ORDERING

FOM-5S/*/+

Synchronous Fiber Optic Modem
(Sub-miniature)

FOM-6S/*/#/+

Synchronous Fiber Optic Modem
(Miniature)

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

\# Specify:
W for metal enclosure (FOM-6S only)
Default is plastic enclosure

\+ Specify:
SMA for SMA type optical connectors
ST for ST type optical connectors
FC for
FC type optical connectors
SC for SC type optical connectors
(FOM-6S only)

RAD
data communications
http://www.rad.com

Corporate Headquarters
12 Hanechoshet Street
Tel Aviv 69710, Israel
Tel: (972) 3-6458181
Fax: (972) 3-6498250, 6474436
Email: rad@rad.co.il

U.S. Main Office
900 Corporate Drive
Mahwah, NJ 07430
Tel: (201) 529-1100
Fax: (201) 529-5777
Email: market@radusa.com

302-100-01/00

Specifications are subject to change without prior notice.

© 2000 RAD Data Communications Ltd.

FOM-5S, 6S

RAD

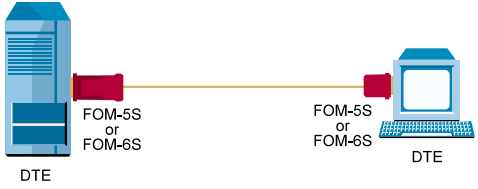
Synchronous Fiber Optic Modems

Order from: Cutter Networks
Ph:727-398-5252/Fax:727-397-9610
www.bestdatasource.com

FEATURES

- Synchronous transmission up to 19.2 kbps
- Transmission range up to 3 km (2 miles) regardless of data rate
- Full or half duplex
- Transfers one control signal end-to-end
- No external power required
- Plugs directly into the V.24/RS-232-C terminal connector
- Compact, lightweight, easy to install
- LED indicator for carrier detect

APPLICATION



A pair of FOM-5S or FOM-6S modems ensures secure data transmission over fiber optic cable at distances up to 3 km (2 miles).

DESCRIPTION

- The FOM-5S and FOM-6S, Fiber Optic Modems, are used for local data distribution, connecting full or half duplex synchronous computers and terminals. A pair of modems ensures integrity of data transmission over fiber optic cable at distances up to 3 km (2 miles).
- FOM-5S is a smaller version of FOM-6S, with all the same features. FOM-5S is 75 mm (3.0 in) by 18 mm (0.7 in); FOM-6S is 108 mm (4.3 in) by 24 mm (0.9 in). FOM-6S is normally provided in a plastic enclosure. It can optionally be supplied in a metal case to reduce radiated emission (see *Ordering*).
- A LED indicator indicates carrier detection on FOM-5S and FOM-6S models that are enclosed in a plastic case.
- Transmit timing can be provided by three alternative sources:
  - Internal oscillator
  - External clock from the DTE via pin 24
  - Loopback clock derived from the receive signal.
- The carrier can be strapped for either continuous or switched operation, controlled by the RTS signal for transfer of a control signal end-to-end.
- The delay between Request to Send and Clear to Send can be set for either 7 or 53 msec.
- Innovative circuitry allows FOM-5S and FOM-6S to operate without connection to the mains supply, by using ultra low power from the data and control signals.
- FOM-5S and FOM-6S incorporate all the advantages of a fiber optic system, providing:
  - Lower attenuation than with copper wire
  - EMI/RFI and noise immunity, saving the cost of expensive and heavy shielding and complex error checking routines
  - Almost absolute security and reduction in the cost of data encryption
  - Negligible power radiation from the fiber makes eavesdropping virtually impossible
  - Safety and electrical isolation: no spark hazard and no ground-loop noise problems.

Note: Attenuation is unrelated to frequency.

Order from: Cutter Networks Ph:727-398-5252/Fax:727-397-9610 www.bestdatasource.com

SPECIFICATIONS

- **Data Rate**
  Up to 19.2 kbps, selectable
- **Transmission Line**
  Duplex optical cable
- **Transmission Mode**
  Synchronous, full or half duplex
- **Transmission Controls**
  Carrier constantly on or controlled by RTS
- **Optical Output Levels**
  -28 dBm into 100/140 fiber
  -32 dBm into 62.2/125 fiber
  -36 dBm into 50/125 fiber
- **Receiver Sensitivity**
  -45 dBm
- **Operating Wavelength**
  850 nm
- **Operating Range**
  Maximum range is 3 km (2 miles) of the following continuous fibers:
  100/140, attenuation of 5 dBm/km
  62.5/125, attenuation of 4 dBm/km
  50/125, attenuation of 3 dBm/km
- **Terminal Interface**
  ITU V.24 / EIA RS-232-C integral 25-pin, male or female connector (see *Ordering*)
- **RTS/CTS Delay**
  7 or 53 msec
- **Fiber Optic Interface**
  Standard SMA type
  Optional ST or FC type (see *Ordering*)
- **Indicator (Plastic Case Products Only)**
  DATA LED (red) indicator lights when carrier is detected
- **Power**
  For proper operation, at least 3 of the following DTE interface connectors (DB-25) must be active: 2, 4, 20 and 24. The typical power consumption drawn from the DTE is 60 mW (at +6V signal level).
- **Physical**
  FOM-5S:
  Length: 75 mm / 3.0 in
  Width: 53 mm / 2.1 in
  Height: 18 mm / 0.7 in
  Weight: 48g / 1.7 oz

  FOM-6S:
  Length: 108 mm / 4.3 in
  Width: 53 mm / 2.1 in
  Height: 24 mm / 0.9 in
  Weight: 74g / 2.6 oz
- **Environment**
  Temperature: 0-50^{0}C / 32-122^{0}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: FOM-5S, FOM-6S

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

EMC: EN 55022 (1994): 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 and the Low Voltage Directive 73/23/EEC. The product was tested in a typical configuration.

Tel Aviv, June 9th, 1999

Haim Karshen
VP Quality

European Contact: RAD Data Communications GmbH, Lyoner Strasse 14, 60528 Frankfurt am Main, Germany

Order from: Cutter Networks Ph:727-398-5252/Fax:727-397-9610 www.bestdatasource.com

INSTALLATION

Caution. *This is a delicate instrument. Be careful when setting jumpers or performing any actions within the product so that you do not break or shake any components.*

Installation of FOM-5S and FOM-6S is straightforward and simple:

1. To access the switches:
   FOM-5S:
   Insert a slim screwdriver under the nameplate and ease the nameplate off.

   Caution. *Do not open the case of FOM-5S as this may cause damage.*

   FOM-6S:
   Open the unit by pressing the places marked on the sides.

2. Strap the modem according to the strapping diagram (see *Figure 1* or *Figure 2*), and the strap-selection table (see *Table 1*).

   Explanations of the switches are also given on the internal side of the nameplate for FOM-5S, and on the printed circuit board for FOM-6S.

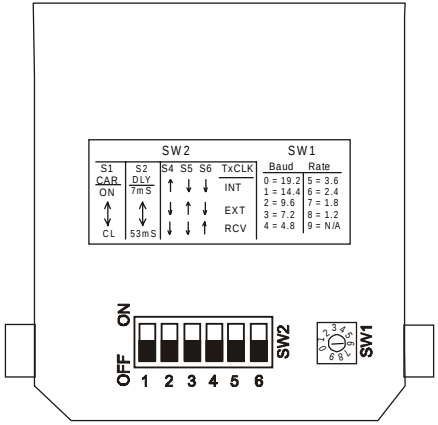


Figure 1. FOM-5S Strapping Diagram

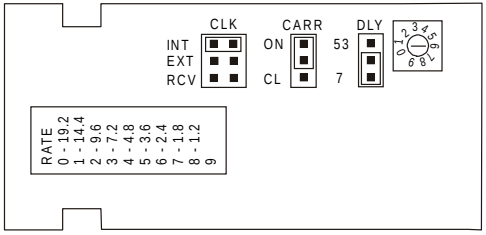


Figure 2. FOM-6S Strapping Diagram

Table 1. Strap/Switch Selection

Strap Identify	Function	Position	Factory Setting
Baud Rate Switch (SW1)	Selects rate of data transmission	0 - 19.2	
		1 - 14.4	
		2 - 9.6	9.6
		3 - 7.2	
		4 - 4.8	
		5 - 3.6	
		6 - 2.4	
		7 - 1.8	
		8 - 1.2	
		9 - N\A	
Clock	Selects timing source	Internal (IN)	Internal
		External (EX)	
		Receive Clock (RC)	
Carrier	Selects Carrier constantly on or controlled by RTS	On (ON)	ON
		Controlled (CL)	
RTS/CTS Delay	Selects RTS/CTS delay	7 msec	7 msec
		53 msec	

Order from: Cutter Networks Ph:727-398-5252/Fax:727-397-9610 www.bestdatasource.com

3. To close the unit:

   FOM-5S:
   Snap the nameplate back into place.

   FOM-6S:
   Press the two halves of the unit together.

4. Plug the modem directly into the 25-pin connector of the terminal or computer port and secure with the screws on each side of the modem connector.

5. Remove the plastic dust caps from the fiber optic connectors and connect the cable to the unit.
   Observe the following directions:

   - TX on the local FOM-5S and 6S should be connected to RX on the remote FOM-5S and 6S;
   - RX on the local FOM-5S and 6S should be connected to TX on the remote FOM-5S and 6S.

The modems are now ready for operation. The red DATA LED lights when transmission occurs.

Order from: Cutter Networks Ph:727-398-5252/Fax:727-397-9610 www.bestdatasource.com