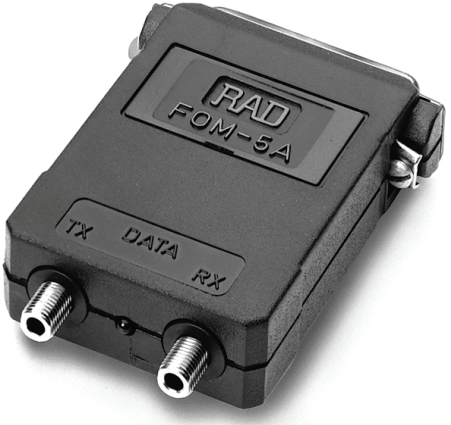
Data Sheet

FOM-5A

Asynchronous Fiber Optic Modem



RAD
data communications
The Access Company

- Asynchronous transmission of up to 19.2 kbps
- Transmission range of up to 3 km (1.9 mi), regardless of data rate
- Full- or half-duplex operation
- No external power required
- Compact, lightweight, easy to install

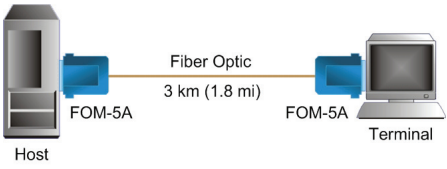


Figure 1. FOM-5A Application

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 3 km (1.9 mi).

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
Characteristics: See *Table 1*
Connectors: ST or FC (see *Ordering*)
Operating Wavelength and Transmitter:
850 nm VCSEL

Table 1. Fiber Optic Characteristics

Fiber Type [µm]	Optical Output [dBm]	Receiver Sensitivity [dBm]	Maximum Range [km]	[mi]
62.5/125	–26 to –28	–45	4	2.4

Note: *The receiver does not work at distances of less than 0.5 km (0.3 mi). In zero-distance operation a minimal attenuation of 3dB 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 et FOM-6A est équipé d'une diode laser class 1. Le rayon laser est invisible.

Avant la mise en marche de l'equipment 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.

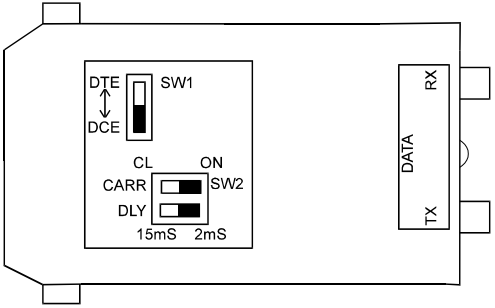


Figure 2. FOM-5A Switch Locations

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	**2 ms** 15 ms
DCE/DTE Switch	Selects DCE or DTE	**DCE** DTE

* *Factory setting in **bold**.*

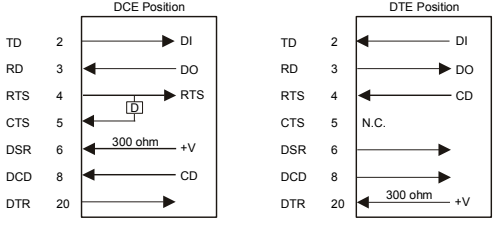


Figure 3. DTE/DCE Switch Operation

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

Haim Karshen

Quality Manager

European Contact: RAD Data Communications GmbH, Otto-Hahn-Str. 28-30, 85521 Ottobrunn-Riemerling, Germany

Ordering

FOM-5A/*/+

Asynchronous sub-miniature fiber optic modem

Legend

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

+ Fiber optic connector:
- **ST** ST connectors
- **FC** FC connectors

OPTIONAL ACCESSORIES

P/S-AC/9/500

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

PSA

Power supply adapter

International Headquarters
24 Raoul Wallenberg Street
Tel Aviv 69719, Israel
Tel. 972-3-6458181
Fax 972-3-6498250, 6474436
E-mail market@rad.com

North America Headquarters
900 Corporate Drive
Mahwah, NJ 07430, USA
Tel. 201-5291100
Toll free 1-800-4447234
Fax 201-5295777
E-mail market@radusa.com

RAD
data communications
The Access Company