ORDERING

SRM-5AC/*/+
Asynchronous Short Range Modem

*   Specify DTE connector:
    F for female 25-pin connector
    M for male 25-pin connector

\+   Specify line connector:
    RJ-12 for RJ-12 jack and terminal block
    RJ-45 for RJ-45 jack and terminal block
    (Default is RJ-45 and terminal block)

SRM-5AC

RAD

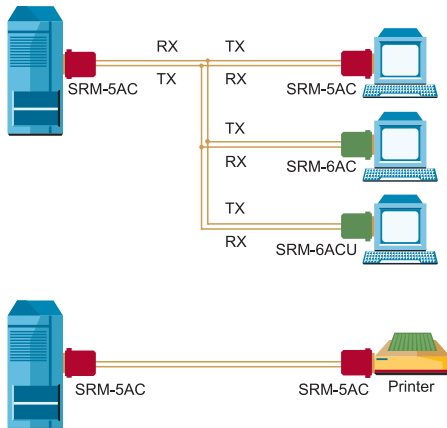*Asynchronous Short Range Modem*

Specifications are subject to change without prior notice.

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FEATURES

- Asynchronous, full or half duplex
- Data rates up to 19.2 kbps
- Point-to-point or multipoint
- Transmission range up to 6.8 km (4.1 miles)
- Internal filter for high noise immunity and for surge protection
- DCE/DTE mode
- Transformer isolated
- No AC power required
- LED indicator for carrier detection

APPLICATIONS

DESCRIPTION

- SRM-5AC, asynchronous short range modem, is used for local data distribution, connecting full or half duplex asynchronous DTEs to DTEs operating over unconditioned 4-wire lines (two twisted pairs). SRM-5AC ensures integrity of data transmission for distances up to 6.8 km (4.1 miles), depending on wire gauge (see *Table 1*).

Table 1. Approximate Range

Data Rate kbps	19 AWG (0.9 mm)		24 AWG (0.5 mm)		26 AWG (0.4 mm)	
	km	miles	km	miles	km	miles
1.2–19.2	6.8	4.1	3.0	1.9	2.3	1.4

- SRM-5AC is equipped with an internal filter for high noise immunity. The internal filter overcomes both radiated and conducted interference, and is recommended for noisy environments, such as industrial locations.

- SRM-5AC features a switch-selectable DTE/DCE interface, and a switch-selectable Printer Support Mode. It also includes a jumper for configuring the modem's carrier to be constantly ON or controlled by RTS (see *Figure 1*).

  - When set to DCE, the modem carrier can be set to constantly ON, or controlled by the RTS signal (Circuit 105). Operation with controlled carrier enables connection of SRM-5AC in a multipoint configuration. Controlled carrier can also be used in applications requiring passing of a control signal end-to-end (RTS on one SRM-5AC is passed to DCD on the other unit). SRM-5AC also includes a LED to indicate carrier detection.

  - When set to DTE, SRM-5AC operates as a DTE for connection to DCE (such as a multiplexer port), without the use of a cross cable.

  - When set to Printer Support Mode, SRM-5AC supports printer flow control by transmitting DTR on the printer side (busy signal) to CTS on the other side. As a result, CTS at the computer side will drop when the printer becomes busy.

- SRM-5AC is coupled to the line through isolation transformers, which, in conjunction with additional circuitry, protect against AC or DC overvoltages. As the transformers are rated at over 1,500V RMS, the modem is suitable for connection to local circuits provided by most national telephone administrations.

- Innovative circuitry allows SRM-5AC to operate without connection to the mains supply by using ultra-low power from the data and control signals. The modem will operate even if only TD (Circuit 103), RD (Circuit 104) and RTS (Circuit 105) are connected.

- The low transmit level minimizes cross talk onto adjacent circuits within the same cable. Data is transmitted and received using a balanced interface, ensuring high immunity to circuit noise.

- Two connectors are available for the line connection: a five-screw terminal block, and a modular socket for either RJ-12 or RJ-45 (see *Ordering*).

- SRM-5AC is fully compatible with SRM-6AC and SRM-6ACU. Additionally, it is compatible with CMN-C6AC and CMN-C6ACU cards for mounting in the CMN-16 compact modem rack.

SPECIFICATIONS

- **Data Rates**
  Up to 19.2 kbps

- **Transmission Format**
  Asynchronous

- **Transmission Line**
  4-wire unconditioned line (two twisted pairs)

- **Transmission Mode**
  Full or half duplex 4-wire operation

- **Transmission Controls**
  - **DSR** (Circuit 107), turns on immediately after DTE raises DTR (Circuit 108)
  - **DCD** turns on after recognizing the receive signal from the line
  - **CTS** (Circuit 106) turns on 40 msec (typical) after DTE raises RTS (Circuit 105).

- **Carrier Control**
  The carrier is user-selectable for either continuous operation or switched operation, controlled by the RTS (Circuit 105) indicator.

- **Transmission Level**
  0 dBm

- **Transmission Range**
  Up to 6.8 km / 4.1 miles (see *Table 1*)

- **DTE Interface**
  RS-232/V.24, integral 25-pin connector, male or female (see *Ordering*)

- **Line Interface**
  5-screw (4-wire and ground) terminal block, and RJ-12 or RJ-45 jack (see *Ordering*)

- **Power**
  For proper operation, at least two of the following DTE interface connector pins must be active:
  - DCE mode: 2, 4, 20, 24
  - DTE mode: 3, 6, 8

  The typical power drawn from DTE is 40 mW (at least +6V signal level).

- **Physical**
  Length: 69 mm / 2.7 in
  Height: 18 mm / 0.7 in
  Width: 53 mm / 2.1 in
  Weight: 26g   / 0.9 oz

- **Environment**
  Temperature: 0–50°C / 32–122°F
  Humidity: Up to 90%, non-condensing

Declaration of Conformity

Mfr. Name: RAD Data Communications Ltd.
Mfr. Address: 12 Hanechoshet St.
                    Tel Aviv 69710
                    Israel

declares that the product:

Product Name: SRM-5AC

Conforms to the following standard(s) or other normative document(s):

EMC: EN 55022 (1987): Limits and methods of measurement of radio disturbance characteristics of information technology equipment. EN 50082-1 (1992): Electromagnetic compatibility – Generic immunity standards for residential, commercial and light industry.

Supplementary Information:
The product herewith complies with the requirements of the EMC Directive 89/336/EEC. The product was tested in a typical configuration.

Tel Aviv, November 26th 1995

Haim Karshen
Quality Manager

European Contact: RAD Data Communications GmbH, Berner Strasse 77, 60437 Frankfurt am Main, Germany

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▮ INSTALLATION

Caution. *Be careful when setting jumpers or performing any actions within the product so that you do not bend or break any components.*

Install the SRM-5AC modem as follows:

1. Snap the SRM-5AC nameplate out of the plastic cover of the unit.

2. Configure the modem carrier to be constantly ON or controlled by RTS (see *Figure 1* and *Table 2*).

3. Select the SRM-5AC operation mode – DTE or DCE (see *Figure 1*, *Figure 2* and *Table 2*).

4. Configure the modem to operate normaly or in the Printer Support Mode (see *Figure 1* and *Table 2*).

Note: *The Normal/Printer switch in both modems should be set to the same position. When set to Printer operation, the DCE/DTE switch must be set to DCE operation.*
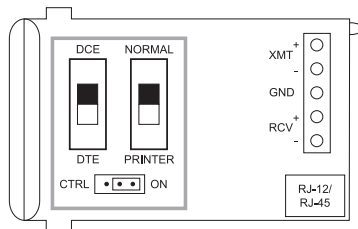

Figure 1. Switch/Jumper Locations

Table 2. Switch/Jumper Setings

| Switch/ Jumper	Function	Possible Settings	Factory Setting
DCE/DTE Switch	Selects the DTE or DCE operation mode	**DTE** – SRM-5AC operates as DTE	DCE
		DCE – SRM-5AC operates as DCE	
Normal/ Printer Switch	Controls the Printer Support Mode	**Normal** – Normal operation	Normal
		Printer – Printer Support mode	
CARR Jumper	Controls the carrier operation	**ON** – Constantly ON	ON
		CTRL – Controlled by RTS	
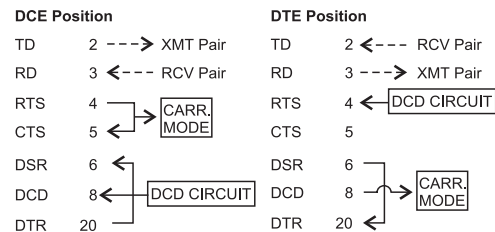
Figure 2. DCE/DTE Switch Configuration

5. Close the unit by inserting the two tabs of the SRM-5AC nameplate and pressing the plate down.

6. Connect the 4-wire line:
   - Terminal block connector:
     - Connect +XMT of the local SRM-5AC +RCV of the remote modem
     - Connect -XMT of the local SRM-5AC to -RCV of the remote mode.
     - Reverse the procedure for the second pair of wires.
   - RJ-12 or RJ-45 connector:

     Plug the cable into the RJ-12 or RJ-45 jack. Make sure that the correct polarity is maintained throughout the cabling system (see *Figure 3* and *Figure 4* for the pinouts).
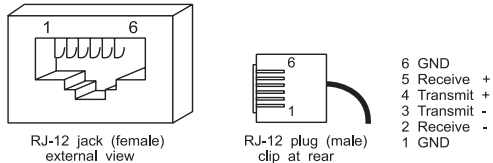
```
1        6
RJ-12 jack (female)        RJ-12 plug (male)        6 GND
   external view              clip at rear           5 Receive  +
                                                     4 Transmit +
                                                     3 Transmit -
                                                     2 Receive  -
                                                     1 GND
```

Figure 3. RJ-12 Connector Pinout

```
1          8
RJ-45 jack (female)        RJ-45 plug (male)        8 NC
   external view              clip at rear           7 NC
                                                     6 Receive  +
                                                     5 Transmit +
                                                     4 Transmit -
                                                     3 Receive  -
                                                     2 Ground
                                                     1 NC
```
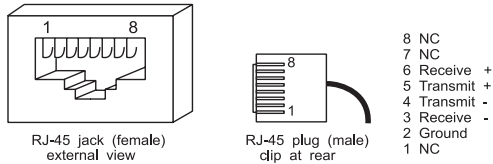
Figure 4. RJ-45 Connector Pinout

Note: When operating in a noisy environment, use shielded cables and connect one end of the cable shield to "Ground".

7. Plug the modem directly into the 25-pin connector of the DTE or computer port. Fasten the screws on each side of the connector.