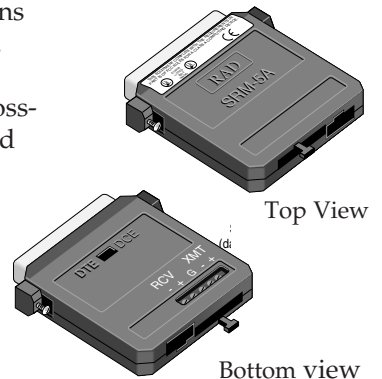


Short Haul RAD[®] Modems

Model SRM-5A

RAD's SRM-5A asynchronous Short Haul Modems are used for local communications between Campbell Scientific dataloggers and a computer with an RS-232 serial port. The RAD modem uses unconditioned 4-wire telephone lines for transmission; data rates up to 9,600 bps are possible. The low voltage transmission levels minimize cross-talk between adjacent lines within the same cable. Data are transmitted and received at a balanced impedance, providing excellent immunity to circuit noise.

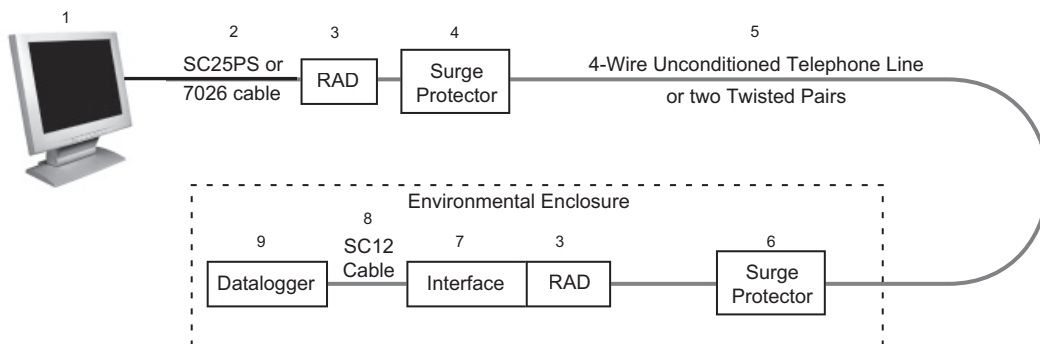
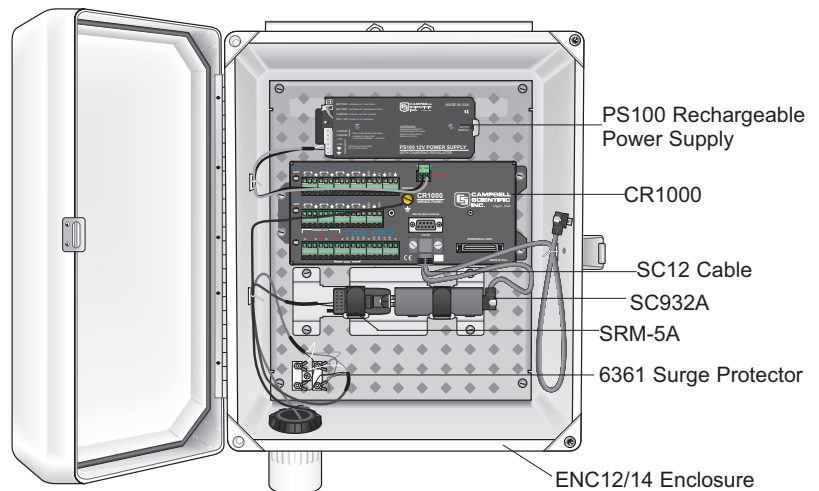
PC400 or LoggerNet Datalogger Support Software, installed on a computer, provides software support for data retrieval, datalogger program upload/download, and remote monitoring.



Features

- Asynchronous transmission up to 9,600 bps
- Transmission range up to 7.6 miles (12.2 km - see Table 1)
- No ac power required
- Transformer isolated
- Compact, lightweight
- Easy to install

Block diagram (below) shows hookup of PC to datalogger via RAD modems.



- 1) Computer running PC400 or LoggerNet Software.
- 2) SC25RS serial cable, which is a DB-25 male to DB-25 male and female. Computers with 9-pin serial ports require a 9-to-25 pin adapter (model 7026 or equivalent).
- 3) SRM-5A Short Haul modem, two required.
- 4) Joslyn 4-wire surge protector model 6536 for use with computer.
- 5) User-supplied 4-wire unconditioned telephone line (two twisted pairs). Direct burial, rodent-proof cable (part number F-02P22BPN) is available from Anixter, (847) 677-2600.
- 6) Joslyn 4-wire surge protector for use in environmental enclosure CSI p/n 6361.
- 7) SC932A DCE Interface. A 9-to-25 pin adapter is also required; the 15770 Rad Modem Interface Kit includes the SC932A, adapter, and a mounting bracket.
- 8) SC12 cable (provided with SC932A).
- 9) Campbell Scientific datalogger (not compatible with the CR200-series)

Specifications

Data Rates

Up to 9,600 bps

Transmission Mode

Asynchronous, full duplex, 4-wire operation

Transmission Range

Up to 7.6 miles (12.2 km) See Table 1

Line Interface

5-screw (4-wire and ground) connector block with cable strain relief inside plastic cover

Transmission Line

4-wire unconditioned telephone line (two twisted pairs)

Transmission Level

-6 dBm

Terminal Interface

EIA RS-232-C/CCITT V.24, female integral 25-pin connector

Environment

Temperature: 0° to 60°C (32° to 140°F)

Altitude: up to 10,000 ft (3000 m)

Humidity: up to 95% non-condensing

Physical

Length: 2.1 in (5.2 cm)

Width: 2.1 in (5.3 cm)

Height: 0.7 in (1.8 cm)

Weight: 1.3 oz (38 g)

Power Requirements

At computer: uses low power from the EIA RS-232-C/CCITT V.24 data and control signals.

At datalogger: combined current drain of SC932A and RAD modem is 2.2 mA quiescent; 10 to 15 mA active.

Protection: ac/dc over voltage connected via isolation transformers rated at 1,500 V RMS

Table 1 - Approximate Range, miles and km

Data Rate bps	19 Gauge (0.9 mm)		24 Gauge (0.5 mm)		26 Gauge (0.4 mm)	
	miles	km	miles	km	miles	km
9,600	6.2	10.0	2.8	4.5	2.0	3.3
1,200	7.6	12.2	3.4	5.5	2.5	4.0

Warranty/Repair

Application support and troubleshooting assistance for Campbell Scientific systems equipped with RAD modems are offered by Campbell Scientific. Repair and warranty service for RAD modems is extended by RAD Data Communications through their distributor, Pacific Data Com. If repair of a RAD modem becomes necessary, please call (213) 494-2121 for a returned merchandise authorization.

RAD is a registered trademark of RAD Data Communications, Inc. Rochelle Park, NJ



CAMPBELL SCIENTIFIC, INC.

815 West 1800 North • Logan, Utah 84321-1784 • (435) 753-2342 • Fax (435) 750-9540
Offices also located in: Australia • Brazil • Canada • England • France • Germany • South Africa • Spain

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