Power Switching & Controls
For *Business-Critical Continuity™*

Grid to Chip Surge Protection

Product Catalog

EMERSON™
Network Power

Power Quality Solutions for ALL Your Application Needs

"Dirty" power is a problem. Whether it's called a surge, spike, transient or noise, "dirty" power is an abnormality in the power that runs your facility. These power problems can leave buildings in the dark and disable equipment, costing you thousands in repairs and lost revenue. Your productivity uptime and reputation depend on consistent power quality. Emerson Network Power Surge Protection provides products and solutions that ensure reliability from Grid to Chip. For more than 40 years, Facility Managers, Engineers, and System Integrators have trusted Emerson Network Power Surge Protection products to protect critical equipment in the Industrial Process, Computing, Research/Testing and Communications fields.

Emerson Network Power Surge Protection and the IEEE Standard 1100-1999 (Emerald Book) recommend a properly rated surge protection device should be applied on ALL electrical conductors entering your facility including: power, voice, and data. Without proper protection – data disruption, hardware stress or destruction could occur.

As a line of defense against damaging transients, Emerson Network Power Surge Protection manufactures products in the following categories:

- Surge Protection Devices (SPDs) — which focus on limiting high-voltage spikes to an acceptable level
- Filtering/Line Conditioning — protect against low-energy transients and high frequency noise and finally...
- Data/Signal Line Protection — products guard sensitive instrumentation against what we refer to as 'backdoor' transients and noise.

Why allow "dirty" power to put your equipment at risk? Turn to Emerson Network Power Surge Protection products for peace of mind. We provide solutions for all your application needs and the foundation for *Business-Critical Continuity™*.

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Note: Refer to **EmersonNetworkPower.com/surge** for most current product information.

TVSS/SPDs — Product Selection Guide

- Find your application in the left column.
- Then look across for the appropriate product (s).

PRODUCTS			
APPLICATIONS	**DRS Series**	**Edco EMC Series**	**Edco FAS Series**
Facility Service Entrance			
Distribution Panels			
Sub-Distribution Panels			
Branch Panelboards (Commercial)			
Branch Panelboards (Residential)			
Motor Control Centers			
Control Panels (AC Power)			
Various OEM Equipment			

DRS Series

The DRS is a modular surge protective device (SPD) that is designed for easy installation in control panels using standard DIN rail mounting brackets. The DRS devices offer both normal and common surge protection up to 40 kA per phase.

Features

- Effectively handles high-energy transients on TT, TN-C, TN-S and TN-C-S three-phase power systems
- SPD rated Type 2 in accordance with EN 61643-11; Class I & II in accordance with IEC 61643-1
- Built-in thermal components disconnect SPD from the power source to avoid thermal runaway conditions
- MOV only or MOV+Gas Tube models available
- Fast response time, high surge current capability, low voltage protection levels
- Visual inspection window on each module indicates status
- 3-pole terminal provides remote status monitoring
- DIN rail mounting and plug-in module design allow for easy installation, maintenance and replacement of surge element
- 5 year warranty

How to Specify the Appropriate Model

Example: DRS 120 3 1 Q

Nominal Voltage (U_n) (XXX)	# of Metal Oxide Varistor Modules* (X)
120	0
230	1
240	2
277	3
346	4
480	

# of Gas Tube Modules** (X)	Higher Rated Voltage*** (Optional)
0	Q
1	

**MOV modules are typically one module per phase and may be wired L-N, L-G or N-G.*
***Gas Tube modules typically used in the N-G mode for type TT grounding systems.*
****Certain applications require higher rated components in order to survive frequent voltage rises, in this case order a unit with a "Q" at the end of the part number.*

Replacement modules available: Order DRS + U_n + M (for MOV) or G (for Gas Tube)

Performance Technical Specifications

	DRS12031	DRS23031	DRS27731	DRS34631
Electrical Characteristics				
System Voltage	120/208, 127/220 VAC	230/400, 220/380, 240/415 VAC	277/480, 254/440 VAC	346/600 VAC
Type of Network	TT-TN	TT-TN	TT-TN	TT-TN
Modes of Protection	L-N; N-PE	L-N; N-PE	L-N; N-PE	L-N; N-PE
Nominal Voltage	Un–120 V	Un–230 V	Un–277 V	Un–346 V
Rated Voltage (MCOV)	Uc–150 V	Uc–320 V	Uc–320 V	Uc–420 V
Nominal Discharge Current (8 x 20 µs)	1n–20 kA	1n–20 kA	1n–20 kA	1n–20 kA
Maximum Discharge Current	Imax–40 kA	Imax–40 kA	Imax–40 kA	Imax–40 kA
Voltage Protection Level	Up–1.2 kV	Up–1.6 kV	Up—1.6 kV	Up–2.0 kV
Response Time	TS–25 ns	TS–25 ns	TS–25 ns	TS–25 ns
Relative Humidity	95%	95%	95%	95%
Isolation Resistance	> 103 MV	> 103 MV	> 103 MV	> 103 MV

Test Standards	
EN 61643-11	Type 2
IEC61643- 1:1998-02	Class II
Mechanical Characteristics	
Dimensions (Length x Width x Height)	70.8mm x 90.5mm x 68mm
I/O Connections	By Screw Terminal: 4-25 mm^2 By Connection Bus
MOV Encapsulation Material	Epoxy Resin
Disconnection Indicator	Mechanical Indicator
Status Monitoring	Remote Alarm Terminals
Mounting	Symmetrical Rail (EN50022/DIN46277-3)
Operation Temperature Range	-40°C to +85°C
Degree of Protection	IP 20
Disconnection Device	Thermal Cutoff System
Housing Material	ABS/PA UL94V0

Edco EMC-240B

120/240 VAC Low Exposure AC Panel Protection

The Edco EMC-240B surge suppressor is designed to protect AC distribution panel circuits or 120V power supplies feeding sensitive electronic equipment. Electrically, the unit incorporates MOV and thermal fusing technology. The Edco EMC 240B is designed to be installed in parallel on standard single phase 120VAC (L,N,G) circuits.

Features

- Fast response time
- 40,000 Amps per phase capacity
- Failsafe and fused
- Operational status indicators
- UL 1449 Third Edition, Type 2 listed
- 5 year warranty

General Technical Specifications

Operating Voltage	120/240 VAC
VPR	L-N:600V, L-L:1,200V
Fault Current Rating	42 kAIC
UL Location	Type 2
I-Nominal (kA)	3kA
Operating Current	NA, Parallel
Total Peak Surge Current	80 kA (8 x 20 µs)

Operating Frequency	47-63 Hz
EMI Attenuation (100 kHz to 100 MHz)	> 40 dB
SPD Technology	Metal Oxide Varistors (MOVs)
Modes of Protection	Line-to-Line, Line-to-Neutral
Status Indication	Power On & MOVs functional
Connection Type	Wire Leads

Operating Temperature	-40°C to +85°C
Dimensions (Inches)	4.6H x 2.2W x 2.8L
Weight	13.5 oz
Certifications	ANSI/UL 1449 Third Edition Type 2, CUL

Edco™ FAS-120AC

120 VAC Medium Exposure AC Panel Protection

The Edco FAS-120AC surge suppressor is designed to protect AC panel circuits or 120V power supplies feeding sensitive electronic equipment.

Electrically the unit incorporates MOV and thermal fusing technology. This device is designed to be installed in parallel on standard single phase 120VAC (L,N,G) circuits.

Installation can be close-nipple up to a distribution panel/circuit or hardwired in parallel up to power supply input terminal screws. Be sure to dress leads as short as possible.

Features

- LED indicator
- Fast response time
- Thermal fuse
- L-G, L-N, & N-G protection
- Compact size
- Liquid tight conduit fitting
- 5 year warranty

General Technical Specifications

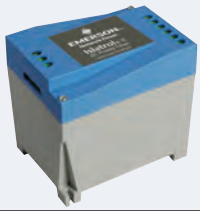
Operating Voltage	120 VAC
VPR	L-N:700V, L-G:700V, N-G:700V
UL Location	Type 2
I-Nominal	3 kA
Operating Current	NA, Parallel
Total Peak Surge Current	15.5 kA (8 x 20 µs)
Operating Frequency	47-63 Hz

EMI Attenuation (100 kHz to 100 MHz)	> 25 dB
SPD Technology	Metal Oxide Varistors (MOVs)
Modes of Protection	Line-to-Neutral, Line-to-Ground, Neutral-to-Ground
Status Indication	Power On & MOV Functional
Connection Type	Wire Leads
Operating Temperature	-40°C to +85°C

Dimensions (Inches)	2.5H x 1.5W x 3.0L
Weight	4.2 oz
Certifications	ANSI/UL 1449 Third Edition

Filtering/Line Conditioning — Product Selection Guide

- Find your application in the left column.
- Then look across for the appropriate product.

	PRODUCTS			
APPLICATIONS	**Islatrol™ IE Series**	**Islatrol™ IC+/LRIC+ Series**	**Islatrol™ SP-6TVN Series**	**Islatrol™ RM Series**
Programmable Logic Controllers				
Control Panels (AC Power)				
Various OEM Equipment				
Home Entertainment/Office				
AC Rack Equipment				

Islatrol™ IE Series

Active Tracking Filter™

The Islatrol™ IE is a series-connected DIN or flange mounted high-frequency noise filter and surge suppressor. Its ideal applications include critical industrial loads drawing up to 20 Amps of continuous current, while typical applications include any microprocessor-based products, including industrial PLCs, OEM applications, and motion control systems.

Features

- Multi-staged design, combining a unique hybrid clamping network with the active tracking technology of the Islatrol® family
- Surge current capacity — 45,000 Amps
- Transient protection in all modes: line to neutral, line to ground, and neutral to ground
- LED status indication and form C contact for remote indication
- DIN mountable enclosure
- ANSI/UL 1449 Third Edition Type 4, 1283, CUL recognized, CE
- 10 year warranty

Performance Technical Specifications

Model	L-N	L-G	N-G	L-L
IE-103 IE-105	400V	600V	600V	N/A
IE-110 IE-120	400V	600V	500V	N/A
IE-203 IE-205		1,000V		700V
IE-210 IE-220		900V		700V

Peak Surge Current Capability (8 x 20 µs)	
Line to Neutral	15,000 Amps
Line to Ground	15,000 Amps
Neutral to Ground	15,000 Amps
Total	45,000 Amps
Frequency Response (Forward-Reverse)	
Normal Mode	100 kHz to 50 MHz - 90 dB Min
Common Mode	5 MHz to 50 MHz - 60 dB Min
Typical Category A Ringwave (6 kV, 200 A, 100 kHz)	
Normal Mode/Common Mode	
3 Amp	1 V/300 V
5 Amp	0.7 V/292 V
10 Amp	0.7 V/300 V
20 Amp	0.7 V/300 V
Typical Category B Ringwave (6 kV, 500 A, 100 kHz)	
Normal Mode/Common Mode	
3 Amp	178 V/300 V
5 Amp	162 V/291 V
10 Amp	153 V/300 V
20 Amp	200 V/300 V

General Technical Specifications

MCOV	
120 Volt	150 VRMS
240 Volt	275 VRMS
Line Frequency	47 - 63 Hz
Connection	Terminal
Mounting Type	DIN/Flange
Weight	< 3 lbs
Response Time	
Normal Mode	< 0.5 ns
Common Mode	< 5 ns
Operating Temperature	-40°C to +45°C
	Derate Linearly to 60% at +70ºC
Operating Humidity	0% to 95%

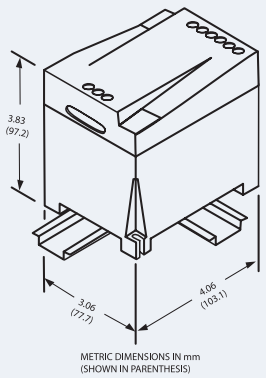
Ordering Information

Voltage*	Continuous Current	Model
120 V	3 Amps	IE-103
120 V	5 Amps	IE-105
120 V	10 Amps	IE-110
120 V	20 Amps	IE-120

Voltage*	Continuous Current	Model
240 V	3 Amps	IE-203
240 V	5 Amps	IE-205
240 V	10 Amps	IE-210
240 V	20 Amps	IE-220

** All voltage configurations are single phase - 2 wire + gnd.*

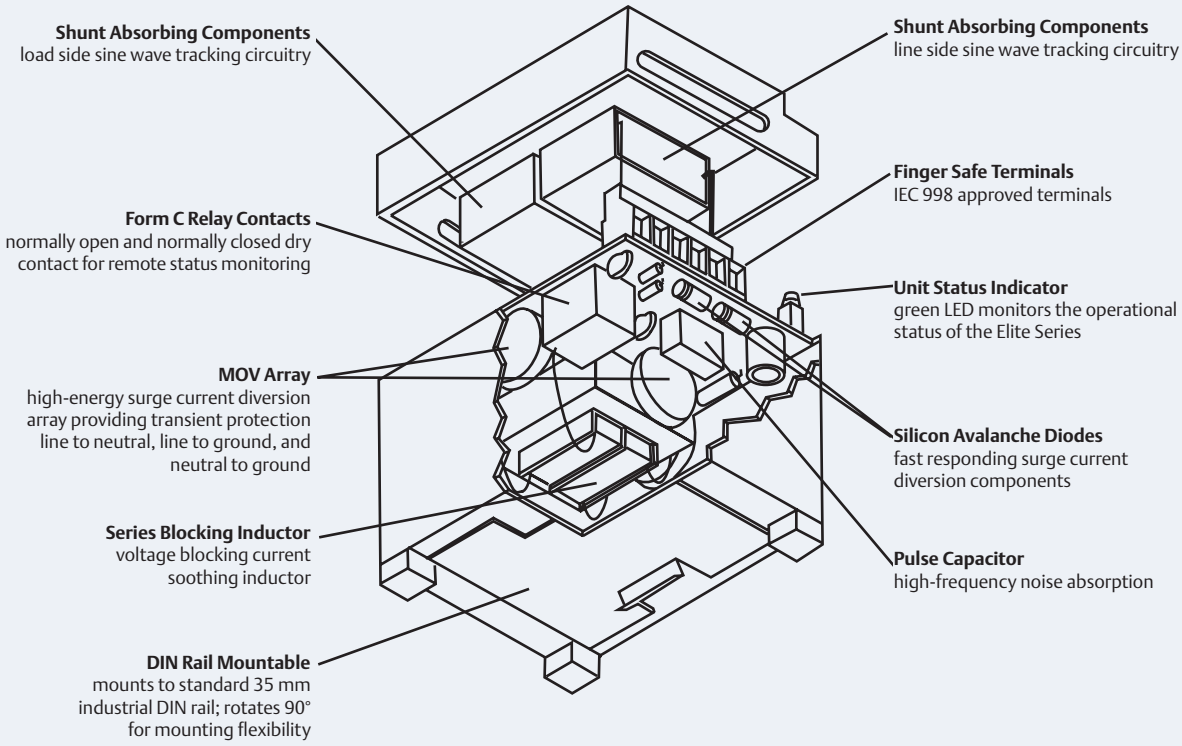
Dimensional Diagram



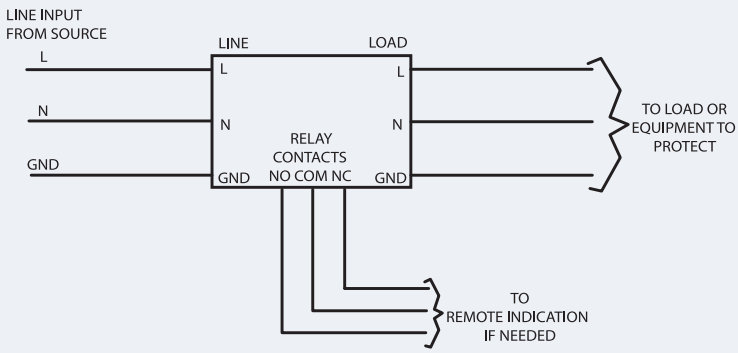
Islatrol™ IE Series

Active Tracking Filter™

System Design



Connection Diagram



Islatrol™ IC+/LRIC+ Series

Active Tracking Filter™

Series connected high-frequency noise filter with transient protection. Offers the flexibility of either receptacle/line cord connection or hard-wired connection to critical loads (up to 30 Amperes). Applications include industrial or office equipment, computers placed in harsh environments.

Features

- Typically reduces normal mode transients to +/-2 volts
- Surge current capacity — 45,000 Amps
- Transient protection in all modes: line to neutral, line to ground, and neutral to ground
- LED power indication
- UL 1283, CSA recognized
- 10 year warranty

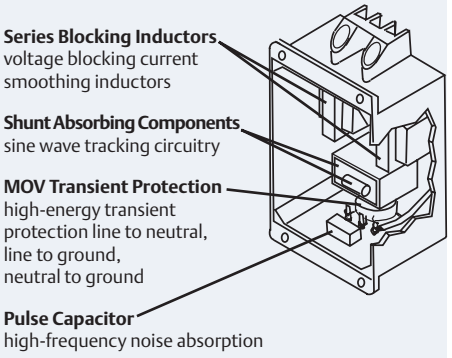
MCOV	
120 Volt	150 VRMS
240 Volt	275 VRMS
Line Frequency	47 - 63 Hz
Response Time	
Normal Mode	< 0.5 ns
Common Mode	< 5 ns
Operating Temperature	
	-40°C to +45°C at Full Load Derate Linearly to 60% at +70ºC
Operating Humidity	0% to 95%
Peak Surge Current Capability (8 x 20 µs)	
Line to Neutral	15,000 Amps
Line to Ground	15,000 Amps
Neutral to Ground	15,000 Amps
Load Surge Current Rating	
10 mSec	5 x Nominal
1 sec	3 x Nominal
10 sec	2 x Nominal
Packaging	
• High Impact Plastic Case • Vacuum Impregnated Magnetics • Epoxy Encapsulated	
Frequency Response (Forward-Reverse)	
Normal Mode	100 kHz to 50 MHz - 90 dB Min
Common Mode	5 MHz to 50 MHz - 60 dB Min

Typical Category A Ringwave (6 kV, 200 A, 100 kHz)		
Model	Normal	Common
IC+102 / LRIC+102	1.0 / 0.9	302 / 287
IC+105 / LRIC+105	0.7 / 0.8	292 / 307
IC+107 / LRIC+107	0.7 / 0.7	302 / 293
IC+115 / LRIC+115	0.7 / 0.7	304 / 306
IC+130 / IC+202	0.5 / 1.1	306 / 536
IC+205 / IC+207	1.5 / 0.8	628 / 616
IC+215 / IC+230	0.6 / 0.9	572 / 566

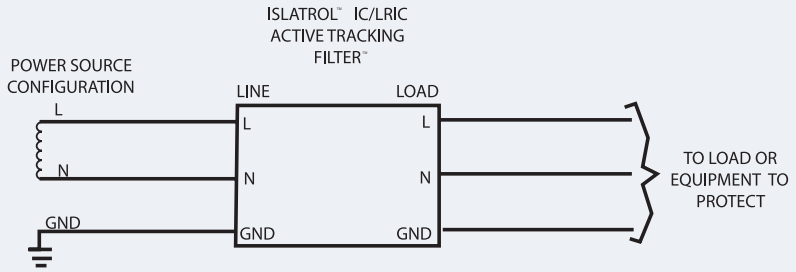
Typical Category B Ringwave (6 kV, 500 A, 100 kHz)		
Model	Normal	Common
IC+102 / LRIC+102	178 / 188	302 / 285
IC+105 / LRIC+105	162 / 191	291 / 300
IC+107 / LRIC+107	173 / 190	300 / 298
IC+115 / LRIC+115	153 / 149	307 / 309
IC+130 / IC+202	241 / 302	299 / 532
IC+205 / IC+207	378 / 336	594 / 596
IC+215 / IC+230	272 / 342	548 / 578

Note: All measurements in volts. IEEE test results with no AC applied. Normal mode—L1-N or L1-L2; Common mode—L-G, N-G or L1-G, L2-G.

System Design



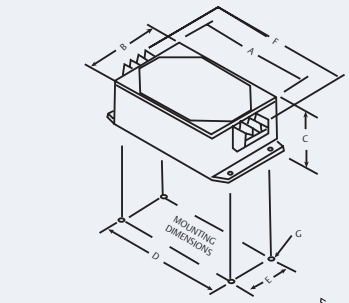
Connection Diagram

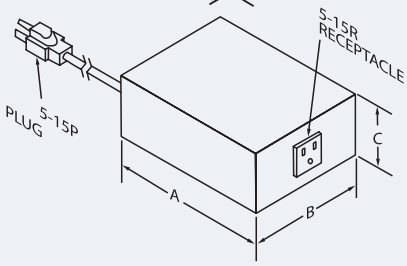


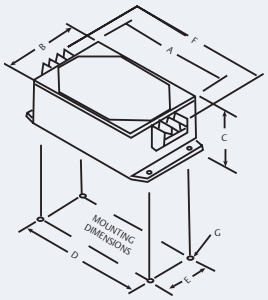
Islatrol™ IC+/LRIC+ Series

Active Tracking Filter™

Dimensional Diagram







Ordering Information

120 VAC Models with barrier strip at input and output/with wire leads at input and output (WL)

Model	Rated Output (Amps)	Case Dimensions (In) A x B x C	Mounting Flange Dimensions (In) D x E x F x G	Screw Size	Weight (lbs)
IC+102 / IC+102WL	2.5	4 x 2.88 x 1.81	4.38 x 2.12 x 5.31 x 0.19	#6	1.0
IC+105 / IC+105WL	5.0	4 x 2.88 x 1.81	4.38 x 2.12 x 5.31 x 0.19	#6	1.3
IC+107 / IC+107WL	7.5	4.75 x 4.75 x 2.35	5.25 x 3.50 x 6.25 x 0.19	#6	2.0
IC+115 / IC+115WL	15	6.25 x 4.75 x 2.35	6.75 x 3.50 x 7.75 x 0.19	#8	3.5
IC+130 / IC+130WL	30	7.75 x 4.75 x 2.35	8.25 x 3.50 x 9.00 x 0.19	#8	6.0

120 VAC Models with 5 foot line cord and single NEMA 5-15 receptacle

Model	Rated Output (Amps)	Case Dimensions (In) A x B x C	Mounting Flange Dimensions (In) D x E x F x G	Screw Size	Weight (lbs)
LRIC+102	2.5	4.5 x 3.0 x 1.88	N/A	N/A	1.3
LRIC+105	5.0	4.5 x 4.5 x 2.38	N/A	N/A	2.0
LRIC+107	7.5	6.0 x 4.5 x 2.38	N/A	N/A	2.3
LRIC+115	15	7.5 x 4.5 x 2.38	N/A	N/A	4.0

240 VAC Models with barrier strip at input and output/with wire leads at input and output (WL)

Model	Rated Output (Amps)	Case Dimensions (In) A x B x C	Mounting Flange Dimensions (In) D x E x F x G	Screw Size	Weight (lbs)
IC+202 / IC+202WL	2.5	4 x 2.88 x 1.81	4.38 x 2.12 x 5.31 x 0.19	#6	1.3
IC+205 / IC+205WL	5.0	4.75 x 4.75 x 2.35	5.25 x 3.50 x 6.25 x 0.19	#6	2.0
IC+207 / IC+207WL	7.5	6.25 x 4.75 x 2.35	6.75 x 3.50 x 7.75 x 0.19	#8	3.3
IC+215 / IC+215WL	15	7.75 x 4.75 x 2.35	8.25 x 3.50 x 9.00 x 0.19	#8	5.8
IC+230 / IC+230WL	30	7.75 x 4.75 x 2.35	8.25 x 3.50 x 9.00 x 0.19	#8	6.0

Islatrol™ Active Tracking Filters™ carry a 10 year warranty

Repositionable Outlets

Islatrol™ — SP-6TVN

Industrial Strength Surge Suppression (Series)

The Islatrol™ SP-6TVN plug-in unit is an Active Tracking Filter™ which plugs into a standard duplex receptacle. It features uniquely designed repositionable outlets for easy installation behind desks and other furniture. It protects sensitive home or office equipment from damaging power disturbances traveling through wiring to electrical outlets.

Features

- Plugs into standard 120 V, 15 Amp electrical outlet
- Total peak surge current capacity of 39,000 Amps
- Cables for telephone, video, and data connections
- Repositionable outlets rotate to accommodate available space
- Perfect for tight spaces, behind furniture and appliances
- Intelligent monitoring against improper wiring/grounding
- 60 dB maximum high frequency
- Operational indicator lamp
- 5 year limited warranty

General Technical Specifications

AC Power Protection	
VPR	L-N:330V, L-G:400V, N-G:400V
Nominal Operating Voltage	120 VAC, Single Phase
Operating Voltage Range	120 VAC +/- 10%
Operating Frequency Range	47 — 63 Hz
Rated Output (Amps)	15 Amperes
ANSI/IEEE C62.41 Category	Category A & B
Connection Type	(6) 5-15R Receptacles and 5-15P Plug
Phase Configuration	2 Wire + Gnd
Size	7.5 x 4.75 x 1.75 (Inches)
Enclosure	High Impact Plastic
Weight	2.0 lbs (0.9 kgs)
Modes Of Protection	L — N, L — G, N — G
Indication of Suppression Status	Status Indicator
Response Time	< .5 ns Normal Mode
Certifications	ANSI/UL 1449 Third Edition Type 3
Warranty	5 Year

Maximum Continuous Operating Voltage (MCOV)	
Line to Neutral	130 VAC

Peak Surge Current (8 x 20 ms)	
Line to Neutral	13,000 Amps
Line to Ground	13,000 Amps
Neutral to Ground	13,000 Amps
Total	39,000 Amps

ANSI/IEEE C62.41 Cat A Ringwave (6 kV, 200 A, 100 kHz)	
Normal Mode	265 V
Common Mode	290 V

ANSI/IEEE C62.41 Cat B Ringwave (6 kV, 500 A, 100 kHz)	
Normal Mode	275 V
Common Mode	290 V

Frequency Response	
Normal Mode	60 dB Maximum, forward/reverse, 100 kHz to 50 MHz
Common Mode	40 dB Maximum, forward/reverse, 5 MHz to 50 MHz

Low Voltage Protection

	Video 1 & 2	**Phone**	**Network**
Connection Type	Type "F"	Type RJ-11	Type RJ-45
Cables Provided	6' (2x) Type "F" 6' Ends	6' RJ-11 Male 6' Ends	6' RJ-45 Male Ends
Peak Surge Current	5 kA (8 x 20 µs)	2 kA (10 x 1000 µs)	3 kA (8 x 20 µs)
Capacitance	<12 pf	<50 pf	<70 pf
Protection Level	L-G	T-R, T-G, R-G	L-G (8 Lines)
Clamping Voltage (DC)	145 V	270-350 V	30 V
Attenuation	1 dB @ 2 Ghz	N/A	N/A

Model shown: RM-115-10 RM

Islatrol™ — RM Series

120 VAC Rackmount

Islatrol™ RM Series AC rackmount surge protector is ideal for protecting the power feeding valuable rack equipment. Status LEDs indicate the correct power is coming to the unit, whether the unit is properly grounded and whether the surge components are still intact. Units are available with a digital meter, mounted on the front of the unit, which will monitor the voltage, current and power of the protected equipment.

Features

- 40 kA surge protection
- 60 dB max noise filtering
- 15 & 20 A models available
- Power, ground and surge status indicators
- Digital meter
- Optional twist lock plug
- 1 year warranty

General Technical Specifications

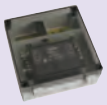
Model	Voltage	Amperage	Plug (NEMA)	Receptacles (NEMA)	Digital Meter	Locking Plug
RM-115-10RM	120 V	15 A	5-15P	5-15R	Yes	No
RM-120-10RM	120 V	20 A	5-20P	5-20R	Yes	No

Rackmount AC Power Protection	
ANSI/UL 1449 Third Edition	
VPR	L-N:400 V, L-G:500V, N-G:400V
Rated Voltage	120 V
Rated Current	15 A & 20 A
Peak Surge Current	20 kA/mode, 40 kA/phase
Response Time	<5 ns
EMI/RFI Filtering	60 dB Max
LED Indicators	Green-Power on Green-Ground OK Green-Surge Circuit OK
Digital Meter (Optional)	Voltage Amps, Watts, VA, Hz, PF, Kwh, and Clock
Input Power 15 A Models	SJT 14/3C Power Cord (9 ft) with NEMA 5-15P Plug
20A Models	SJT 12/3C Power Cord (9 ft) with NEMA 5-20P Plug NEMA L5-20P Plug- Optional

Output Receptacles 15A Models	Front- (2) NEMA 5-15R Back- (10) NEMA 5-15R
20A Models	Front- (2) NEMA 5-20R Back- (10) NEMA 5-20R
Thermal Protection	Thermal Protected MOVs
Overcurrent Protection	Circuit
Dimensions	1.75"H x 19"W x 3.8"D (1U)
Certifications	ANSI/UL 1449 Third Edition Type 3
Warranty	1 Year

Data/Signal Line Protection — Product Selection Guide

- Find your application in the left column.
- Then look across for the appropriate product.

	PRODUCTS								
APPLICATIONS	**Edco™ DRS Series**	**Edco™ PC642 Series**	**Edco™ PHC Series**	**Edco™ RJA/RJD Series**	**Edco™ RM-CAT6 Series**	**Edco™ SLAC Series**	**Edco™ SS64/65 Series**	**Edco™ CX Series**	**Edco™ RM-CX06 Series**
Transmitters									
Telephone									
Industrial Communications									
Signaling Circuits									
Programmable Logic Controllers (I/O) Circuits									
Control Panels (Low Voltage)									
Communication Rack Equipment									
Video Equipment									
Video Rack Equipment									
Water/ Wastewater Instrumentation									

Edco™ DRS (DC) Series

DIN Rail Protection

The Edco™ DRS (DC) Series is a DIN rail mountable, single-pair surge suppression module implementing three-stage hybrid technology. This module addresses over-voltage transients with gas tubes and silicon avalanche components. In addition, sneak currents are mitigated with resettable fuses (PTCs). The PTCs increase resistance several orders of magnitude when over-currents exceed safe levels. A normal state resumes when over-currents are removed. The ability to self-restore in this manner significantly increases suppressor performance and survivability.

The Edco™ DRS (DC) Series mounts onto a standard 35 mm industrial DIN rail. There are three "Field Side" and three "Electronics Side" screw terminals. One is reserved for a shield. Three electrically tied ground terminals are provided for grounding the Edco™ DRS Series unit to Building-Approved Ground. Shield is isolated from ground. For a 2-terminal version without a shield, order the Edco™ DRS-XXX-2.

Features

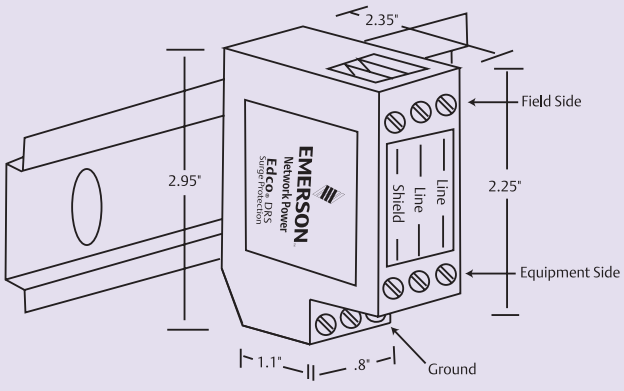
- Low-voltage data surge protection
- Three-stage hybrid protection
- Sneak/fault current protection with resettable fuses — PTCs
- Low profile packaging
- UL 497B listed
- Easy installation
- Fits standard 35 mm DIN rail
- Fast response time < 1 nanosecond
- 5 year warranty

General Technical Specifications

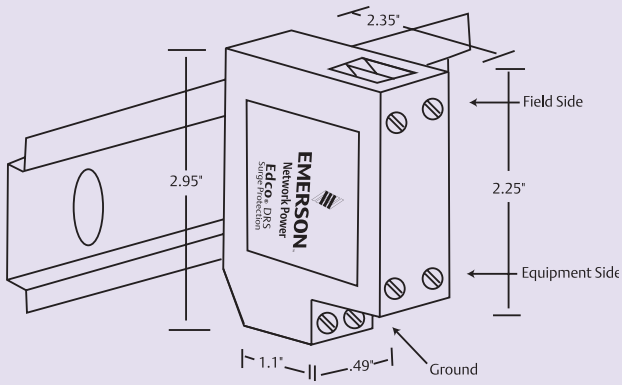
Part Number	Maximum Peak Signal Voltage	Nominal Breakdown Voltage	Surge 1p 10 x 1000 µs Current	Peak Current 8 x 20 µs Waveform	Typ Cap (pf)	Maximum Continuous Current (ma)	Nominal Series Resistance
DRS-036	30	36	>100	10 kA	1500	150	5 Ohms
**DRS-130	170	200	>10	8 kA	1500	5000	None

***Warning!!** *DRS-130RMS is for Discrete Signal Use Only. Do not use DRS-130RMS on 120 VAC Power Lines. This unit is a non-hybrid, MOV design, rated above 5 A operational current and can withstand greater than eight occurrences of a 10 kA 8 x 20 µs waveform, and greater than 1000 occurrences of a 200 A 10 x 1000 µs waveform.*

Dimensional Diagrams



DRS-XXX



DRS-XXX-2
(2 terminal version)

EDCO PCB1B-WKEY BASE SOLD SEPARATELY

Edco™ PC642 Series

Zone/Loop/Data

The Edco™ PC642 Series surge suppressor is a two-pair (four-wire) module implementing three-stage hybrid technology. This module addresses over-voltage transients with gas tubes and silicon avalanche components. In addition, sneak and fault currents are mitigated with resettable fuses (PTCs). The PTCs increase resistance several orders of magnitude when over-currents exceed safe levels. A normal state resumes when over-currents are removed. The ability to self-restore in this manner significantly increases suppressor performance and survivability.

The Edco™ PC642 card edge module is gold-plated, double-sided, and is designed to mate with the Edco™ PCB1B-WKEY gold-plated female terminal connector. When snapped together, the data circuits "pass thru" the protector in a serial fashion from the four "Field Side" terminals to the four "Electronics Side" terminals. Terminals 1 or 10 of the Edco™ PCB1B-WKEY must be attached to Building-Approved Ground per Edco™ Technical Bulletin # 2015.

Features

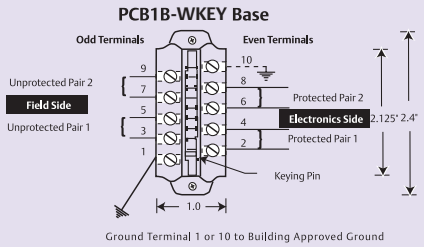
- Three-stage hybrid protection
- Sneak/fault current protection
- Resettable fusing — PTCs
- Low capacitance option
- Plug-in module
- Fast response time
- Requires Edco™ PCB1B-WKEY base
- PC642PTU (Pass Thru Unit) available for troubleshooting
- 5 year warranty

General Technical Specifications

Maximum Continuous Operating Voltage (MCOV)	5-250 VDC
Clamping Voltage	8-300 VDC
Operating Current	150mA
Peak Surge Current	10 kA (8 x 20 µs)
Frequency Range	0 to 20 MHz
Insertion Loss	< 0.1 dB at 20 MHz
SPD Technology	GDT, SAD, w/Series PTC
Connection Type	Terminal block w/compression lugs Terminals accept up to 10 AWG
Operating Temperature	-40°C to +85°C
Dimensions (Inches)	2H x 1W x 2.5L (PC642 + Mounting Base)
Weight	1 oz
Certifications	UL 497B

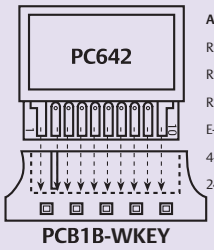
Caution: *The hybrid design of this product includes series resistance. Do not place this product in service on any signal line capable of supplying more than 150 milliamperes continuously.*

Terminal Assignments



DO NOT daisy chain grounds.
NOT intended for shield termination.
Install ground in accordance with all applicable codes.

Ordering Information



APPLICATION:	
RS485, RS422:	PC642C-008LC
RS423, Token Ring:	PC642C-008LC
RS232:	PC642C-036LC
E-NET, 10 BASE T:	PC642C-030LC-036LC
4–20ma:	PC642C-036LC
24 VAC Power	PC642C-043LC

How to Specify the Appropriate Model

PC642C- ☐☐☐☐

LC	Low Capacitance, Line to Line, Line to Ground	008, 036, 043 models only
D	Line to Line protection only	008, 043 models only
	Line to Ground	200 models only

	Max Operating Voltage	Clamping Voltage (1000V@1mA)
008	5 VDC	8 VDC
036	30 VDC	36 VDC
043	36 VDC	43 VDC
200	43-250 VDC	300 VDC

EDCO PCB1B-WKEY BASE SOLD SEPARATELY

Edco™ PHC Series

Two-Pair Signaling Circuit Protector (Modular)

The Edco™ PHC Series is designed to protect two pairs of wires specifically for alarm and security systems where operating currents can be as high as 5 Amps. Electrically, the Edco™ PHC Series is a rugged series hybrid implementing a staged complement of MOVs, copper wound inductors and Silicon Avalanche Diodes. This design reduces series resistance to 0.2 Ohms per pair. These products are intended to mate with an Edco PCB1B-WKEY gold-plated female terminal connector.

The Edco™ PHC modules plug into a base assembly (Edco™ PCB1B-WKEY). The base assembly can be mounted to any flat surface and should be located as close as practical to the protected equipment. Terminal 1 and/or terminal 10 should be connected to Building-Approved Ground with 12 or 10 gauge solid wire.

Features

- Three-stage protection
- Differential protection
- Common mode protection
- Plug-in module
- Automatic recovery
- Fast response time
- Continuous current up to 5 Amps
- UL 497B listed
- Requires Edco™ PCB1B-WKEY base
- PC642PTU (Pass Thru Unit) available for troubleshooting
- 5 year warranty

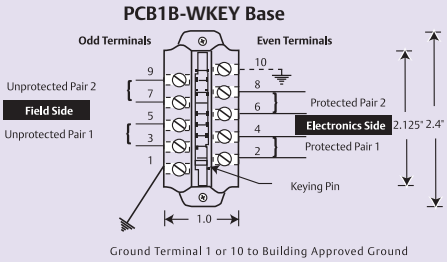
General Technical Specifications

Operating Voltage	36-70 VDC
Clamping Voltage	43-100 VDC
Operating Current	5 A
Peak Surge Current	10 kA (8 x 20 µs)
Frequency Range	0 to 10 MHz
Insertion Loss	< 0.1 dB at 10 MHz
SPD Technology	MOV, SAD, w/Series Inductor
Connection Type	Terminal block w/compression lugs Terminals accept up to 10 AWG
Operating Temperature	-40°C to +85°C
Dimensions (Inches)	3.7H x 1.75W x 2.375L (PHC + Mounting Base)
Weight	8 oz
Certifications	UL 497B

Applications Part Number

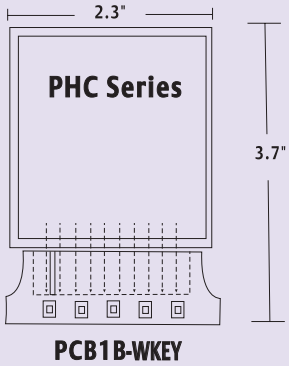
24V Horn, Strobe, Bell:	PHC-043 & PCB1B-WKEY
70V Speaker Lines:	PHC-SP70 & PCB1B-WKEY

Terminal Assignments



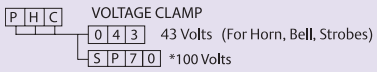
DO NOT daisy chain grounds. NOT intended for shield termination. Install ground in accordance with all applicable codes.

Dimensions



Ordering Information

How to Specify the Appropriate Model



Edco™ RJA-RJD Series

RJ-45 Telephone/Data

The Edco™ RJA and Edco™ RJD Series are four pair telephone/data line protectors that implement advanced two stage hybrid design. These units address over-voltage transients with silicon breakover devices, while sneak and fault currents are mitigated with PTC technology, which consists of solid state resettable fuses.

The Edco™ RJA and Edco™ RJD Series incorporate RJ-45 female jacks in and out. The Edco™ RJA voltage clamp is set for C.O. Trunks and Analog Telephone Extensions (with ring in voltage), and the Edco™ RJD voltage clamp is set for Digital Extensions (no ring in voltage).

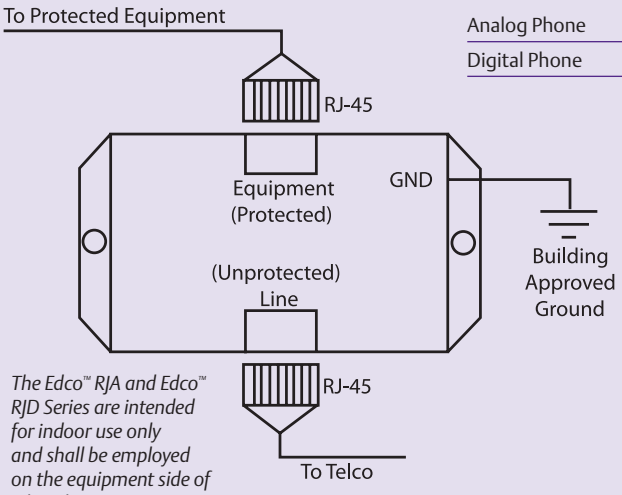
Features

- <1 nanosecond response time
- Solid-state resettable fuses-PTCs
- Silicon breakover technology
- Low capacitance
- Line-to-line protection
- Tip and ring to ground protection
- CAN/CSA C22.2, No. 226-92 Compliant
- UL 497A listed
- 4 pair protection
- 5 year warranty

General Technical Specifications

Operating Voltage	48, 220 VDC
Clamping Voltage	55, 280 VDC
Operating Current	0.15 A
Peak Surge Current	200 A (10 x 1000 µs)
Frequency Range	0 to 50 MHz
Insertion Loss	< 0.1 dB at 50 MHz
SPD Technology	Silicon Breakover Devices w/Series PTC
Connection Type	RJ-45 Jacks
Operating Temperature	-40°C to +85°C
Dimensions (Inches)	1.0H x 2.5W x 4.25L
Weight	3 oz
Certifications	UL 497A, CUL,

Installation



The Edco™ RJA and Edco™ RJD Series are intended for indoor use only and shall be employed on the equipment side of a listed primary telephone protector.

Ordering Information

Analog Phone	RJA-45
Digital Phone	RJD-45

Edco™ RM-CAT6-POE Series

CAT6-POE Channel Rackmount

The Edco™ RM-CAT6-POE Series is a multi-channel high-speed data line protector that utilizes a three-stage hybrid design technology. This unit addresses high-energy voltage transients that can damage expensive computer equipment. Ideal for network switches and hubs, the Edco™ RM-CAT6-POE Series is easily mounted in close proximity to the protected equipment.

Features

- Exceeds category 6 transmission values
- Compact 1U rack size
- Meets Power-Over-Ethernet (POE) requirements
- Low insertion loss
- Three stage hybrid
- 1 year warranty
- Replaceable surge modules
- Up to 48 channels available

General Technical Specifications

Operating Voltage	57 V
Clamping Voltage	68 V
Transmission Speed	10 Mbps, 100 Mbps, 1,000 Mbps
Operating Current	0.15 A
Connection Means	2-Port Series
SPD Technology	GDT, SAD, W/Series PTC

Modes of Protection	Signal High-Low, Signal High-Ground, Signal Low-Ground
Peak Surge Current	10 kA (8 x 20 µs)
Insertion Loss	<0.1 dB
VSWR	<1.2
Operating Humidity	0-95% Non-Condensing
Operating Temperature	-40°C to +85°C
Input Connection Type	RJ-45
Output Connection Type	RJ-45

Mounting	Rackmount
Enclosure Type	Painted Steel
Dimensions	1.75Hx19Wx6.3D
Weight	5.5 lbs
Warranty	1 Year

Ordering Information

RM-CAT6-8POE	8 Channels
RM-CAT6-16POE	16 Channels
RM-CAT6-24POE	24 Channels
RM-CAT6-48POE	48 Channels

Edco™ CX-HFN Series

High Frequency Coax Protector — N-Type

The Edco™ CX-HFN surge protectors are designed to protect sensitive electronic equipment from damage due to excessive voltage or currents generated by lightning or static build-up.

The Edco™ CX-HFN offers low signal loss at frequencies up to 4 gigahertz. The unit also has a replaceable protection cartridge (CX-RC). The Edco™ CX-HFN accommodates both bulkhead mount and stud mount. The input and output connections are interchangeable.

Features

- Low signal loss
- 5 year warranty

General Technical Specifications

Operating Voltage	130 VDC
Clamping Voltage (DC Spark Over Voltage)	150 VDC
Operating Current	1 A
Peak Surge Current	10 kA (8 x 20 µs)
Maximum Power	10 Watts
Impedence	50 Ohms
Frequency Range	0 to 4 GHz

Insertion Loss	< 0.3 dB to 0.5 dB 2 to 3 GHz
SPD Technology	Gas Discharge Tube (GDT)
Connection Type	Female N-Type
Operating Temperature	-30°C to +85°C
Dimensions (Inches)	1.25H x .875W x 2.5L
Weight	4 oz

Ordering Information

CX-HFN-FF (Female–Female)
CX-HFN-FM (Female-Male)

Edco™ SLAC Series

AC Power/Signal

The Edco™ SLAC Series suppressor is specifically designed to protect electronic instruments used by the water/wastewater industries. It combines hybrid AC power protection and signal line protection in a NEMA-4X polycarbonate case. The AC power suppressor can supply up to 1875 Watts and has a 15 Amp replaceable fuse to prevent overloading of the protective elements. A "Power ON" LED provides visual indication that power is applied to instruments. Signal line protection is accomplished by the Edco™ PC642 Series available in a variety of voltage clamps. Signal current can be monitored by reading the voltage across the 10 V, 1% resistors (TP1 & TP2 or TP3 & TP4). All leads going to the Edco™ SLAC board are terminated by quick disconnect or barrier block connectors to facilitate easy removal for service or replacement.

Features

- Optional twist lock plug lightning & surge suppression for AC power and low-voltage signal lines
- Series hybrid AC suppressor/filter
- Plug-in protection module
- 15 Amp replaceable fuse
- Test jacks for signal line monitoring
- "Power ON" indicator
- Optional stainless steel or fiberglass enclosure
- 5 year warranty
- ANSI/UL 1449 Third Edition

General Technical Specifications AC Power

Technology		Three-Stage Series Hybrid
Input Voltage		120 VAC 50/60 Hz
Output Current		15 Amps Max.
Response Time		<5 Nanoseconds
Maximum Surge Current (8x20 µs)		10 kA
Occurrences at 500 Amps		>50
Parameter	Normal Mode (L-N)	Common Mode (L-G) (N-G)
IEEE 587 CAT A Ring*	172 V	280 V
IEEE 587 CAT B Ring*	205 V	280 V
IEEE 587 CAT B Impulse*	330 V	360 V

**Measured from zero volts, 90° Phase angle*

General Technical Specifications Signal Line

Signal Protector Technology	GDT, PTC, SAD
AC Protector Technology	MOV, Fuse
Peak Surge Current	10 kA
Response Time	<1 Nanosecond
Voltage Clamp (customer selected)	8–200 Volts
Series Resistance	5 Ω (Typical)

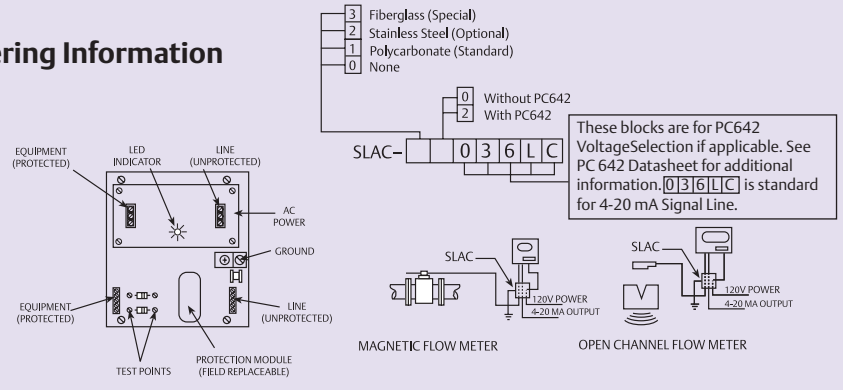
Standard Enclosure

Optional Enclosure

NEMA-4X
Glass-Filled Polycarbonate Base
Cover Molded in Clear Polycarbonate
Knockouts for 1/2" and 3/4" hubs
Bosses for 6 BZ x 3/8" Self-Tapping Screws
Maximum Protection—Total Insulation
Corrosion Resistant
Resists Temperature of 248°F
Flammability Rating UL94-5V
Nominal Outside dimensions (Inches) H= 6.89, W=6.89, D=2.95

Ordering Information

How to Specify the Appropriate Model



Edco™ SS64 & SS65 Series

Wastewater/Industrial Applications

The Edco™ SS64 and Edco™ SS65 Series suppressors are designed for the water and wastewater industry. These multi-stage hybrid suppressors address over-voltage transients with gas tube and silicon avalanche technology. In addition, sneak and fault currents are mitigated with PTC devices which consist of solid-state resettable fuses. The units are encapsulated in stainless steel pipe nipples making them suitable for use in severe environments. The Edco™ SS64 models protect a signal pair and the Edco™ SS65 models protect a signal pair plus the cable shield (drain wire).

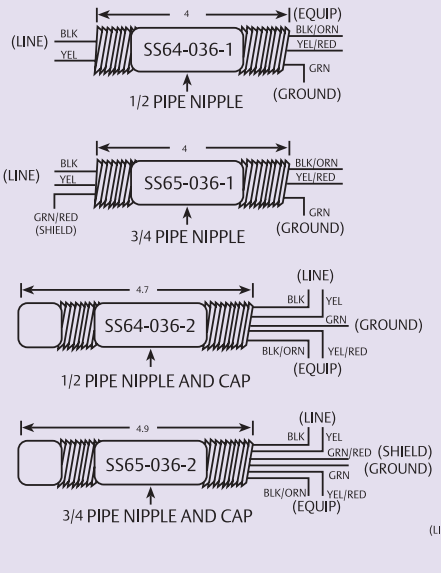
Features

- Transient protection for low-voltage signal lines
- Sneak/fault current protection
- Resettable fusing—PTCs
- Differential and common mode protection
- Automatic recovery
- Encapsulated in stainless steel pipe nipples
- Protection for one pair (Two wires & shield on SS65)
- 5 year warranty

General Technical Specifications

Response Time	< 1 Nanosecond
Maximum Signal Voltage	28 V Max
DC Clamping Level (L-G)	36 V ±l0%
DC Clamping Level (L-L)	72 V ±l0%
Maximum let-thru Voltage:	
Line-to-Ground (10x700 µs)	44 V @ 400 A
Maximum let-thru Voltage:	
Line-to-Line (10x700 µs)	90 V @ 400 A
Series Resistance (per conductor)	5 V (typical)
Capacitance:	
(Zero Volts Bias)	(L-L) 600 pf typical (L-G) 1200 pf typical
Number of Occurrences	400 @ 500 Amps (10x1000 µs)

Typical Applications



Caution: *The hybrid design of this product includes series resistance. Do not place this product in service on any signal lines capable of supplying more than 150 milliamperes continuously.*

Edco™ CX Series

CCTV & Data Applications/Coax

The Edco™ CX06-M & Edco™ CX06-MI Surge Protective Devices (SPDs) implement three-stage hybrid technology. The SPDs address over-voltage transients with a primary Gas Discharge Tube (GDT), and secondary Silicon Avalanche Diode (SAD) components. Over-current protection, e.g. sneak and fault currents, are mitigated with solid-state resettable fuses — PTCs. The Edco™ CX06-M & Edco™ CX06-MI SPDs are designed in accordance with NFPA 780 (2004 edition) requirements, with up to 20 kA of surge current capability. The Edco™ CX06-MI model has an isolated ground and is recommended for use at the camera end.

Features

- Sneak/fault current protection
- Low insertion loss
- Shielded case
- CX06-MI has an isolated ground
- 5 year warranty

General Technical Specifications

Operating Voltage	5 VDC
Clamping Voltage	6 VDC
Operating Current	0.15 A
Peak Surge Current	20 kA (8 x 20 µs)
Frequency Range	0 to 20MHz
Insertion Loss	< 0.1 dB at 20 MHz
SPD Technology	GDT, SAD, w/Series PTC

Connection Type	BNC, 50/75 Ohm
Operating Temperature	-40°C to +85°C
Dimensions (Inches)	M = 1.5H x 1W x 3.25L MI = 1.5H x 1W x 4L
Weight	M = 2.3 oz MI = 3 oz
Certifications	UL 497B

Ordering Information

Head End	CX06-M
Camera End	CX06-MI
Camera End	CX06-MI-SBL

Edco™ RM-CX06-16R

Channel Rackmount

The Edco™ RM-CX06-16R Surge Protective Device (SPD) is a 16 channel coax SPD implementing three-stage hybrid technology. The SPD addresses over-voltage transients with a primary Gas Discharge Tube (GDT), and secondary Silicon Avalanche Diode (SAD) components. Over-current protection, e.g., sneak and fault currents, are mitigated with new solid-state resettable fuses — PTCs. The Edco™ RM-CX06-16R SPD is designed in accordance with NFPA 780 (2004 edition) requirements, with up to 20 kA of surge current capability.

Features

- Sneak/fault current protection
- Low insertion loss
- Shielded case
- 16 channel
- 1 year warranty

General Technical Specifications

Operating Voltage	5 VDC
Clamping Voltage	6 VDC
Operating Current	0.15 A
Peak Surge Current	20 kA (8 x 20 µs)

Frequency Range	0 to 100 MHz
Insertion Loss	< 0.1 dB at 20 MHz
SPD Technology	GDT, SAD, w/Series PTC
Connection Type	BNC, 50/75 Ohm

Operating Temperature	-40°C to +85°C
Dimensions (Inches)	1.75H x 19W x 2.0D (1U)
Weight	3.2 lbs
Certifications	UL 497B

Edco™ CAT6-5POE Series

CAT6/CAT5 Power Over Ethernet

The Edco™ CAT6-5POE Series is designed to work on Category 5 Power-Over-Ethernet transmission lines as well as Category 6 applications. Ideal to protect expensive equipment against surges and transients entering a building on exposed transmission lines.

Features

- Exceeds CAT5 & 6 transmission values
- CAT5 POE compatible
- CAT6 compatible
- Applications up to 60 VDC @ 300 mA
- 1 year warranty

General Technical Specifications

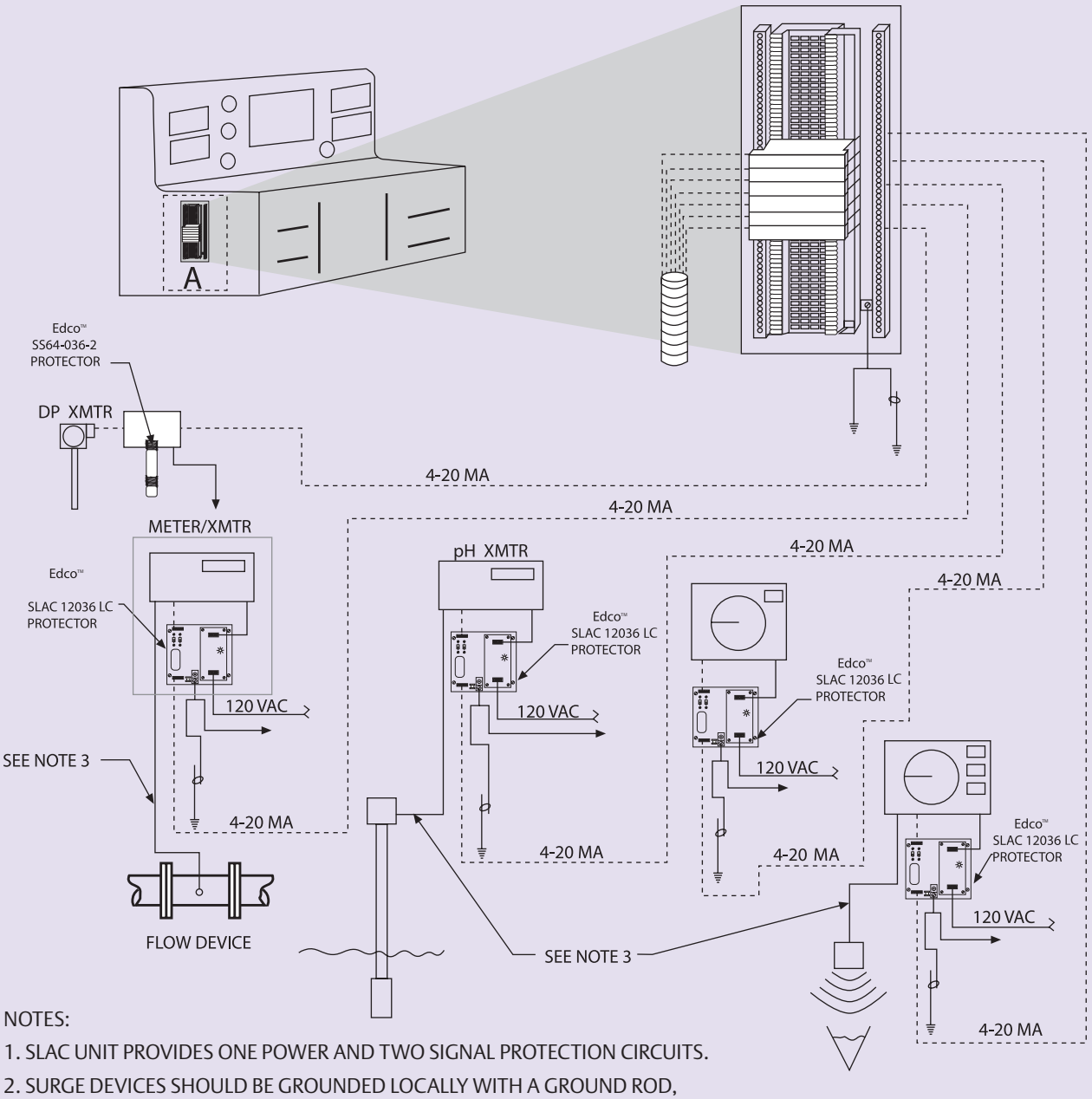
Operating Voltage	60 VDC
Clamping Voltage	65 VDC
Operating Current	300 mA
Peak Surge Current	60A (10 x 1000 µs)
Frequency Range	0 to 250 MHz
Insertion Loss	< 0.1 dB at 20 MHz
SPD Technology	Silicon Avalanche Diode (SAD)

Connection Type	RJ-45 Jacks
Operating Temperature	-40°C to +85°C
Dimensions (Inches)	0.8H x 1.0W x 2.3L
Weight	1 oz

Ordering Information

RJ-45 (Female-Female)	CAT6-5POE-FF

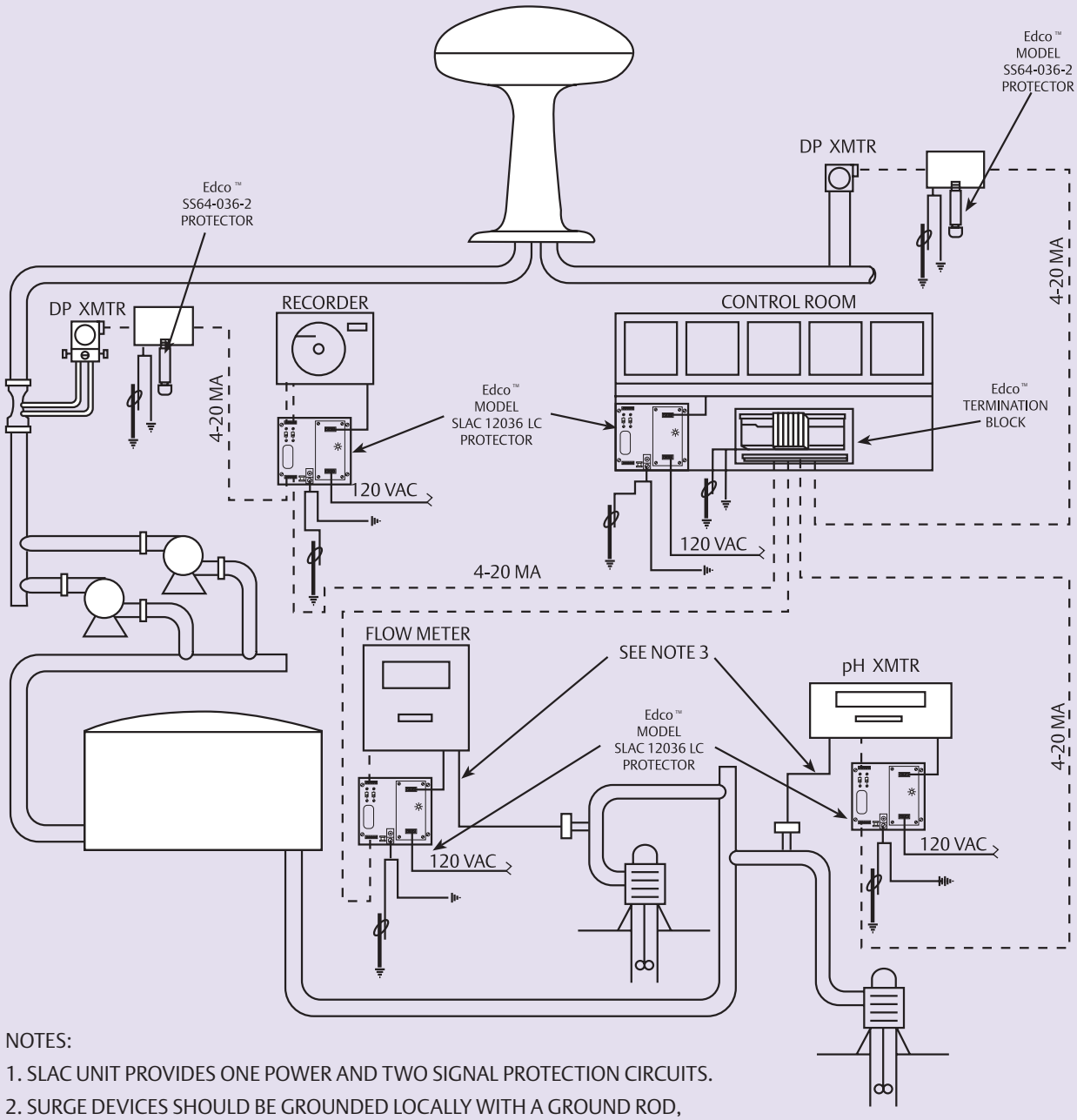
Technical Bulletins — High-Density Multiple Input Rack



NOTES:

1. SLAC UNIT PROVIDES ONE POWER AND TWO SIGNAL PROTECTION CIRCUITS.
2. SURGE DEVICES SHOULD BE GROUNDED LOCALLY WITH A GROUND ROD, AND ALSO AT THE MAIN PANEL ELECTRICAL GROUND.
3. CHECK WITH EMERSON NETWORK POWER SURGE PROTECTION, INC. TO DETERMINE IF OUTPUT CAN BE SURGE PROTECTED.

Technical Bulletins — Surge Protection for the Water Industry



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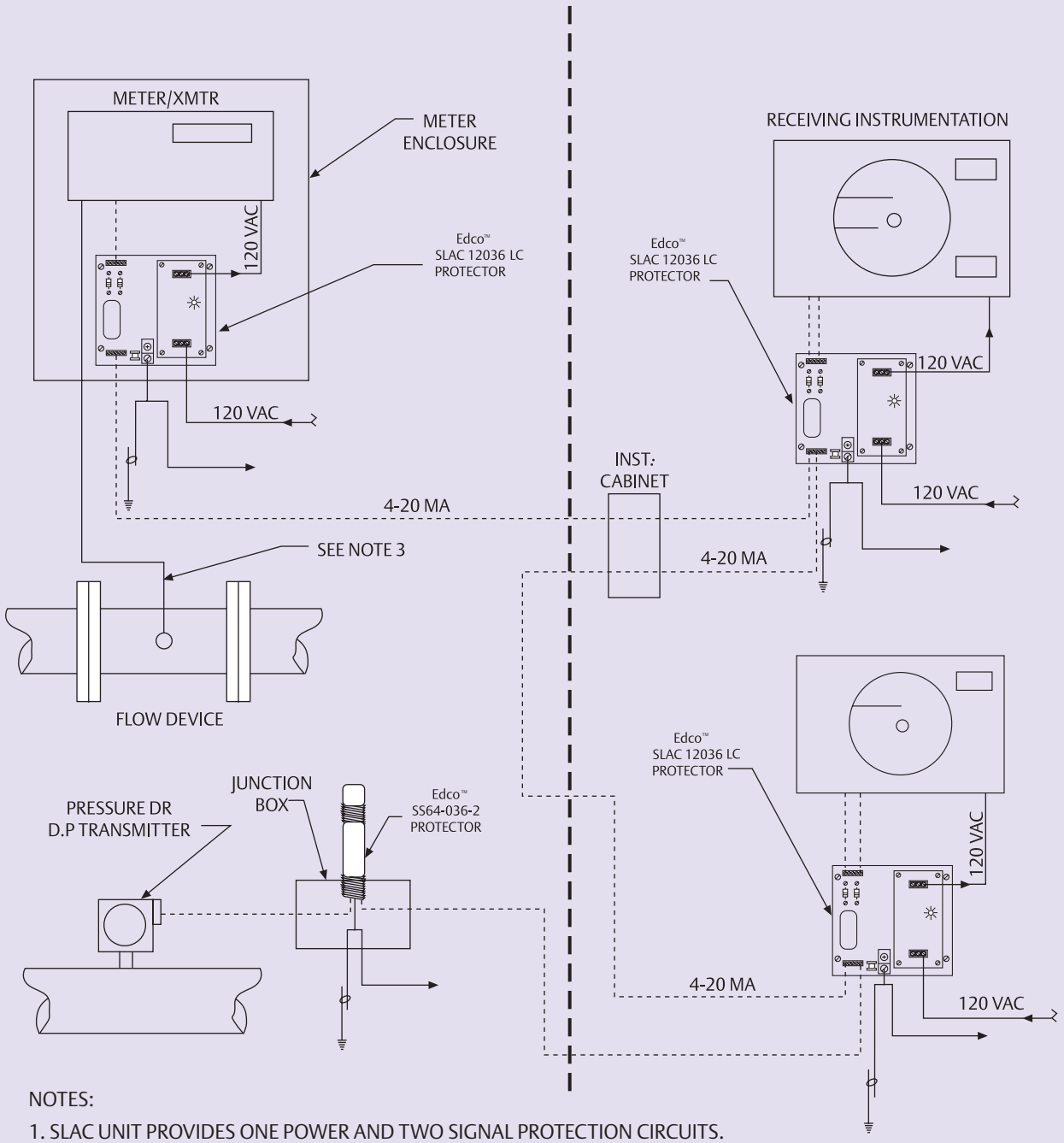
Technical Bulletins — Surge Protection for Power and Signal Lines



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Contact
Surge Protection
100 Emerson Parkway
Binghamton, NY 13905
T: 607-721-8840 (Outside U.S.)
T: 800-288-6169 (U.S. & Canada Only)
F: 607-722-8713
E: SurgeTech@Emerson.com

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EmersonNetworkPower. com/surge

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- Service

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