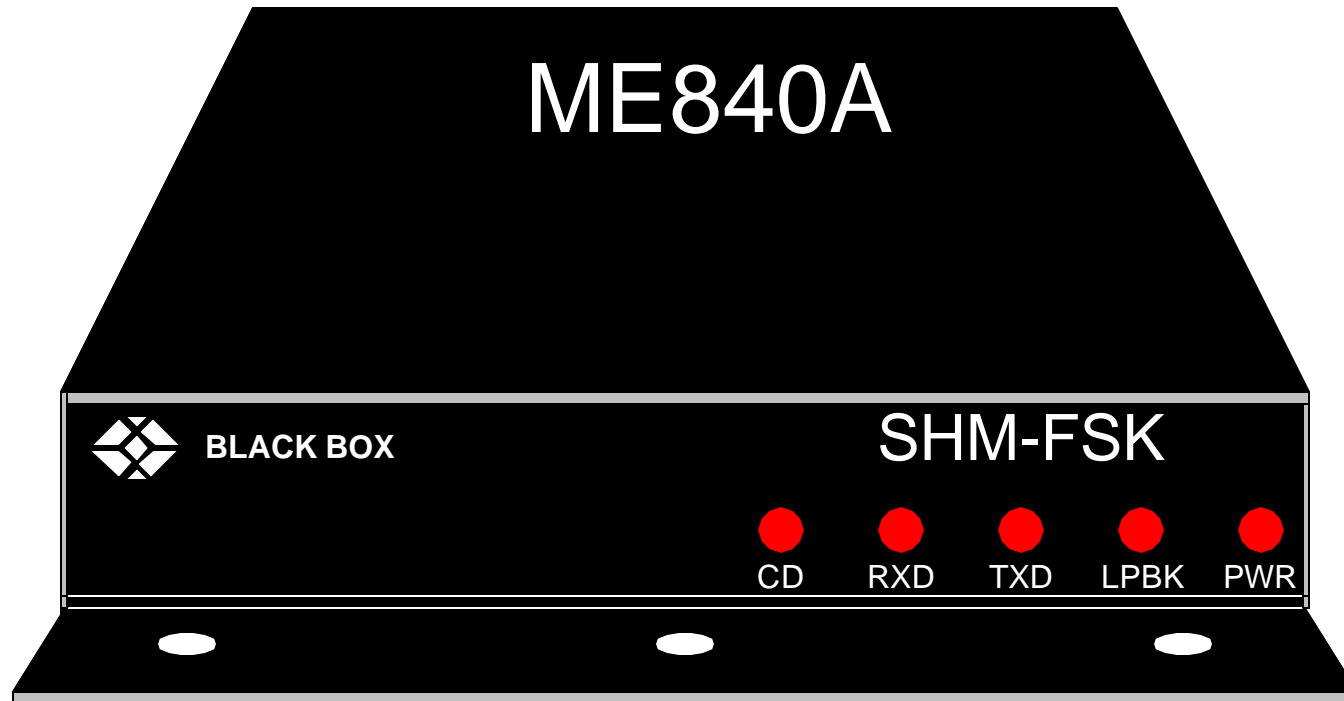


ME840A



SPECIFICATIONS:

Data Format: RS-232 (RS-422/485 Optional)

Optional Modules: 2-Wire RS-485 = MD3317
4-Wire RS-422 = MD3318

Operation: Full- or Half-Duplex controlled carrier, serial asynchronous data

Mode: Point-to-Point or Multi-point

Modulation: Frequency shift key; carrier signal inductively and capacitively isolated

Distance: Up to 48,000 feet (9.1 miles or 14.6 km) on single twisted pair.

Operating Temperature: 32 to 140 degrees F (0 to 60 degrees C)

Interface: DTE/DCE jumper selectable.

Connectors: DB25 female for RS-232; green two-position pluggable terminal block for carrier; black two-position pluggable terminal block for power.

LED Indicators: Carrier Detect (CD); Receive Data (RXD); Transmit Data (TXD); Power.

Power: 120 VAC 50/60 Hz at 9.6 watts or 24 VDC at 10 watts.

JUMPER SETTINGS:

DTE/DCE SETTINGS: Both the Master and Slave units are configured at the factory as DCE. Jumpers P1 and P2 can be changed for DTE operation.

TRANSMITTER OUTPUT LEVEL (TP2): Marked "H" sets the jumper for high power. Marked "N" sets the jumper to normal.

RECEIVER GAIN: G1/H-G2 is the high-gain setting; G2-N is the normal medium gain; G3/L-G2 is for low gain.

CARRIER DETECT: Carrier Detect to the RS-232 connector is enabled or disabled by jumper matrix P3. With the jumper "ON"; it enables carrier detect. "OFF" disables carrier detect.

HALF-DUPLEX OPERATION/CARRIER CONTROL:
A-B selects RTS; B-C selects DSR.

INTRODUCTION:

The Short Haul Modem (SHM-FSK) is a private-line modem that allows half- and full-duplex RS-232 data communications at 9600 bps over a single dedicated wire pair and across sliding contacts. The SHM-FSK operates using pure Frequency Shift Key (FSK) at high carrier frequencies (100KHz, 106.5KHz to 150KHz, 156.5KHz). These high frequencies make the SHM-FSK particularly immune to crosstalk and outside noise interference, providing highly reliable, continuous data transmission over distances of several miles in harsh industrial environments.

The SHM-FSK converts digital signals to modulated high-frequency sine-wave carrier signals that can be transmitted much longer distances, with greater noise immunity, than square-wave digital signals. The digital Space and Mark (0 or 1) are converted in the transmitter to carrier signals having two slightly different frequencies that are identified by the receiver and reconverted to the digital signals. The SHM-FSK's are configured as either Master or Remote units and can be for either point-to-point or multi-point data communications.

The SHM-FSK's send data asynchronously. They are transparent to protocol, and to data rate from DC to 9600 baud. They can also be configured as a Master unit or as a Slave unit.

SHM-FSK Master Units: The Master unit (ME840A-M) transmits at 106.5/100KHz (Space/Mark) and receives at 156.5/150 KHz. A green pluggable two-position terminal block at the back of the unit is used for connection to the data line. There is no polarity to the data-line connection.

SHM-FSK Slave Units: The Slave unit (ME840A-S) transmits at 156.5/150 KHz and receives at 106.5/100 KHz. It has the same data-line connector as the Master unit.

Both the Master and Slave SHM-FSK's are powered by nominal 24 volts DC, which is supplied to a black two-position pluggable terminal block (+ on the left, if you're facing the pins) on the rear panel. The units are delivered from the factory with 120 VAC to 24 VDC wall transformers which have a black plug attached. An external 24 VDC supply can also be used to power up the units. The current draw is 250 ma.

OPERATION:

The SHM-FSK's can be operated in either point-to-point or multi-point polling mode. For multi-point data communications, the unit can be operated with one Master and typically up to eight Slave units. Transmitter in each slave unit is controlled by the intelligent device it is connected to. The Master's unit's transmitter remains on all the time. The green two-position pluggable terminal block at the receptacle marked "LINE" on the back of the unit is used with any two-wire cable (does not need to be twisted). Since the FSK's signal is AC, there is no polarity required on any of the data-line connections.

INSTALLATION:

The SHM-FSK units are shipped ready for either full-duplex or half-duplex multi-point operation. The jumpers have been factory-set in full-duplex mode.

The Master and Slave units are both factory-configured as DCE's (Data Communications Equipment) with the jumpers on headers P1 and P2 in the B-C position. Data into the DB25 is on Pin 2 and data out is on Pin 3.

Before installing the SHM-FSK units, make sure that the digital devices to be connected to the SHM-FSK units are capable of communicating with each other if connected with a conventional three-wire RS-232 data cable. Once this has been established, the devices can be connected to the SHM-FSK units and RS-232 data communications will take place transparently.

Note:

Make sure that the wire pair to be used for data communications between SHM-FSK units is connected only to those units; has no branches; has no attached inductance, capacitance, or resistance; and has no loading coils, filters or any other load; and that all connections are clean and solid. Since the data line is transformer-isolated from the rest of the circuit, neither leg of the data-carrying twisted pair should be grounded.

1. Remove the unit's cover by taking out the four screws on top of the modem. Set the Slave units for either full- or half-duplex operation by positioning the jumper on header P4, located behind the DB25 connector. For full-duplex operation, the jumper should be in the B-C position; for half-duplex, multi-point operation using RTS line carrier control, the jumper should be in the A-B position.
2. Confirm that the jumpers on Positions P1 and P2 are in the B-C position. Replace the cover.
3. Connect the transmission line to the unit at the green pluggable terminal block. There is no polarity requirement.