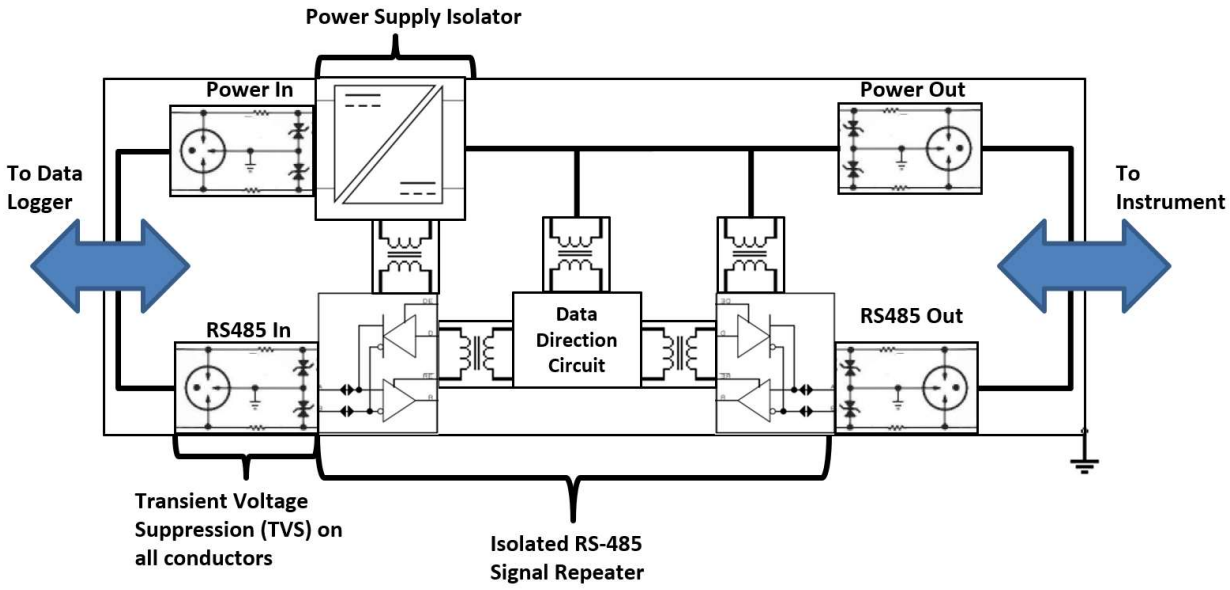
SRg-Arrest Pyranometer Surge Protection Device (SPD)

SRg-Arrest is a multi-purpose power and RS-485 galvanic isolator and powered repeater optimized for in-field pyranometer installations requiring long cable runs, or when RS-485 isolation and galvanic isolation for power and signal are required.

NOTE: SRg-Arrest is ONLY intended for use with digital (RS-485) capable pyranometers. Multiple pyranometers can share the same home-run cable through a single SRg-Arrest device, provided power capacity of the SPD is not exceeded. The cable shields **ARE NOT CONNECTED** internally with the SRg-Arrest SPD. It is recommended to ground the home-run cable shield wire at the DAS end of the system. For long (Case B), or extended (Case C), cable run applications, it is recommended to electrically isolate the pyranometer from the mounting structure with PID disc (sold separately).

Product Specifications	
Dimensions (inches)	6.5” (L) x 4.0” (W) x 1.13” (D), including mounting flanges
Cabling (inches)	Input Cable M12-M x 23.0”, Output Cable M12-F x 196.0”
Grounding Details	Attach included 2m #12 green earth conductor to solid earth
Voltage Rating	9-36 VDC Input, 24VDC +/-2% output
Power Rating	500 mW max quiescent power, 1A Max out @ 24 VDC
Enclosure	IP67 rated (potted UV resistant polycarbonate)
Supported Devices	Hukseflux SR300/200/100, SR30, SR15-D1, and SR05-D1A3 models
M12 Connector Pinout	Standard Hukseflux 5-Pin M12 connector pinout
Cable Attachment	M12 connector A-Coded, for rapid in-line install on existing systems
Surge Protection	Level 4 (4kV), Semiconductor, Bourns® TBU® Devices, and Arc Tubes
Power Isolation	3kV input to output
Communications	RS-485, Modbus™ up to 115200 bps, isolated repeater built-in



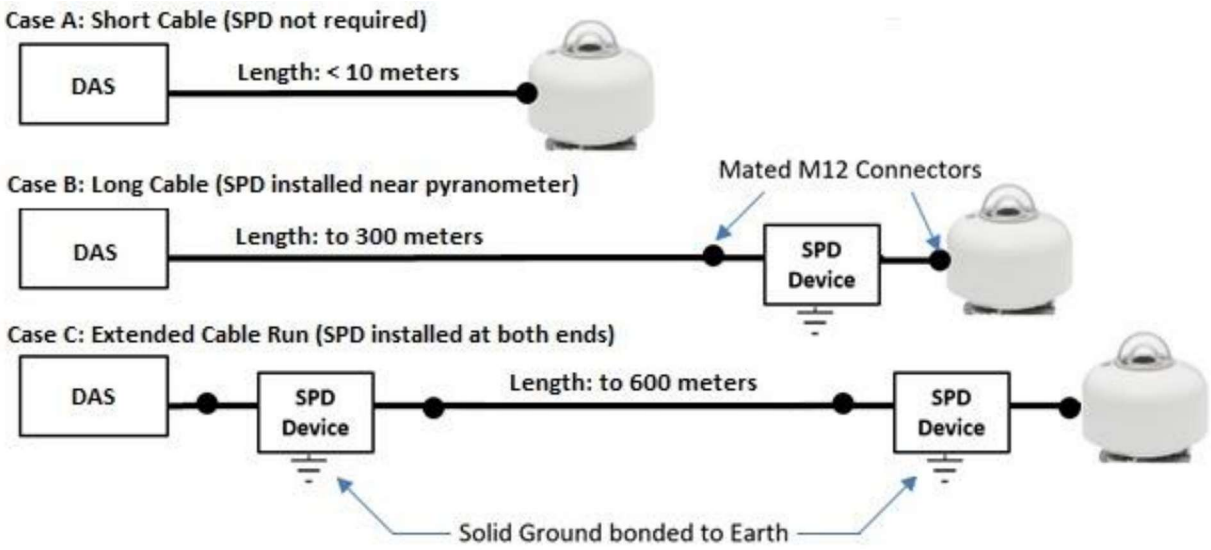
In the block diagram above, the “in” side (To Data Logger / DAS) features an isolated 9-36 VDC DC-to-DC converter which provides an isolated 24 VDC supply signal to the “out” side of the SPD, to the pyranometer. This includes over/under voltage protection and reverse polarity protection. All other components implement an isolated auto-direction detecting RS-485 repeater between both “in” and “out” sides of the SPD device.

PYRANOMETER / SPD INSTALLATION SCENARIOS:

Case A (Short Cable) represents the standard pyranometer install. A short signal cable, < 10-meters, originates within the DAS panel and terminates at the pyranometer M12 housing connector. An SPD is typically **NOT** required in this use case, however recommended if the local ground impedance is > 5 Ω, or if the site is subject to excessive surge activity.

Case B (Long Cable) represents the typical POA use case; long signal cable originating at the DAS and running out to a location in the field where the pyranometer is mounted. The SPD in this use case is attached at the end of the home run cable, with the “out” side of the SPD connected within 5-meters or less of the pyranometer. Installation in this use case breaks the ground loop potential caused by the field ground and DAS ground. The SPD “floats” above ground in both cases until a surge event activates the arc tubes within the SPD, completely isolating the pyranometer from the DAS system power.

Case C (Extended Cable Run) incorporates the use of two SRg-Arrest SPD units installed at the DAS and pyranometer ends of the system, recommended for extended cable run applications > 300 meters between the DAS and the pyranometer, up to a max distance of 600 meters between the SPD units.



Basic Installation:

(1) Unplug Home Run Cable from Pyranometer
(2) Plug Home Run Cable into SPD Input Side (M12-M Connector)
(3) Plug SPD Output Side (M12-F Connector) into Pyranometer.
(4) Bond the supplied 2m green grounding wire to a solid earth ground. **THIS GROUND LEAD MUST BE ATTACHED TO EARTH GROUND TO PROVIDE A GROUND PATH FOR INDUCED ENERGY DURING A TRANSIENT EVENT.**
(5) Verify that the pyranometer data is operational.
(6) Mount the SPD device ideally out of direct sun exposure.