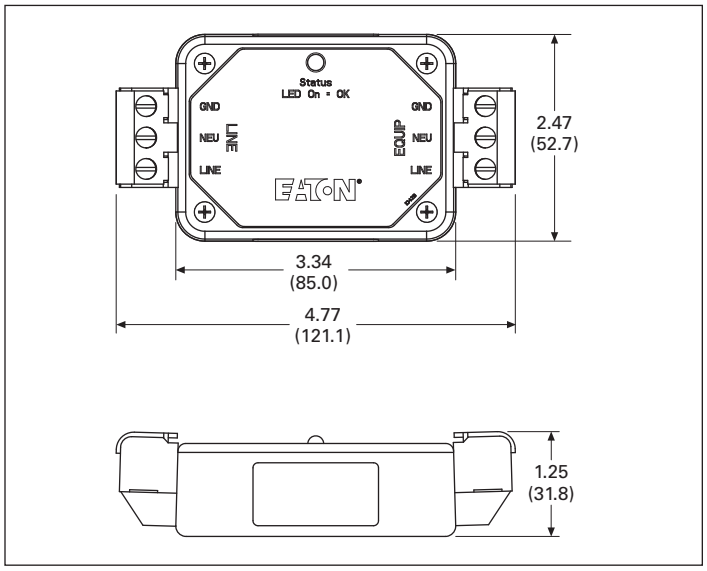

Figure 3. xxCF12010-CP Dimensions

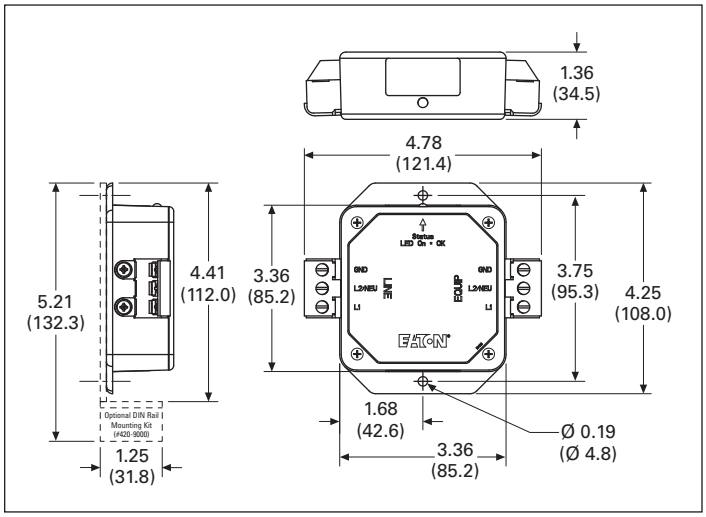

Figure 4. xxCFxxx10 Dimensions

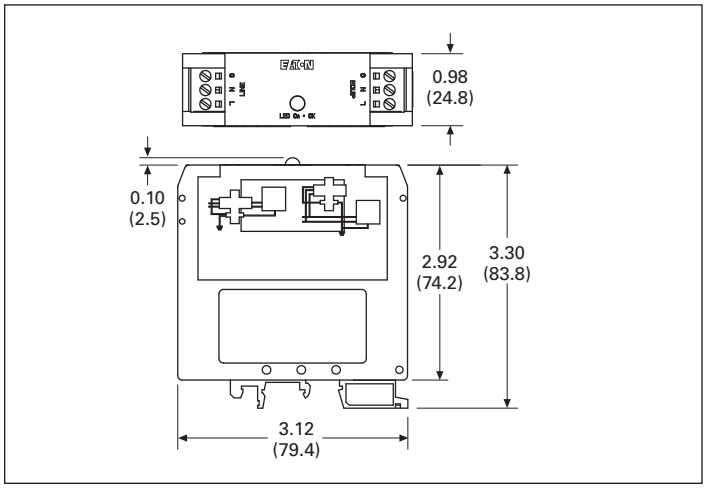

Figure 5. xxCFxxx10-DIN Dimensions

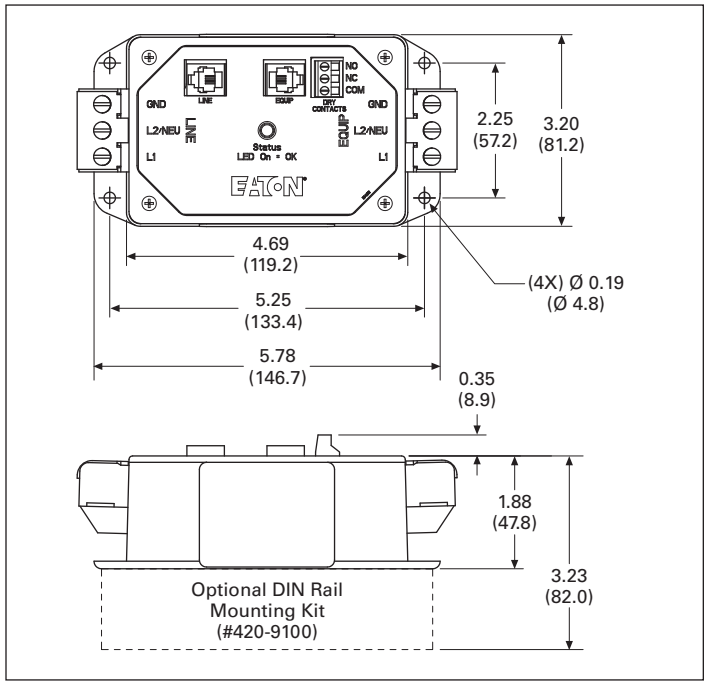

Figure 6. xxCFxxx30xxx Dimensions

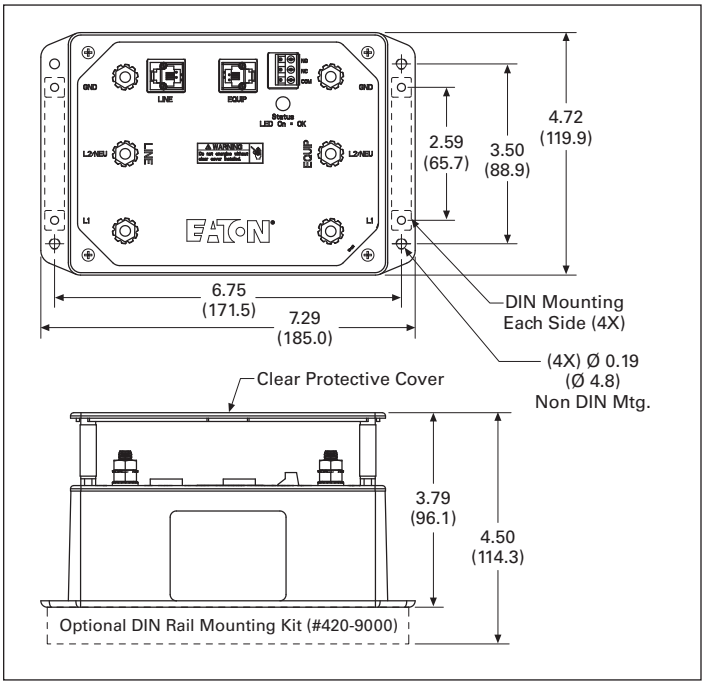

Figure 7. xxCFxxx60xxx Dimensions

Table 2. AEGIS CF Specifications

	CF 24 Vdc		CF 48 Vdc		CF 120 Vac				CF 240 Vac			
Specifications	**10A**	**10A**	**10A**	**10A**	**10A**	**10A**	**30A**	**60A**	**10A**	**10A**	**30A**	**60A**
DIN mounting	Yes	No	Yes	No	Yes	No	Yes ①	Yes ①	Yes	No	Yes ①	Yes ①
UL 1283 5th Edition and UL 1449 3rd Edition	—	—	—	—	Yes	Yes	Yes	Yes	Yes	—	—	—
UL 1283 4th Edition	—	—	—	—	—	—	—	—	—	Yes	Yes	Yes
Filtering	Yes	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	40 dB
L–G, L–N, and N–G protection modes	Yes	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	30/10	24/8	56/24	56/24
UL nominal discharge current (I_n)	N/A	N/A	N/A	N/A	3 kA	5 kA	5 kA	5 kA	3 kA	N/A	N/A	N/A
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	900/800/900	N/A	N/A	N/A
MCOV	30	30	50	50	150	150	150	150	275	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	10 kA	10 kA
Alarm contacts	No	No	No	No	No	No	Yes ①	Yes ①	No	No	Yes ①	Yes ①
Warranty (years) ②	10	10	10	10	10	10	10	10	10	10	10	10
Communication line protection (UL 497A)	No	No	No	No	No	No	Yes ①	Yes ①	No	No	Yes ①	Yes ①

① Optional.

② With product registration.

AEGIS CN

The AEGIS CN Series provides low-cost surge protection in a compact package.

The AEGIS CN can be used where:

- Only surge and transient voltage protection is needed
- 120/240 Vac or 24/48 Vdc circuits up to 30A are to be protected

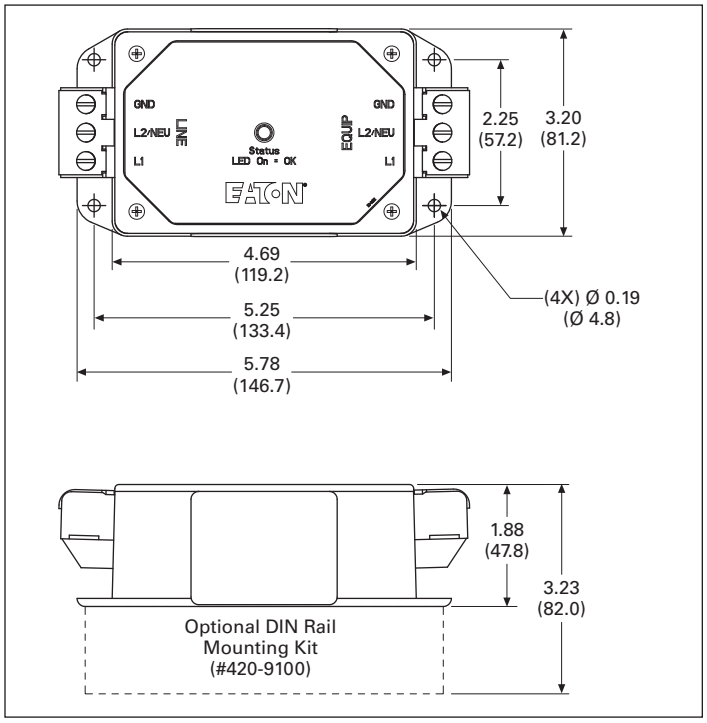

Figure 8. xxCNxxx30 Dimensions

Table 3. AEGIS CN Specifications

	24 Vdc	48 Vdc	120 Vac	240 Vac
Specifications	**30A**	**30A**	**30A**	**30A**
DIN mounting	Yes ①	Yes ①	Yes ①	Yes ①
UL 1283 5th Edition and UL 1449 3rd Edition	—	—	Yes	—
UL 1283 4th Edition	—	—	—	Yes
Filtering	No	No	No	No
EMI/RFI filtering attenuation at 100 kHz	N/A	N/A	N/A	N/A
L–G, L–N, and N–G protection modes	Yes	Yes	Yes	Yes
Peak kA per phase/mode	20/6	46/20	80/40	56/24
UL nominal discharge current (I_n)	N/A	N/A	5 kA	N/A
UL voltage protection rating (VPR) L–G / L–N / N–G	N/A	N/A	500/500/500	N/A
MCOV	30	50	150	275
Short-circuit current rating (SCCR)	10 kA	10 kA	10 kA	10 kA
Alarm contacts	No	No	No	No
Warranty (years) ②	10	10	10	10
Communication line protection (UL 497A)	No	No	No	No

① Optional

② With product registration.

Performance data

- ANSI/UL 1449 Third Edition voltage protection ratings
- UL 1283 Fifth Edition electromagnetic interference filter ratings

Table 4. Specifications

	AEGIS Series			
Rating	**PH**	**PV**	**CF**	**CN**
Application	Single-phase, two- or three-wire grounded systems	Single-phase, two- or three-wire grounded systems	Single-phase, two- or three-wire grounded systems	Single-phase, two- or three-wire grounded systems
Input voltage—AC	100–127 Vac, 200–240 Vac	100–127 Vac, 200–240 Vac	100–127 Vac, 200–240 Vac	100–127 Vac, 200–240 Vac
Input voltage—DC	N/A	N/A	5–38 Vdc, 24–65 Vdc, 48–149 Vdc, 150–300 Vdc	5–38 Vdc, 24–65 Vdc, 48–149 Vdc, 150–300 Vdc
Amperage	3, 5, 10, 15, and 20A	1, 3, and 5A	10, 30, and 60A	30A
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Protection modes	L–N, L–G, and N–G	L–N, L–G, and N–G	L–N, L–G, and N–G	L–N, L–G, and N–G
MCOV	150V and 275V	150V and 275V	150V and 275V	150V and 275V
Noise attenuation (normal mode)	74 dB at 100 kHz	56 dB at 100 kHz	48 dB at 100 kHz	N/A
Filter bandwidth	10 kHz to 100 MHz	10 kHz to 100 MHz	10 kHz to 100 MHz	N/A
Peak surge current per phase / per mode	60 kA / 30 kA	40 kA / 20 kA	Up to 80 kA / 40 kA	Up to 80 kA / 40 kA
Operating temperature	–40°F to +122°F (–40°C to +50°C)	–40°F to +122°F (–40°C to +50°C)	–40°F to +140°F (–40°C to +60°C)	–40°F to +140°F (–40°C to +60°C)
Response time	<1 nanosecond	<1 nanosecond	<1 nanosecond	<1 nanosecond
Agency approvals	UL 1449 3rd Edition, UL 1283 5th Edition and CSA	UL 1449 3rd Edition, UL 1283 5th Edition and CSA	xxCF240xx UL 1283 4th Edition, EMI filter	xxCN24030 UL 1283 4th Edition, EMI filter
			xxCF120xx UL 1449 3rd Edition, UL 1283 5th Edition and CSA	xxCN12030 UL 1449 3rd Edition, UL 1283 5th Edition and CSA
UL 1449 Type	Type 2	Type 2	Type 2	Type 2
Warranty ①	15 years	15 years	10 years	10 years
Status indicator	LED	LED	LED	LED
Form C contacts	Yes	No	Yes ③	No
Communication line protection (UL 497A)	No	No	Optional	No
External circuit breaker ②	Eaton P/N: WMZT1C25 or equiv. 25A circuit breaker	Eaton P/N: WMZT1C07 or equiv. 7A circuit breaker	10A—Eaton P/N: WMXT1C15 or equiv. 15A circuit breaker	Eaton P/N: WMZT1C40 or equiv. 40A circuit breaker
			30A—Eaton P/N: WMZT1C40 or equiv. 40A circuit breaker	
			60A—Eaton P/N: EGC3100FFG or equiv. 100A circuit breaker	

① With product registration.

② External circuit breaker sold separately.

③ Optional on 30A and 60A models only.

Product selection

Table 5. Catalog Numbering System

AG _____ _____ _____ _____

Product Family/OEM	Protection/Filtering	Voltage	Amperage	Options
AG	**PH** = Premium protection with hybrid filtering	**120** = 120 Vac **240** = 240 Vac	**03** = 3A **05** = 5A **10** = 10A **15** = 15A **20** = 20A	
	PV = Premium protection with filtering	**120** = 120 Vac **240** = 240 Vac	**01** = 1A **03** = 3A **05** = 5A	
	CF = Critical protection with filtering	**120** = 120 Vac **240** = 240 Vac **024** = 24 Vdc **048** = 48 Vdc	**10** = 10A **30** = 30A **60** = 60A	**DIN** = DIN mount ① **CP** = Compact ② **RJ** = Telcom protection and Form C status contacts ③
	CN = Critical protection without filtering	**120** = 120 Vac **240** = 240 Vac **024** = 24 Vdc **048** = 48 Vdc	**30** = 30A	

① Only available for 10A CF version.

② Only available for 10A, 120V CF version.

③ Only available for 30A and 60A CF version.

Table 6. Let-Through Voltages Based on IEEE Std. C62.62-2010 Testing Waveforms ①

	AEGIS Series							
Test Impulse	**xxPH120xx**	**xxPV120xx**	**xxCF12010**	**xxCF12010-DIN**	**xxCF12010-CP**	**xxCF12030xxx**	**xxCF12060xxx**	**xxCN12030**
IEEE Category A 100 kHz ring wave 6000V, 200A	25V	30V	150V	300V	300V	150V	90V	400V
IEEE Category B 100 kHz ring wave 6000V, 500A	35V	40V	330V	400V	400V	330V	230V	500V
IEEE Category B combination wave 6000V, 3000A (UL 1449-3 VPR)	360V	370V	470V	480V	460V	460V	450V	460V

① All tests conducted on 120 Vac units.

Technical support information

If you have any questions or need additional information, please contact the Eaton Technical Resource Center at 800-809-2772, option 4, option 2, or go to www.eaton.com/aegis. You may also submit inquiries via email to spd@eaton.com

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