

Data Sheet

# FOM-5A

Asynchronous Fiber Optic Modem



data communications  
The Access Company

- Asynchronous transmission of up to 19.2 kbps
- Transmission range of up to 16 km (9.6 miles), regardless of data rate
- Full- or half-duplex operation
- No external power required
- Compact, lightweight, easy to install



Figure 1. FOM-5A Application

FOM-5A is an asynchronous fiber optic modem that is used for local data distribution to connect full- or half-duplex async computers and terminals. A pair of modems ensures the integrity of data transmission over fiber optic cable at distances of up to 16 km (9.6 miles).

FOM-5A is a sub-miniature modem, measuring just 78 mm (3.1 in) by 18 mm (0.7 in) in size.

The unit is supplied in a plastic case.

FOM-5A features a switch-selectable DTE/DCE option. This allows operation as DTE for connection to a DCE, such as a multiplexer port, eliminating the need for a cross-cable.

To transfer a control signal end-to-end, the carrier can be set for either continuous or switched operation and controlled by the RTS signal. A LED indicator lights whenever data transmission takes place.

The delay between RTS and CTS can be set to 2 or 15 msec.

FOM-5A operates by using ultra-low power from the data and control signals, without connection to the mains supply.

FOM-5A provides all the advantages of a fiber optic system:

- Lower attenuation than copper wire
- Immunity to EMI/RFI and noise eliminates the cost of expensive and heavy shielding and complex error checking routines
- High data security reduces costs 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 not related to frequency.*

## Specifications

### Data Rate

Up to 19.2 kbps

### Pulse Width Distortion

Less than 25%

### Transmission Line

Duplex optical cable

### Transmission Mode

Asynchronous, full- or half-duplex

### Transmission Controls

Carrier constantly ON or controlled by RTS

### Fiber Optic Interface

See *Table 1*

Table 1. Fiber Optic Characteristics

Wave-length	Fiber Type	Connectors	Typical Output Power	Receiver Sensitivity	Max Range
[mm]	[ $\mu$ m]		[dBm]	[dBm]	km] [miles]
850	62.5/125	ST or FC	-26 to -28	-45	4 2.4
1300	9/125	SC	-29 to -30	-41	16 9.6

**Note:** The receiver does not work at distances of less than 0.5 km (0.3 miles). In zero-distance operation a minimal attenuation of 3 dB should be introduced.

**Terminal Interface**

V.24/RS-232 D-type 25-pin, male or female connector (see *Ordering*)

**RTS/CTS Delay**

2 or 15 msec

**Power**

For proper operation, the following pins of the DTE connector (DB-25) must be active:

DCE mode: 2, 4 and 20

DTE mode: 3, 6 and 8

Typical power consumption drawn from these pins is 50 mW (at +6V signal level).

If power from these pins is insufficient, use an external power supply such as P/S-AC/9/500, together with RAD power supply adapter (PSA), to apply power to pin 9 or pin 20.

**Physical**

Length: 78 mm (3.1 in)

Width: 53 mm (2.1 in)

Height: 18 mm (0.7 in)

Weight: 54g (1.9 oz)

**Environment**

Temperature: 0° to 50°C (32° to 122°F)

Humidity: Up to 90%, non-condensing

## Installation

**Caution.** *When setting the jumpers or performing any actions inside the open product, be careful not to bend or break any components.*

To install FOM-5A, do the following:

1. Access the switches: insert a slim screwdriver under the FOM-5A nameplate and ease the nameplate off.
2. Configure the modem according to *Figure 2* and *Table 2*. Explanations of the switch settings appear on the printed circuit board.
3. FOM-5A is factory-set for DCE.  
For DTE operation, move the switch to the DTE position. See *Figure 3* for DCE/DTE pinout characteristics.
4. Close the unit: snap the nameplate back into place.
5. Plug the modem directly into the 25-pin connector of the terminal or computer port and tighten the screws on each side of the modem connector.

6. Remove the plastic dust caps from the fiber optic connectors and connect the cable to the unit:
  - Connect Tx of the local modem to Rx of the remote modem
  - Connect Rx of the local modem to Tx of the remote modem.

FOM-5A is ready for operation. The red DATA LED lights when transmission occurs.

## Laser Information



### **Warning**

FOM-5A contains a class 1 eye-safe laser transmitter. The laser beam is invisible.

Always make sure that the fiber optic cable is intact and is connected to the transmitter.

Do not use broken or unterminated fiber optic cables or connectors or look straight at the laser beam.



### **Attendez**

Le FOM-5A est équipé d'une diode laser class 1. Le rayon laser est invisible.

Avant la mise en marche de l'équipement assurez-vous que le câble de fiber optique est intact et qu'il est connecté au transmetteur.

N'utilisez pas des cables ou connecteur de fiber optiques cassés ou sans termination et n'observez pas directement un rayon laser.



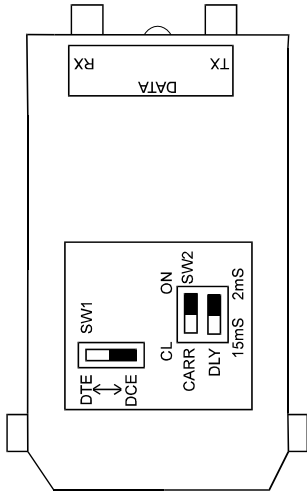


Figure 2. FOM-5A Switch Locations

Table 2. Switch and Jumper Settings

Switch or Jumper	Function	Setting *
CARR	Selects carrier to be constantly ON or controlled by RTS	ON (On) CL (Controlled)
DLY	Selects RTS/CTS delay	<b>2ms</b> 15ms
DCE/DTE Switch	Selects DCE or DTE	<b>DCE</b> DTE

\* *Factory settings appear in bold.*

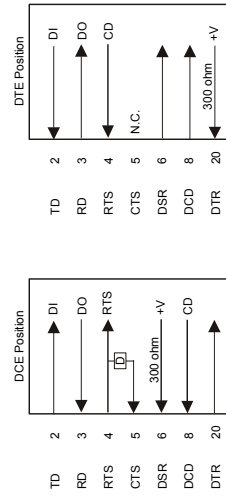


Figure 3. DTE/DCE Switch Operation

**DECLARATION OF CONFORMITY**

**Mfr. Name:** RAD Data Communications Ltd.  
**Mfr. Address:** 24 Raoul Wallenberg St.  
Tel Aviv 69719, Israel

declares that the product:

**Product Name:** FOM-5A

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

**EMC:** EN 55022:1998 + A1:2000 + A2:2003  
EN 55024:1998 + A1:2001 + A2:2003  
EN61000-3-2:2000 + A2:2005  
EN61000-3-3:1995 + A1:2001

**Safety:** EN 60950-1:2001

**Supplementary information:**

The products herewith comply with the requirements of the Low Voltage Directive 2006/96EC and R&TTE Directive 99/5/EC for wired equipment. The products were tested in a typical configuration.

Tel Aviv, 12 November 2007



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Quality Manager

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## Ordering

### FOM-5A/\*/+

Asynchronous sub-miniature fiber optic modem

#### Legend

- \* DTE connector:
  - F female 25-pin
  - M male 25-pin
- + Fiber optic interface:
  - ST 850 nm, ST connectors
  - FC 850 nm, FC connectors
  - SC13 1300 nm, SC connectors

### OPTIONAL ACCESSORIES

#### P/S-AC/9/500

9 VDC / 90 to 264 VAC, 500 mA power supply

#### PSA

Power supply adapter

#### International Headquarters

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