

# C-303™ 5-Pin Solid-State Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

## Description

Corning Cable Systems' C-303™ 5-Pin Protector Modules provide state-of-the-art protection in a 5-pin type protector for use in central office connector, remote, and building entrance terminal applications. The housings are made of colored self-extinguishing insulating material. The protector modules have five contact pins. When inserted into the connector sockets, contact pins provide the following connections for each cable pair:

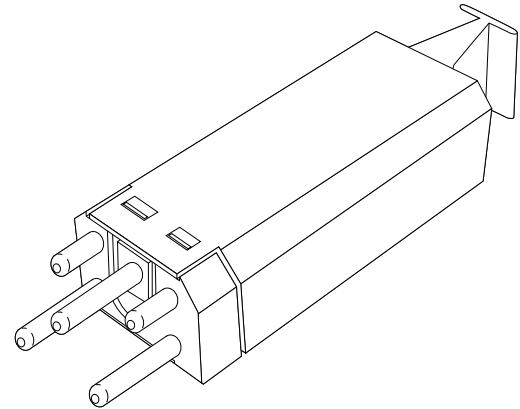
- tip and ring to the outside cable
- tip and ring to the central office equipment
- protection ground that also acts as a polarization pin

Protector modules are available with tin alloy- or gold-plated outside plant and central office pins; the grounding pin is always tin alloy-plated.

- Protector modules with gold-plated pins are intended to be used in connectors with gold-plated protector receptacles.
- Tin alloy-plated pins should be used when the protector receptacles are tin alloy-plated.

The C-303 protector module family greatly surpasses the performance of two- and three-element gas tubes as well as carbon, ensuring enhanced protection for sensitive switching equipment.

When the protector modules are fully inserted into the connector base, the outside plant and the central office pairs are connected together. Fast and easy disconnect of the central office pairs from the outside plant pairs is accomplished by pulling the fully inserted protector out to the “detent” position. Protection is still provided on the outside plant cable pairs.



5-Pin Solid-State Protector Module | Drawing ZA-1109

## Features / Benefits

- Greatly reduced maintenance
- Longer service life
- Faster reaction time
- Tighter control over the operating voltage
- Reduced maintenance calls, less equipment failure and quieter lines
- Consistent performance
- Resilient seal to ensure long life even in hostile environments
- Fail-safe
- UL-listed
- Telcordia spec GR-974

# C-303™ 5-Pin Solid-State Overvoltage Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

## Description

### 11- and 12-Type Protector Modules

The 11-type modules provide voltage protection to wiring and equipment. The 12-type modules provide voltage protection and are equipped with heat coils for applications where sneak current protection is required.

High-sensitivity heat coils protect digital equipment line cards against overheating caused by prolonged currents, commonly called sneak currents. Sneak currents may be caused by direct contact with low-voltage power lines or from induction on telephone lines caused by fault currents, overloads or unbalanced loads on nearby power lines. The 150-milliampere heat coils are sensitive enough to operate before component damage occurs on most digital line cards. They carry normal currents with ample safety margin and shunt potentially harmful sneak currents safely to ground.

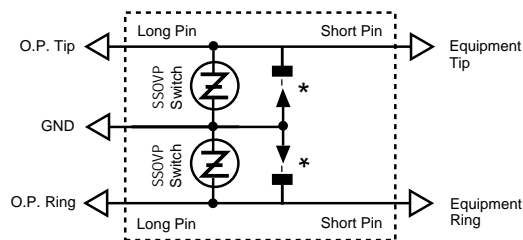
Medium sensitivity (350 mA) and PBX Battery (1.2 A) heat coils are also available.

### 22-Type Protector Modules

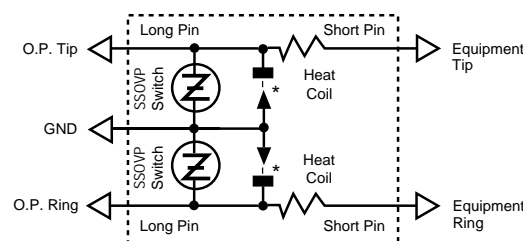
Corning Cable Systems' solid-state bridgelifter circuit, housed in an orange 5-pin, 303-type module, is used in place of bulky saturable inductors and their associated wiring. Solid-State Overvoltage Protection (SSOVP) and heat coil sneak current protection are also provided. Bridgelifter modules are used to isolate bridged telephone lines for central office party line service, answering service and off-premises extensions.

The mini-bridgelifter module employs a pair of electronic switches placed in series with the central office tip and ring terminals. In the idle or on-hook state, the switches are open and the subscriber line is isolated from the central office bridging termination point. Two 3500-ohm resistors in the tip and ring circuits provide the isolation resistance. When the subscriber loop is active, during ringing or off-hook, the switches are closed by the loop current, presenting a low-impedance connection to the central office.

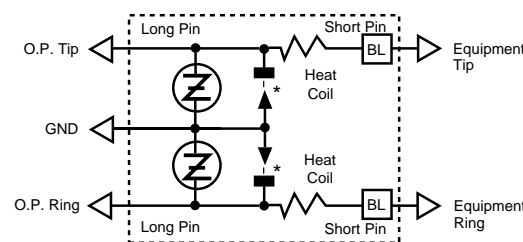
*Note: All SSOVP protector modules are CSA and UL-listed for subscriber premises applications.*



11-Type Protector Module | Drawing ZA-959



12-Type Protector Module | Drawing ZA-960



22-Type Protector Module | Drawing ZA-881

*\* Metallic shunts close circuit by heat coil operation to ground line and equipment directly or through heat coil resistance. Heat coil operates due to sneak currents and power crosses.*

# C-303™ 5-Pin Solid-State Overvoltage Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

## Technical Specifications

	220 V Modules	300 V Modules	
<b>DC Limiting Voltage</b>	265 V maximum @ 2000 V/sec	345 V maximum @ 2000 V/μsec	
<b>AC Limiting Voltage (1 kV<sub>rms</sub>, 1 A<sub>rms</sub>, 1 Cycle)</b>	265 V maximum	N/A	
<b>Leakage Current (Minimum Voltage Limit)</b>	20 mA maximum @ 215 VDC 20 μA maximum @ 200 VDC	20 mA maximum @ 265 VDC, 100 V/msec	
<b>Impulse Breakdown Voltage (Vimp)</b>	300 V maximum @ 100 V/μsec 350 V maximum @ 1000 V/μsec	390 V maximum @ 100 V/μsec 400 V maximum @ 1000 V/μsec 400 V maximum @ 10,000 V/μsec	
<b>Insulation Resistance (IR)</b>	100 mohms minimum @ 50-150 VDC	100 mohms minimum @ 50-200 VDC	
<b>DC Holdover (0° -50°C)</b>	20 msec maximum @: 260 mA, ±52 VDC 200 mA, ±135 VDC 140 mA, ±150 VDC		
<b>Service Life Surge</b>	±10 A, 10 x 1000 μsec: Unlimited ±100 A, 10 x 1000 μsec: Unlimited ±300 A, 10 x 1000 μsec: Fail-safe ±10,000 A, 8 x 20 μsec: Fail-safe		
<b>60 Hertz RMS</b>	1 Amp for 1 second: 60 surges, no-fail 10 Amps for 1 second: 5 surges, no-fail 4, 10 and 30 Amps for 15 minutes: Fail-safe 60 Amps for 3 seconds: Fail-safe 120 Amps for 0.6 second: Fail-safe 350 Amps for 0.04 second: Fail-safe		
<b>Capacitance</b>	Line to Ground – Less than 75 picofarads @ 50 VDC, 1 VAC, 1 MHz		
<b>On-State Voltage</b>	Less than 5 V @ 100 Amps		
<b>Response Time</b>	Less than 20 nanoseconds @ 10 kV/μsec		
<b>Storage Temperature</b>	-40 to +65°C		
<b>Safety Standard Listing</b>	UL 497, CSA, Telcordia Specification GR-974		
<b>Sneak Current Protection</b>			
	<b>150 mA Heat Coils (High Sensitivity)</b>	<b>350 mA Heat Coils (Medium Sensitivity)</b>	<b>1.2 A Heat Coils (PBX Battery)</b>
<b>Non-Operate</b>	3 hours minimum @ 150 mA	3 hours minimum @ 350 mA	3 hours minimum @ 1.2 A
<b>Operate</b>	210 seconds maximum @ 250 mA	210 seconds maximum @ 540 mA	210 seconds maximum @ 1.875 A
<b>Resistance</b>	19 ohms maximum	4 ohms maximum	0.32 ohm maximum
<b>Resistance Imbalance</b>	1.0 ohm maximum	0.5 ohm maximum	

# C-303™ 5-Pin Solid-State Overvoltage Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

## Technical Specifications (continued)

### Mini-Bridgelifter Circuit

<b>“Off” or Idle Resistance</b>	3500 ohms nominal OP Tip to CO Tip OP Ring to CO Ring
<b>Switching Current</b>	2.75 mA maximum
<b>Switching Voltage</b>	8.0 V nominal
<b>Voltage Drop (25°C)</b>	0.98 V @ 20 mA 1.28 V @ 60 mA
<b>Holding Current (25°C)</b>	0.7 mA maximum
<b>Loop Resistance Limit</b>	1300 ohms maximum (loops must be approximately equal length)

*Note: Unless otherwise indicated, all electrical specifications measured at 20°C.*

## Shipping Package Specifications

	220 V and 300 V
<b>Standard Packaging</b>	100 modules
<b>Dimensions (H x W x D)</b>	3 x 6 x 8 in (8 x 15 x 20 cm)
<b>Shipping Weight</b>	4 lb (1.8 kg)

# C-303™ Gold 5-Pin Solid-State Overvoltage Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

## Ordering Information

### 5-Pin SSOVP Modules Equipped with Gold-Plated Pins, 300 V

Product Code	Part Number	Application	Description	Module Color	Type Number	Figure Number
<b>3-Type Voltage Protection</b>						
303M-11A1GO	A0341959	Standard Circuit		Black	3B1ES	1
303M-11A2GO	A0342432	Service Denied		Green	3B2ES	1
303M-11A3GO	A0341960	Special Circuit		Red	3B3ES	1
303M-11A4GO	A0342435	PBX Battery		Yellow	3B4ES	1
303M-11F1GO	A0365896	Standard Circuit	Front Test	Black	3C1ES	2
303M-11F2GO	A0365897	Service Denied	Front Test	Green	3C2ES	2
303M-11F3GO	A0365898	Special Circuit	Front Test	Red	3C3ES	2
303M-11F4GO	A0370522	PBX Battery	Front Test	Yellow	3C4ES	2

### 4-Type Voltage and Sneak Current Protection (150 mA Heat Coils)

303M-12A1GE	A0366039	Standard Circuit		Black	4B1ES	3
303M-12A3GE	A0366042	Special Circuit		Red	4B3ES	3
303M-12A9GE	A0366045	Tip/Ring Reverse*		White	4B9ES	3
303M-22A5GE	A0366056	Mini-Bridgelifter		Orange	4B11ES	3
303M-12F1GE	A0365905	Standard Circuit	Front Test	Black	4C1ES	4
303M-12F3GE	A0365906	Special Circuit	Front Test	Red	4C3ES	4
303M-12F9GE	A0365908	Tip/Ring Reverse*	Front Test	White	4C9ES	4
303M-22F5GE	A0366060	Mini-Bridgelifter	Front Test	Orange	4C11ES	4

### 4-Type Voltage and Sneak Current Protection (350 mA and 1.2 A Heat Coils)

303M-12A1GA	A0353716	Standard Circuit	350 mA Heat Coil	Black	4B1ESC	3
303M-12A2GO	A0353725	Service Denied	(No Heat Coil)	Green	4B2ES	3
303M-12A3GA	A0353717	Special Circuit	350 mA Heat Coil	Red	4B3ESC	3
303M-12A4GF	A0353726	PBX Battery	1.2 A Heat Coil	Yellow	4B4ES	3
303M-12A9GA	A0353727	Tip/Ring Reverse*	350 mA Heat Coil	White	4B9ESC	3
303M-22A5GA	A0361923	Mini-Bridgelifter	350 mA Heat Coil	Orange	4B11ESC	3
303M-12F1GA	A0361533	Standard Circuit	350 mA Heat Coil Front Test	Black	4C1ESC	4
303M-12F2GO	A0358452	Service Denied	(No Heat Coil) Front Test	Green	4C2ES	4
303M-12F3GA	A0361534	Special Circuit	350 mA Heat Coil Front Test	Red	4C3ESC	4
303M-12F4GF	A0361919	PBX Battery	1.2 A Heat Coil Front Test	Yellow	4C4ES	4
303M-12F9GA	A0361535	Tip/Ring Reverse*	350 mA Heat Coil Front Test	White	4C9ESC	4
303M-22F5GA	A0361937	Mini-Bridgelifter	350 mA Heat Coil Front Test	Orange	4C11ESC	4

\*Pair Reversing Protector Units: These units identify and correct reversed pairs in the outside plant. Reversing protector units are intended for temporary use until the reversed pairs can be rewired correctly.

# C-303™ Gold 5-Pin Solid-State Overvoltage Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

## Ordering Information (continued)

### 5-Pin SSOVP Modules Equipped with Gold-Plated Pins, 220 V

Product Code	Part Number	Application	Description	Module Color	Type Number	Figure Number
<b>3-Type Voltage Protection</b>						
303M-11A1EO	A0358313	Standard Circuit		Black	3B1FS	1
303M-11A2EO	A0358314	Service Denied		Green	3B2FS	1
303M-11A3EO	A0396098	Special Circuit		Red	3B3FS	1
303M-11A4EO	A0358315	PBX Battery		Yellow	3B4FS	1
303M-11F1EO	A0358105	Standard Circuit	Front Test	Black	3C1FS	2
303M-11F2EO	A0366036	Service Denied	Front Test	Green	3C2FS	2
303M-11F3EO	A0358113	Special Circuit	Front Test	Red	3C3FS	2
303M-11F4EO	A0396099	PBX Battery	Front Test	Yellow	3C4FS	2

### 4-Type Voltage and Sneak Current Protection (150 mA Heat Coils)

303M-12A1EE	A0366038	Standard Circuit		Black	4B1FS	3
303M-12A3EE	A0366041	Special Circuit		Red	4B3FS	3
303M-12A9EE	A0366044	Tip/Ring Reverse*		White	4B9FS	3
303M-22A5EE	A0366055	Mini-Bridgelifter		Orange	4B11FS	3
303M-12F1EE	A0366047	Standard Circuit	Front Test	Black	4C1FS	4
303M-12F3EE	A0366049	Special Circuit	Front Test	Red	4C3FS	4
303M-12F9EE	A0366052	Tip/Ring Reverse*	Front Test	White	4C9FS	4
303M-22F5EE	A0366059	Mini-Bridgelifter	Front Test	Orange	4C11FS	4

### 4-Type Voltage and Sneak Current Protection (350 mA and 1.2 A Heat Coils)

303M-12A1EA	A0361530	Standard Circuit	350 mA Heat Coil	Black	4B1FSC	3
303M-12A2EO	A0358457	Service Denied	(No Heat Coil)	Green	4B2FS	3
303M-12A3EA	A0361531	Special Circuit	350 mA Heat Coil	Red	4B3FSC	3
303M-12A4EF	A0361931	PBX Battery	1.2 A Heat Coil	Yellow	4B4FS	3
303M-12A9EA	A0396100	Tip/Ring Reverse*	350 mA Heat Coil	White	4B9FSC	3
303M-22A5EA	A0366054	Mini-Bridgelifter	350 mA Heat Coil	Orange	4B11FSC	3
303M-12F1EA	A0361539	Standard Circuit	350 mA Heat Coil Front Test	Black	4C1FSC	4
303M-12F2EO	A0358459	Service Denied	(No Heat Coil) Front Test	Green	4C2FS	4
303M-12F3EA	A0361540	Special Circuit	350 mA Heat Coil Front Test	Red	4C3FSC	4
303M-12F4EF	A0366051	PBX Battery	1.2 A Heat Coil Front Test	Yellow	4C4FS	4
303M-12F9EA	A0361541	Tip/Ring Reverse*	350 mA Heat Coil Front Test	White	4C9FSC	4
303M-22F5EA	A0366058	Mini-Bridgelifter	350 mA Heat Coil Front Test	Orange	4C11FSC	4

\* Pair Reversing Protector Units: These units identify and correct reversed pairs in the outside plant. Reversing protector units are intended for temporary use until the reversed pairs can be rewired correctly.

# C-303™ Tin 5-Pin Solid-State Overvoltage Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

## Ordering Information

### 5-Pin SSOVP Modules Equipped with Tin Alloy-Plated Pins, 300 V

Product Code	Part Number	Application	Module Color	Figure Number
<b>3-Type Voltage Protection</b>				
303M-11A1T0	A0341961	Standard Circuit	Black	1
303M-11A2T0	A0365895	Service Denied	Green	1
303M-11A3T0	A0341962	Special Circuit	Red	1

### 4-Type Voltage and Sneak Current Protection (150 mA Heat Coils)

303M-12A1TE	A0391694	Standard Circuit	Black	3
303M-12A3TE	A0391695	Special Circuit	Red	3

### 4-Type Voltage and Sneak Current Protection (350 mA Heat Coils)

303M-12A1TA	A0353718	Standard Circuit	Black	3
303M-12A3TA	A0353719	Special Circuit	Red	3
303M-12A9TA	A0365902	Tip/Ring Reverse*	White	3
303M-22A5TA	A0361932	Mini-Bridgelifter	Orange	3

### 5-Pin SSOVP Modules Equipped with Tin Alloy-Plated Pins, 220 V

<b>3-Type Voltage Protection</b>				
303M-11A1K0	A0342431	Standard Circuit	Black	1
303M-11A2K0	A0365894	Service Denied	Green	1
303M-11A3K0	A0342434	Special Circuit	Red	1

### 4-Type Voltage and Sneak Current Protection (150 mA Heat Coils)

303M-12A1KE	A0361490	Standard Circuit	Black	3
303M-12A3KE	A0361491	Special Circuit	Red	3

### 4-Type Voltage and Sneak Current Protection (350 mA Heat Coils)

303M-12A1KA	A0353723	Standard Circuit	Black	3
303M-12A3KA	A0353724	Special Circuit	Red	3
303M-12A9KA	A0365900	Tip/Ring Reverse*	White	3
303M-22A5KA	A0361933	Mini-Bridgelifter	Orange	3

\* Pair Reversing Protector Units: These units identify and correct reversed pairs in the outside plant. Reversing protector units are intended for temporary use until the reversed pairs can be rewired correctly.

# C-303™ Unprotected Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

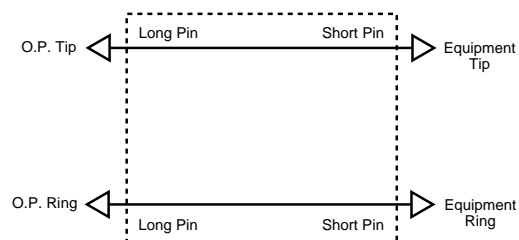
## Description

### 5-Type Direct Feed Modules

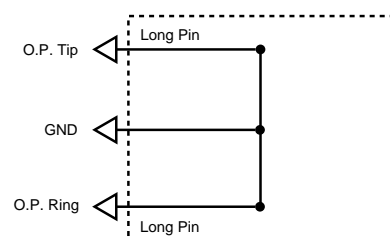
These modules give circuit continuity between the outside plant and central office pairs. Used in locations where protection is not required.

### Denied Service Grounding Modules

These green-colored modules are used to temporarily disconnect a subscriber's line. The modules provide a permanent ground on all terminated outside plant cable pairs that are not being used or those that are in an idle condition. This prevents noise induction to the adjacent circuits. There is no connection on the central office equipment pins.



6A-Type Module | Drawing ZA-962



Denied Service Module | Drawing ZA-964

## Ordering Information

### 5-Type Modules Equipped with Gold-Plated Pins

Product Code	Part Number	Application	Description	Module Color	Type Number	Figure Number
303M-05A6GO	A0337864	Standard Circuit	Unprotected	Gray	C-5A1D	5
303M-13D2GO	A0338072	Service Denied	Grounding Module	Green	C-5A2D	5
303M-05A3GO	A0338073	Special Circuit	Unprotected	Red	C-5A3D	5
303M-05A4GO	A0338074	PBX Battery	Unprotected	Yellow	C-5A4D	5
303M-05A9GO	A0338075	Reversed Pairs*	Unprotected	White	C-5A9D	5
303M-05C6GO	A0334926	Unprotected Circuit	Straight-Through (4A Size)	Gray	C-4B12C	7
303M-05F6GO	A0358284	Unprotected Circuit	Straight-Through Front Test (4C Size)	Gray	C-4C12C	6

### Modules Equipped with Tin Alloy-Plated Pins

303M-05C6T0	303M-05C6T0	Unprotected Circuit	Straight-Through (4A Size)	Gray	-	7
303-1053	A0294497	Service Denied	Grounding Module (3A Size)	Green	-	2
303-1054	A0294510	Service Denied	Grounding Module (4A Size)	Green	-	3
303-1024	A0312306	Service Denied	Grounding Module (5A Size)	Green	-	1

\*Pair Reversing Module: This module identifies and corrects reversed pairs in the outside plant. It is intended for temporary use until the reversed pairs can be rewired correctly.

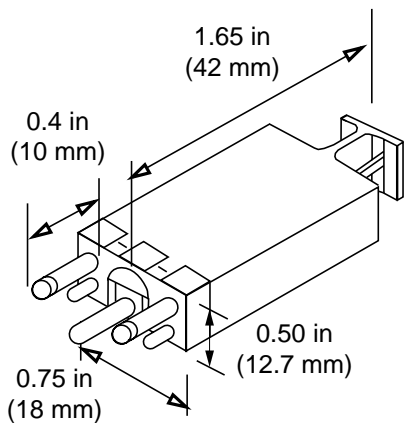
## Shipping Package Specifications

Standard Packaging	100 modules
Dimensions (H x W x D)	3 x 6 x 8 in (8 x 15 x 20 cm)
Shipping Weight	4 lb (1.8 kg)



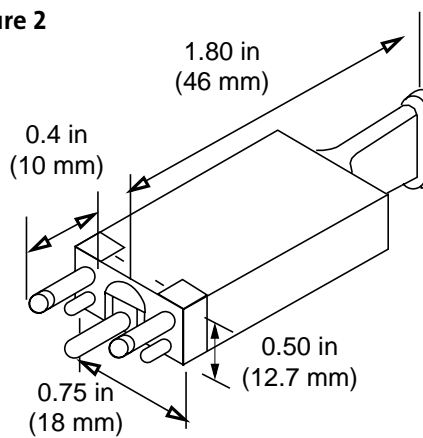
## Dimensions

Figure 1



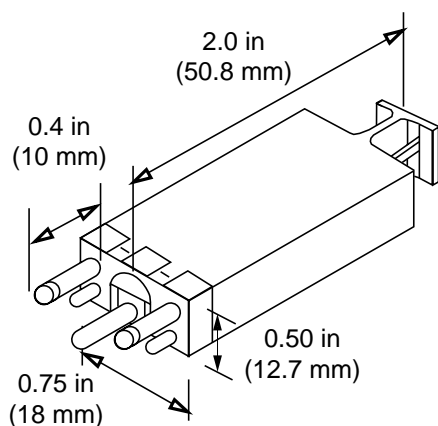
11A-Type Protector | Drawing ZA-969

Figure 2



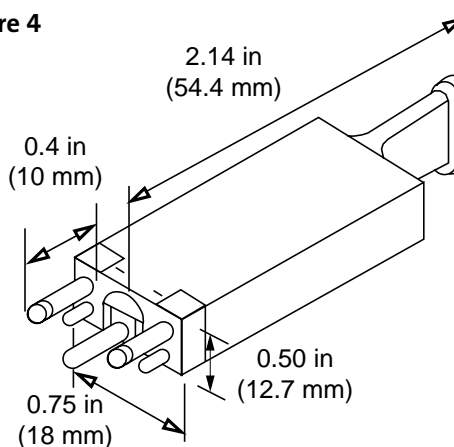
11F-Type Protector | Drawing ZA-965

Figure 3



12A-Type Protector | Drawing ZA-970

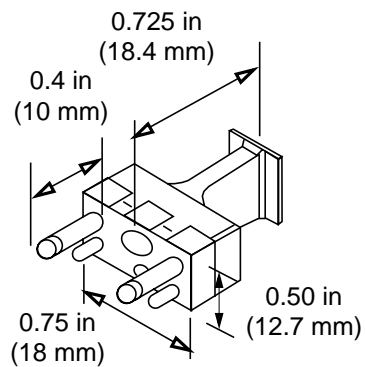
Figure 4



12F-Type Protector | Drawing ZA-966

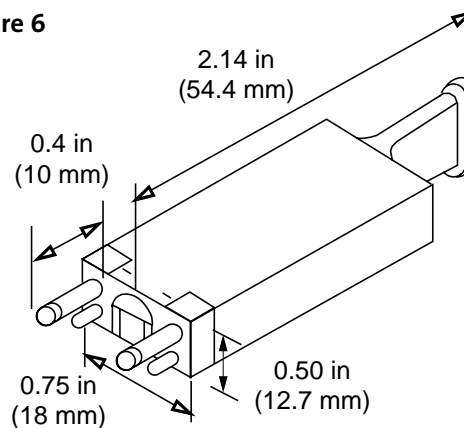
## Dimensions

Figure 5



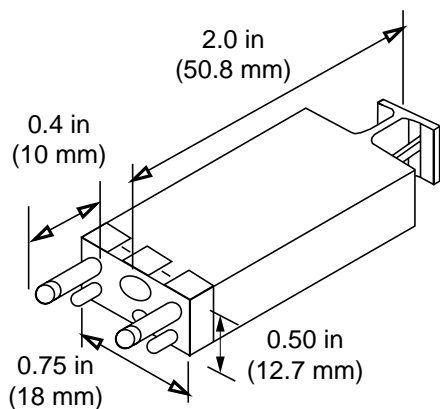
5A-Type Continuity/Ground Module | Drawing ZA-967

Figure 6



5F-Type Protector | Drawing ZA-968

Figure 7



5C-Type Protector | Drawing ZA-963

# C-303™ 5-Pin Solid-State Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

# C-303™ 5-Pin Solid-State Protector Modules

An Evolant™ Solutions Product

Corning  
Cable Systems

Corning Cable Systems LLC • PO Box 489 • Hickory, NC 28603-0489 USA

1-800-743-2675 • FAX: +1-828-901-5973 • International: +1-828-901-5000 • <http://www.corning.com/cablesystems>

Corning Cable Systems reserves the right to improve, enhance and modify the features and specifications of Corning Cable Systems' products without prior notification. C-303 and Evolant are trademarks of Corning Cable Systems Brands, Inc. Discovering Beyond Imagination is a trademark of Corning Incorporated. All other trademarks are the properties of their respective owners. Corning Cable Systems is ISO 9001 certified. © 2000, 2003 Corning Cable Systems. All rights reserved. Published in the USA. EVO-321-EN / July 2003 / 2.5M



**CORNING**  
Discovering Beyond Imagination