# LED Light / Machine protection SPD – Class 2



#### **General Information**

LT-C and LT-HC series Surge Protective Devices are for protection of indirect lightning. They are designed and tested to manage the transient overvoltages occur on the electrical networks. Especially the specially designed LT-C & LT-HC series SPDs are recommended for LED light protection, machine and equipment protection. The products are generally installed in the distribution or power unit of the equipment to be protected.

## Features

- Single/Multi Phase application with compact SPD module
- Low protection level : Up < 1800V and Fast response time ( <3nsec)
- Safe disconnector integrated with status indication
- Full mode protection
- Materials comply to RoHS

## **Characteristics**

	LT-HC12G801W	LT-C12G801W	LT-C14G801W	
SPD according to IEC61643-11		Class II		
Nominal AC voltage Un	220V	220V 220V		
Max. continuous operating a.c. voltage Uc	250V	275V	L-E: 275V L-L: 480V	
Nominal discharge current In	5kA	2.5kA	2.5kA	
Max. discharge current Imax	10kA	5kA	5kA	
Voltage protection level Up	L-N: < 1500 L-E: < 2500V	< 1500V	< 1800V	
Response time	3ns			
Application system	1 phase 220V			
Mode of protection	Common & Differential Mode			
Operating temperature range	−20°C ~ + 70°C			
Operating state/fault indication	Red/None Green/ Red			
For mounting on	M4 screw			
Cross-sectional area (Max.)	AWG16 x 250mm			
TOV characterisics	Safe mode failing			
Enclosure material	Polycarbonate Black UL94 V-0			
Location category	Indoor			
Degree of protection	IP20			
Certification	- UL1449 Ed.3 / CSA / TUV			
Standards comply with	IEC 61643-11 JIS C 5381-1			

#### Connection







# LED Light / Machine protection SPD - Class 2

# **Type Description**

L T – (H)C 🗆 🗆 G 💷 🗆 W Voltage

# Sparkover Voltage

First two digit : first two numbers of voltage 3rd digit : number of "0"s after the two digit

1 : 1 phase

2 : 250V 4 : 430V 5 : 500V **Phase & Wires** 

3:3 phase

# **Applications**

- Distribution boards, Control panels
- NC Lathe, Welding equipment
- General Industrial equipment and machines

# **Characteristics**

	LT-C32G801W	LT-C34G801W	LT-C35G102W		
SPD according to IEC61643-11		Class II			
Naminal AC valtage Lin	3øY: 250Vrms	3øY: 430Vrms	3øY: 500Vrms		
Nominal AC voltage on	3ø∆: 250Vrms	3ø∆: 250Vrms	3ø∆: 290Vrms		
Max continuous operating a c voltage Lle	3øY: 275Vrms	3øY: 480Vrms	3øY: 550Vrms		
Max. continuous operating a.c. voltage oc	3ø∆: 275Vrms	3ø∆: 280Vrms	3ø∆: 320Vrms		
Nominal discharge current In	2.5kA				
Max. discharge current Imax		5kA			
Voltage protection level Up	≤ 1500V ≤ 1800V		$\leq$ 2000V		
Response time	3 ns				
Application system	3 Phase				
Mode of protection	Common & Differential Mode				
Operating temperature range	-20°C ~ + 70°C				
Operating state/fault indication	Green/ Red				
For mounting on	M4 screw				
Cross-sectional area (Max.)	AWG16 x 250mm				
TOV characterisics	Safe mode failing				
Enclosure material	Polycarbonate Black UL94 V-0				
Location category	Indoor				
Degree of protection	IP20				
Certification	UL1449 Ed.3 / CSA / TUV				
Standards comply with	IEC 61643-11 JIS C 5381-1				

# **Circuit diagram**



# Surge Protector for High Speed LAN : OLA-1000POE, OARJ45-E100/4S



# **General Information**

LAN line Surge Protective Devices are specialized for application of LAN. They are designed and tested to manage the transient overvoltages invading the Local Area Network of data centers, important computer room and officies connected to the broadband network.

## **Features**

- 10BASE-T, 100BASE-T, 1000BASE-T
- PoE(IEEE802.3af), PoE+(IEEE802.3at))
- IEC protection category C2, D1
- C2: 8/20µs 5kA, D1: 10/350µs 2kA
- DIN Rail installation
- Materials comply to RoHS

#### **Characteristics**

	OLA-1000POE	OARJ45-E100/4S	
IEC 61643-21 Category	C2, D1	C2	
Max. Continuous operating d.c. voltage Uc	60V DC	8V DC	
Protection Level at Id Up at 8/20µs	< 500V @ 2kA	L-L : ≤15V L-E : ≤70V @ 5kV/2.5kA	
Rated Current	1000mA	500mA	
Impulse Durability	C2 : 8/20µs 5kA D1 : 10/350µs 2kA	C2 : 2.5kA D1 : -	
Insertion Loss	<3dB	<0.5dB	
Typical Capacitance (at 1MHz, 1Vrms)	L-E : ≤3pF L-L : ≤30pF	≤55pF @ 1kHz	
Series Resistance	≤0.5Ω	4.7Ω	
Overstressed fault Mode	mode 2	mode 2	
Operating Temperature Range	-20°C ~ + 70°C	-40°C ~ + 70°C	
Failure Indication	-		
Application	100BASE-T/1000BASE-T IEEE 802.3af: (PoE) IEEE 802.3sf: (PoE+) Alternative A, B	10BASE-T/100BASE-T	
Applicable wire size	UTP category 5E,6,6A UTP category STP category 5E STP category		
Connector	RJ45 8pin	RJ45 4pin	
Mounting	35mm DIN rails	with FCS-02 for 35mm DIN rails	
Enclosure Material	Polycarbonate Black UL94 V-0 Aluminium B		
Location category	Indoor		
Degree of Protection	IP2	0	
Standard comply with	IEC-61643-21 JIS C 5381-21 IEC-6164		

#### Connection







# **OTOWA Surge Protective Device**

# Coaxial cable SPDs SA-ITV series : CS series,



#### **General Information**

Otowa High Frequency Surge Protective Devices for coaxial cable are generally applicable for various signals lines. They are designed and tested to manage the transient overvoltages caused by lightning strikes on coaxial cables even sometimes connected directly to outside aerials. The coaxial product lines cover the TV and ITV system and others with C2 and D1 impulse durability. They are available with N, BNC, F connections.

## Features

- IEC category C2, D1 lightning durability
- Superior high frequency performance
- Protect surges from aerial antenna of Digital TV, BS, CS broadcasting line
- C2 : 8/20µs 5kA, D1 : 10/350µs 2kA
- SA-ITV series covers DC powered signal line

## **Product types**

SA-ITV5J SA-ITV24J	ITV System protection
CS-FPJ75-T230	TV line protection
CS-NPJ50-350 CS-NPJ50-T350 CS-NPJ50-600	N connection, wide bandwidth

#### **General info**

The coaxial SPDs can be fitted along the cable by connection type in which case they must be connected to earth using the terminal of the products

# Typical connection to protect equipment



# Coaxial cable SPDs SA-ITV series : CS series, OAST series

# Characteristics

	SA-ITV5J	SA-ITV24J	CS-FPJ75- T230	CS-NPJ50- 350	CSNPJ50- T350	CS-NPJ50- 600
SPD according to IEC61643-21 (category)	C2, D1	C2, D1	C2, D1	C2, D1	C2, D1	C2, D1
Connector type	BNC	BNC	F	Ν	Ν	Ν
Bandwidth	0–20 MHz	0–20 MHz	0–2.7 GHz	0–2 GHz	0–3 GHz	0–2 GHz
Impedance	75Ω	75Ω	75Ω	50Ω	50Ω	50Ω
Insertion loss	≤1.5dB	≤1.5dB	≤0.5dB	≤0.2dB	≤0.2dB	≤0.2dB
Max. Continuous operating voltage Uc	10V dc	30V dc	30V dc	250V dc	250V dc	430V dc
Voltage protection level at Id (8/20µs) Up	L-L: ≤40V, L-E: ≤500	80V at 5kA 0V at 5kA	≤800V at 5kA	≤1100V	≤1200V	≤1500V
Impulse Durability (8/20µs)	10kA	10kA	20kA	20kA	20kA	20kA
Impulse Durability (10/350µs)	5kA	5kA	2.5kA	2.5kA	2.5kA	2.5kA
Maximum allowable power	-	-	50W	100W	100W	100W
Overstressed fault Mode	mode 2	mode 2	mode 2	mode 2	mode 2	mode 2
Voltage Standing Wave Ratio (VSWR)	-	-	≤1.4	≤1.2	≤1.2	≤1.2
Operating Temperature Range	-20°C ~ + 50°C	-20°C ~ + 50°C	-20°C ~ + 80°C	-20°C ~ + 80°C	-20°C ~ + 80°C	-20°C ~ + 80°C
Location category	Indoor	Indoor	Indoor	Indoor	Indoor	Indoor
Degree of protection	IP20	IP20	IP20	IP20	IP20	IP20

# Dimensions

SA-ITV\_J





# Integrated Block Surge Arrester – Class 2



LT-122HT(S)

#### **General Information**

Class 2 Surge Protective Devices are for protection of indirect lightning. They are designed and tested to manage the transient overvoltages occur on the electrical networks. The Class 2 SPDs are recommended for locations of LPZ 2 and 3 by the cascaded protection concept of the standard. The products are generally installed in the distribution boards or other power connection points near the equipment to be protected.

#### **Features**

- Full mode (Common differential mode) protection with compact body
- Low protection level : Up < 1500V and Fast response time ( <25nsec)
- LED status indicator and signal contact
- Highly reliable disconnection system
- Materials comply to RoHS

# **Characteristics**

	LT-44T2HT(S)	LT-122HT(S)	
SPD according to IEC61643-11	Class II		
Nominal AC voltage Un	220/380V	220V	
Max. continuous operating a.c. voltage Uc	275/440V	275V	
Nominal discharge current In	20kA		
Max. discharge current Imax	40kA		
Voltage protection level Up	L-PE : ≤1500V N-PE : ≤1100V	L-E : ≤1500V N-E : ≤1100V	
Response time	L-L L-N : < 3ns L-E : < 100ns	L-N : < 3ns L-E : < 100ns	
Short-circuit withstand capability	25kA		
Operating temperature range	-20°C ~ + 50°C -20°C ~ + 50°C		
Operating state/fault indication	LED / off		
Cross-sectional area (Min.)	5.5mm <sup>2</sup> Stranded		
Cross-sectional area (Max.)	14mm <sup>2</sup> Stranded		
For mounting on	35mm DIN rails / bolt		
Enclosure material	Polycarbonate Black UL94 V-0		
Location category	Indoor		
Degree of protection	IP20		
Poles (terminals)	"(L1,L2,L3,N,PE)"	"(L,N,E)"	
Standards comply with	IEC 61643-11	JIS C 5381-1	

#### **Interior circuits**





#### Connection

# 1P2W (LT-122HT(S))

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0 0 0

SPD

## 3P4W (LT-44T2HT(S))

