CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

ISP10

Inline Surge Protection Device for Digital Sensors with A-Coded, Five-Pin M12 Connector

Overview

The ISP10 is a surge protection device for Modbus RTU sensors. The ISP10 provides protection that meets the IEC 61000-4-5, level 4 (4 kV, 2000 A) surge protection standard. It incorporates a T-junction that allows a sensor to be connected inline. The five-pin M12 connectors are configured to match the SunSentry system's trunk-line cable pinout, which is compatible with the RS485CBL 24 AWG RS-485 Cable with M12 Five-Pin Connector.

The ISP10 ties the sensor connector to earth ground via cable shielding. The trunk line cable shield passes through the T-junction untouched by the ISP10 and should be terminated separately at the main meteorological (met) enclosure.

Benefits and Features

- Inexpensive surge protection for any digital sensor
- Surge protection to IEC 61000-4-5, level 4 (4 kV, 2000 A) standard
- Sensor cable shield termination to ground while passing trunk-line shield to a single point
- Common shorting of signal lines to ground after a powerful surge event, enabling easy line troubleshooting and repair
- Easy installation or replacement

Detailed Description

The ISP10 uses a standard A-coded, five-pin M12 connector with shield termination via the coupling nut. The T-junction uses one plug M12 connector (for the incoming trunk line) and two socket M12 connectors (one for the continuing trunk line and one for the sensor port). Various pin adapters are available to change the pinouts of common sensors for compatibility with the ISP10 and the standard Campbell Scientific pinout.

One ISP10 can be connected directly to another ISP10 side by side without cabling when sensors are close to one another. Alternatively, the RS485CBL-Xm-M can be used to daisy-chain one sensor or ISP10 to another.

A hole in the middle of the ISP10 is used for grounding and mounting with the included #10 screw. Mount the ISP10 to an earth-grounded, conductive part for proper surge protection.

The ISP10 is shipped with the following items:

- #17 high-speed steel drill bit for pilot hole required for the self-tapping screw

- Self-tapping screw (#10-32 x 1 410SS hex washer head thread cutting screw)
- 5 cc packet protective oxide-inhibitor grease

Pinout Description for ISP10

M12 Pin Number	Function
1	V+
2	Signal
3	Signal Ground
4	V Ground
5	Signal
Coupling Nut	Cable Shield

Specifications

Operating Temperature Range	-40° to +85°C
Maximum DC Operating Voltage	60 Vdc
Maximum Load Current	4 A (@ 25°C)
Surge Protection	IEC 61000-4-5 Surge Standard (4 kV, 2000 A)
Maximum Line Current	4 A
Maximum Data Rate	115,200 baud
Connection to Network	M12, five-pin, A-coded plug and socket connectors
Cable Configuration	Five-wire cable with shield - 1 data channel (1 twisted pair + G for 100 ohm impedance) + power (pwr + gnd) + shield
Mounting and Grounding	Inline with cable, center mounting hole is connected to the earth ground. Self-tapping screw provided to secure the body to a grounded surface.
Enclosure Rating	IP67
Number of Surge Events	10 maximum (replacement frequency based upon frequency of lighting in the region)
Environmental Standards	RoHS 3 Directive 2015/863
Total Length	1.45 m (57.0 in.)
Cable Length to Sensor	0.95 m (37.0 in.)
Cable Length to Tee	0.45 m (17.0 in.)
Weight	152 g (5.4 oz)