# Fiber Optic Modem

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## 1. DESCRIPTION

The Fiber Optic Modem transmits asynchronous data up to 115.2 Kbps over fiber optic cable. It can be used point-to-point or can be daisy chained. Two models are available, 850 nm for multi-mode fiber and 1300 nm for single mode fiber.

The unit has a pair of emitters and a pair of detectors. The modem can be set up as a Host or Remote unit. A circuit has only one host, located at the host computer, which sends out polling data to downstream remote units.

When set to Host, all data from the RS232 serial port input is transmitted by both EM1 and EM2. The DET1 and DET2 inputs are combined and sent to the RS232 RXD output.

When set to Remote, the EM1/DET1 channel connects to a host or to a remote modem EM2/DET2 channel. The TXD input on the RS232 port is combined with the DET2 input to drive the EM1 output. The DET1 input drives both the EM2 output and the local RXD serial port output.

When Anti-streaming is enabled, the modem monitors the RTS input. When RTS goes high, an internal 12 second timer starts. If RTS is still high at the end of this 12 second period, the modem clamps the RS232 TXD input in the mark condition until RTS turns OFF. Every time RTS turns on, a new 12 second timeout starts.

When Anti-streaming is disabled, the modem ignores RTS altogether, and the TXD input is always active.

When the DET2 input is enabled, serial data received by that channel is distributed as determined by the host/remote setting.

When disabled, the DET2 input is ignored. In practice, this means that a host has only one port active, EM1/DET1, and a remote unit has no bypass port.

Three models are available:

- 850nm multi-mode with dual emitters and detectors
- 1300nm single mode with dual emitters and detectors
- 1300nm single mode with one emitter and one detector for end point use on multi-point or point-to-point links

## 2. SPECIFICATIONS

### 2.1 Customer Equipment Interface

RS-232 Asynchronous rates up to 115.2 Kbps
Full Duplex

### 2.2 Fiber Line Interface

ST Type fiber connectors
850 nm multi-mode
1300 nm single mode

### 2.3 Operating Modes

Host mode where emitters 1 and 2 operate in parallel, sending data downstream from the RS-232 interface. Detectors 1 and 2 are combined back to the RS-232 interface.

Remote mode (daisy chain) where data coming in on fiber detector 1 is passed on downstream on emitter 2 and is presented on the RS-232 interface. Data coming upstream to the unit on detector 2 is passed on upstream through emitter 2.

### 2.4 Environmental

-40 to 75° C, 10 to 85% relative humidity

### 2.5 Physical / Electrical

5.5” wide x 1.5” high x 7.5” deep
120 VAC external power supply
Other power options available for 240 VAC or for 12, 24, 48, or 125 VDC.

## 3. INSTALLATION

### 3.1 Unpacking

The following is included with each unit:

- Modem and external power supply
- Manual
- Information regarding warranty, maintenance contracts and repair

### 3.2 Location

Place the unit in a clear area where you can reach the front and rear panels to connect the cables. The unit comes standard with an external power supply that requires a 120 VAC outlet. Other power options are available.

**WARNING**

The modem light output is a highly concentrated, high energy light source. **DO NOT LOOK** at the light output of the fiber connector or the end of the fiber.

### 3.3 Installation Steps

1. Set the DIP switches for the desired options (see paragraph 4.1).
2. Connect the fiber optic cables.
3. Connect unit to customer equipment.
4. Connect the unit to the appropriate power source.

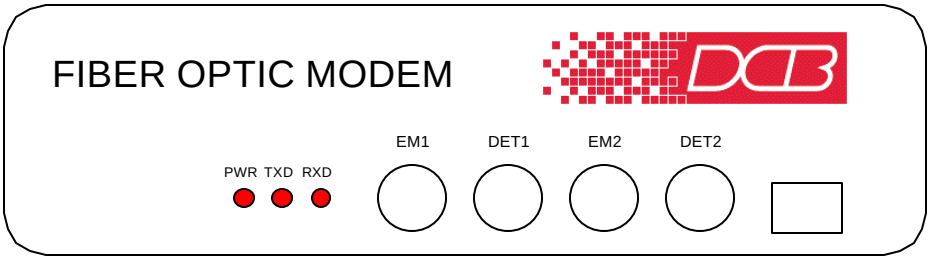
## 4. CONTROLS AND INDICATORS

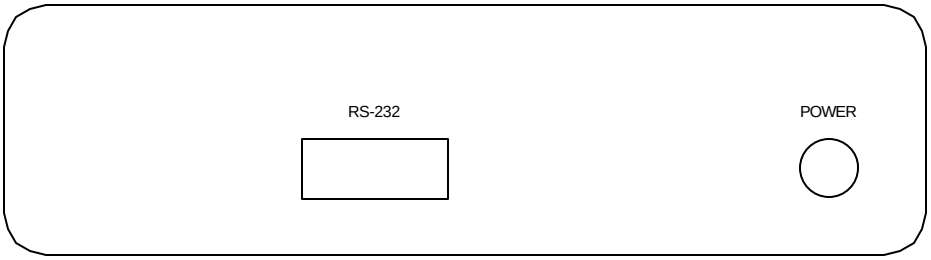
### 4.1 DIP Switches

| Switch | UP | DOWN |
|---|---|---|
| 1 | Host mode | Remote mode |
| 2 | Anti-streaming Disabled | Anti-streaming Enabled |
| 3 | DET2 input disabled | DET2 input enabled |

### 4.2 Indicators

| Indicator | Condition | Meaning |
|---|---|---|
| Power | ON | Power is applied to the unit. |
| TxD | Flashing | Data is being sent to the network. |
| RxD | Flashing | Data is being received from the network. |



## 5. INTERFACE SIGNALS

### 5.1 RS-232 Port Interface (DE-9S)

| Pin | Signal | In/Out |
|---|---|---|
| 1 | +Voltage | OUT |
| 2 | Receive Data | OUT |
| 3 | Transmit Data | IN |
| 4 | Not Used | — |
| 5 | Signal Ground | — |
| 6 | + Voltage | OUT |
| 7 | Request to Send | IN |
| 8 | Clear to Send | OUT |
| 9 | Not Used | — |

## 6. TROUBLESHOOTING

### 6.1 General Approach

When troubleshooting problems, a rational plan can save you many hours of frustration. The following is a brief outline of standard troubleshooting procedures.

1. Gather the facts to determine the exact nature of the problem.
2. Draw a picture of the system showing the equipment at both the host and remote ends and the phone lines or in-house wiring. Use this as a reference to note your observations, test steps and test results. A picture keeps you focused and often saves duplicate effort.
3. Record the front panel indications before changing anything. This is an important part of fact gathering
4. If you change anything, change only one thing at a time.
5. Use the built-in test functions, especially the loopback tests. Record your results.

## 7. WARRANTY

This DCB product is warranted to be free of defects in materials and workmanship for two years. Data Comm for Business, Inc. will repair or replace any equipment proven to be defective within the warranty period. All warranty work is F.O.B. Dewey, IL. This warranty is exclusive of abuse, misuse, accidental damage, acts of God or consequential damages, etc. DCB liability shall not exceed the original purchase price.

All equipment returned for repair must be accompanied by a Returned Material Authorization (RMA) number. To receive an RMA number, call (217) 897-6600 between the hours of 8 AM and 5 PM central time. Equipment must be shipped prepaid to DCB and will be returned at DCB's expense.

Ship returned items to:

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Dewey, IL 61840

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