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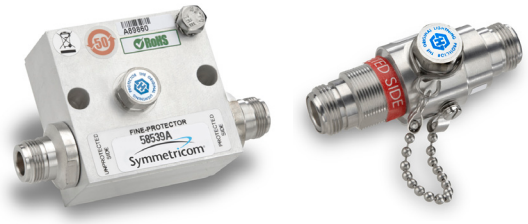
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Symmetricom

DATA SHEET

58538A and 58539A

Lightning Arrestors for GPS Systems



Key Features

58538A

- Small, waterproof unit for installation in a grounding panel where the antenna cable enters the building
- Protects receiving equipment only (must be used in conjunction with the 58539A)

58539A

- Larger package for installation in a grounding panel where the antenna cable enters the building, or close to the GPS antenna
- Protects antenna system components and receiving equipment

Key Benefits

58538A

- Reduces the energy of a nearby lightning strike when used in the communications band up to 2.5GHz
- Flexible configuration to suit your system requirements

58539A

- Reduces the energy of a nearby lightning strike when used in the GPS L1 frequency range
- Flexible configuration to suit your system requirements

Lightning can damage GPS system components and receiving equipment, even without a direct hit. This can result in costly repairs and critical interruption of service. The 58538A Lightning Arrestor and 58539A GPS L1 Lightning Arrestor are designed to work in conjunction with a lowresistance, low-inductance ground to protect your GPS receiver and elements of the antenna system from lightning discharges and field-induced electrical surges.

Symmetricom 58538A

The 58538A is a small, waterproof unit designed to operate in the communications band up to 2.5 GHz, and to take much of the energy out of a nearby lightning strike. This unit is typically installed in a grounding panel where the antenna cable enters the building. The 58538A will protect receiving equipment only, and must be used in conjunction with the 58539A.

Symmetricom 58539A

The 58539A is a larger package optimized for use in the GPS L1 frequency range. It will reduce the energy from a nearby lightning strike to a level where it will not harm either antenna system components or receiving equipment. The 58539A may be used alone or with the 58538A, as described in the following paragraphs.

Protect Antenna and Nearby Components Only

When placed close to the GPS antenna, the 58539A will protect the antenna from surge voltages and currents that can be induced in the antenna cable by lightning. Antenna system components, such as line amplifiers, will also be protected if located between the antenna and the arrestor. Protection of receiving equipment is discussed in the following paragraph.

Protect Receiving Equipment with a Recommended or Economical Configuration

In systems with short in-building cable lengths (<4 m), a single 58539A installed where the antenna cable enters the building is sufficient to protect downstream equipment. Systems with long in-building cables need one 58539A at the entrance to the building and one near the receiver. This diverts to ground any voltages induced in the in-building cable by the electromagnetic fields generated by the lightning strike. For a more cost-effective solution, the 58538A can replace the 58539A at the building entrance, as long as an 58539A is placed near the equipment.

Protect Both Antenna and Equipment

Your GPS system can be configured to protect the antenna and nearby components as well as receiving equipment. Such systems require one 58539A installed properly near the antenna. A second 58539A (or 58538A, as needed) is required at the cable entrance into the building to protect downstream equipment. Finally, a third 58539A should be placed near receiving equipment if the in-building cable run is greater than 4 meters.

58538A - 58539A

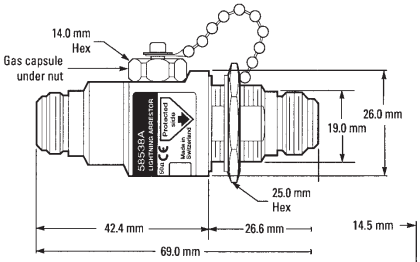
Low Maintenance Cost due to Replaceable Surge Arrestor Capsule

Both the 58538A and the 58539A have integrated gas-filled surge arrestor capsules. During lightning strikes, the capsules can direct a single 40 kA current impulse or multiple 20 kA impulses to ground without being destroyed. Periodic replacement of the capsules ensures that the arrestors are performing at their best. There are many other products with gas-capsule technology which do not have replaceable capsules. This makes periodic maintenance expensive because the whole arrestor must be exchanged. Replacement capsules are offered as 0960-1297.

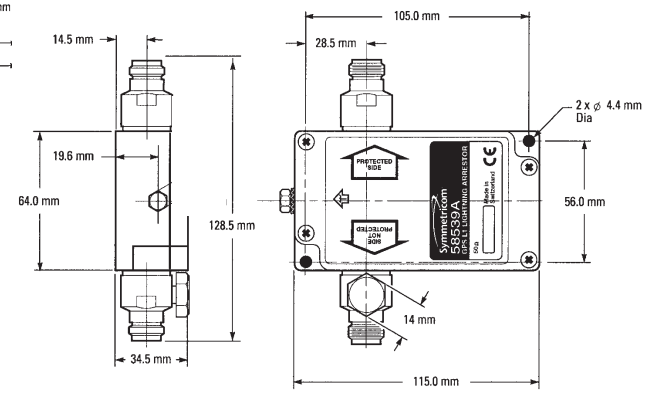
Durable and Easy to Install

The 58538A and 58539A are designed for easy installation in either indoor or outdoor locations. Both arrestors are waterproof and corrosion resistant, and both feature sturdy Type-N connectors. The 58538A can be mounted directly into a grounding panel. The 58539A has builtin mounting holes for mounting to a flat surface. 58539-60602 is provides a low-resistance, low-inductance, 300-mm grounding cable to the 58539A. Longer cables may not provide proper grounding due to increased resistance and inductance.

58538A Lightning Arrestor Dimensions



58539A GPS L1 Lightning Arrestor Dimensions



58538A Specifications

ELECTRICAL SPECIFICATIONS

Frequency range	DC –2.5 GHz
Impedance	50 Ω (typical)
VSWR	⩽ 1.2
Insertion loss	⩽ 0.2 dB (typical)
Surge pulse resistivity	25 kA (8/20 µs current pulse)
Residual pulse amplitude	< 900 V

PHYSICAL SPECIFICATIONS

Connectors	2 type-N jacks
Weight	136 g
Dimensions	68.3 mm L X 26 mm W
Panel thickness (Note 1)	10 mm

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	–40°C to +100°C
Waterproof	IP 66 (according to IEC 529)
Corrosion	Saltspray test according to MIL-STD-202, Method 101, Condition B

MATERIAL DATA

Body	
Material	Brass, annealed
Surface Treatment	Tri-Metallization Plating (See Note 2)
Soft copper washer	
Material	Tellurium copper
Surface Treatment	Nickel
Insulators	
Material	PTFE
Contact pins & sockets	
Material	Beryllium copper hardened, HV 350
Surface Treatment	Gold plated, MIL-G-45204 Type II, Class 2
Gasket	
Material	Silicone rubber

58539A Specifications

Frequency range	GPS L1 (1,565 to 1,586 MHz)
Impendance	50 Ω (typical)
VSWR	⩽ 1.2
Insertion loss	⩽ 0.5 dB (typical)
Surge pulse resistivity	25 kA (8/20 µs current pulse)
Residual pulse amplitude	< 40 V
Max. bypass voltage	15 V
Max. bypass current	1 A
DC bypass resistance	< 1 Ω

PHYSICAL SPECIFICATIONS

Connectors	2 type-N jacks
Weight	449 g
Dimensions	115 mm L X 128.5 mm W X 34.5 mm H
Grounding terminal	M6, recommended wire size: 16 mm2
Option 002:	16 mm2 stranded wire cable 300 mm length wire lugs at both cable ends

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	–40°C to +85°C
Waterproof	IP 66 (according to IEC 529)
Corrosion	Saltspray test according to MIL-STD-202, Method 101, Condition B

MATERIAL DATA

Housing	
Material	Aluminum Alloy
Surface Treatment	Chromatized, powder-coat RAL 7035 (gray-white)
Connector bodies, outer body	
Material	Brass, annealed
Surface Treatment	Tri-Metallization Plating (See Note 2)
Insulators	
Material	PTFE
Contact pins & sockets	
Material	Beryllium copper hardened, HV 350
Surface Treatment	Gold plated, MIL-G-45204 Type II, Class 2
Gaskets	
Material	Silicone rubber

Notes:

1. Panel thickness refers to the thickness of the bulkhead grounding panel, should the arrestor be secured to one.
2. The plating material Tri-Metallization Plating is a copper alloy composed of three components: copper, tin, and zinc. Tri-Metallization Plating complies with the requirements of MIL-C-3902 and CECC 22120. Withstands saltspray test IEC68-2-11.

Symmetricom

2300 Orchard Parkway
San Jose, California 95131-1017
tel: 408.433.0910 fax: 408.428.7896
www.symmetricom.com

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