Protectors

Chapter 7

Protectors

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Copper Small Pair Count - 110ANA1

The 110ANA1 Multipair Protector Panel provides indoor station protection for small-pair-count applications using the 3B, 3C, 4B, or 4C Series Protector Units. The unique internal wiring design prevents protector bypass. Designed with 110-Type connecting blocks for input and output terminations, the 110ANA1 Multipair Protector Panel provides a modular, space-efficient package with quiet-front and simplified installation directly on the wall.



The individual protector modules should be ordered separately. The **110ANA1 Multipair Protector Panel** is UL Listed.

Panels

110ANA1 Protector Panel



Figure 154
110ANA1
Protector Panel

Physical Specifications

Height: 25.4cm Width: 9.9cm Depth: 6.6cm

Product	Comcode	Pair Size	Packaging
110ANA1-25	105736490	25	1/Pkg

Copper 489 A&B Models

The **489** Type Multipair Protector Panel provides protection for communication equipment and circuits exposed to voltage surges and sneak currents. The protector panel, designed for use with the 110 Connector System, consists of a plastic housing containing mountings for **3B**, **3C**, **4B** or **4C** Series Protector Units (sold separately). The **489A** replaces the 188-Type equipped with 110-Type connecting blocks and the **489B** replaces the 189-Type equipped with the 66-Type connecting block.

Input options for the protector panel include a swivel input stub and splice chamber equipped with a 110 Wiring Block or 710 or 3M connector. Both input options allow cable to be fed from the top or bottom. The conductors in the swivel stub and splice chamber are 26 AWG and satisfy the fuse link requirements. Insertion of the protector units into the protector panel complete the circuit to the 110 Connector System termination field output.

Panels

Building Entrance Protector



Figure 155 489 A&B Building Entrance Protector



Physical Specifications

Height: 31.4cm Depth: 13.4cm

Width: 38.2cm

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Product	Comcode	Description	Block Type	Pair Size	Packaging
489BCCI-025	107895138	Swivel Stub	66 Block	25	1/Pkg
489BCCI-050	107895146	Swivel Stub	66 Block	50	1/Pkg
489BCCI-100	107895153	Swivel Stub	66 Block	100	1/Pkg
489BCBI-025	107895096	66 Block	66 Block	25	1/Pkg
489BCBI-100	107895112	66 Block	66 Block	100	1/Pkg
489BCSI-025	107895203	710 Connector	66 Block	25	1/Pkg
489BCSI-100	107895229	710 Connector	66 Block	100	1/Pkg
489BCSI-050	107895211	710 Connector	66 Block	50	1/Pkg
489ACAI-050	107894917	110 Connector	66 Block	50	1/Pkg
489ACAI-100	107894925	110 Connector	66 Block	100	1/Pkg
489BCBI-050	107895104	66 Block	66 Block	50	1/Pkg
489ACCI-025	107894941	Swivel Stub	110 Connector	25	1/Pkg
489ACCI-050	107894958	Swivel Stub	110 Connector	50	1/Pkg
489ACCI-100	107894966	Swivel Stub	110 Connector	100	1/Pkg
489ACAI-025	107894909	110 Connector	110 Connector	25	1/Pkg
489ACMI-025	107894974	3M Connector	110 Connector	25	1/Pkg
489ACMI-050	107894982	3M Connector	110 Connector	50	1/Pkg
489ACSI-025	107895039	710 Connector	110 Connector	25	1/Pkg
489ACSI-050	107895047	710 Connector	110 Connector	50	1/Pkg
489ACSI-100	107895070	710 Connector	110 Connector	100	1/Pkg
489BCMI-025	107895161	3M Connector	66 Block	25	1/Pkg
489BCMI-050	107895179	3M Connector	66 Block	50	1/Pkg
489BCMI-100	107895187	3M Connector	66 Block	100	1/Pkg

Copper 4B1-EW and 4C3S-75 Protector Units

SYSTIMAX® SCS **Surge Arresters** are UL-listed five-pin devices that plug into the 110-ANA1 and 489-Type Multipair Protector Panels. Each unit is moulded to glass-reinforced, high-heat-distortion plastic (polybutylene terephthalate). Line pins are gold-plated for long-term, reliable performance and ground pins are solder-plated.

The **3B1-EW** and **4B1-EW Gas-Tube Protector Units** are 31-RL wide-gap, gas-tube surge arresters that provide overvoltage protection. The service life of these wide-gap gas tubes exceeds that of other gas-tube protectors. The **4B1-EW** includes heat coils for sneak current protection.

The **3C1S** and **4C1S** Solid-State Protector Units offer a solid-state alternative to gas-tube protectors. Solid-state protectors provide precision overvoltage protection for more sensitive circuits, and offer unlimited service life as long as the maximum rated impulse discharge current (200 amps) is not exceeded. The 4C1S includes heat coils for sneak current protection.



The **4C3S-75 Protector Unit** is a solid-state protector for use on circuits which do not normally experience ringing voltages and also includes heat coils for sneak current protection.

Units

Surge Arrester



Figure 156
4B1-EW Protector Unit

Physical Specifications

4B1-EW	4C3S-75
Height: 5.0cm	Operational Temperature Range: -40 to 65°C
Width: 1.9cm	Pair Size: 1-pair
Depth: 1.3cm	

Electrical Specifications

4C3S-75			
DC Breakdown Voltage @ 2kV/sec: 60-90 V			
Surge Breakdown Voltage @100 V /µsec: 220-300 V			
Insulation Resistance (PE-80): > 100 M Ω			
DC Holdover Current: 260 mA/52 V			
On-State Voltage @ 75 A: < 10 V			
Response Time: < 100 nsec			
Rated Impulse Discharge: 100 A			
Capacitance(VDC=50 V, f=1 kHz, V AC=1 Vrms): < 100pF			
Line Series Resistance: $<4~\Omega$			
Sneak Current Operation (heat coils): 540 mA <210 sec, 1 A <15 sec			

Copper

4B1-EW and 4C3S-75 Protector Units

Units

Surge Arrester (contd)

Electrical Specifications (contd)

4B1-EW

DC Breakdown Voltage @ 2 kV/sec: 265-425 V

Surge Breakdown Voltage @ 100 V/µsec: 200-800 V

Insulation Resistance (PE-80): 100 M Ω Typical

DC Holdover Current (ANSI C62.31): 150 V Typical

Vented Breakdown Voltage (surpasses UL requirements): <1000 V

DC Arc Voltage: 20 V Typical

Glow-to-Arc Transition Current (ANSI C62.31): 0.5 A Typical

Capacitance (PE-80): 10 pF

AC Discharge (PE-80): 65 A (11 cycles @ 60 Hz)

Max. Impulse Discharge (PE-80): 20 kA (8x 20 µsec waveform)

Sneak Current Operation (heat coils @ 20°C): 540 mA: <210 sec; 1A: <15 sec

Service Life Characteristics: 1 sec. 1 A AC Burst @ 60 Hz: >60 operations

1 sec. 10 A AC Burst @ 60 Hz: >20 operations

Continuous 0.5 A AC @ 60 Hz: 140 sec.

10 A Surges (10x 1 msec waveform): >1000 operations

100 A Surges (10x 1 msec waveform): >100 operations

300 A Surges (10x 1 msec waveform): >50 operations

For the stated number of operations, VB, VL and RL values remain within required ranges as follows:

VB: 265-425 V, VL: <1000V and RL: >10 $\text{M}\Omega$

Product	Comcode	Description	Application	Packaging	Colour
3B1-EW	104410147	Gas-tube (wide gap)	Standard Service	1/Pkg	Black
3C1S	105514756	Solid-state	Standard Service	1/Pkg	Black
4C1S	104386545	Solid-state w/heat coils	Standard Service	1/Pkg	Black
4C3S-75	105581086	Solid-state (75V nominal) w/heat coils	Nonringing	1/Pkg circuits	Red
4B1-EW	104401856	Gas-tube (wide gap) w/heat coils	Standard Service	1/Pkg	Black

Copper Category 5 OSP Protector

The CAT 5 OSP Protector unit is designed to give protection for data circuits entering the building. Each unit protects a 4-pair (8-wire) circuit. When this protector is used with Avaya's Category 5 OSP Cable and Power Sum Components for a complete end-to-end installation, they form a Certified SYSTIMAX SCS installation.

This solid state device protects sensitive network equipment from damage caused by transient voltage surges. UL 497 Listed, this primary protector serves high performance OSP cable between buildings and remote workstations, as well as, hostile industrial environments within buildings. In order to protect data circuits, this protector meets the electrical specifications of Commercial Building Telecommunications Cabling Standard ANSI/TIA/EIA-568-A.

Units

Protector



Figure 157
Category 5
OSP Protector



Not for use with voice applications over the CAT 5 OSP cable.

Physical Specifications

Height: 10.8cm
Depth: 3.6cm
Width: 10.8cm

Electrical Specifications

Protector Type: 100% Solid State
Clamping Voltage: 16 VAC, nominal

Maximum Response Time: 2 - 5 nanoseconds

Grounding Requirements: 10 AWG for primary or 10 AWG for isolated Loop Applications

Grounding Connection: 8-32 screw to ground plate module

Product	Comcode	Pair Size	Packaging
C5P4T-16	108224874	4	1/Pkg