

SOLUTION PROVIDERS FOR AN ENERGIZED WORLD™

Grounding and Bonding Solutions • Surge Suppression • Lightning Protection

Surge Suppression Catalog



Surge Protection Catalog

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Introduction

About ALLTEC

ALLTEC is a global leader in the design, manufacture and development of products and services for grounding & bonding solutions, surge protection, and lightning protection.

"As 'Solution Providers for an Energized World™', Alltec offers a comprehensive facility protection approach to solving the world's most difficult grounding, power quality, and lightning problems." -Christopher Bean, President/CEO

Grounding (Earthing) / Bonding Solutions

As equipment becomes more sophisticated and electrically susceptible, the need for an exceptionally low-resistance/low-impedance grounding system becomes more crucial. When implemented effectively, harmful electrical currents are safely redirected to earth and away from important equipment and facilities.

Surge Protection

While lightning is the most notorious surge generator, approximately 80% of all transient surge activity originates from internally generated sources. Properly installed surge protection devices on all circuit conductors maximizes total site protection.

Lightning Protection

Lightning is an awesome and unpredictable act of nature that causes more deaths and property damage than any other weather related event. A properly installed lightning protection system is over 98% effective in preventing catastrophic lightning damage.

Consulting, Engineering & Design, Project Management and Inspection/ Preventative Maintenance Services

ALLTEC's greatest strength is our complete Systems Engineering and Products Solutions Program. Our experienced and accredited Engineering and Project Management teams apply the three-tiered ALLTEC Protection Pyramid[™] approach while working with leading international client companies to develop the best solutions for each and every situation. While ALLTEC offers a full multi-phase solution for clients in need of all of our services, we can also provide a selection of individualized services which best fit a client's unique protection needs.

Assessing the Problems, Providing Answers, Project Oversight & Continued Protection

- Consulting (Phase I) TerraEvalSM Advanced Solution Assessment
- Engineering & Design (Phase II) Customized Solution Development
- Project Management (Phase III) Strong and Cost Effective Project Management Support
- Inspection/Preventative Maintenance (Phase IV)
 System Performance and Condition Evaluation

You can learn more about our services and capabilities at <u>alltecglobal.com/services</u>

The ALLTEC Protection Pyramid[™]

The ALLTEC Protection Pyramid[™] provides a three-tier comprehensive facility approach for grounding/ earthing & bonding, surge suppression, and lightning protection solutions. The Pyramid comes as close as humanly possible to protect both man and machine from lightning and non-lightning induced transient voltage damage.

Why the Pyramid?

Each level of the ALLTEC Protection Pyramid[™] represents a method utilized to protect facilities from damages caused by harmful electrical events. Rather than treating these tiers as independent, ALLTEC regards each layer as an interlocking component. When all three tiers are designed, installed, and maintained as a total system, comprehensive facility protection can be achieved.

Safeguard valuable assets, defend critical electronics, and protect businesses using the ALLTEC Protection Pyramid[™]. The ALLTEC Protection Pyramid[™] uses ALLTEC's proven products and services for grounding, surge suppression, and lightning protection to provide full infrastructure protection.

You can learn more at alltecglobal.com/about-us/alltec-protection-pyramid





ALLTEC is an ISO 9001 registered company. We are committed to our customers' satisfaction and follow strict quality guidelines to ensure that we meet or exceed our customer's needs. When dealing with the risks associated with lightning and power quality issues, it is imperative that every effort is taken to use the highest quality products and adhere to the highest standards for protection services.

ALLTEC Products & Solutions

Grounding / Earthing & Bonding Solutions

TerraDyne[®] Electrolytic Grounding System

TerraFill[®] Low-Resistivity Grounding Backfill





TerraBar Bus Bars



GroundGuardian[®] Active Floating Roof Tank Monitoring System



Surge Protection Solutions

DynaShield[®] ADS Series







Custom SPDs can be developed for your specific needs.

Lightning Protection System Solutions

TerraStat[®] Charge Dissipation Terminals



TerraStreamer[®] Early Streamer Emission Terminals





Traditional Lightning Protection Equipment



Standards & Code Specification Compliance

ALLTEC is accredited and certified by numerous standards authorities. As an expert in the latest approved standards and code specifications for grounding and lightning protection systems, ALLTEC is an active sought-after member for standards committees.

You can learn more about ALLTEC Products at alltecglobal.com/products



LSC-7D Lightning Strike Counter

TerraWeld[®] Exothermic Welding System

General Information

Ability to Serve

ALLTEC has the capability to design, manufacture, and install any lightning protection or grounding system you may require. Our complete engineering facilities are prepared to assist you with any special or unusual requirements.

Claims & Shortages

Please be aware that ALLTEC assumes no liability for any damage to goods in shipment. All materials must be inspected upon receipt BEFORE signing for acceptance of shipment. Once you have signed the bill of lading accepting shipment, you are acknowledging that you have received the shipment in full and with no damage. Any damages or shortages need to be noted on the bill of lading before signing and immediately file a claim with the delivering transportation company. It is our policy that any claims for shortages or errors must be made within 24 hours after receipt of goods. Any error on our part will be taken care of promptly and at no cost to you, the customer. Any shortages found and reported more than 24 hours after shipment acceptance will not be replaced free of charge.

International Customers

Our exporting policy is available upon request. This policy may vary slightly, depending upon the receiving country and its Customs procedures. ALLTEC offers all of our engineering and design services worldwide.

Documentation & Wire Transfer Fees

ALLTEC charges standard customary fees for obtaining and processing documents for overseas shipments. Any wire transfer or bank fees are the responsibility of the customer and will be included in the price quotation supplied before the shipment leaves our warehouse.

ALLTEC Product Catalogs

ALLTEC offers four catalogs.

Grounding / Bonding Equipment Catalog



Exothermic Welding Equipment Catalog



Surge Protection Catalog



Lightning Protection Equipment Catalog



Metric Catalog



Terms and Conditions

"Goods & Services"

1. Definitions

The term "Seller" means ALLTEC, the term"Buyer" means the company, person or other entity who is the purchaser of the Goods, the term "Goods" means any goods or materials ordered and sold pursuant to the terms and conditions set forth herein.

2. Price

Unless otherwise stated, price of the Goods shall be the price in effect at the date and time of shipment. Seller reserves the right to adjust price based on volume purchases; any discounts allowed for volume purchases will be in the Seller's sole discretion. Price does not include any sales, use, excise or similar taxes which shall be added to the price of the Goods and shall be the responsibility of Buyer. Unless otherwise stated, domestic minimum order is \$500.00 (excluding freight) on any single order and \$1,000.00 on any single international order. Each shipment will be separately invoiced.

3. Payments Terms

Terms of payment are determined on a case by case basis. Service charge on late payments shall be applicable at the rate of one and one-half percent (1.5%) per month or an annual percentage rate of eighteen (18%) per annum. In addition, Buyer shall be obligated for Seller's reasonable collection agency or attorneys' fees that may be incurred by Seller to collect any sums due Seller hereunder or service charge. Seller reserves the right to apply any payments received from Buyer to any outstanding invoice of Seller at Seller's sole discretion.

4. Freight

The purchase price of the Goods shall be EXWORKS, Canton, NC or other named shipping point. In situations of "prepay and add", ALLTEC is unable to provide a copy of the actual freight bill due to agreements with our carriers regarding rate disclosure confidentiality.

5. Delivery

- (a) Seller's place and point of delivery shall be deemed to be delivery to a carrier at Seller's plant in Canton, NC, USA or such other designated shipping point designated by Seller. If Buyer fails to furnish complete shipping directions to Seller within a reasonable time of placing the order, Seller, at Seller's discretion, may make necessary shipping arrangements with a carrier selected by Seller, the cost of which shall be paid by Buyer.
- (b) If and to the extent a delivery date is stated, it is the estimated delivery date only. All accepted orders, whether or not delivery dates are specified thereon, shall be subject to delays or failures in manufacture or delivery due to causes beyond the control of Seller or carrier. Buyer's obligations shall continue notwithstanding any delay in delivery, provided if performance by Seller is prevented in whole or in part for a period of three (3) consecutive months, then in such event Seller or Buyer (provided Buyer is not responsible for the delay) may cancel any order that has not been shipped as of such date.
- (c) If for any reason, the Buyer is unable to accept the delivery of Goods according to the mutually established schedule; the Seller, at its option and after three (3) days written notice to the Buyer, may place the Goods in storage. In such event, the Buyer shall pay any and all storage or other related costs. If the Buyer fails to accept any delivery or part thereof, the Seller, at its option, may treat such failure as a breach of this Agreement and exercise any and all remedies available to it pursuant to the terms and conditions set forth herein or available to it as a matter of law.

6. Credit

The Seller's obligations are at all times subject to the Seller's approval of the Buyer's credit standing. Upon request, the Buyer shall furnish the Seller such credit information as may be customary and reasonably requested by the Seller. At its discretion, the Seller reserves the right to require payment in advance, C.O.D., and/ or otherwise modify credit terms. If at any time the Buyer is past due with respects to amounts due, the Seller at its option (without liability or prejudice to any other remedies), may decline to ship or stop any Goods in transit until such time the Seller (1) receives payment in full of all amounts owing to it by the Buyer or (2) otherwise receives assurances satisfactory to the Seller of such payment.

7. Risk of Loss

Risk of loss or damage to the Goods shall be solely that of Buyer upon delivery to a carrier for shipment; any loss or damage subsequent to such delivery shall not be the responsibility of Seller, provided further any such loss shall not release Buyer from Buyer's obligation to pay for the Goods. Any claim for damage or loss in transit must be asserted by Buyer against the carrier.

8. Warranty

Seller warrants that the Goods will conform to the description stated herein subject to tolerances and variations consistent with current trade practices, testing and inspections methods. Seller makes no other warranties hereunder, expressed or implied. Seller specifically disclaims any implied warranties of merchantability or fitness for a particular purpose. Some products have special warranties and periods of duration.

9. Claims

- (a) Buyer shall inspect the Goods immediately upon receipt. Any claim that the Goods have been damaged or otherwise do not conform must be made to Seller in writing within ten (10) days of receipt of such Goods by Buyer. All claims for defective, damaged, or non-conforming Goods must be submitted in writing to ALLTEC, LLC at 64 Catalyst Drive, Canton, NC 28716, USA accompanied with a copy of the signed bill-of-lading noting the damage/ shortages, and any other information (photos, etc) supporting Buyer's claim. In the absence of such notice, the Goods shall be deemed to be accepted by Buyer.
- (b) With respect to any valid claims properly submitted hereunder, Buyer's exclusive remedy and Seller's sole liability shall be limited to Seller repairing or replacing Goods that do not conform to specifications, or at Seller's sole option refunding the purchase price of the Goods. In no event shall Seller have any liability to damages in connection with the sale of the Goods in an amount exceeding the purchase price of the Goods sold. Seller shall have no liability for any consequential, special, or indirect damages.
- (c) Claims for quantity deviations or unit pricing errors are deemed waived unless submitted in writing within thirty (30) days of notice of invoice.

10. Quotations

Quotations, based on plans and specifications, are Seller's interpretation of the requirements and include only the material described and listed on the quotation unless otherwise stated. Quotations will be in writing and unless otherwise specified will remain in effect for a period of thirty (30) days from issue date. Formal written purchase orders for work covered by any quotation submitted must be received within forty-five (45) days from the date of quotation. Prices and inventory classifications are subject to changes without notice, and are those in effect at the time of shipment.

11. Errors

ALLTEC reserves the right to correct, at any time, any errors and omissions relating to any component or item upon which a purchase order may be based, including, but not limited to, clerical or stenographic errors or omissions as may relate to quotations, price, catalog and other materials supplied by ALLTEC, or other terms and conditions as reasonably determined by Seller.

12. Returns

Goods may be returned for credit upon written request and upon Seller's written approval and issuance to Buyer of a customer return materials authorization form with RMA number. Any returned items are subject to reasonable restocking charges which unless otherwise agreed to by Seller, shall be deemed to be twenty-five percent (25%) of the price of the Goods returned. Any returned items must be in saleable condition, in the original standard packages, and conform to current catalog descriptions. All returned material is to be shipped to seller freight prepaid. Unless otherwise stated, these terms and conditions govern the purchase and sale of the Goods. All terms and conditions, including price, are subject to change without notice as to any Goods not shipped as of the effective date of such change.

13. Cancellation

Orders received and accepted by Seller may not be cancelled or changed subsequent to delivery, prior to that date such orders may be received and accepted by Seller with the written permission of Seller. Any cancellation or change shall be subject to applicable charges for labor, material, and other costs actually incurred by Seller.

14. Seller's Remedies

If Buyer cancels or abrogates this Agreement in whole or in part prior to shipment for any reason, without Seller's consent, Buyer shall pay Seller for all costs and expenses incurred by Seller, including the cost of all work executed or performed; any special engineering costs and commitments made by Seller prior to the time of cancellation; and all other incidental and storage costs incurred prior to resale.

15. Binding Nature

These terms and conditions shall be binding upon the parties hereto, their successors and assignees.

16. Authority

Any person, employee or agent otherwise acting on behalf of Buyer hereunder shall be deemed to have full authority to act on behalf of Buyer which Seller may rely on exclusively without further inquiry.

17. Governing Law

This Agreement shall be construed in accordance with and governed by laws of the state of North Carolina, USA.

SURGE PROTECTION CATALOG

Section 1

Surge Protection Devices

Surge Protection Devices

Introduction

To ensure 99.999% of service availability and to prolong the service life of mission-critical equipment, facilities must be equipped to effectively dissipate damaging levels of transient surge energy. A complete lightning protection system includes strike termination devices, surge protection devices, grounding electrodes and the required interconnecting conductors, connectors and fittings. UL 96A recommends installing UL Listed surge protection devices on each electric service entrance in accordance with NEC Article 285, ANSI/NFPA 70. ALLTEC DynaShield[®] surge protection devices (SPDs) reduce the magnitude of random, high energy, short-duration electrical power anomalies to keep your site operating reliably.

ALLTEC's Protection Pyramid[™] depends on DynaShield[®] products to support it's comprehensive facility protection methodology. The second tier of protection in diminishes the significance of random, high-energy, short-duration electrical power transients through properly installed surge protection devices. Atmospheric phenomena (such as lightning strikes), utility switching, inductive loads, and internally generated over voltages typically cause these occurrences. The ultimate goal of our approach is to keep sites and systems operating safely and reliably.

ALLTEC DynaShield[®] SPDs are available for installation at main service entrance, distribution panels, and critical equipment locations. Multiple enclosure options, mounting styles, and connection methods are available. Additionally, we offer SPDs to protect DC power and data signal lines. We also design & develop custom surge protection devices for unique customer applications. Our products are designed to IEEE and IEC standards and carry industry recognized certifications including UL, ETL, and CE.

Industries utilizing ALLTEC SPDs include cellular, radio, and television broadcasting sites, data centers, power substations, communication centers, hospitals, research labs, industrial plants, petrochemical processing, and gas pipelines.

ALLTEC's Surge Protection Device Application Map illustrates where surge protection should be installed to safeguard your equipment and facility.

What is a Surge Protection Device

For all practical purposes, a surge protection device (SPD) acts as an ultrafast switch that activates upon encountering a voltage at some defined amplitude. Upon activating, the SPD's suppression components transition from a high impendence (open) state to a low (closed) state. The purpose of the SPD is to redirect intense levels of surge current away from electronic equipment load. Surge current is diverted safely to the ground while the SPD maintains a relatively constant voltage drop across its suppression components throughout the full duration of the surge event. In other words, they protect sensitive electronic devices from momentary bursts of energy that are generated during lightning activity, utility grid switching actions, power factor correction procedures, and other internal and external transient events.

Туре	Response time (say≈)	Range of discharge current (say≈)	Waveform
Semiconductor	1 ns	1 kA	8/20 μs
Variable resistor	25 ns	20 kA	8/20 μs
Spark gap	100 ns	100 kA	10/350 μs

Parts used in SPD:

Depending on the intended application, SPD's can be designed using semiconductors, metal oxide varistors (MOVs), gas discharge tubes (GDTs), spark gaps or a combination of technologies. For example; SPDs used to protect a data signal line typically use semiconductors to take advantage of the fast acting operational characteristic of these components. But for AC main service entrance panels requiring high energy handling capabilities, an SPD using MOV or spark gap technology is a better choice. Semiconductors are fast acting but cannot withstand much surge energy. Spark gaps can endure enormous amounts of energy but are slow to respond and activate to a "bolted short." Hybrid suppression circuits employing spark gap components and MOVs are often used for SPD applications where fast-acting, high-energy dissipation is required.

10/350 µs Versus 8/20 µs Surge Current Test Waveforms

Two waveform tests generated in a laboratory simulate the amount of current associated with lightning activity. The 8 by 20 microsecond ($8 \times 20 \ \mu s$) impulse current is intended to replicate the effects of an indirect lightning strike. Whereas, the 10 x 350 μs current waveform simulates a direct strike. Both waveforms are used to report an SPD's surge current handling abilities. The first value for each waveform defines how many microseconds for the current level to reach 90% of its maximum load. The second value indicates the time it takes for the current impulse to decay to 50% of its peak amplitude. Due to its longer duration, the 10 x 350 μs waveform is a far more stressful impulse as it contains 20 times more energy than its 8 x 20 μs counterpart.

Comparison of Lightning Test Currents

	1	2
Waveform µs	10/350	8/20
i max. (kA)	100	20
Q (As)	50	0.4



Data and Signal Line Shield Grounding Considerations

Generally speaking, when a shielded cable is routed between two buildings or distribution systems that reference separate grounding systems, then the shield at only one end of the cable run should be grounded to preclude the possibility creating an undesirable ground loop between the two earth ground references. To adequately protect data and communications interfaces, one end of the cable shield should directly reference the earth ground, and the other end of the cable run should reference the earth ground via a gas discharge tube, as shown here.



SPD Terms and Definitions

Nominal voltage UN	The nominal voltage of the system to be protected, for AC voltages it is indicated as RMS value.
MCOV	The maximum continuous supply voltage that can be applied to the SPD during its normal operation.
Nominal current IL	The highest value that the SPD can conduct continuously.
Nominal discharge current In	The maximum peak value $8/20\mu s$ surge current that can be conducted repeatedly by the SPD.
Max. discharge current Imax	The maximum peak value of 8/20µs that the SPD can safely discharge.
Lightning impulse current limp	A 10/350µs laboratory generated simulated test waveform intended to simulate the surge current associated with a direct lightning strike.
Voltage protection level Up	The level to which the SPD limits voltage as it is called upon to conduct a specified level of surge current.
Follow current extinguishing capability If	The maximum rms "follow current" (brought on by the surge current discharge) that the SPD can extinguish at UC.
Short-circuit withstand capability	The maximum short-circuit current the SPD can withstand.
Combined impulse Uoc	A laboratory generated (Open Circuit 1.2/50µs, Close Circuit 8/20µs) test impulse used to test SPDs to IEC 61643-1 Class III parameters.
Operating temperature range Tu (Nominal temperature range)	The temperature range where the SPD normally operates.
Response time tA	The time it takes a SPD to begin conducting surge current upon being subjected to its activating voltage level.
Bandwidth fG	The amount of data that can be passed along a communications channel during a given time period.
Data transmission speed VS	Data transfer rate indicating the number of bytes transmitted per second.
Return loss aR	The ratio of the power reflected back from the line to the power transmitted into the line.
Insertion loss aE	The ratio of the power received vs to the power transmitted in the line.

Lightning Protection of an Electronic System



SURGE PROTECTION CATALOG

Section 2

AC/DC Power Products

DynaShield® ADSi Series



FEATURES

- Listed to Type 1 and Type 2
- 200 kAIC rated fuse disconnect
- Modular components easily serviceable
- Best filter options on the market advanced filtering targets most common transient surges and damaging medium frequency noise
- Copper bus connected surge modules
- 10 modes of protection
- Dual surge counter options (continuous and resettable)
- Smart monitoring option
- Dual NO/NC form C dry contacts (for remote monitoring & control)
- Individually fused and protected MOV technology
- NEMA 4 & NEMA 12 painted steel enclosure
- 10-year standard warranty

Product Description

With the DynaShield[®] ADSi series surge protection devices, companies can trust their mission-critical and expensive electronic equipment is protected. Since downtime can result in safety hazards and monetary loss, the ADSi has become a vital component upon which many companies rely.

This full-featured SPD protects all phases and modes against transient surges. With the filter option, it decreases noise by over 50 dB. No other surge protection device offers as much power quality protection.

The ADSi series has easy-to-service, replaceable modules. The unit also has many options including advance EMI/ Noise filtering, resettable surge counter, and a wide selection of power quality meters making it the most versatile SPD on the market.



Specifications

Model	ADSi-080 ADSi-160 ADSi-24			
Connection Type		Parallel Connected		
Agency Listings	Listed to	UL 1449 4th Edition, Noise Filterin	g UL 1283	
Protection Modes	Line to Neutra	I, Line to Ground, Line to Line, Ne	utral to Ground	
Operating Frequency Range		50 - 60 Hertz		
Maximum Surge Current Rating	160 kA per phase	320 kA per phase	480 kA phase	
50 ohm EMI/RFI Attenuation	3 kHz / 1 MHz UL 1283-45 dB			
Response Time		< 1 nanosecond		
Status Indication	Green LE	D (Working), Red LED (Alarm), Auc	lible Alarm	
Enclosure Protection Level	NEMA 12/4, Painted Steel			
Dimensions (H x W x D)	24" x 16" x 8"			
Weight (Maximum)	Up to 65 lbs			
Wire Connections	Lugs up to 2 AWG			
Operating Temperature	-40°C to + 65°C (-40°F to +140°F)			
Operating Humidity	5% to 95%			

Selection Chart



Model Selection Example

Dort Number	Sorrigo Voltoro	MCOV		Voltage Protecti	on Rating (VPR)	
Fart Number	Service Voltage		L-N	L-G	N-G	L-L
ADSi-080-120S	120 V Single Phase	150 Vac	700 V	700 V	700 V	-
ADSi-080-120T	120/240 V Split Phase	150 Vac	700 V	700 V	700 V	-
ADSi-080-120W	120/208 V 3 Phase Wye	150 Vac	700 V	700 V	700 V	1000 V
ADSi-080-127W	127/220 V 3 Phase Wye	150 Vac	700 V	700 V	700 V	1000 V
ADSi-080-240S	240 V Single Phase	320 Vac	1000 V	1000 V	1000 V	-
ADSi-080-220W	220/380 V 3 Phase Wye	320 Vac	1000 V	1000 V	1000 V	-
ADSi-080-240D	240 V 3 Phase Delta	320 Vac	-	1000 V	-	1800 V
ADSi-080-240W	240/415 V 3 Phase Wye	320 Vac	1000 V	1000 V	1000 V	1800 V
ADSi-080-240H	240 V High Leg 3 Phase	150/320 Vac	700/1000 V	-	700 V	-
ADSi-080-480W	277/480 V 3 Phase Wye	320 Vac	1000 V	1000 V	1000 V	1800 V
ADSi-080-480D	480 V 3 Phase Delta	600 Vac	-	1800 V	-	3000 V
ADSi-080-600W	347/600 V 3 Phase Wye	522 Vac	1000 V	1000 V	1000 V	1800 V
ADSi-080-600D	600 V 3 Phase Delta	900 Vac	_	2100 V	-	2100 V

*Contact your local rep for assistance in surge device selection

2-3

DynaShield® ADSc Series



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Product Description

The DynaShield® ADSc Series SPD is a high performance surge protection device designed to protect critical panels such as main service entrance, distribution equipment, branch panels and motor control centers. The ADSc incorporates high-energy MOVs with the best performing EMI filter on the market to provide protection against transients originating from induced lightning strikes, utility switching and facility power noise.

The ADSc has real-time diagnostics including LED fault indicators for each phase of protection as well as an optional audible alarm. This SPD is available for all voltages and configuration up to 600V and is housed in a rugged NEMA 12 enclosure, most suitable for indoor applications.

DynaShield® ADSc products are listed to UL1449 4th edition and are backed by a 10 year standard warranty.

FEATURES

- 10 modes of protection
- 200 kAIC fault current rating
- Advanced EMI/RFI noise filtering (-45 dB) 3 kHz - 1 MHz
- Optional 30 amp fuse allows direct connect to power bus
- Resettable surge counter option
- Listed to UL 1449 4th edition
- 10 year standard warranty



Specifications

Model	ADSc-080 ADSc-100 ADSc-2				
Connection Type		Parallel Connected			
Agency Listings	Liste	d to UL 1449 4th edition and UL	1283		
Protection Modes	Line to Neutral,	Line to Ground, Line to Line, Ne	eutral to Ground		
Operating Frequency Range		50 - 60 Hertz			
Maximum Surge Current Rating	160 kA per phase	200 kA per phase	400 kA per phase		
Response Time	< 1 nanosecond				
Status Indication		Green LED			
Enclosure Protection Level	NEMA 12, Painted Steel				
Dimensions (H x W x D)	15.50" x	12.00" x 6.20" (Optional 10.00"x8.	00"x6.00")		
Weight (Maximum)	25 lbs				
Wire Connections	Stranded #10 AWG				
Wire Lead Length	36 inch				
Operating Temperature	-40°C to + 65°C (-40°F to +140°F)				
Operating Humidity		5% to 95% non condensing			

Selection Chart



Model Selection Example

Deut Number	Comico Voltoro	MCOV		Voltage Protecti	on Rating (VPR)	
Part Number	Service Voltage	INICOV	L-N	L-G	N-G	L-L
ADSc-080-120S	120 V Single Phase	150 Vac	700 V	700 V	700 V	-
ADSc-080-120T	120/240 V Split Phase	150 Vac	700 V	700 V	700 V	-
ADSc-080-120W	120/208 V 3 Phase Wye	150 Vac	700 V	700 V	700 V	1000 V
ADSc-080-127W	127/220 V 3 Phase Wye	150 Vac	700 V	700 V	700 V	1000 V
ADSc-080-240S	240 V Single Phase	320 Vac	1000 V	1000 V	1000 V	-
ADSc-080-220W	220/380 V 3 Phase Wye	320 Vac	1000 V	1000 V	1000 V	-
ADSc-080-240D	240 V 3 Phase Delta	320 Vac	-	1000 V	-	1800 V
ADS-080-240W	240/415 V 3 Phase Wye	320 Vac	1000 V	1000 V	1000 V	1800 V
ADSc-080-240H	240 V High Leg 3 Phase	150/320 Vac	700/1000 V	-	700 V	-
ADSc-080-480W	277/480 V 3 Phase Wye	320 Vac	1000 V	1000 V	1000 V	1800 V
ADSc-080-480D	480 V 3 Phase Delta	600 Vac	-	1800 V	-	3000 V
ADSc-080-600W	347/600 V 3 Phase Wye	522 Vac	1000 V	1000 V	1000 V	1800 V
ADSc-080-600D	600 V 3 Phase Delta	900 Vac	-	2100 V	-	2100 V

*Contact your local rep for assistance in surge device selection

Surge Protection Device

ADSx Series



FEATURES

- UL 1449 4th Edition Type 1 and Type 2
- Thermally protected MOV technology
- Surge current rating up to 300 kA
- 200 kAIC fault current rating
- UL 1283 Listed EMI/RFI filtering available

Product Description

DynaShield[®] ADSx Series hardwired AC surge protection devices (SPDs) are fast responding devices designed to offer superior voltage protection levels at high surge currents.

The SPDs are listed to UL / cUL 1449 4th Edition Type 1 and Type 2 and are offered with surge current ratings of 50 kA, 100 kA, 200 kA and 300 kA to meet the most demanding protection requirements. The SPDs meet UL96A lightning Protection Master Label requirements (@20 kA ln).

Diagnostics include easy to see status LEDs and dry contacts for remote annunciation. The ADSx models are Type 2 cUL Listed and provide complimentary UL 1283 listed frequency reactive circuitry (FRC) to attenuate EMI/RFI noise up to -50 dB @ 100 kHz.

Standard polycarbonate NEMA 4X enclosure allows for outdoor or indoor installation. Ruggedized enclosures are available in NEMA 4 painted steel or NEMA 4X Stainless steel.

Inquire about additional available configurations.

ADSx-200 & ADSx-300

Dimensions

ADSx-050 & ADSx-100



www.alltecglobal.com | +1 800.203.2658 or +1 828.646.9290 | online-info@alltecglobal.com

Specifications

Model	ADSx-050	ADSx-100	ADSx-200	ADSx-300		
UL 1449 Location Type		Type 1 or Type 2				
Connection Type		Parallel C	onnected			
Agency Listings		UL 1449 4th Editi	on, UL 1283, cUL			
Protection Modes	Line-to-N	Neutral, Line-to-Ground,	Line-to-Line, Neutral-to	o-Ground		
Operating Frequency Range		47 - 63	3 Hertz			
Maximum Continuous Operating Voltage (MCOV)		115	5%			
Maximum Surge Current Rating	50 kA per phase	100 kA per phase	200 kA per phase	300 kA per phase		
Short Circuit Current Rating (SCCR)	200 kAIC					
UL 1449 Nominal Discharge Current (I_N)	20 kA					
50 ohm EMI/RFI Attenuation		63 dB max from 1	0 kHz to 100 MHz			
Response Time		< 25	5 ns			
Status Indication		Status LEDs, Ala	rm relay contacts			
Enclosure Protection Level		Polycarbona	te NEMA 4X			
Dimensions (H x W x D)	6.4" x 4.	8" x 3.5"	6.4" x 9.	9" x 3.5"		
Weight (Maximum)	5 lbs 10 lbs			lbs		
Wire Connections	Stranded #10 AWG					
Wire Lead Length	36 inch					
Operating Temperature	-40 to +65 °C					
Operating Humidity	≤ 95% non condensing					
Altitude		Up to 18	,000 feet			

Selection Chart



Model Selection

Part Number Service Voltage		MCOV	Voltage Protection Rating (VPR)			
	Service voltage	INICOV	L-N	L-G	N-G	L-L
ADSx-200-120S	120 V Single Phase	180 Vac	800 V	800 V	700 V	N/A
ADSx-200-120T	120/240 V Split Phase	180 Vac	800 V	800 V	700 V	1200 V
ADSx-200-120W	120/208 V 3 Phase Wye	180 Vac	800 V	800 V	700 V	1200 V
ADSx-200-127W	127/220 V 3 Phase Wye	180 Vac	800 V	800 V	700 V	1200 V
ADSx-200-240S	240 V Single Phase	320 Vac	1200 V	1200 V	1200 V	N/A
ADSx-200-220W	220/380 V 3 Phase Wye	320 Vac	1200 V	1200 V	1200 V	2000 V
ADSx-200-240D	240 V 3 Phase Delta	320 Vac	N/A	800 V	N/A	1200 V
ADSx-200-240W	240/415 V 3 Phase Wye	320 Vac	1200 V	1200 V	1200 V	2000 V
ADSx-200-480W	277/480 V 3 Phase Wye	320 Vac	1200 V	1200 V	1200 V	2000 V
ADSx-200-480D	480 V 3 Phase Delta	550 Vac	N/A	1200 V	N/A	2500 V
ADSx-200-600W	347/600 V 3 Phase Wye	420 Vac	1500 V	1500 V	1500 V	2500 V
ADSx-200-600D	600 V 3 Phase Delta	690 Vac	N/A	1500 V	N/A	2500 V

NOTE

• Alternate enclosure & voltage configurations available

DynaShield® ADSrm Series



Product Description

DynaShield® ADSrm SPDs are designed to protect valuable commercial equipment. Power quality is more important today then ever before and that means not just any surge protector can be relied on to protect your sensitive electrical and electronic equipment.

DynaShield® products are a cost effective solution for any critical location in your facility, from high risk sites such as telecom & petroleum to point-of-use equipment such as laboratory devices, manufacturing equipment, and computers.

With DynaShield® ADSrm Surge Protection Devices installed you can count on complete facility protection.

Dimensions



FEATURES

- 10 modes of protection
- Weather resistant perfect for outdoor applications
- Listed to UL 1449 4th Edition
- 4 modes of discrete protection
- Green status indicating lights per phase
- Individually fused MOV technology
- 5-year standard warranty

Specifications

Model	ADSrm-040
Connection Type	Parallel Connected
Agency Listings	Listed to UL 1449 4th Edition
Protection Modes	Line-to-Neutral, Line-to-Ground, Line-to-Line, Neutral-to-Ground
Operating Frequency Range	50 - 60 Hertz
Maximum Surge Current Rating	40 kA per phase
Response Time	< 1 nanosecond
Status Indication	Green LED
Enclosure Protection Level	NEMA 4X, Plastic UL 94 V-0
Dimensions (H x W x D)	3.230" x 5.515" x 2.005"
Weight (Maximum)	1.7 lbs
Wire Connections	Stranded #10 AWG
Wire Lead Length	24 inch
Operating Temperature	-40°C to + 65°C (-40°F to +140°F)
Operating Humidity	5% to 95% non condensing

Selection Chart



Model Selection

Dout Number	Corrigo Veltore	MCOV		Voltage Protecti		
Part Number	Service Voltage	MCOV	L-N	L-G	N-G	L-L
ADSrm-040-120S	120 V Single Phase	150 Vac	700 V	1200 V	-	-
ADSrm-040-120T	120/240 V Split Phase	150 Vac	700 V	-	-	1200 V
ADSrm-040-120W	120/208 V 3 Phase Wye	150 Vac	700 V	1200 V	-	-
ADSrm-040-127W	127/220 V 3 Phase Wye	150 Vac	700 V	-	-	1000 V
ADSrm-040-240S	240 V Single Phase	320 Vac	1000 V	1800 V	-	-
ADSrm-040-220W	220/380 V 3 Phase Wye	320 Vac	1000 V	-	-	1800 V
ADSrm-040-240D	240 V 3 Phase Delta	320 Vac	-	700 V	-	1200 V
ADSrm-040-240W	240/415 V 3 Phase Wye	320 Vac	1000 V	-	-	1800 V
ADSrm-040-240H	240 V High Leg 3 Phase	150/320 Vac	700/1000 V	-	700 V	-
ADSrm-040-480W	277/480 V 3 Phase Wye	320 Vac	1000 V	1800 V	-	-
ADSrm-040-480D	480 V 3 Phase Delta	600 Vac	-	1800 V	-	3000 V

*Contact your local rep for assistance in surge device selection

DynaShield® ADSrs Series



FEATURES

- Weather resistant perfect for outdoor applications
- Compact design
- Affordable solution
- 4 Modes of discrete protection (L-L, L-N, N-G)
- Green status indicating lights per phase
- Individually fused MOV technology
- Easy installation
- Listed to UL 1449 4th edition
- 5-year standard warranty

Product Description

With many of the largest expenses in the household being electronic devices, Alltec's DynaShield® ADSrs goes above and beyond to protect those investments. In today's modern home, a power strip surge protector alone is not enough to protect the appliances and electronics used. Surge strips can only provide limited protection and low-level suppression for the items plugged into the unit. The ADSrs provides power protection for all electronic devices including appliances such as dryers, ranges, home entertainment and HVAC systems.

With our growing reliance on expensive electronics and the inevitable move towards smart homes; this residential SPD is the perfect product to protect a home and extend the life of electrical equipment from electrical and lightning induced surges.



Specifications

Model	ADSrs-040-120T
Connection Type	Parallel Connected
Agency Listings	Listed to UL 1449 4th Edition
Protection Modes	Line to Neutral, Line to Line, Neutral to Ground
Operating Frequency Range	50 - 60 Hertz
Maximum Surge Current Rating	40 kA per phase
Response Time	< 1 nanosecond
Status Indication	Green LED
Enclosure Protection Level	NEMA 4X, Plastic UL 94 V-0
Dimensions (H x W x D)	3.230" x 5.515" x 2.005"
Weight (Maximum)	1.7 lbs
Wire Connections	Stranded #10 AWG
Wire Lead Length	24 inch
Operating Temperature	-40°C to + 65°C (-40°F to +140°F)
Operating Humidity	5% to 95% non condensing



DynaShield® ADSIp Series





FEATURES

- Provides 36 kA per mode of protection
- Discrete protection on both line-to-ground and line-to-line
- Includes prewired pigtails to facilitate quick installations

Product Description

The DynaShield® ADSIp thoroughly protects important electronic equipment including commercial and industrial lighting panels, HVAC, traffic signals, well pumps, and security systems. Power quality is an important consideration with so much of the electrical load being these sensitive electronics. DynaShield® ADSIp SPDs are the result of 25+ years of power quality experience tied into one of the smallest packages on the market.

The small size of this SPD and powerful protection make it a perfect product for those common locations where larger SPDs cannot be used. The ADSIp easily installs on any standard lighting panel through a "knock-out" and any free breaker sized from 20-40 amps. While the size is diminutive, the ADSIp still has industrial strength protection, with surge levels up to 36,000 amps (8 x 20 μ s).



Specifications

Model	ADSIp-030
Connection Type	Parallel Connected
Agency Listings	Listed to UL 1449 4th edition
Protection Modes	Line to Neutral, Line to Ground, Line to Line
Operating Frequency Range	50 - 60 Hertz
Maximum Surge Current Rating	36 kA per phase
Response Time	< 1 nanosecond
Status Indication	Green LED
Enclosure Protection Level	NEMA 4X, Plastic UL 94 V-0
Dimensions (H x W x D)	3.875" x 2.082" x 1.500"
Weight (Maximum)	10 oz
Wire Connections	Stranded #14 AWG
Wire Lead Length	18 inch
Operating Temperature	-40°C to + 60°C
Operating Humidity	5% to 95% non condensing

Selection Chart



Model Selection

Deut Number		мсоч	Voltage Protection Rating (VPR)			
Part Number	Service Voltage		L-N	L-G	L-L	
ADSIp-030-120S	120 V Single Phase	150 Vac	700 V	1200 V	700 V	
ADSIp-030-240S	240 V Single Phase	320 Vac	1000 V	1800 V	1000 V	
ADSIp-030-480S	480 V Single Phase	550 Vac	2500 V	3200 V	2500 V	

*Contact your local rep for assistance in surge device selection

DynaShield[®]

Surge Protection Device PT-RD AC Series



FEATURES:

- UL 1449 4th Edition Type 4 for use in Type 2 applications
- SCCR 100 kAIC
- Series or parallel Installation
- LED status
- Screw or DIN mount

Product Description

The RD Series is designed to protect single phase low voltage AC power supply system against transient surges at LPZ1 and higher. The SPDs are ANSI/UL 1449 4th Edition Type 4 recognized components for use in Type 2 applications. Ideal for use in SCADA Systems, PLCs and most other sensitive electronic equipment.

Specifications

Model	PT-RD-20- 120V-30	PT-RD-20- 250V-30	PT-RD-40- 120V-30	PT-RD-40- 250V-30	
Tested To		UL 1449 4	1th Edition		
SPD Category	Ту	pe 4 for use in T	ype 2 applicatio	ons	
Number Of Ports	Two Port Device				
Technology		Metal Oxide \	/aristor (MOV)		
Nominal Operating Voltage Un	120 Vac	240 Vac	120 Vac	240 Vac	
Maximum Current		30) A		
Maximum Continuous Operating Voltage Uc	140 V	260 V	140 V	260 V	
Nominal Discharge Current I _N (8 x 20 µs)	3 kA	3 kA	3 kA	3 kA	
Maximum Discharge Current I_{max} (8 x 20 μ s)	20 kA	20 kA	40 kA	40 kA	
Voltage Protection Rating Vpr @ I_N (L-N)	600 V	800 V	500 V	800 V	
(L-PE)	600 V	800 V	500 V	800 V	
(N-PE)	600 V	800 V	600 V	800 V	
Response Time	≤ 25 ns				
Visual Status Indication	LED: Green = Normal, Dark = Replace				
Location Category	Indoor Only				
Method of Mounting	Wall mount or Fixed 35 mm DIN rail				
Dimension (H x W/ x D)	100 mm x 35.6 mm x 57.9 mm 100 mm x 71.1 mm x			mm x 57.9 mm	
	(3.94" x 1	.4" x 2.3")	(3.94" x 2.8" x 2.3")		
Weight (Max)	0.25 kg (0.5 lb) 0.45 kg (0.9 lb)			(0.9 lb)	
Maximum Wire Size	Multi strand 13 mm ² (#6 AWG)				
Operating Temperature	-40°C to +80°C				
Relative Humidity	≤ 95% non condensing				
Altitude	≤ 3000 m				
Enclosure Protection Level	IP 20				
Housing Inflammability Rating	Thermoplastic, UL 94 V-0				









Surge Protection Device PT-RD DC Series



FEATURES:

- Peak surge current up to 20 kA
- Continuous current up to 30 A
- Series or parallel installation
- LED status
- Screw or DIN mount

Product Description

The RD Series is designed to protect DC power supply system against transient surges at LPZ1 and higher. Ideal for use in SCADA Systems, PLCs and most other sensitive electronic equipment.

Specifications

Model	PT-RD- 05-05V- 05A	PT-RD- 20-12V- 15A	PT-RD- 10-24V- 15A	PT-RD-20- 24V-30A	PT-RD-20- 48V-30A
Tested To	IEC 61643-11, IEEE C62.45				
IEC Arrester Category			Clas	is II	
Number Of Ports			Two Por	t Device	
Technology		M	etal Oxide V	aristor (MOV)	
Nominal Voltage U _N	5 V	12 V	24 V	24 V	48 V
Maximum Current	5 A	15 A	15 A	30 A	30 A
Maximum Continuous Operating Voltage U_c	10 Vdc	16 Vdc	30 Vdc	30 Vdc	70 Vdc
Nominal Discharge Current I _N (8x20µs)	3 kA	3 kA	3 kA	3 kA	3 kA
Maximum Discharge Current I _{max} (8x20µs)	5 kA	20 kA	10 kA	20 kA	20 kA
Voltage Protection Level $U_P @ I_N$ (8x20µs)	142 V	165 V	188 V	180 V	204 V
Response Time			≤ 25	ins	
Visual Status Indication		LED: G	reen = Norm	nal, dark = Replac	е
Location Category			Indoo	^r Only	
Method of Mounting		Wall m	nount or Fixe	ed 35 mm DIN rail	
Dimension (H x W x D)	100 mm x 35.6 mm x 57.9 mm (3.94" x 1.4" x 2.3") 100 mm x 71.1 mm x 57.9 mr (3.94" x 2.8" x 2.3")				mm x 57.9 mm .8" x 2.3")
Weight (Max)	0	.25 kg (0.5 ll	c)	0.45 kg	(0.9 lb)
Maximum Wire Size	Multi strand 2.08 mm ² (#14 AWG) Multi strand 13 mm ² (#6 AWC				mm ² (#6 AWG)
Operating Temperature			-40°C to	o +80°C	
Relative Humidity			≤ 95% non	condensing	
Altitude			≤ 300)0 m	
Enclosure Protection Level			IP	20	
Housing Inflammability Rating	Thermoplastic, UL 94 V-0				



SURGE PROTECTION CATALOG

Section 3

Data Signal Products

Surge Protection Device KSB LJ8 Series



FEATURES:

- 1000 Mbps transmission rate
- DIN rail or In-Line mounting
- Hybrid silicon + GDT design
- Shielded RJ45 jacks
- Fast response

Product Description

The KSB LJ8 Series is a Surge Protection Device family designed to protect single RJ-45 connector for 10 BT/100 BT/1000 BT data signals with transmission rates up to 1000 Mbps.

Specifications

Model	KSB LJ8-5	KSB LJ8-12	KSB LJ8-24	KSB LJ8-48		
Certification		IEC61643:21-2005				
Number Of Ports		Two Por	t Device			
Technology	Hybrid S	Hybrid Silicon Diode and Gas Discharge Tube				
Nominal Voltage U _N	5 V	12 V	24 V	48 V		
Maximum Continuous Operating Voltage Uc	6 V (5 V~)	15 V (12 V~)	28 V (24 V~)	60 V (48 V~)		
C2 Nominal Discharge Current I _N (8 x 20 µs) per line		100 A (L-L),	2.5 kA (L-G)			
C2 Total Nominal Discharge Current Imax (8 x 20 µs)	400 A (L-L),	20 kA (L-G)			
Nominal Current		1	A			
Voltage Protection Level U _P @C2 (8 x 20 µs) (L-I) ≤ 30	≤ 45	≤ 55	≤ 190		
(L-Pl) ≤ 600	≤ 600	≤ 600	≤ 600		
Voltage Protection Level U _P @C3 (1 kV/µs) (L-) ≤ 24	≤ 38	≤ 48	≤ 145		
(L-Pl) ≤ 800	≤ 800	≤ 800	≤ 800		
Protected Pins		Pins 1/2, 3/6, 4/5, 7/8				
Maximum Transmission Rate		1000	Mbps			
Insertion Loss (80 MHz)		≤ 3.) dB			
Response Time		≤ 5	ns			
Location Category		Indoor Only				
Method of Mounting	3	35 mm DIN rail or In line series				
Connection	Sh	Shielded RJ-45; Female / Female				
Grounding	Wire; 2.5 mm ² (#14 AWG), Length 275 mm (10.8")					
Dimension (H x W x D)	85 mm x 25 mm x 40 mm (3.4" x 1" x 1.6")					
Weight (Max)	0.08 kg (0.2 lb)					
Operating Temperature		-25°C to +70°C				
Relative Humidity		\leq 95% non condensing				
Altitude	≤ 3000 m					
Enclosure Protection Level		IP 20				
Enclosure Material	Aluminum					

Schematic



Dimensions



3-2

Surge Protection Device KSB LC Series



FEATURES

- Hybrid design for LPZ 0_A-2
- Slim 12 mm wide DIN rail mount
- Common mode protection
- Fast response
- Excellent voltage protection level

Product Description

The KSB LC series designed for use at LPZ 0_A -2 or higher to protect 2 wire unbalanced analog circuits, such as 4-20 mA loops, 110 V telephone, ADSL or ISDN applications. The SPDs offer convenient DIN rail mounted base with replaceable suppression protection modules.

Specifications

Model	KSB 24V LC	KSB 48V LC	KSB 110V LC			
Tested To	IEC6164	IEC61643-21:2000; YD/T 1542-2006;				
		GB 18802.21-2004				
Number Of Ports		Two Port Device	1			
Technology	Diode + GDT	Diode + GDT	MOV + GDT			
Protection Modes		Common Mode				
Nominal Voltage U _N	24 V	48 V	110 V			
Nominal Current IL	0.5 A	0.5 A	1 A			
Maximum Continuous Operating Voltage Uc	26 V (19 V~)	55 V (39 V~)	170 V (120 V~)			
Lightning Impulse Current I _{imp} (10 x 350 µs) (L-L) 2.5 kA	2.5 kA	2.5 kA			
(L-PE) 5 kA	5 kA	5 kA			
Nominal Discharge Current I _N (8 x 20 µs) Tota	l 20 kA	20 kA	20 kA			
Voltage Protection Level at I _{imp} (L-L) ≤ 90 V	≤ 150 V	$\leq 600 \text{ V}$			
(L-PE) ≤ 45 V	≤ 75 V	≤ 300 V			
Bandwidth	5.1 MHz	8.5 MHz	24 MHz			
Capacitance (L-L) 0.7 nF	0.3 nF	0.2 nF			
(L-PE) 1.3 nF	0.6 nF	0.4 nF			
Series Impedance	2.2 Ω	2.2 Ω	4 Ω			
Response Time	≤ 5 ns	≤ 5 ns	≤ 25 ns			
Location Category		Indoor Only				
Method of Mounting	Fixed 35 mm DIN	rail, Reference EN 5	50022/DIN46277-3			
Dimension (H x W x D)	92 mm x 12 r	nm x 64.5 mm (3.6'	' x 0.5" x 2.5")			
Weight (Max)		0.33 kg (0.74 lb)				
Maximum Wire Size	Multi s	trand 2.5 mm ² (#12	2 AWG)			
Operating Temperature	-40°C to +80°C					
Relative Humidity	≤	≤ 95% non condensing				
Altitude	≤ 3000 m					
Enclosure Protection Level	IP 20					
Housing Inflammability Rating	Thermoplastic, UL 94 V-0					
Certifications	CE (LVD, EMC)					

Schematic



ISB 20VIC (AVIC



Dimensions

92



Surge Protection Device KSBT SC Series



FEATURES

- Hybrid silicon + GDT design
- Slim 6 mm wide DIN rail mount
- Common mode protection
- Fast response
- Excellent voltage protection level

Product Description

The KSBT SC Series designed for use at LPZ 0_B -2 or higher to protect 2 wire unbalanced analog signals typically used in measurement and control circuits such as thermocouples. The SPDs offer convenient DIN rail mounting in a slim 6 mm wide package.

Specifications

Model	KSBT 12V SC	KSBT 24V SC	KSBT 48V SC	KSBT 110V SC		
Tested To	IEC	IEC61643-21:2000; YD/T 1542-2006;				
Number Of Ports		Two Por	t Device			
Technology	Hybrid S	Silicon Diode a	nd Gas Discha	rae Tube		
Protection Modes	Comm	Common mode: 2 wire signal with ground				
Nominal Voltage U _N	12 V	24 V	48 V	110 V		
Nominal Current IL	0.5 A	0.5 A	0.5 A	0.5 A		
Maximum Continuous Operating Voltage Uc	14 V (9.5 V~)	33 V (23 V~)	55 V (38.5 V~)	170 V (120 V~)		
Nominal Discharge Current IN (8 x 20 µs) Per Lin	e	5	kA			
Nominal Discharge Current I _N (8 x 20 µs) Total		10	kA			
Voltage Protection Level at I _N (L-	_) ≤ 55 V	≤ 100 V	≤ 175 V	$\leq 500 \text{ V}$		
(L-P	E) ≤ 40 V	≤ 65 V	≤ 100 V	\leq 270 V		
Voltage Protection Level at 1 kV/µs (L-I	.) ≤ 36 V	≤ 90 V	≤ 160 V	≤ 460 V		
(L-P	E) ≤ 19 V	≤ 45 V	≤ 80 V	≤ 230 V		
Bandwidth	2.5 MHz	6 MHz	10 MHz	16 MHz		
Capacitance (L-	.) 1.2 nF	0.5 nF	0.3 nF	0.2 nF		
(L-P	E) 2.4 nF	1 nF	0.6 nF	0.4 nF		
Series Impedance	1.8 Ω	1.8 Ω	1.8 Ω	1.8 Ω		
Response Time	≤ 5 ns					
Location Category	Indoor Only					
Method of Mounting	Fixed 35 mm	Fixed 35 mm DIN rail, Reference EN 50022/DIN46277-3				
Dimension (H x W x D)	90 mm x 6 mm x 63 mm (3.6" x 0.2" x 2.5")					
Weight (Max)	0.05 kg (0.1 lb)					
Maximum Wire Size	Multi strand 2.5 mm ² (#12 AWG)					
Operating Temperature	-40°C to +80°C					
Relative Humidity	≤ 95% non condensing					
Altitude	≤ 3000 m					
Enclosure Protection Level		IP 20				
Housing Inflammability Rating	Thermoplastic, UL 94 V-0					
Certifications	CE (LVD, EMC)					

Schematic



Dimensions

6

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3-4

Surge Protection Device KSBT C Series



FEATURES

- Slim profile 6 mm DIN rail module
- Bi-directional silicon diode design
- Common mode protection
- 10 A nominal current
- Fast response

Product Description

The KSBT C series is designed for use at LPZ 1-2 or higher to protect 2 wire single pair unbalanced analog circuits, such as 4-20 mA loops.

Specifications

Model	KSBT 12VC	KSBT 24VC	KSBT 48VC	KSBT 60VC
Tested To		IEC61643	3-11:2011	
Number Of Ports		Two Por	t Device	
Protection Mode		Commo	n Mode	
Technology	Silicon Diode			
Nominal Voltage U _N	12 V	24 V	48 V	60 V
Nominal Current I _N	10 A			
Maximum Continuous Operating Voltage $U_{\rm C}$	13 V (9 V~)	48 V (19.5 V~)	58 V (41 V~)	70 V (49.5 V~)
Lightning Impulse Current I _{imp} (10x350µs) Per Line	0.5 kA	0.5 kA	0.5 kA	0.5 kA
Nominal Discharge Current I _N (8x20µs) Per Line	0.4 kA	0.3 kA	0.15 kA	0.12 kA
Nominal Discharge Current I _N (8x20µs) Total	0.8 kA	0.6 kA	0.3 kA	0.24 kA
Voltage Protection Level at I _N	\leq 25 V	\leq 48 V	≤ 90 V	≤ 110 V
Voltage Protection Level at 1 kV / µs	\leq 18 V	\leq 38 V	$\leq 78 \text{ V}$	≤ 95 V
Bandwidth	2.5 MHz	5.5 MHz	11 MHz	14 MHz
Capacitance (L - L)	1.2 nF	0.6 nF	0.3 nF	0.25 nF
Response Time	≤ 5 ns			
Location Category	Category Indoor Only		r Only	
Method of Mounting	Fixed 35 mm DIN rail, Reference EN 50022/DIN46277-3		7-3	
Dimension (H x W x D)	90 mm x 6 mm x 63 mm (3.6" x 0.24" >		4" x 2.5")	
Weight (Max)	0.33 kg (0.74 lb)			
Maximum Wire Size	Multi strand 2.5 mm ² (#12 AWG)			
Operating Temperature	-40°C to +80°C			
Relative Humidity	≤ 95% non condensing			
Altitude	≤ 3000 m			
Enclosure Protection Level	IP 20			
Housing Inflammability Rating		Thermoplast	ic, UL 94 V-0	

Schematic





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WORLD HEADQUARTERS 64 Catalyst Drive Canton, North Carolina 28716 USA

TEL: +1.828.646.9290 EMAIL: online-info@alltecglobal.com

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