



Protection for the *NexT* Generation™

**Solutions for High-Altitude  
Electromagnetic Pulse (HEMP) Events**





## Who We Are and What We Do

Since 1986, NexTek is recognized as a World-Class leading supplier of innovative, high-quality coaxial RF Surge Protection Devices (SPD's) that protect critical and sensitive electronic equipment from the harmful effects of lightning and other sources of electrical surges. NexTek is a proven supplier with an extensive coaxial product offering covering a vast range from DC to 18 GHz. NexTek designs and manufactures a majority of these products from its Billerica, Massachusetts USA headquarters, approximately 30 minutes from Boston. All NexTek products feature field proven designs and construction. Products come with a Ten (10) year Factory Warranty.

These RF surge protection devices are designed to withstand harsh environmental conditions. With hundreds of thousands of SPD's installed and operational on all seven (7) continents and in many space applications, NexTek has built an exceptional reputation for quality and service. NexTek is continually expanding its product offering, so please visit our website for the latest news and product releases. [www.nextek.com](http://www.nextek.com).

### Other Filter and Surge Arrestor Products From NexTek:

- High Current Capacitive (C-Type) Feed-through Filters - HPR Series
  - High Current High Reliability 96-Hr Burn in Tested Filters - HPR-E Series
  - DC/AC Power Line Surge Suppressors - DCL Series and ACL Series
  - Data Line Surge Suppressors - DLP Series
  - Failsafe Hi Reliability, Redundant Capacitor Array Filters - FSF Series
  - Hi-Current Pi (C-L-C) Feed-through Filters & Arrestors - HCP/HCS Series
  - Coax Lightning Protection - PTC, PTR, FPD, FPH, QSS, QWS Series and more
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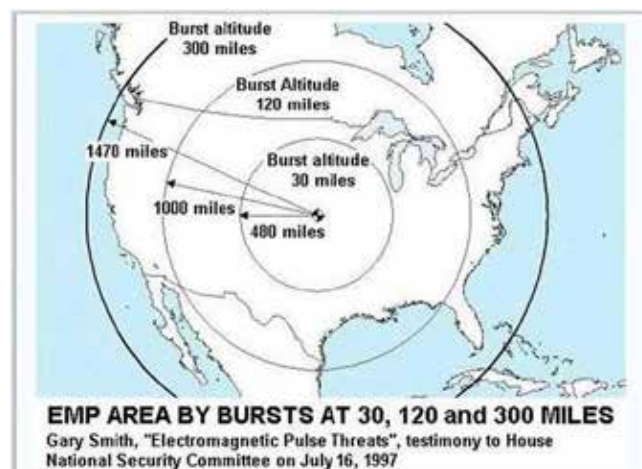
The information contained in the brochure is accurate and a representative of the parts described herein. NexTek reserves the right to make necessary modifications to the part without notice, to implement improvements as required.

## What is HEMP?

Electromagnetic energy may be characterized as a weapon potentially threatening to national security, and can be created as a pulse traditionally by two methods: overhead nuclear burst and microwave emission. High-Altitude Electromagnetic Pulse (HEMP) is a near-instantaneous electromagnetic energy field that is produced in the atmosphere by the power and radiation of a nuclear explosion, and that is damaging to electronic equipment over a very wide area, depending on power of the nuclear device and altitude of the burst.

HEMP is produced when a nuclear weapon is detonated high above the Earth's surface, creating gamma-radiation that interacts with the atmosphere to create an instantaneous intense electromagnetic energy field that is harmless to people as it radiates outward, but which can overload computer circuitry with effects similar to, but causing damage much more swiftly than, a lightning strike.

The HEMP effect can span thousands of miles, depending on the altitude and the design and power of the nuclear burst (a single device detonated at an appropriate altitude over Kansas reportedly could affect all of the continental United States), and can be picked up by metallic conductors such as wires, or overhead power lines, acting as antennas that conduct the energy shockwave into the electronic systems of cars, airplanes, or communications equipment.<sup>1</sup>



<sup>1</sup>Wilson, Clay. "High-Altitude Electromagnetic Pulse (HEMP) and High Power Microwave (HPM) Devices: Threat Assessments." DTIC, 21 July 2008, <https://apps.dtic.mil/sti/citations/ADA529982>.

# HEMP Solutions

## Characteristics of the HEMP

HEMP produced by a high altitude nuclear detonation exhibits three distinct phases created by the radiation and charged particles interacting with the atmosphere and the Earth's magnetic field. Each of these phases—E1, E2, and E3 (see image below)—has distinct characteristics and effects which can be mitigated with different methods.<sup>2</sup>

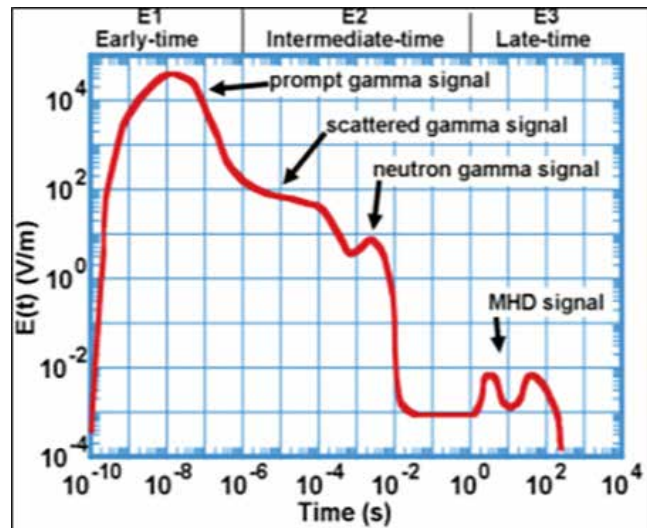
### E1 (Early Time)

The E1 (Early-time) phase, produces a very high-intensity pulse over a large frequency bandwidth of extremely short duration - nanoseconds to microseconds. It is produced by radiation from the nuclear blast interacting with specific layers in the atmosphere. This pulse propagates a blast wave along lines feeding communication equipment; direct absorption of energy induces high voltages and currents. Each effect may seriously damage electronics and electrical and communication systems.

### E2 (Intermediate Time)

The E2 (Intermediate-time) phase is also a product of radiation interacting with the atmosphere, but has characteristics closely resembling the effects created by lightning strikes, lasting from microseconds to seconds. These "induction effects" differ from actual lightning in that there is no current surge produced directly as would be the case of a bolt of lightning striking an electric pole or a house. E2 induction effects resemble and are equivalent to the electromagnetic pulse that radiates from a lightning bolt that impinges during a discharge on sensitive electronics and equipment.

<sup>2</sup>U.S. AFCEC. "High Altitude Electromagnetic Pulse (HEMP) Effects And Protection" WBDG, 7 August 2020, <https://www.wbdg.org/resources/high-altitude-emp-effects-protection>



### E3 (Late Time)

E3 (Late-time) is produced by the slow movement of charged particles within the heated plasma fireball from the nuclear blast as it interacts with the Earth's magnetic field. Effects of this phase last from seconds to minutes. The blast expands as it moves through the atmosphere, then lifts upward. E3 effects are very similar to those produced by solar flares, but they can be significantly more intense. They result in large current surges on the order of hundreds to thousands of amperes produced at ground level that couple onto power lines and communications lines through induction. These current surges produce various adverse effects, particularly to power lines, damaging equipment and transformers by overheating the transformer core and windings.

## The four levels of HEMP protection

There are four EMP Protection Levels defined by the U.S. Government, and they are outlined in the table below. These levels were initially developed at the request of the federal Continuity Communications Managers Group (CCMG), but are applicable to any organization that desires to protect its electronics and critical infrastructures. The levels of protection required are in part based upon the acceptable downtime of a given system. It follows logically that the more critical the system, the higher level of protection recommended.<sup>3</sup>

### Level 1: Lowest cost; lengthy mission outages permitted

- Unplug power, data, and antenna lines from spare equipment where feasible.
- Turn off equipment that cannot be unplugged and is not actively being used.
- **Use at least a lightning rated surge protection device (SPD) on power cords, antenna lines, and data cables; maintain spare SPDs.**
- Have either EMP protected backup power or a generation source that is not connected to the grid with one (1) week of on-site fuel or equivalent (e.g., renewable source).
- Wrap spare electronics with aluminum foil or put in Faraday containers.
- Use priority phone services like GETS, WPS (for cell phones), and TSP; join SHARES if applicable.
- Consider land mobile radios with standalone capabilities, HF radios, and FirstNet.
- Store one week of food, water, and other supplies for personnel.
- Use battery operated AM/FM/NOAA radios to receive Emergency Alerts.

### Level 2: Only hours of mission outages are permitted

- In addition to Level 1 ...**
- **Use EMP-rated SPDs on power cords, antenna lines, and data cables to protect critical equipment.**
  - Use on-line/double-conversion uninterruptible power supplies (UPS) or a high quality lineinteractive UPS.
  - Use fiber optic cables (with no metal); otherwise use shielded cables, ferrites, and SPDs. Note: shielded racks, rooms or facilities may be more cost-effective than hardening numerous cables.
  - Use EMP protected backup power that is not vulnerable to EMP coupled through the power grid.
  - Implement EMP protected, high frequency (HF) voice and email for long-distance communications.
  - Consider geosynchronous (GEO) orbit satellite services, like BGAN. Avoid low-earth orbit (LEO) satellite services. Use terminals that are EMP resilient.
  - Consider shortwave radio for situational awareness.

### Level 3: Only minutes of mission outages are permitted

- In addition to Level 2 ...**
- Use International Electrotechnical Commission (IEC) EMP and IEMI protection standards.
  - Shielding should be 30+ dB of protection through 10 GHz.
  - Use EMP shielded racks, rooms, or facilities to protect critical computers, data centers, phone switches, industrial and substation controls and other electronics.
  - Use "Recommended E3 HEMP Heave Electric Field Waveform for the Critical Infrastructures" from EMP Commission for grid and undersea cable protection planning. Use 85 V/km for CONUS E3 threat.
  - **Use EMP tested SPDs and equipment.**
  - Institute IEC level hardness maintenance & surveillance (HM/HS).
  - Have 30 days of EMP protected power/fuel.
  - Store 30 days of food, water, and critical supplies and spares.
  - Use time-urgent EMP resilient comms, like X, Ku and Ka satellite, and either HF groundwave or Automatic Link Establishment (ALE) HF.

### Level 4: Only seconds of mission outages are permitted

- In addition to Level 3 ...**
- **Use Military EMP Standards (like MIL-STD-188-125-1 and MILHDBK-423), and 80+ dB hardening through 10 GHz.**
  - Use EMP shielding in rooms, racks, and buildings as needed to protect critical equipment.
  - Use EMP protected double-door entryways.
  - Validate per Military guidelines, like Test Operations Procedure (TOP) 01-2-620 HEMP.
  - Have 30+ days of Military Standard protected power and fuel, plus alternate generation source (renewables preferred).
  - Consider double surge protection on critical external lines entering EMP protected areas.
  - Consider using communications systems/networks that are designed to meet Military EMP standards, like Advanced EHF (AEHF) satellite, EMP protected fiber optic networks, and EMP protected radios.
  - Institute ongoing Military Standard HM/HS programs.

<sup>3</sup>National Coordinating Center for Communications. "EMP Protection and Resilience Guidelines" CISA. (2019, February 5) [https://www.cisa.gov/sites/default/files/publications/19\\_0307\\_CISA\\_EMP-Protection-Resilience-Guidelines.pdf](https://www.cisa.gov/sites/default/files/publications/19_0307_CISA_EMP-Protection-Resilience-Guidelines.pdf)

## Level-4 Protection

### FPH Series Overview

RF Surge Protectors Designed and Tested for HEMP

COTS products that meet MIL-STD 188-125-1, MIL-STD 188-125-2, & MIL-STD-461 Standards

\*Custom versions are available, please contact NexTek or local sales representative for availability of variants

\*\*Not all variants are possible in all physical product packages shown. Mechanical and electrical specifications must be reviewed and verified based on requirements and variant configuration parameters

- High-Speed Protection Designs
- Ultra-Low Let-Through Energy
- Meet MIL-STD Requirements for EMP
- Type N, TNC, SMA
- Bands from DC to 18GHz
- Tested and Verified Designs



### Transient Specifications (Typical)

MIL-STDs 188-125-1 and 188-125-2	E1 (20x500nsec) - Input Current Levels	60 - 5000A
	Peak Response Current Residuals (20x500nsec)	<1A & <0.1A*
	Peak Rate of Rise 20x500nsec (A/s)	<1x10 <sup>7</sup> *
	Root Action 20x500nsec ((A-(sec) <sup>1/2</sup> )	1.6x10 <sup>-3</sup> *
	CS115 & CS116 (1MHz, 30MHz, 100MHz) Residuals	<25V*
MIL-STD-461	Max Surge Current (8x20μs)	100A - 5kA*
IEC 61000-4-5	Protection (Let-Thru) Voltage (8x20μs) @ 3kA	<5V*

### Environmental Specifications

Temperature Range	-55°C to +85°C
Salt Fog	MIL-STD-202 Method 101D / Condition B (35oC/96 hrs)*
Immersion	MIL-STD-202 Method 104A / Condition A (65°C to 25°C w/NaCl - 2 cycles)
Moisture Resistance	MIL-STD-202 Method 106E (65 oC/98% RH condensing/240 hrs)
Temperature Shock	MIL-STD-202 Method 107D / Condition B-1 (25 cycles -55°C to +100oC)
Life (Elevated Temperature)	MIL-STD-202 Method 108A / Condition A (96 hours at 85oC)
Dust and Waterproof Rating	IEC529 IP68 (dust-tight and water proof 24 hrs / 1 m)
Vibration	MIL-STD-202 Method 204D / Condition D (10Hz-2kHz 0.06"DA/20g)
Mechanical Shock	MIL-STD-202 Method 213 / Condition A (50g/11ms ~24")

### Additional Specifications

DC Voltage Options (@ 2Amp):	+5V, +12V, +28V, +48V and -48V available (Package -A and -B only)
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\*Varies by model, frequency, RF power, and threat level

## Level-4 Protection

### FPH Series: 1-40 MHz, 10mW

- DC Block
- HEMP Tested and Verified Design
- Excellent Insertion Loss and Return Loss
- Bulkhead Mounting
- Type N, TNC, and SMA Connectors
- MIL-STD 188-125 *Receive* Applications



### Transient Specifications

LEMP Waveform	IEC 61000-4-5 8 x 20 $\mu$ s		
LEMP Maximum Surge	30 kA		
LEMP Multi-Strike (10x)	20 kA		
LEMP Let-Through (@ 2kA)	Peak Voltage (V)	Energy into 50 $\Omega$ ( $\mu$ J)	
	4.5	0.05	
HEMP Waveform	MIL-STD 188-125 20x500ns		
HEMP Surge (250x)	300kV/5kA		
HEMP Residual (20x500ns @ 1kA)	Peak Current (A)	Peak Rate of Rise (A/s)	Root Ation(A $\sqrt$ s)
	0.10	1x10 <sup>8</sup>	5.5x10 <sup>-5</sup>

## Level-4 Protection

### FPH Series: 1-40 MHz, 5W

- DC Block
- HEMP Tested and Verified Design
- Excellent Insertion Loss and Return Loss
- Bulkhead Mounting
- Type N, TNC, and SMA Connectors
- MIL-STD 188-125 *Transmitter* Applications



### Transient Specifications

LEMP Waveform	IEC 61000-4-5 8 x 20 $\mu$ s		
LEMP Maximum Surge	30 kA		
LEMP Multi-Strike (10x)	20 kA		
LEMP Let-Through (@ 2kA)	Peak Voltage (V)	Energy into 50 $\Omega$ ( $\mu$ J)	
	35	1.1	
HEMP Waveform	MIL-STD 188-125 20x500ns		
HEMP Surge (250x)	300kV/5kA		
HEMP Residual (20x500ns @ 1kA)	Peak Current (A)	Peak Rate of Rise (A/s)	Root Ation(A $\sqrt$ s)
	0.80	3.0x10 <sup>8</sup>	1.4x10 <sup>-4</sup>



# HEMP Solutions

## Level-4 Protection

FPH Series: 30-500 MHz, 10mW

- DC Block
- HEMP Tested and Verified Design
- Excellent Insertion Loss and Return Loss
- Bulkhead Mounting
- Type N, TNC, and SMA Connectors
- MIL-STD 188-125 **Receive** Applications



## Transient Specifications

LEMP Waveform	IEC 61000-4-5 8 x 20μs		
LEMP Maximum Surge	30 kA		
LEMP Multi-Strike (10x)	20 kA		
LEMP Let-Through (@ 2kA)	Peak Voltage (V)	Energy into 50Ω (μJ)	
	30	16	
HEMP Waveform	MIL-STD 188-125 20x500ns		
HEMP Surge (250x)	300kV/5kA		
HEMP Residual (20x500ns @ 1kA)	Peak Current (A)	Peak Rate of Rise (A/s)	Root Ation(A√s)
	0.05	1x10 <sup>8</sup>	2.5x10 <sup>-5</sup>

## Level-4 Protection

FPH Series: 30-500 MHz, 5W

- DC Block
- HEMP Tested and Verified Design
- Excellent Insertion Loss and Return Loss
- Bulkhead Mounting
- Type N, TNC, and SMA Connectors
- MIL-STD 188-125 **Transmitter** Applications



## Transient Specifications

LEMP Waveform	IEC 61000-4-5 8 x 20μs		
LEMP Maximum Surge	30 kA		
LEMP Multi-Strike (10x)	20 kA		
LEMP Let-Through (@ 2kA)	Peak Voltage (V)	Energy into 50Ω (μJ)	
	30	16	
HEMP Waveform	MIL-STD 188-125 20x500ns		
HEMP Surge (250x)	300kV/5kA		
HEMP Residual (20x500ns @ 1kA)	Peak Current (A)	Peak Rate of Rise (A/s)	Root Ation(A√s)
	0.90	1.8x10 <sup>9</sup>	8.0x10 <sup>-5</sup>

## Level-4 Protection

### FPH Series: 30-500 MHz, 20W

- DC Block
- HEMP Tested and Verified Design
- Excellent Insertion Loss and Return Loss
- Bulkhead Mounting
- Type N, TNC, and SMA Connectors
- MIL-STD 188-125 **Receive** Applications



## Transient Specifications

LEMP Waveform	IEC 61000-4-5 8 x 20μs		
LEMP Maximum Surge	30 kA		
LEMP Multi-Strike (10x)	20 kA		
LEMP Let-Through (@ 2kA)	Peak Voltage (V)	Energy into 50Ω (μJ)	
	0.30	16	
HEMP Waveform	MIL-STD 188-125 20x500ns		
HEMP Surge (250x)	300kV/5kA		
HEMP Residual (20x500ns @ 1kA)	Peak Current (A)	Peak Rate of Rise (A/s)	Root Ation(A√s)
	1.70	3.3x10 <sup>9</sup>	1.4x10 <sup>-4</sup>

## Example FPH Part Numbers

Model Number	Connectors	Freq. (MHz)	RF Power	DC Pass
FPHNFNJAB0-B	N-N	1 - 40	10mW	NO
FPHTFSJAE0-B	TNC-SMA	1 - 40	5W	NO
FPHTFTJBB0-B	TNC-TNC	30 - 500	10mW	NO
FPHNFNJBEO-B	N-N	30 - 500	5W	NO
FPHNFNJBF0-B	N-N	30 - 500	20W	NO
FPHTFTJBE0-B	TNC-TNC	30 - 500	5W	NO
FPHTFSJBF0-B	TNC-SMA	30 - 500	20W	NO

## Level-4 Protection

### FPN Series

Fast response arrestors are designed to protect radios, electronics, and equipment from fastacting transient threats such as ESD, HEMP, NEMP, HIRF, or IEMI. These threat types are much faster acting than Lightning tends to be, which also means that their frequency content is much higher in the RF Spectrum.

#### FPNMMNFBBP05:

- Designed for MIL-STD 188-125-1, MIL-STD 461, & MIL-STD-464
- Nominal Impedance: 50Ω
- Voltage: Nominal +5V (+6.7Vpk)
- N Type Connectors
- Sub-Nanosecond Response Time
- DC - 100 MHz
- Through Current: 50mA
- RF Power: 100mW
- Bi-Directional Protection
- Excellent RF Performance



#### Transient Specifications

- Response Time: <1ns
- Transient:
  - 30A 10x (8x20μs waveform)
  - 60A 10x (20x500ns waveform)

Let-Through Energy (10A Input)	
LEMP (8x20μs)	+8.0V / -1.0V
NEMP (20x500ns)	+10.0V / -3.0V

#### FPNTMMNFBBP05

- DC - 100 MHz
- Nominal Impedance: 50Ω
- Voltage: Nominal +5V (+6.7Vpk)
- TNC to N Connectors
- Sub-Nanosecond Response Time
- Designed for MIL-STD 188-125-1, MIL-STD 461, & MIL-STD-464
- Through Current: 20mA
- RF Power: 100mW
- Bi-Directional Protection
- Excellent RF Performance



#### Transient Specifications

- Response Time: <1ns
- Transient:
  - 30A 10x (8x20μs waveform)
  - 60A 10x (20x500ns waveform)

Let-Through Energy (10A Input)	
LEMP (8x20μs)	+8.0V / -1.0V
NEMP (20x500ns)	+10.0V / -3.0V

## Level-4 Protection

### FPN Series

#### FPNNMNFBCA3B

- Designed for MIL-STD 188-125-1, MIL-STD 461, & MIL-STD-464
- Nominal Impedance: 50Ω
- Voltage: Nominal +3Vpk
- N-Type Connectors, Female Protected
- Sub-Nanosecond Response Time
- DC - 30 MHz
- No DC Pass
- RF Power: 100mW
- Excellent RF Performance

#### Transient Specifications

- Response Time: <1ns
- Transient:
  - 30A 10x (8x20μs waveform)
  - 60A 10x (20x500ns waveform)

Let-Through Energy (10A Input)	
LEMP (8x20μs)	±1.2V
NEMP (20x500ns)	±2.5V



#### FPNNMNFBD3B

- 30 - 225 MHz
- Nominal Impedance: 50Ω
- Voltage: Nominal ±3Vpk
- N-Type Connectors, Female Protected
- Sub-Nanosecond Response Time
- Designed for MIL-STD 188-125-1, MIL-STD 461, & MIL-STD-464
- No DC Pass
- RF Power: 100mW
- Bi-Directional Protection
- Excellent RF Performance

#### Transient Specifications

- Response Time: <1ns
- Transient:
  - 30A 10x (8x20μs waveform)
  - 60A 10x (20x500ns waveform)

Let-Through Energy (10A Input)	
LEMP (8x20μs)	±50mV
NEMP (20x500ns)	±0.5V



## Level-1 Protection

### FPL Series Arrestors

The FPL series are RF broadband devices designed for surge and lightning protection applications where DC Pass is required. The FPL units offers excellent surge suppression for distributed antenna systems (DAS), tower top amplifiers, GPS applications requiring a DC Pass design, and more.

#### FPL-DP Series

- 1100 - 1700 MHz
- Maximum Transient (Imax): 30kA 1x
- Multiple Strike (IN): 20kA 10x
- IP67 Rated
- Response Time: 10ns
- L-Bracket and Wire Lug Available
- DC Pass
- Nominal Impedance - 50Ω
- Through Current: 2.5 Amp
- DC Thru-Resistance - 150mΩ typ.
- Bulkhead Mounting



#### FPL-AP Series

- 400 - 2700 MHz
- Maximum Transient (Imax): 25kA (1x)
- Multiple Strike (IN): 15 kA (10x)
- IP67 Rated
- Very Low Let-Through Voltage
- DC Pass
- Bulkhead Mounting
- Broadband Design
- Max RF Power: 300 W RMS
- Excellent RF Performance



Please note: the COTS products on this page offer Level-1 Protection from HEMP events. Transient specifications for 20x500ns waveform HEMP testing is available upon request. All COTS products in this catalogue can become HEMP Tested solutions upon request.

## Level-1 Protection

### Gas Discharge Tube Arrestors

Fixed and Replaceable Gas Discharge Tube arrestors provide wideband performance and excellent all-around protection from lightning and other transient sources. These arrestors will pass DC current, and their RF Power rating is defined by the Gas Discharge Tube Operating Voltage. GDTs generally have extremely wide pass band ranges. Some example pass band ranges from NexTek's array of standard arrestors include DC - 3GHz, DC - 6GHz, and DC - 12+ GHz.

#### PTC-S Series

- Replaceable GDT model available
- Gas Discharge Tube 90V to 1000V
- Maximum Transient: 50 kA (8x20 $\mu$ s)
- Multiple Strike: 20kA 10x
- Let-through: 600 V<sub>peak</sub>/0.3 $\mu$ J @ 90V (Input 4kV 1.2x50 $\mu$ s / 2kA 8x20 $\mu$ s)
- DC - 3.2 GHz
- RF Power: 37W @ 90V
- Through Current: 65V/10A Max
- Nominal Impedance: 50 $\Omega$
- N-Type, TNC, SMA, MMCX connectors



#### PTC-G Series

- Protection Voltage: 200V
- Maximum Transient: 20 kA (8x20 $\mu$ s)
- Multiple Strike: 5kA 10x
- Let-through: 475 V<sub>peak</sub>/300 $\mu$ J (Input 4kV 1.2x50 $\mu$ s / 2kA 8x20 $\mu$ s)
- DC - 12.5 GHz
- RF Power: 100 W Maximum
- Through Current: 65 Vdc / 5A Maximum
- Nominal Impedance: 50 $\Omega$
- SMA & RP SMA connectors



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## Level-1 Protection 75Ω Lightning Arrestors

### PTCF-02

- DC to 2.5 GHz
  - 90V Gas Discharge Tube
  - DC Pass
  - F Connectors
  - IP67 Rated
  - Bi-directional Protection
  - Compatible with RG-6 cable
  - Maximum Transient – 20kA (1.2X50µs Voltage / 8X20µs Current waveform)
  - Multiple Strike – 10kA 10x (1.2X50µs Voltage / 8X20µs Current waveform)
  - Through Current: 3A Max @ 48Vdc Max
  - RF Power: 25W maximum
  - Let through – 600Vpk/300µJ
- Input: 6kV/3kA*



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## AC Line, DC Line, and Data Line Protectors

Our Power and LAN/Data Surge Suppressor product families utilize leading edge technologies and circuit topologies to provide surge protection for sensitive data equipment and power sources requiring various filtering and transient level reduction suppression. These products provide higher system reliability operation by suppressing and lowering high input amounts of transient energy and noise off of either twisted pair Cat 5e and Cat 6 cables or AC/DC power lines.

### ACL Series - Alternating Current Line Filters

These surge suppression devices provide AC over-voltage protection in conditions such as lightning or direct current electrical line surges. Single Phase and Three-Phase, 120VAC and 240VAC Rated Standard Models and Custom Solutions Available.

- 120VAC or 240VAC
- Indoor or Outdoor
- Single or Multi Phase
- Up to 80kA Surge Protection
- 30kA Multi-Strike
- MOV Protection
- IP68 Rated when Cable Entrance Sealed
- Pole or Panel Mount
- RoHS Compliant



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Please note: the COTS products on this page offer Level-1 Protection from HEMP events. Transient specifications for 20x500ns waveform HEMP testing is available upon request. All COTS products in this catalogue can become HEMP Tested solutions upon request.

## Level-1 Protection

### DCL Series - Direct Current Line Filters

Direct Current (DC) Line Filters and Surge Suppressors protect electrical equipment from transient spikes and surges in direct current (DC) power applications. 12, 24, 48, and 60 VDC Rated Standard Models. Custom Solutions Available.

- 12, 24, 48, and 60VDC Standard Models
- Indoor or Outdoor
- 30kA Surge Protection
- 15kA Multi-Strike
- MOV Protection
- IP68 Rated when Cable Entrance Sealed
- Pole or Panel Mount
- RoHS Compliant



### DLP Series - Data Line/Ethernet Protectors

Ethernet and Data Surge and Lightning Suppressors provide cost-effective solutions for protecting indoor and outdoor Ethernet devices from damaging electrostatic discharge (ESD) and line surges. DLP products operate in Power-over-Ethernet (PoE) or non-PoE applications with connection speeds of up to 1 Gbps and physical interconnect compatibility of shielded RJ45 or screw down terminal 802.3 Ethernet or data connections.

- Multiple strike capability
- Weatherized IP68 enclosure
- Polycarbonate housing
- Rugged and lightweight design
- Surge protection on all lines
- Ease of access - hinged design
- RoHS Compliant
- Pole or panel mount
- DC pass



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Please note: the COTS products on this page offer Level-1 Protection from HEMP events. Transient specifications for 20x500ns waveform HEMP testing is available upon request. All COTS products in this catalogue can become HEMP Tested solutions upon request.



## Level-1 Protection

### QSS Series - Quarter-Wave Shorted Stub

Quarter Wavelength Shorted Stub arrestors provide excellent response and transient handling characteristics, do not age or wear out over time, and are DC-blocked by design. Because they use an internal dead short, there is no “turn-on” or “response” time – Quarter wavelength stubs are “always-on” and limiting energy that is outside of the rated RF Pass Band(s). The QSS model uses a unique and patented “stubless” design to avoid any protrusions or t-style stubs that project 90 degrees from the thru-path transmission line. This means it can be used in applications where traditional T-style arrestors may not fit.



- 300 - 6000 MHz
- N-Type, TNC, and 4.3-10 Connector options
- DC Block
- IP67 Rated when Unmated
- Excellent Insertion and Return Loss
- Bi-Directional Protection
- Transient Specifications vary by model

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### PTI-BB50 Series

DC Block Coaxial RF Surge Protectors incorporate a blocking capacitor and gas discharge tube (GDT) to provide isolation and maximum RF power of 2.0kW. PTI-BB50 Series lightning and surge protectors help protect your equipment from electromagnetic pulse (EMP) or power surges that are commonly caused by lightning or other strong electrical charges.

- Broad frequency range
- Low VSWR and insertion loss
- DC Block
- Multi-strike capability
- Surge current of 50kA
- Max power 2kW
- RoHS & CE compliant
- Grounding bracket for flange or Bulkhead mounting



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Please note: the COTS products on this page offer Level-1 Protection from HEMP events. Transient specifications for 20x500ns waveform HEMP testing is available upon request. All COTS products in this catalogue can become HEMP Tested solutions upon request.

## Accessories

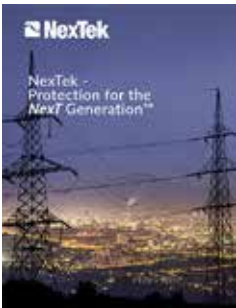
NexTek, LLC. has developed an array of Grounding Plate, Ground Strap, Lightning/Surge Arrestor Mounting Brackets, Handheld Voltage Testers, Grounding Kits, and more to provide professionally engineered mounting and grounding solutions for our entire line of RF Coaxial Lightning Arrestors and Power/LAN Suppressors. These solutions provide a means to ground and mount a single arrestor to a

mounting bracket and mechanically affix a cable and cable lug assembly kit or mount direct bulkhead-style. Or provide grounding multiple lightning protectors and applications with a common, single-point ground system by using one of our Mounting Plate Kits along with our bracket and ground lug offerings.



Part Number	Type	Description	For Use With
400-0001-01	Replacement GDT	Replacement Gas Discharge Tube (GDT), 90V	Replacement GDT for 90V PTR Series arrestors
504-0045-01	Ground Lug	10 AWG, Medium Duty TNC Ground Lug	TNC-F Bulkhead (0.440") Mount
504-0045-03	Ground Lug	6 AWG, Heavy Duty Ground Lug	N-F Bulkhead (0.540") Mount
504-0045-06	Ground Lug	8 AWG, Medium Duty Ground Lug	FPL series arrestors w/ 0.750" Bulkhead Mount
750-0088-01	L-Brackets	Mounting L-Bracket with Type N Connectors	Any arrestor w/ N-F Bulkhead Mount
750-0088-02	L-Brackets	Mounting L-Bracket with BNC/TNC Connectors	Any arrestor w/ TNC-F Bulkhead Mount
750-0632-00	L-Brackets	Mounting L-Bracket for FPL Series - Single Unit	FPL Series exclusive L-Bracket
782-0009-00	L-Brackets	Mounting L-Bracket for PTC G Series	PTC G Series exclusive L-Bracket
CUSPGN	Single Point Grounding System	Single Point Grounding Kit	Single Point Grounding Panel w/ Straps
KIT0010	Grounding Wire & Lug Kit	3-ft., 8 AWG Insulated Ground Wire with Ground & Compression Lug	FPL Series arrestors w/ 3/4" Bulkhead Mount
KIT0011	Grounding Wire & Lug Kit	3-ft., 8 AWG Insulated Ground Wire with L-Bracket, Ground, & Compression Lug	FPL Series arrestors w/ 3/4" Bulkhead Mount
KIT0020	Grounding Wire & Lug Kit	3-ft., 6 AWG Insulated Ground Wire with Ground & Compression Lug	Any arrestor w/ N-F Bulkhead Mount
PVT-HH	Handheld Tester	Protection Voltage Tester, Hand Held	Test any surge arrestor's voltage level

## More from NexTek





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