

Short-Haul Modem-FSK (SHM-FSK)

**Extend communications
over a single pair—even in
the noisiest environments!**



FEATURES

- » Protects data against crosstalk and outside noise interference.
- » Point-to-point or multipoint operation, full- or half-duplex.
- » Rates up to 9600 bps.
- » Uses Frequency Shift Keying modulation.
- » Provides highly reliable, continuous data transmission.
- » Optional modules available for 2-wire RS-485 and 4-wire RS-422.

OVERVIEW

The **Short-Haul Modem-FSK** is a private-line modem that supports 9600-bps half- and full-duplex RS-232 operation over a single dedicated wire pair and across sliding contacts. The modem uses pure Frequency Shift Keying (FSK) modulation at high carrier frequencies (100 kHz, 106.5 kHz to 150 kHz, 156.5 kHz). These high frequencies make the modem particularly immune to crosstalk and outside noise interference, so you get highly reliable, continuous data transmission over distances of several miles in harsh industrial environments.

The modem operates in point-to-point or multipoint applications. For multipoint applications, the modem can be operated with one master unit and up to eight remote units.

The master unit (ME840A-M) transmits at 106.5/100 kHz (Space/Mark) and receives at 156.5/150 kHz.

The remote slave unit (ME840A-S) transmits at 156.5/150 kHz and receives at 106.5/100 kHz.

Since RS-485 interfaces are common in industrial applications, we also offer a 2-wire RS-485 module (MD3317) and a 4-wire RS-422 module (MD3318). Simply plug the module into the modem's RS-232 connector and you've got your extra connection.

The modem has several diagnostic LEDs: Carrier Detect, Receive Data, Transmit Data, Loopback, and Power.

The modem interface is DTE/DCE jumper selectable, so it's easy to configure to suit your application. The default configuration for the Modem is DCE. To change this configuration, just move the jumpers on blocks P1 and P2 (located directly behind the DB25 RS-232 connector on the rear panel).

The modem also includes jumpers for configuring carrier detect, chassis ground, receiver gain, and transmit power.

TECH SPECS

Data Format —

RS-232C (RS-485 2-wire with optional MD3317 module, RS-422 4-wire with optional MD3318 module)

Distance (Maximum) — 48,000 ft. (14630.4 m) on single twisted pair

Operation — Full-duplex or half-duplex controlled carrier, serial asynchronous data

Mode — Point-to-point or multipoint with RS-232

Modulation — Frequency shift keying (FSK); carrier signal inductively and capacitively isolated

Speed (Maximum) — 9600 bps

Interface — DTE/DCE jumper selectable

Connectors — (1) DB25 F for RS-232C (RS-422 and RS-485 modules), (1) 2-position terminal block for carrier, (1) 2-position terminal block for power

Operating Temperature — 32 to 140°F (0 to 60°C)

Power — 120 VAC, 60/50 Hz @ 9.6 watts or 24 VDC at 10 watts

Size — 1.75"H (1U) x 7.5"W x 10.5"D (4.4 x 19.1 x 26.7 cm)

Weight — 4.5 lb. (2 kg)

Technically Speaking

The SHM-FSK performs data communication by converting digital signals to modulated high-frequency sine-wave carrier signals. These converted signals can be transmitted across much longer distances with greater noise immunity on wires than square-wave digital signals. The digital space and mark (0 and 1) are converted in the transmitter to carrier signals that have two slightly different frequencies. The two frequencies are identified by the receiver and reconverted to the digital signals.

The ME840A-M and ME840A-S support RS-232 point-to-point and multipoint communications. Optional modules support point-to-point. They send data synchronously, and they're transparent to protocol and to data rates up to 9600 baud.

Item

Code

Short-Haul Modem-FSK (SHM-FSK)

Master

Slave

Optional Modules

2-Wire RS-485

4-Wire RS-422

ME840A-M
ME840A-S

MD3317
MD3318