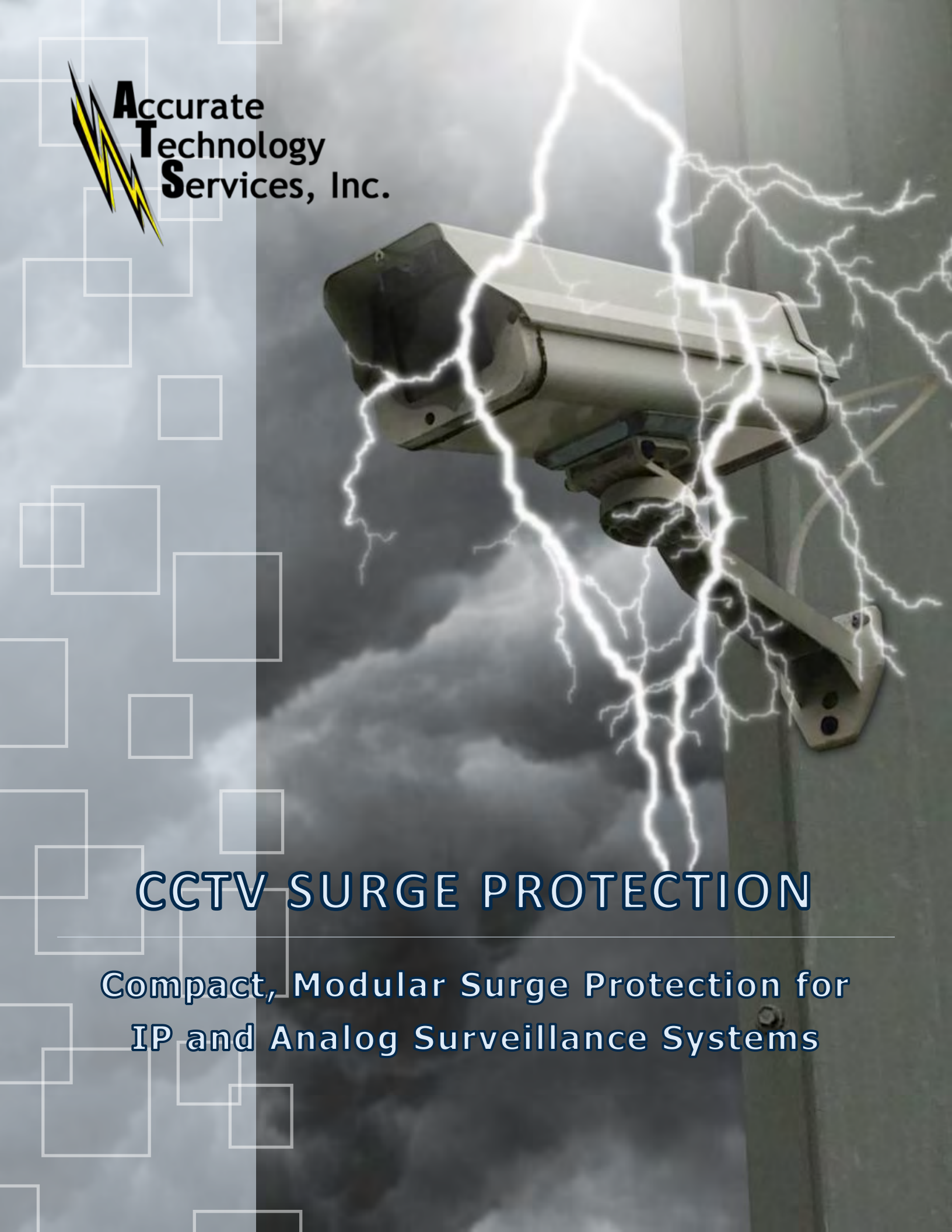
Accurate Technology Services, Inc.



CCTV SURGE PROTECTION

Compact, Modular Surge Protection for IP and Analog Surveillance Systems

Surge Protection for Surveillance Systems

1-in-1 Protection for Network Cameras
2-in-1 Protection for Power and Audio/Video Signals
3-in-1 Protection for Power, Audio/Video and PTZ Control Signals

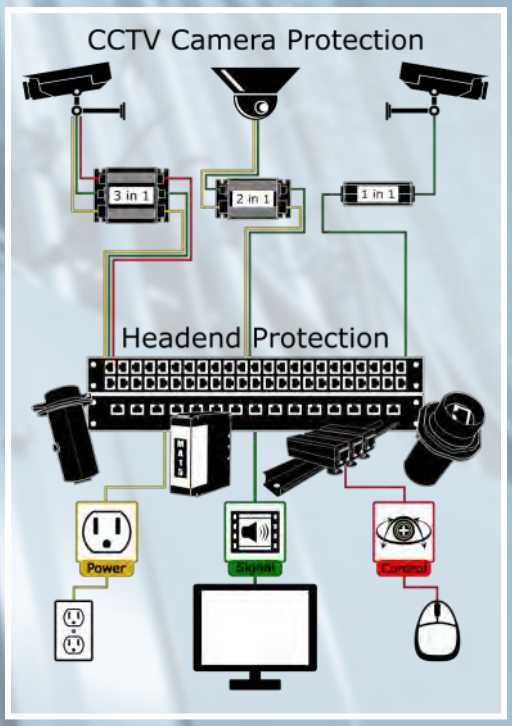
Application:

The AT87 Series, Surge Protection for Surveillance Systems or simply known as SPD, is designed in accordance with IEC standards for application in CCTV system protection. Combining surge protection functions for power, audio/video, and pan-tilt-zoom (PTZ) control signals, this proven technology is highly effective in protecting very sensitive surveillance systems by preventing damage due to overvoltage through lightning and other induced voltages, and to prevent damages due to static discharge.

Working voltages of the AT87 include 120VAC, 12VDC and 24VDC. The 2-in-1 offers protection for power lines and audio/video signals. The 3-in-1 model offers protection of power line voltage for 12VDC, 24VDC and 120VAC, audio/video and PTZ control signal; effectively, satisfying various application scenarios of surveillance systems.

The AT87 Series SPD protects the power, audio/video, and pan-tilt-zoom control signals from direct and indirect lightning strikes. CCTV systems with or without the PTZ function, as well as other equivalent signal types, can be protected.

The versatile AT87 Series can be easily introduced into a wide variety of applications and locations, including banks, schools, malls, transportation and industrial facilities, and neighborhood security applications.



Features:

- A low limiting voltage provides good protection effect with a fast response time
- Provides protection for differentiated mode, common mode, and combination mode
- Protects power, audio/video and PTZ control systems
- Compact design allows for easy installation.
- Provides high impulse current, low loss interference, and high throughput.
- Application is Type 3 tested, with high open-circuit voltage and no residual current.

Model	Type	Protection
AT87001	Female/Female Coax BNC 1-in-1	Audio/video signals
AT87002	Male/Female Coax BNC 1-in-1	Audio/video signals
AT87003	Type F Coax 1-in-1	Audio/Video signals
AT87004	CAT 6 PoE & PoE Plus	Power, audio/video and pan-tilt-zoom
AT87005	2, 3, or 4 Wire Control 1-in-1	Pan-tilt-zoom signals
AT87012-1	12V 1-in-1	Power
AT87012PS-1	12V Plug/Socket 1-in-1	Power
AT87012-2*	12V 2-in-1 SPD	Power and audio/video signals
AT87012PS-2*	12V Plug/Socket 2-in-1 SPD	Power and audio/video signals
AT87012-3*	12V 3-in-1 SPD	Power, audio/video and pan-tilt-zoom signals (2 wires)
AT87012PS-3*	12V Plug/Socket 3-in-1 SPD	Power, audio/video and pan-tilt-zoom signals (2 wires)
AT87024-1	24V 1-in-1	Power
AT87024PS-1	24V Plug/Socket 1-in-1	Power
AT87024-2*	24V 2-in-1 SPD	Power and audio/video signals
AT87024PS-2*	24V Plug/Socket 2-in-1 SPD	Power and audio/video signals
AT87024-3*	24V 3-in-1 SPD	Power, audio/video and pan-tilt-zoom signals (2 wires)
AT87024PS-3*	24V Plug/Socket 3-in-1 SPD	Power, audio/video and pan-tilt-zoom signals (2 wires)
AT87120-1	120VAC 1-in-1	Power
AT87120-2*	120VAC 2-in-1 SPD	Power and audio/video signals
AT87120-3*	120VAC 3-in-1 SPD	Power, audio/video and pan-tilt-zoom signals (2 wires)

* Append “A” (AT87001), “B” (AT87002) or “C” (AT87003) to the part number to select the required coax module. Example: Use “AT87024-3B” to select the 24V 3-in-1 SPD with the M/F BNC Coax Module.

All models comply with the following standards:

<Low voltage surge protection device (SPD) Part 1: Low voltage power system surge protection functional requirement and test method> IEC 61643.11:2012

<Low voltage surge protection device (SPD) Part 21: Communication and signal network surge protection (SPD) functional requirement and test method> IEC 61643.21-2000

<Lightning protection Part 4: Electrical and electronic system inside building> IEC62305-4:2006

Technical Specifications:

						AT87012 AT87012PS			AT87024 AT87024PS			AT87120		
	Model	AT87001	AT87002	AT87003	AT87005	-1*	-2*	-3*	-1*	-2*	-3*	-1*	-2*	-3*
	SPD Type	F/F BNC Coax	M/F BNC Coax	Type F Coax	2, 3, or 4 Wire Control	12V			24V			120VAC		
Power protections specification	Nominal working voltage, Un					6-18 VAC or VDC			6-30 VAC or VDC			120VAC		
	Max. continuous operating voltage, Uc					30VDC			42VDC			150VAC		
	Nominal load current, I_L					5A			5A			5A		
	Nominal discharge current, In (8/20μs)					5kA			5kA			5kA		
	Max. discharge current, Imax (8/20μs)					10kA			10kA			10kA		
	Open circuit voltage, Uoc					10kV			10kV			10kV		
	Voltage protection level, Up					250V @ 3kA 8/20μs			250V @ 3kA 8/20μs			700V @ 3kA 8/20μs		
Audio / Video protection specification	Nominal working voltage, Un	6VDC	6VDC	6VDC			6VDC			6VDC			6VDC	
	Max. continuous operating voltage, Uc	7.2VDC	7.2VDC	7.2VDC			7.2VDC			7.2VDC			7.2VDC	
	Isolation	≥0.1MΩ	≥0.1MΩ	≥0.1MΩ			≥0.1MΩ			≥0.1MΩ			≥0.1MΩ	
	Nominal discharge current, In (8/20μs)	5kA	5kA	5kA			5kA			5kA			5kA	
	Max. discharge current, Imax (8/20μs)	10kA	10kA	10kA			10kA			10kA			10kA	
	Open circuit voltage, Uoc	10kV	10kV	10kV			10kV			10kV			10kV	
	Nominal load current, I_L	DC500mA	DC500mA	DC500mA			DC500mA			DC500mA			DC500mA	
	Overstressed fault mode	Mode 3	Mode 3	Mode 3			Mode 3			Mode 3			Mode 3	
	Loss at (10MHz)	≤0.5dB	≤0.5dB	≤0.5dB			≤0.5dB			≤0.5dB			≤0.5dB	
	characteristic impedance	75Ω	75Ω	75Ω			75Ω			75Ω			75Ω	
	Standing Wave Ratio, SWR	≤1.2	≤1.2	≤1.2			≤1.2			≤1.2			≤1.2	
	Series resistance	1.5Ω	1.5Ω	1.5Ω			1.5Ω			1.5Ω			1.5Ω	
	Voltage protection level, Up	400V @ 3kA 8/20μs (BNC wire to BNC shield)	400V @ 3kA 8/20μs (BNC wire to BNC shield)	400V @ 1kV/μs (F-type wire to F-type shield)			400V @ 3kA 8/20μs (models A & B) 400V @ 1kV/μs (model C)			400V @ 3kA 8/20μs (models A & B) 400V @ 1kV/μs (model C)			400V @ 3kA 8/20μs (models A & B) 400V @ 1kV/μs (model C)	
Pan-tilt-zoom control signal protection specification	Nominal working Voltage, Un				6VDC			6VDC			6VDC			6VDC
	Max. continuous operating voltage, Uc				7.2VDC			7.2VDC			7.2VDC			7.2VDC
	Isolation				≥0.1MΩ			≥0.1MΩ			≥0.1MΩ			≥0.1MΩ
	Nominal discharge current, In (8/20μs)				5kA			5kA			5kA			5kA
	Max. discharge current, Imax (8/20μs)				10kA			10kA			10kA			10kA
	Open circuit voltage, Uoc				10kV			10kV			10kV			10kV
	Voltage protection level, Up				15V (Line to GND)			15V (Line to GND)			15V (Line to GND)			15V (Line to GND)
	Nominal load current, , I_L				DC500mA			DC500mA			DC500mA			DC500mA
	Overstressed fault mode				Mode 3			Mode 3			Mode 3			Mode 3
	Series resistance				1.5Ω			1.5Ω			1.5Ω			1.5Ω

***** Append "A" (AT87001), "B" (AT87002) or "C" (AT87003) to the part number to select the required coax module. Example: Use "AT87024-3B" to select the 24V 3-in-1 SPD with the M/F BNC Coax Module.

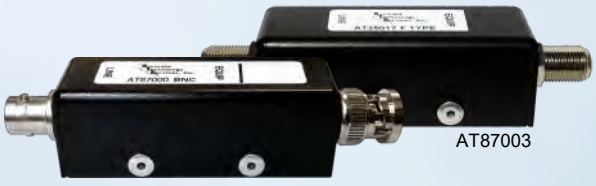
Note: Overstressed mode

Mode 3: SPD limiting function open circuit on network part and line is disconnected but open circuit protection is still enabled

Camera Protection

Modular Surge Suppression Technology for Your CCTV Devices.

Power and Audio/Video Protection



AT87003

AT87002

Coax modules protect your camera's audio/video signals (including 1080p AHD) from surges caused by lightning strikes and other transients.

AT87012-1

Individual 12 and 24Volt (AC or DC, 6-36V) or 120VAC modules offer high-grade protection for your camera's power supply.

AT87024-2C

Protect both power and A/V signals at once with the compact 2-in-1 unit.

AT87120-3C

Protect power, control and A/V signals with the modular 3-in-1 SPD.

AT87024PS-2B

AT87012PS-3C

AT87012PS-1

The AT87012PS and AT87024PS modules simplify connecting to 12V/24V AC and DC power supplies with pigtailed plug-to-socket connectors, combining ease of installation with rock-solid protection.

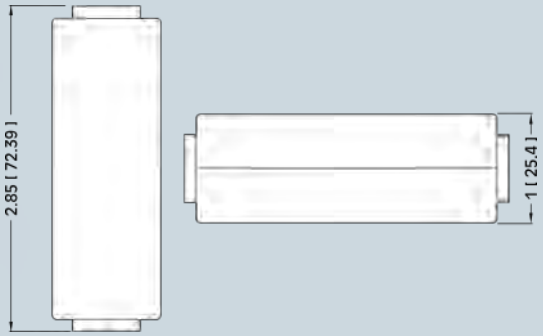
IP Camera Protection

The AT87004: The only device you need for network cameras. The AT87004 Cat 6 module is a nearly universal surge protection device, covering all your data needs, including network video, PoE & PoE Plus, PTZ signals, wireless access points and all other networking functions.

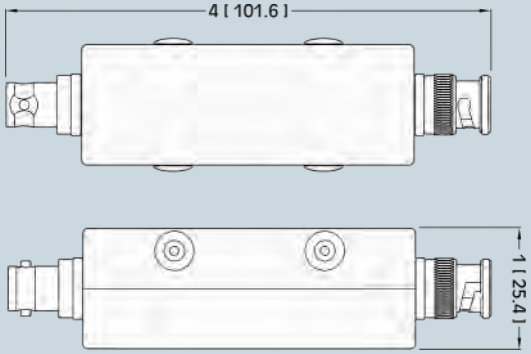
AT87004

Part #	Type	Nominal Voltage	Maximum Voltage	Voltage Protection Level	Maximum Surge Current	Maximum Rated Load Current	Attenuation	N.E.X.T.	Return Loss	Maximum Frequency
AT87004	CAT 6 PoE & PoE Plus	48V	52V	90V	1kA per wire	1.0A	Better than -0.05dB @ 250MHz	Worst Pair: Better than -37dB	Better than -10dB @ 250MHz	300 MHz per pair

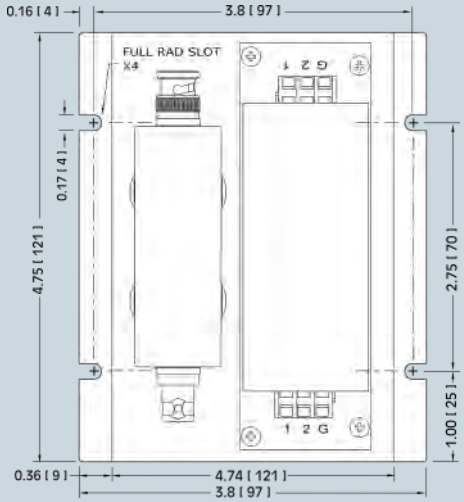
1-in-1 CAT 6 SPD Dimensions:



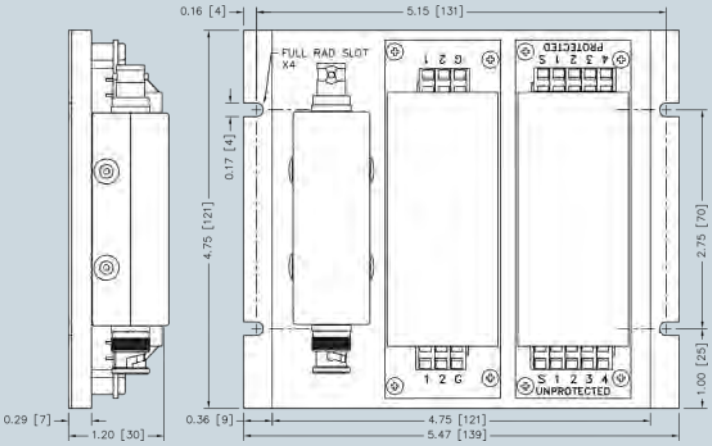
1-in-1 Coax SPD Dimensions:



2-in-1 Coax/Power SPD Dimensions:



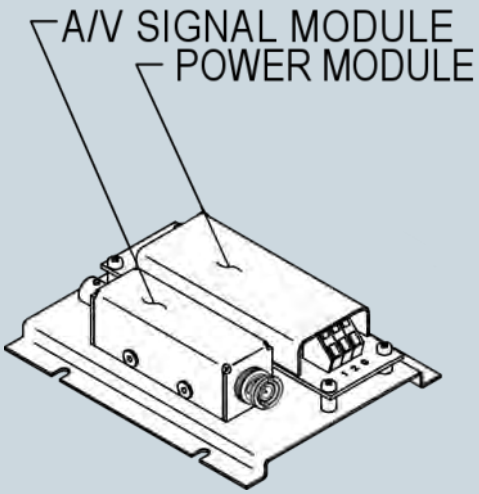
3-in-1 Dimensions:

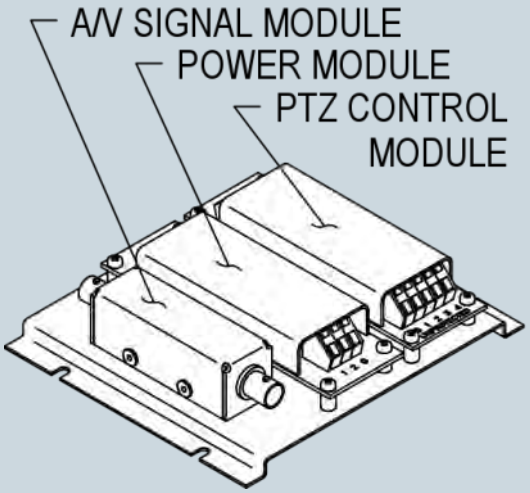


Installation Notes:

Refer to picture below.

1. The AT87 series can be installed on the wall or on a flat surface.
2. SPD PE (Protective Earth) is connected through the power feed earth. Grounding resistance to follow local guidelines.
3. Distance between protected equipment and AT87 should not be more than 5 meters
4. Reliable lightning protection for ground should be provided. Not liable for any damage caused to protected equipment.





Camera Protection Accessories

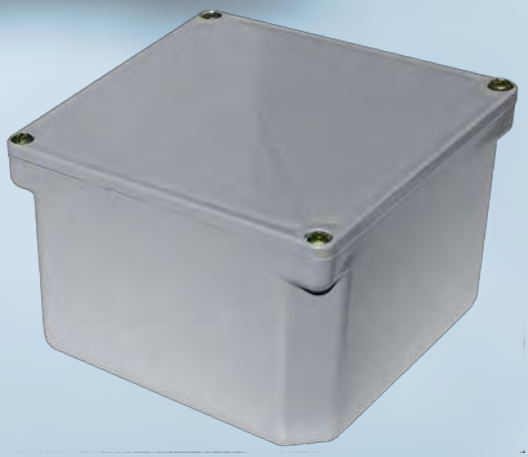
Surge suppression accessories for your CCTV devices.

AT87201

36” long, 35mm DIN rail for mounting individual SPD modules

AT87206

DIN rail clip for CAT 6 and coax modules



AT87200

6x6” weatherproof PVC housing

AT87202

2.5mm x 5.5mm male DC plug-to-screw terminal

AT87203

18” CAT 6 patch cord

AT87204

3ft, 12AWG ground wire with #10 ring terminals

Headend Protection

Rack Mounted Surge Suppression Technology for Your Headend Devices.

NetGuard Series

48 channel NetGuard (AT87004-NG-48)

The NetGuard is a standard 1U high module that can be used for rack mounted applications. Its modules employ solid state protection technology enabling it to protect sensitive electronics against severe surges. The NetGuard is designed to protect 48 channel Ethernet switches. It also protects 48 CAT 6 PoE and PoE Plus channels in a 1U enclosure. The modular design allows each individual module to be easily replaced. The NetGuard also comes in a 24-channel version, which is a standard 1U enclosure with a blanking plate to cover unused channels.

Part #	Type	Maximum Surge current per Line	Working Voltage	Let-Through Voltage	Bandwidth	Connectors
AT87004-NG-XX	CAT 6 PoE & PoE Plus	1,000A	48V	60V	1000MHz	RJ45

Surface and Rack Mounts

AT87051

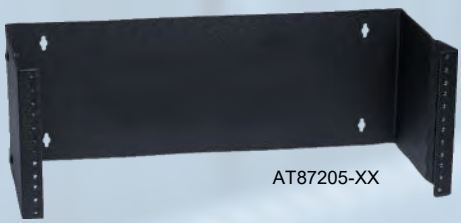
The surface or rackmount 12-way frame is suitable for Ethernet, power, or coax modules.

AT87053

The surface or rackmount 24-way frame is suitable for Ethernet, power, or coax modules.

AT87050

The rackmount 16-way frame is suitable for RJ45 type connections.

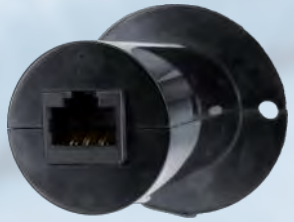


AT87205-XX

Hinged patch panel wall-mount brackets are available for 1U, 2U, 4U and 6U installations.

Panel Mount CAT 6 PoE & PoE Plus

AT29012



AT87004-C

AT87004

Versatile CAT 6 PoE and PoE Plus modules are suitable for a wide variety of tactical applications.

Part #	Type	Nominal Voltage	Maximum Voltage	Voltage Protection Level	Maximum Surge Current	Maximum Rated Load Current	Attenuation	N.E.X.T.	Return Loss	Maximum Frequency
AT29012 AT87004-C AT87004	CAT 6 PoE & PoE Plus	48V	52V	90V	1kA per wire	1.0A	Better than -0.05dB @ 250MHz	Worst Pair: Better than -37dB	Better than -10dB @ 250MHz	300 MHz per pair

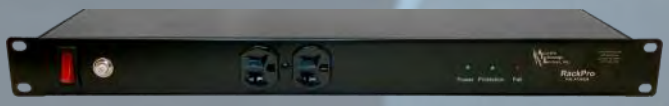
Other Surge Protection Products from ATS

Rack Pro

19" rack mounted power strip with surge protection

AT87501

The "6x6"
Six 120V outlets on the front and back side



AT87500

The "2x10"
Two outlets with ON/OFF switch
in the front and ten in the back

Model	Outlets	Max. Surge Current	Max. Line Current	Working Voltage	Let-Through Voltage	Connectors
AT87500	12 (2 front, 10 rear)	84kA	20A	120V	330V	NEMA 5-15 Plug, 6' Cord
AT87501	12 (6 front, 6 rear)	84kA	20A	120V	330V	NEMA 5-15 Plug, 6' Cord

All models conform to standard for Surge Protection Devices. Standard 1449

MA15

DIN rail mounted 120VAC or 240VAC surge protector with filtering capabilities

AT87301

Model	Max. Surge Current	Max. Leakage Current	MCOV	Working Voltage	Limiting Voltage @500A 8/20µs	Limiting Voltage @3kA 8/20µs	Limiting Voltage @10kA 8/20µs
AT87300	18kA	<0.3mA	120V	120VAC	295V	396V	585V
AT87301	18kA	<0.3mA	240V	240VAC	356V	975V	1210V

DC Pro

12V and 24V DC Transient Voltage Surge Suppressor

AT89924

Model	LEDs?	Relay?	Working Voltage	Max. Continuous Operating	Limiting Voltage @3kA †	Limiting Voltage @10kA (in) †	Max. Surge Current
AT89612	No	No	12VDC	18VDC	120	240	15kA
AT89624	No	No	24VDC	32VDC	190	292	36kA
AT89712	Yes	No	12VDC	18VDC	120	240	15kA
AT89724	Yes	No	24VDC	32VDC	190	292	36kA
AT89812	No	Yes	12VDC	18VDC	120	240	15kA
AT89824	No	Yes	24VDC	32VDC	190	292	36kA
AT89912	Yes	Yes	12VDC	18VDC	120	240	15kA
AT89924	Yes	Yes	24VDC	32VDC	190	292	36kA

† 8/20µs waveform—tested as per ANSI/IEEE C62.45 and ANSI/IEEE C62.41

Assembled Cables

ATS is your solution for required custom cables and harnesses made in the USA.

RoHS DBE Buy American Act compliant ISO 9001 2015 SBA WOSB Woman Owned Small Business

Accurate Technology Services, Inc. 829 Gretel Ave. Concord, NC 28027 • 704-784-8287 Fax: 704-784-8290 • sales@atssurge.com • www.atssurge.com