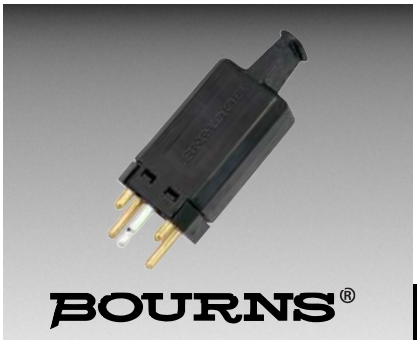


BOURNS®

Features

- Greatly reduced maintenance
- Longer service life
- Tighter control over the operating voltage
- Reduced maintenance calls, fewer equipment failures and quieter lines
- Consistent performance
- Sealed solid-state device to ensure long life even in hostile environments
- Fail-short device
- Ⓤ UL Listed
- Meets Telcordia GR-974

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

Bourns® Model C-303™ 5-Pin Solid-State Protector Modules provide surge 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:

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

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 can be used when the protector receptacles are tin-alloy plated.

The Bourns® Model C-303™ Solid-State 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.

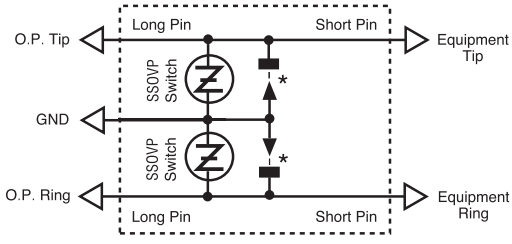
The 5-pin module is designed to short-to-ground (also known as a “fail-short event”) when it encounters lightning, power cross or other electrical conditions that exceed the surge capabilities of the SSOVP device.

11- and 12-Type Protector Modules

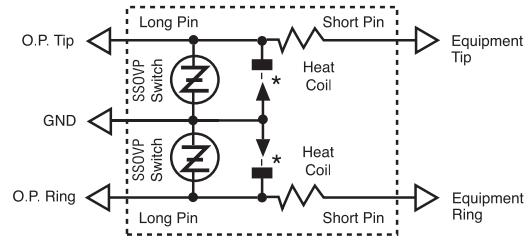
The 11-type modules provide voltage protection to wiring and equipment. The 12-type modules provide voltage protection and are equipped with heat coils for applications where sneak current protection is required.

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.



11-Type Protector Module



12-Type Protector Module

** 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.*

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

BOURNS®

Specifications

Note: All SSOVP protector modules are CSA and UL Listed for subscriber premises applications.

	220 V / 240 V Modules	**300 V Modules**
DC Limiting Voltage	265 V max. @ 2000 V/sec	345 V max. @ 2000 V/s
AC Limiting Voltage (1K V_{rms}, 1 A_{rms}, 1 Cycle)	265 V max.	N/A
Leakage Current (Minimum Voltage Limit)	20 mA max. @ 215 VDC 20 µA max. @ 200 VDC	20 mA max. @ 265 VDC
Impulse Breakdown Voltage (Vimp)	300 V max. @ 100 V/µsec 350 V max. @ 1000 V/µsec	390 V max. @ 100 V/µsec 400 V max. @ 1000 V/µsec 400 V max. @ 10,000 V/µsec
Insulation Resistance (IR)	100 megohms min. @ 50-200 VDC	100 megohms min. @ 50-200 VDC
DC Holdover (-20 °C to +65 °C)	20 msec max. @ 260 mA ±52 VDC @ 200 mA ±135 VDC @ 140 mA ±150 VDC	20 msec max. @ 260 mA ±52 VDC @ 200 mA ±135 VDC @ 140 mA ±150 VDC
Service Life Surge		
±10 A, 10 x 1000 µsec	Unlimited	Unlimited
±100 A, 10 x 1000 µsec	Unlimited	Unlimited
±300 A, 10 x 1000 µsec	Fail-short	Fail-short
±10,000 A, 8 x 20 µsec	Fail-short	Fail-short
60 Hz RMS		
1 Amp for 1 second	60 surges, no-fail	60 surges, no-fail
10 Amps for 1 second	5 surges, no-fail	5 surges, no-fail
4, 10 and 30 Amps for 15 minutes	Fail-short	Fail-short
60 Amps for 3 seconds	Fail-short	Fail-short
120 Amps for 0.6 second	Fail-short	Fail-short
350 Amps for 0.04 second	Fail-short	Fail-short
Capacitance - Line to Ground	< 75 picofarads @ 0 VDC, 1 VAC, 1 MHz	< 75 picofarads @ 0 VDC, 1 VAC, 1 MHz
On-State Voltage	< 10 V @ 100 Amps	< 10 V @ 100 Amps
Response Time	< 20 nanoseconds @ 10 kV/µsec	< 20 nanoseconds @ 10 kV/µsec
Storage Temperature	-40 °C to +65 °C	-40 °C to +65 °C
Safety Standard Listing	UL 497, CSA, Telcordia Specification GR-974	UL 497, CSA, Telcordia Specification GR-974

Sneak Current Protection Specifications

	150 mA Heat Coils (High Sensitivity)	**350 mA Heat Coils (Medium Sensitivity)**	**1.2 A Heat Coils (PBX Battery)**
Non-Operate	3 hours min. @ 150 mA	3 hours min. @ 350 mA	3 hours min. @ 1.2 A
Operate	210 seconds max. @ 250 mA	210 seconds max. @ 540 mA	210 seconds max. @ 1.875 A
Resistance	19 ohms max.	4 ohms max.	0.32 ohms max.
Resistance Imbalance	1.0 ohms max.	0.5 ohms max.	--

Packaging Specifications

	220 V / **240 V and 300 V**
Standard Packaging	100 modules
Dimensions (H x W x D)	8 x 15 x 20 cm (3 x 6 x 8 in.)
Shipping Weight	1.8 kg (4 lb)

How to Order

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

Product Code	Part Number	Application	Description	Module Color	Type Number	Figure Number (see page 6)
3-Type Voltage Protection						
303M-11A1G0	**A0341959**	Standard Circuit		Black	3B1ES	1
303M-11A2G0	**A0342432**	Service Denied		Green	3B2ES	1
303M-11A3G0	**A0341960**	Special Circuit		Red	3B3ES	1
303M-11A4G0	**A0342435**	PBX Battery		Yellow	3B4ES	1
303M-11F1G0	**A0365896**	Standard Circuit	Front Test	Black	3C1ES	2
303M-11F2G0	**A0365897**	Service Denied	Front Test	Green	3C2ES	2
303M-11F3G0	**A0365898**	Special Circuit	Front Test	Red	3C3ES	2
303M-11F4G0	**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-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
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-12A2G0	**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-12A7GA	**303M-12A7GA**	Carrier Circuit	350 mA Heat Coil	Blue	4B7ES	3
303M-12A9GA	**A0353727**	Tip/Ring Reverse*	350 mA Heat Coil	White	4B9ESC	3
303M-12F1GA	**A0361533**	Standard Circuit	350 mA Heat Coil Front Test	Black	4C1ESC	4
303M-12F2G0	**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

* *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.*

Note: Order by Part Number.

How to Order (Continued)

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

Product Code	Part Number	Application	Description	Module Color	Type Number	Figure Number (see page 6)
3-Type Voltage Protection						
303M-11A1E0	**A0358313**	Standard Circuit		Black	3B1FS	1
303M-11A2E0	**A0358314**	Service Denied		Green	3B2FS	1
303M-11A3E0	**A0396098**	Special Circuit		Red	3B3FS	1
303M-11A4E0	**A0358315**	PBX Battery		Yellow	3B4FS	1
303M-11F1E0	**A0358105**	Standard Circuit	Front Test	Black	3C1FS	2
303M-11F2E0	**A0366036**	Service Denied	Front Test	Green	3C2FS	2
303M-11F3E0	**A0358113**	Special Circuit	Front Test	Red	3C3FS	2
303M-11F4E0	**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-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
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-12A2E0	**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-12F1EA	**A0361539**	Standard Circuit	350 mA Heat Coil Front Test	Black	4C1FSC	4
303M-12F2E0	**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	4C4FS4	3
303M-12F9EA	**A0361541**	Tip/Ring Reverse*	350 mA Heat Coil Front Test	White	4C9FSC	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.*

Note: Order by Part Number.

How to Order (Continued)

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

Product Code	Part Number	Application	Description	Module Color	Figure Number (see page 6)
3-Type Voltage Protection					
303M-11A1T0	**A0341961**	Standard Circuit		Black	1
303M-11A2T0	**A0365895**	Service Denied		Green	1
303M-11A3T0	**A0341962**	Special Circuit		Red	1
303M-11A7T0	**303M-11A7T0**	Carrier Circuit		Blue	2
303M-11F1T0	**303M-11F1T0**	Special Circuit	Front Test	Black	2
303M-11F7T0	**303M-11F7T0**	Carrier Circuit	Front Test	Blue	2
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-12F1TA	**303M-12F1TA**	Standard Circuit	Front Test	Black	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.*

Note: Order by Part Number.

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

Product Code	Part Number	Application	Description	Module Color	Figure Number (see page 6)
3-Type Voltage Protection					
303M-11A1K0	**A0342431**	Standard Circuit		Black	1
303M-11A2K0	**A0365894**	Service Denied		Green	1
303M-11A3K0	**A0342434**	Special Circuit		Red	1
303M-11A7K0	**303M-11A7K0**	Carrier Circuit		Blue	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

** 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.*

Note: Order by Part Number.

Product Dimensions

Figure 1
11A-Type Protector

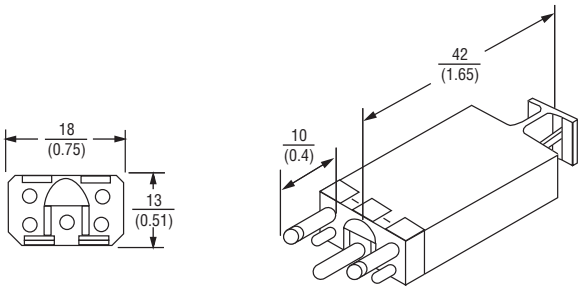


Figure 2
11F-Type Protector

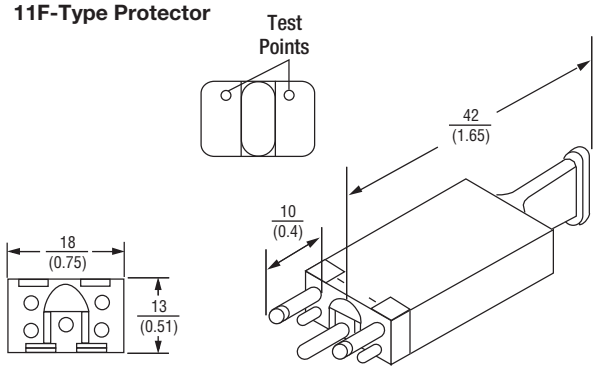


Figure 3
12A-Type Protector

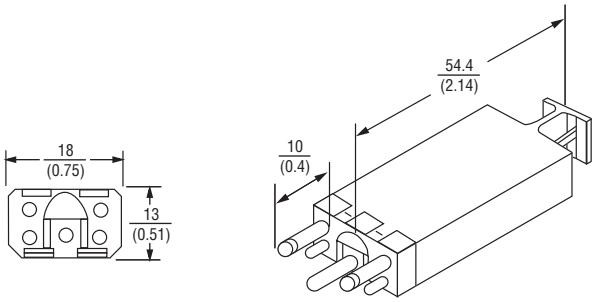
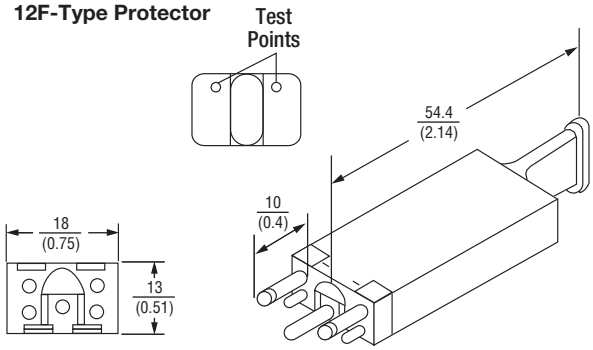


Figure 4
12F-Type Protector



DIMENSIONS: MM / (INCHES)