

AEGIS series line filters and surge protectors

Electronic equipment protection for reliable operations



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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

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 kA to 80 kA at 120 Vac.

Standards and certifications

- UL 1449 5th Edition
- UL 1283 7th Edition
- CSA C22.2 No. 269.4-17
- CSA C22.2 No. 8-13
- RoHS compliant
- IEC 61000-4-5
- Built in an ISO® 9001 facility
- Designed and tested in accordance with:
 - IEEE® C62.41.1
 - IEEE C62.41.2
 - IEEE C62.43
 - IEEE C62.45
 - IEEE C62.48
 - IEEE C62.62

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 Vac or 240 Vac circuits up to 20 A are to be protected



Table 1. AEGIS 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 5th 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

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
- 120/230/240 Vac or 24 Vdc circuits up to 60 A are to be protected



Table 2. AEGIS CF specifications

Specifications	CF 24 Vdc		CF 120 Vac			CF 230 Vac		CF 240 Vac
	10 A	10 A	10 A	30 A	60 A	15 A	30 A	10 A
DIN mounting	Yes	No	No	Yes ①	Yes ①	Yes ①	Yes ①	Yes
UL 1283 7th Edition and UL 1449 5th Edition	—	—	Yes	Yes	Yes	Yes	Yes	Yes
RoHS compliant	—	—	Yes	Yes	Yes	Yes	Yes	Yes
IEC 61000-4-5	Yes	Yes	Yes	Yes	Yes	—	—	Yes
Filtering	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
L-G, L-N, and N-G protection modes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Peak kA per phase/mode	6/2	6/2	40/20	80/40	80/40	120/60	120/60	30/10
UL nominal discharge current (I _n)	N/A	N/A	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	500/500/500	500/500/500	500/500/500	800/800/800	800/800/800	990/980/960
MCOV	30	30	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	N/A
Alarm contacts	No	No	No	Yes ①	Yes ①	No	Yes ①	No
Warranty (years) ②	10	10	10	10	10	10	10	10
Communication line protection (UL 497A)	No	No	No	Yes ①	Yes ①	No	Yes ①	No

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
- 120/230 Vac or 24/48 Vdc circuits up to 30 A are to be protected



Table 3. AEGIS CN specifications

Specifications	24 Vdc	48 Vdc	120 Vac	230 Vac
	30 A	30 A	30 A	30 A
DIN mounting	Yes ①	Yes ①	Yes ①	Yes ①
UL 1449 5th Edition	—	—	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
Warranty (years) ②	10	10	10	10
Communication line protection (UL 497A)	No	No	No	No

① Optional.

② With product registration.

AEGIS DN

The AEGIS DN series provides DIN rail surge protection in a compact package.

The AEGIS DN can be used where:

- Only surge and transient voltage protection is needed
- 120–600 Vac, 12/24/48 Vdc, or 1000/1500 Vdc circuits are to be protected
- Replacement modules are specified

**Table 4. AEGIS DN specifications**

Specifications	12 Vdc	24 Vdc	48 Vdc	120 Vac	240 Vac	277 Vac	400 Vac	480 Vac	600 Vac	1000 Vdc	1500 Vdc
DIN mounting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UL 1449 5th Edition	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Filtering	No	No	No	No	No	No	No	No	No	No	No
L–G, L–N, and N–G protection modes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A
Peak kA per phase	20 kA	20 kA	20 kA	50 kA	50 kA	50 kA	50 kA	50 kA	35 kA	40 kA	40 kA
UL nominal discharge current (I _n)	10 kA	10 kA	10 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	10 kA
UL voltage protection rating (VPR)	N/A	N/A	N/A	600 V	900 V	1000 V	1500 V	2000 V	2500 V	2500 V	4000 V
MCOV	15	28	52	150	300	350	480	550	750	1000	1500
Short-circuit current rating (SCCR)	N/A	N/A	N/A	200 kA	150 kA	200 kA	200 kA	200 kA	200 kA	50 kA	65 kA
Alarm contacts	No	No	No	Yes	Yes						
Warranty (years)	1	1	1	1	1	1	1	1	1	1	1
Communication line protection (UL 497A)	No	No	No	No	No	No	No	No	No	No	No

Table 5. Replacement modules for DN series

Voltage	Unit application for module	Catalog number
120 V	AGDN12010R, AGDN12020R, AGDN12030R, AGDN12040R	AGDN120P
240 V	AGDN24010R, AGDN24020R, AGDN24030R, AGDN24040R	AGDN240P
277 V	AGDN27710R, AGDN27720R, AGDN27730R, AGDN27740R	AGDN277P
400 V	AGDN40010R, AGDN40020R, AGDN40030R, AGDN40040R	AGDN400P
480 V	AGDN48010R, AGDN48020R, AGDN48030R, AGDN48040R	AGDN480P
600 V	AGDN60010R, AGDN60020R, AGDN60030R	AGDN600P
500 V	AGDN1000PV30LR	AGDN500PVP
750 V	AGDN1500PV30LR	AGDN750PVP

Performance data

- ANSI/UL 1449 5th Edition voltage protection ratings
- UL 1283 7th Edition electromagnetic interference filter ratings

Table 6. Specifications

AEGIS series					
Rating	PH	PV	CF	CN	DN
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	Single-, split-, or three-phase systems
Input voltage range—AC	100–127 Vac, 200–240 Vac	100–127 Vac, 200–240 Vac	100–127 Vac, 200–240 Vac ①	100–127 Vac, 200–230 Vac ①	120–600 Vac
Input voltage range—DC	N/A	N/A	5–38 Vdc, 48–149 Vdc, 150–300 Vdc	5–38 Vdc, 24–65 Vdc, 48–149 Vdc, 150–300 Vdc	12–48 Vdc, 1000–1500 Vdc
Amperage	3, 5, 10, 15, and 20 A	1, 3, and 5 A	10, 15, 30, and 60 A	30 A	N/A
Frequency	50/60 Hz	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	L–N, L–G, and N–G
MCOV	150 V and 275 V	150 V and 275 V	150 V and 275 V	150 V and 275 V	Up to 1500 V
Noise attenuation (normal mode)	74 dB at 100 kHz	56 dB at 100 kHz	48 dB at 100 kHz	N/A	N/A
Filter bandwidth	10 kHz to 100 MHz	10 kHz to 100 MHz	10 kHz to 100 MHz	N/A	N/A
Peak surge current per phase / per mode	60 kA / 30 kA	40 kA / 20 kA	Up to 120 kA / 60 kA	Up to 80 kA / 40 kA	Up to 50 kA / 25 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)	–40 °F to +185 °F (–40 °C to +85 °C)
Response time	<1 nanosecond	<1 nanosecond	<1 nanosecond	<1 nanosecond	<25 nanoseconds
Agency approvals	UL 1449 5th Edition, UL 1283 7th Edition and CSA C22.2 No 269.4-17 and No 8-13	UL 1449 5th Edition, UL 1283 7th Edition and CSA C22.2 No 269.4-17 and No 8-13	xxCF230xx UL 1283 7th Edition, EMI filter	xxCNxxx30 UL 1449, UL 1283 7th Edition, EMI filter	UL 1449 5th Edition, IEC 61643-11, EN 61643-11
			xxCF120xx UL 1449 5th Edition, UL 1283 7th Edition	xxCN12030 UL 1449 5th Edition	
			xxCFxxx10-DIN2 UL 1449 5th Edition, IEC 61000-4.5	xxCFxxx10-DIN2 UL 1449 5th Edition, IEC 61000-4.5	
UL 1449 Type	Type 2	Type 2	Type 2	Type 2	Type 1CA
Warranty ②	15 years	15 years	10 years	10 years	1 year
Status indicator	LED	LED	LED	LED	Indication flag
Form C contacts	Yes	No	Yes ④	No	Yes
Communication line protection (UL 497A)	No	No	Optional	No	No
External circuit breaker ③	Eaton P/N: FAZ-C25/1-NA-SP or equiv. 25 A circuit breaker	Eaton P/N: FAZ-C7/1-NA-SP or equiv. 7 A circuit breaker	15 A—Eaton P/N: FAZ-C15/1-NA-SP or equiv. 15 A circuit breaker 30 A—Eaton P/N: FAZ-C40/1-NA-SP or equiv. 40 A circuit breaker 60 A—Eaton P/N: EGC3100FFG or equiv. 100 A circuit breaker	Eaton P/N: FAZ-C40/1-NA-SP or equiv. 40 A circuit breaker	

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

② With product registration.

③ External circuit breaker sold separately.

④ Optional on 30 A and 60 A models only.

Table 7. Let-through voltages based on IEEE Std. C62.62-2010 testing waveforms ①

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

① All tests conducted on 120 Vac units.

Product selection

Table 8. AEGIS PH catalog numbering system

AG	PH	120	10
Product family			
AG	PH = Premium protection with hybrid filtering	Voltage	Ampere rating
		120 = 120 Vac 240 = 240 Vac	03 = 3 05 = 5 10 = 10 15 = 15 20 = 20

Table 9. AEGIS PV catalog numbering system

AG	PV	240	01
Product family			
AG	PV = Premium protection with filtering	Voltage	Ampere rating
		120 = 120 Vac 240 = 240 Vac	01 = 1 03 = 3 05 = 5

Table 10. AEGIS CF catalog numbering system

AG	CF	024	10	RJ
Product family				
AG	Protection/filtering	Voltage	Ampere rating	Option
	CF = Critical protection with filtering	120 = 120 Vac 240 = 240 Vac 024 = 24 Vdc 230 = 230 Vac 120 = 120 Vac 230 = 230 Vac	10 = 10 A 10 = 10 A 10 = 10 A 15 = 15 A 30 = 30 A 60 = 60 A	CP = Compact DIN2 = DIN mount (1-inch wide) DIN = DIN mount (2.5-inch wide) Optional DIN mount kit DINRAILKIT-30ACF RJ = Telcom protection and Form C status contacts Optional DIN mount kit DINRAILKIT-30ACF RJ = Telcom protection and Form C status contacts Optional DIN mount kit DINRAILKIT-60ACF

Table 11. AEGIS CN catalog numbering system

AG	CN	024	30
Product family			
AG	Protection/filtering	Voltage	Ampere rating
	CN = Critical protection without filtering	024 = 24 Vdc 048 = 48 Vdc 120 = 120 Vac 230 = 230 Vac	30 = 30

Table 12. AEGIS DN catalog numbering system

Product family	Protection/filtering	Voltage	Number of protection modes
AG	DN = DIN rail surge protection without filtering	277	30R
		012 = 12 Vdc	10R = 1 mode (single-phase)
		024 = 24 Vdc	20R = 2 modes (two-phase) ①
		048 = 48 Vdc	30R = 3 modes (three-phase)
		120 = 120 Vac	40R = 4 modes (three-phase + neutral) ②
		240 = 240 Vac	
		277 = 277 Vac	
		400 = 400 Vac	
		480 = 480 Vac	
		600 = 600 Vac	
		1000PV = 1000 Vdc	30LR = Solar
		1500PV = 1500 Vdc	

① 20R typically used for split-phase.

② 40R not available in 600 Vac versions

Layouts and dimensions

Dimensions in inches (mm)

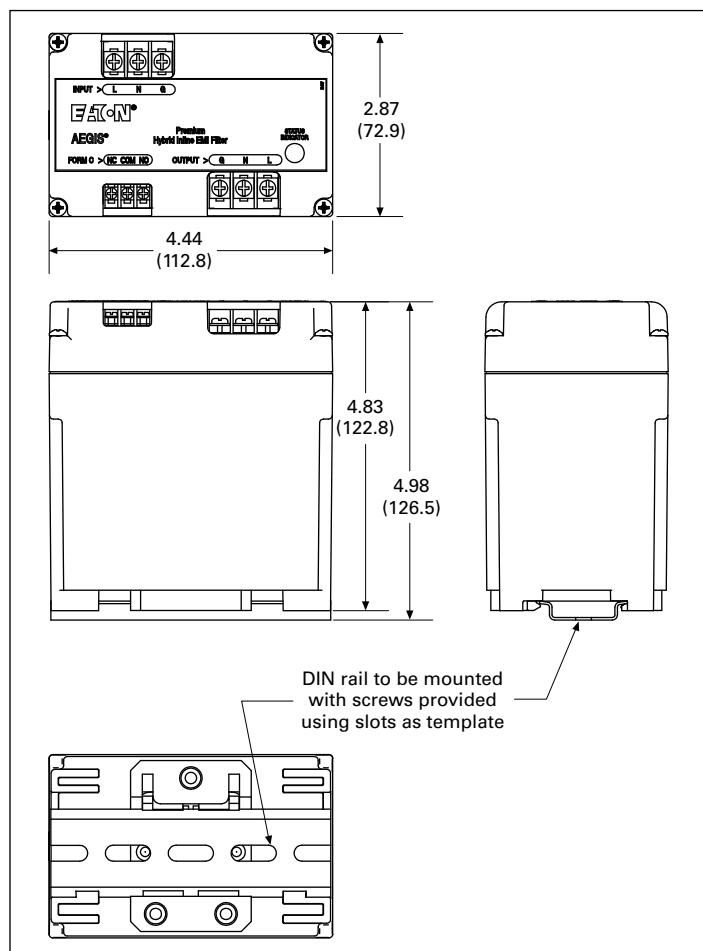


Figure 1. AEGIS PH—AGPHxxxxx

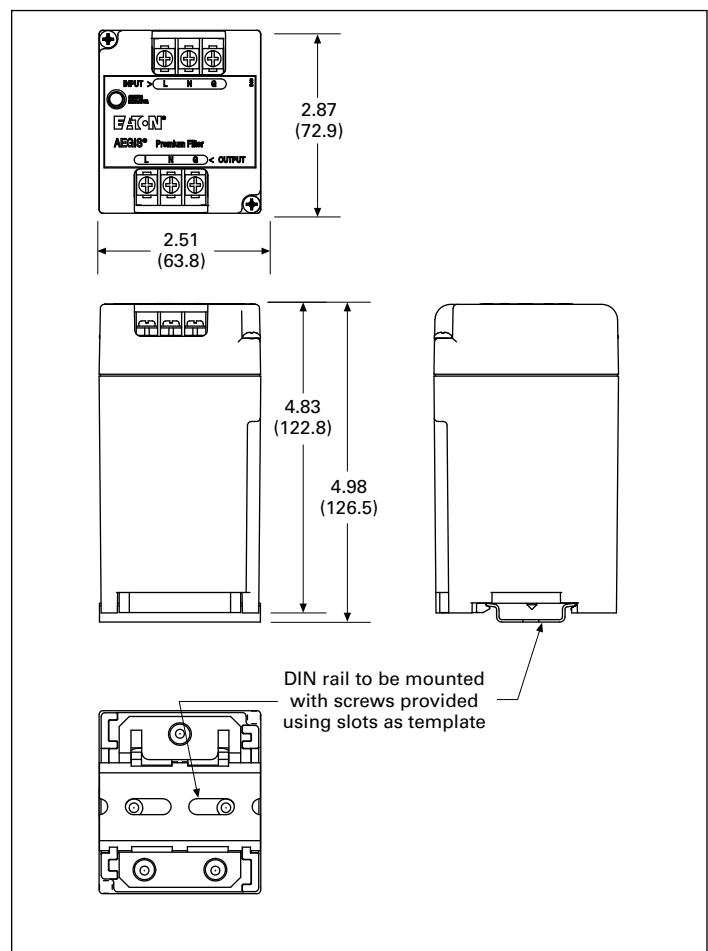


Figure 2. AEGIS PV—AGPVxxxxx

Dimensions in inches (mm)

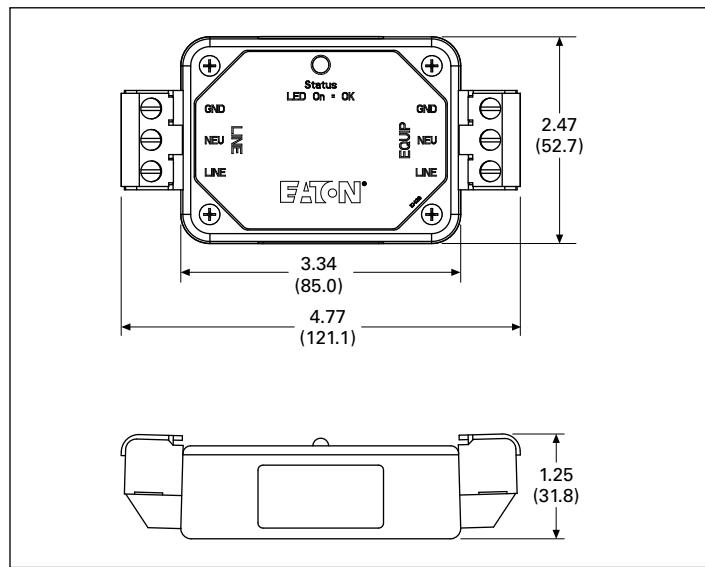


Figure 3. AEGIS CF-AGCF12010-CP

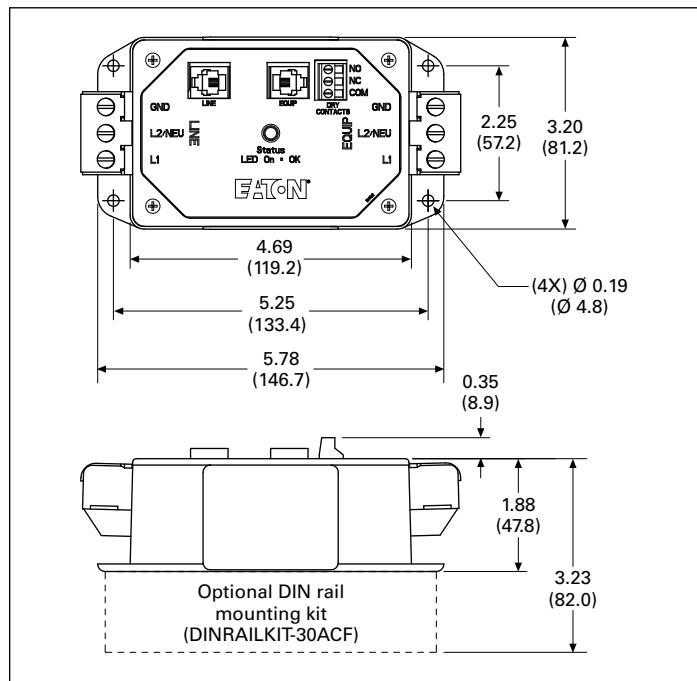


Figure 5. AEGIS CF-AGCFxxx15 and AGCFxxx30

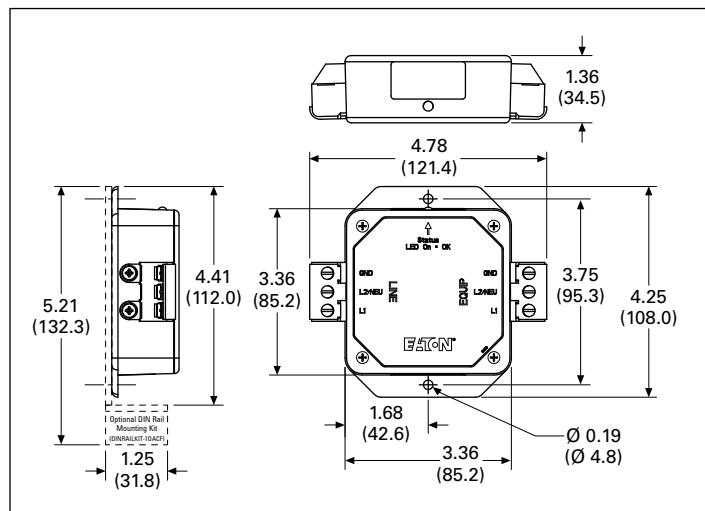


Figure 4. AEGIS CF-xxCFxxx10

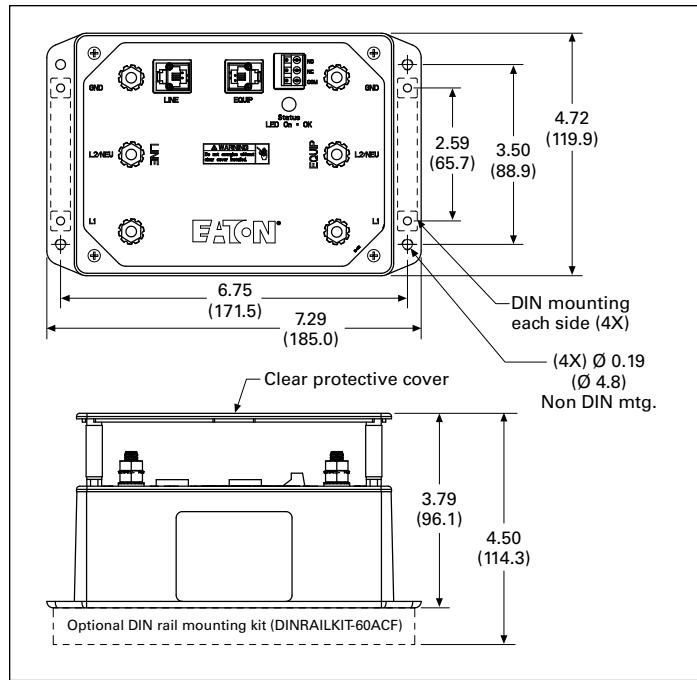


Figure 6. AEGIS CF-AGCFxxx60

Dimensions in inches (mm)

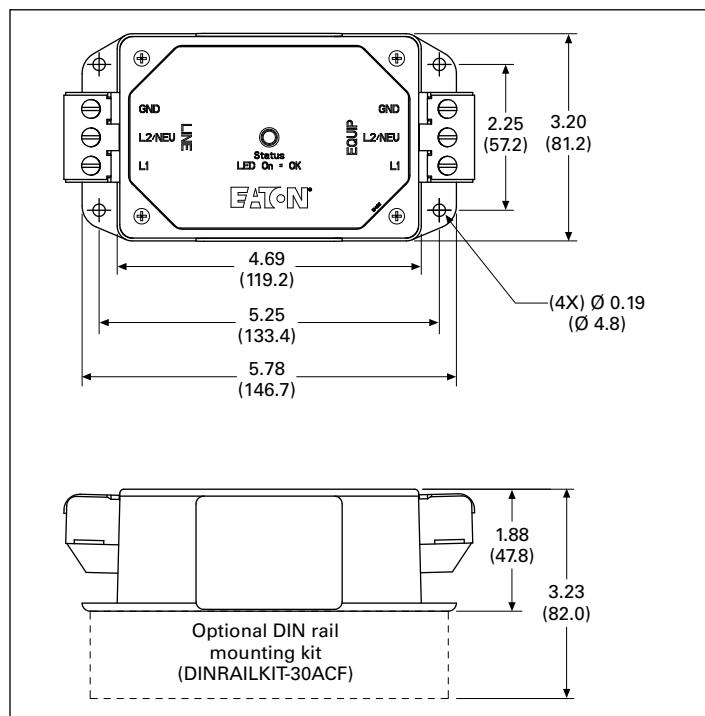


Figure 7. AEGIS CN—AGCNxxx30

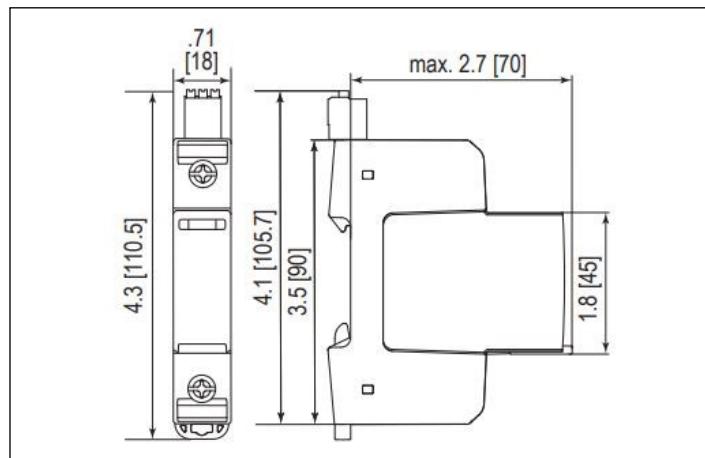


Figure 8. AEGIS DN—AGDNxxx10R

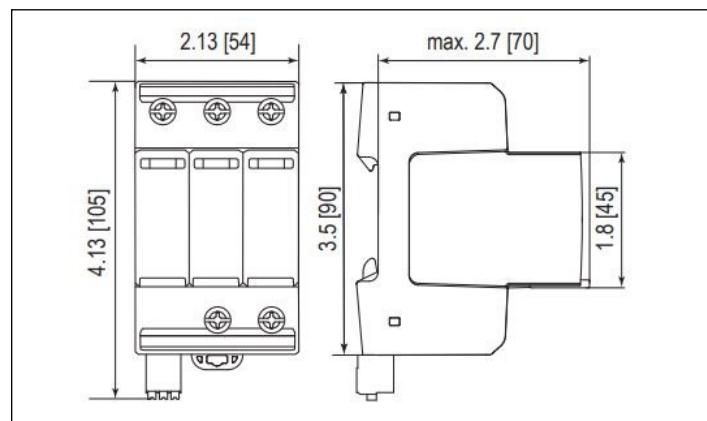


Figure 9. AEGIS DN—AGDNxxx30R

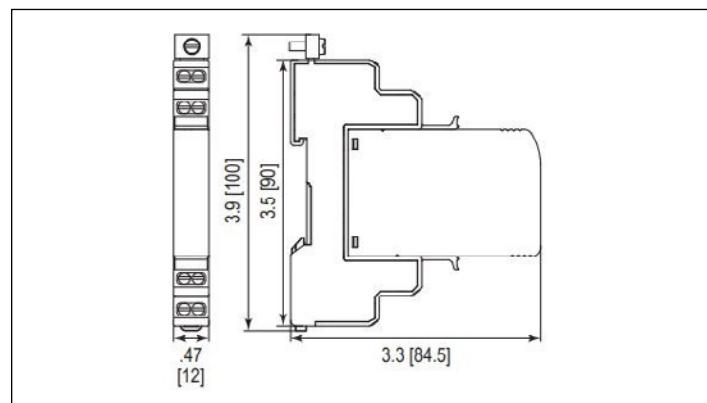


Figure 10. AEGIS DN—AGDN0xx

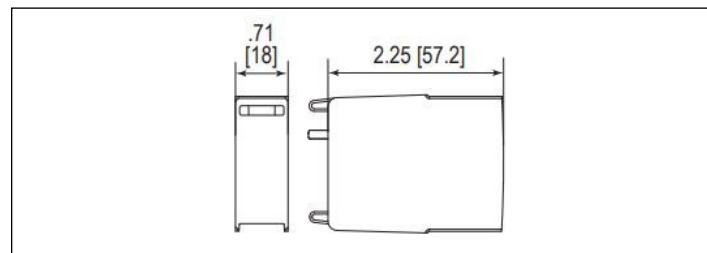


Figure 11. AEGIS DN—AGDNxxxP

Dimensions in inches (mm)

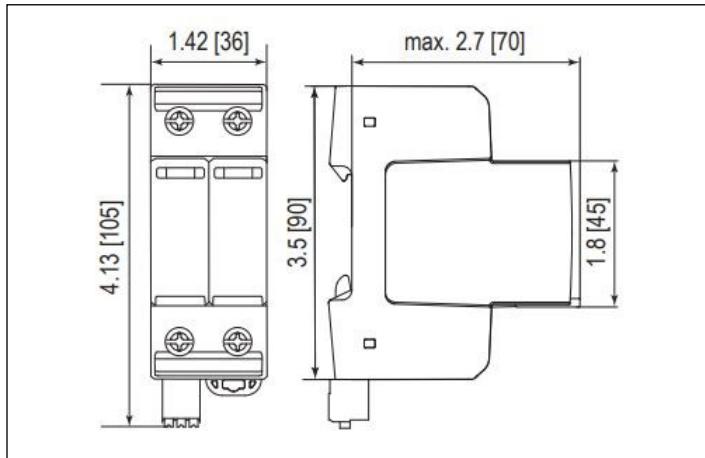


Figure 12. AEGIS DN—AGDNxxx20R

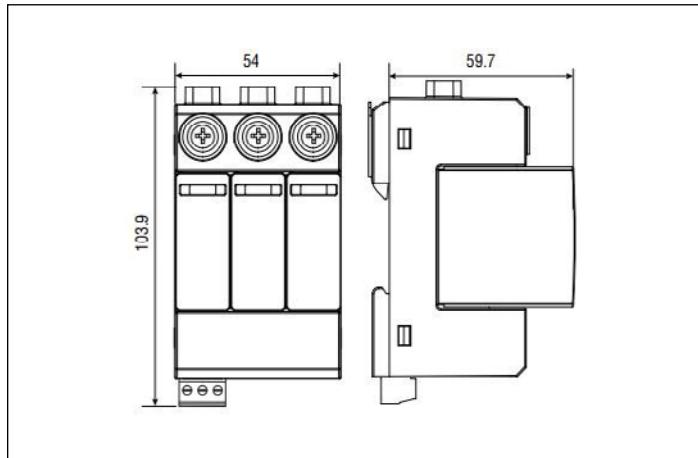
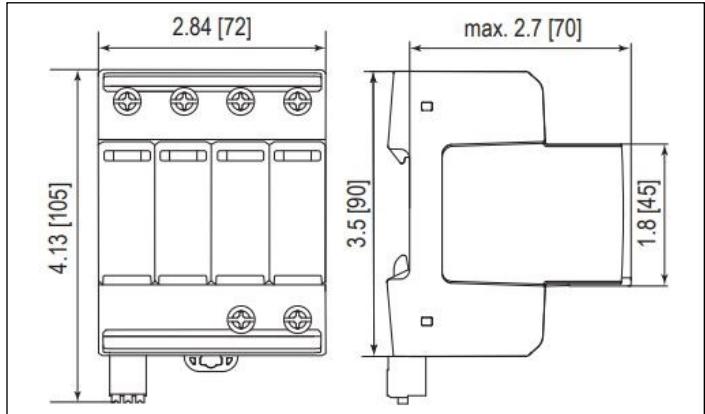
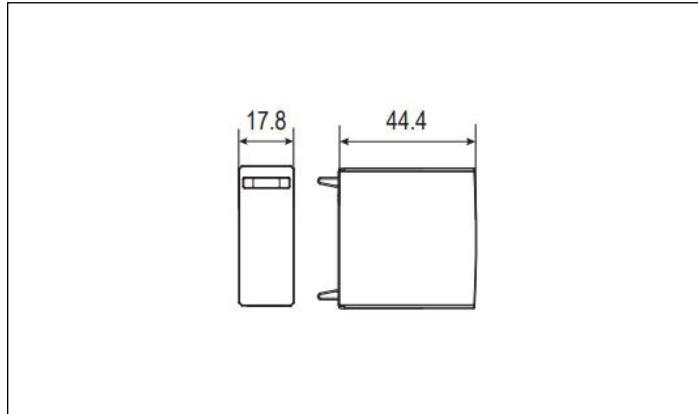
Figure 14. AEGIS DN—AGDNxxxxPV30LR
(dimensions in millimeters)

Figure 13. AEGIS DN—AGDNxxx40R

Figure 15. AEGIS DN—AGDNxxxxPVP
(dimensions in millimeters)

Technical support information

If you have any questions or need additional information, please contact the Eaton Technical Resource Center at 1-800-809-2772, option 5, option 2, or go to www.eaton.com/aegis. You may also submit inquiries via email to spd@eaton.com.

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