



GENERAL

This chapter provides information for the mechanical and electrical installation of the modem.

SITE SELECTION

Install the modem within 6 feet of a 115 or 230 Vac grounded outlet as required for the specific model and no further than 50 feet from the terminal equipment.

The installation area should be clean and free from extremes of temperature, humidity, appreciable shock, and vibration. See equipment specifications in Appendix A for details. Allow clearance for operation and maintenance accessibility and at least 4 inches at the rear for cables and flow of cooling air.

Tools Required

Normal installation requires a screwdriver to secure the data terminal equipment (DTE) cable to the modem and to attach the Telco cable to the phone jack for leased line operation.

Receipt Inspection

After unpacking the equipment, check the contents against the packing list. Inspect the equipment for any damage that may have occurred in shipment. If any damage or equipment shortage is noted, contact Universal Data Systems. UDS suggests that you keep the shipping container and material for future shipment.

ELECTRICAL INSTALLATION

The rear panel (Figure 2-1) houses receptacles for interfacing the modem to the DTE and telephone lines.

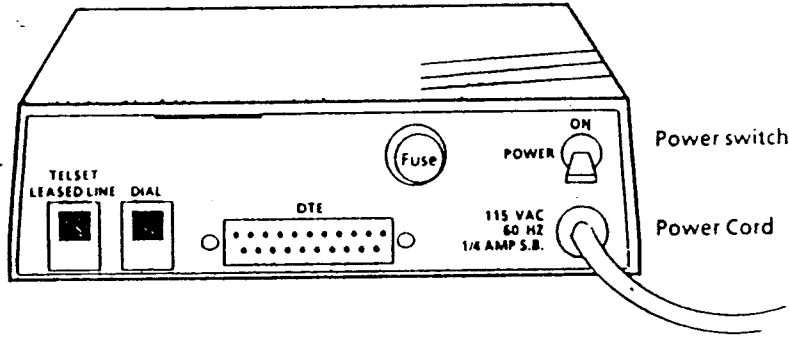


Figure 2-1 Rear Panel I/O

AC Power Connection

Power is supplied through a 6-foot line cord with a grounded 3-wire plug. If chassis ground is available through the third prong of the plug, a separate ground wire is not required.

DTE CONNECTION

The DTE connector is a 25-pin D-series type conforming to EIA-232 specifications. The digital interface signals are illustrated in Figure 2-2 and described in Table 2-1.

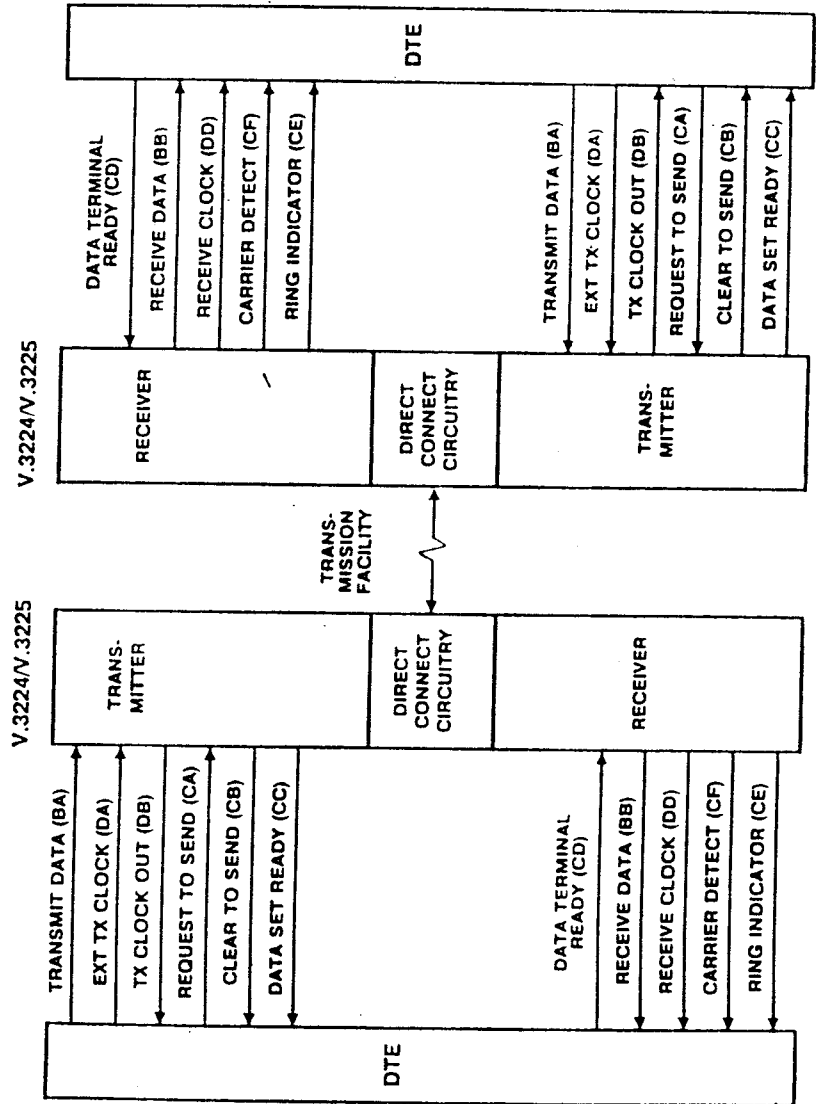


Figure 2-2 Digital Interface Signals

Pin No.	EIA-232D	CCITT V.24	Signal Name	Description
1		101	Shield	No connection
2	BA	103	Transmitted Data	Serial digital data (to be modulated) from a data terminal or other digital data source. It must be accompanied by a transmit clock (pin 15) or by an external data rate clock (pin 24). Data transitions should occur on positive-going clock transitions.
3	BB	104	Received Data	Serial digital data at the output of the modem receiver. The data is accompanied by an internal data rate clock (pin 17) whose positive-going transitions occur on the data transition.
4	CA	105	Request to Send	A positive level to the modem when data transmission is desired.
5	CB	106	Clear to Send	A positive level from the modem after receipt of request to send and when the modem is ready to transmit.
6	CC	107	Data Set Ready	A positive level from the modem when power is on and it is ready to operate. In dial-up operation, the modem must be off hook to give a high DSR signal.
7	AB	102	Signal Ground or Common Return	Common signal and DC power ground
8	CF	109	Received Line Signal Detector	A positive level from the modem indicating the presence of a receive signal (carrier detect).
9			+ 12 volts	+ 12 voltage reference
10			-12 volts	-12 voltage reference
11			Signal Quality Indicator	Signals on this circuit indicate probability of error in the received data. A positive level indicates poor signal quality while a negative level indicates good signal quality.

Table 2-1
Digital Interface Signal Descriptions

Pin No.	EIA-232D	CCITT V.24	Signal Name	Description
15		141	Transmit Clock (DCE)	A transmit data clock output for use by an external data source. Positive clock transitions correspond to data transitions.
17	DD	115	Receive Clock	A receive data rate clock output for use by the external data sink. Positive clock transitions correspond to data transition.
18		142	Local Loopback (Loop 3) Control	A positive level causes the modem to go into local analog loopback.
20	CD	108.2	Data Terminal Ready	This circuit is positive when the DTE is ready to originate or answer a call in dial up operation. DTR must always be active (high) in 2-wire private line operation. Cycling DTR causes retraining.
21		140	Remote Digital Loopback	A positive level causes a digital loopback at a remote modem.
22	CE	125	Ring Indicator	In direct dial operation this circuit is positive in response to an incoming ring signal.
23	CH	111	Data Rate Select	Supplies a data rate control to select primary or fallback data rate.
24	DA	113	External Transmit Clock	A serial data rate clock input from the data source. Positive clock transitions correspond to data transitions.

Table 2-1 (Cont)
Digital Interface Signal Descriptions

TELEPHONE LINE CONNECTION

The modem operates in one of three modes:

- Permissive (PSTN)
- Programmable (PSTN)
- Private Line

Permissive and programmable modes are used on the Public Switched Telephone Network (PSTN). Private line mode is used on 4-wire or 2-wire dedicated leased lines. The user must decide which mode to use, then select the telephone jack arrangement accordingly.

PSTN Connection

Modems must be registered by the Federal Communications Commission for direct connection to the PSTN. The label on the chassis bottom gives the FCC registration number and other information.

Direct connection to the PSTN provides two modes of operation (Figure 2-3):

- Permissive
- Programmable

In permissive mode, the modem transmits a maximum signal level of -9 dBm. Signal loss between the modem and telephone company central office is not controlled. Jack arrangements for this mode are the RJ11C for standard telephones and the RJ16X for exclusion key telephones.

Programmable mode corrects for the signal level loss between the modem and the telephone company central office. This is done by setting the modem transmit output signal level with a fixed-value programming resistor selected and installed in the jack by the telephone company. This allows the output signal to reach the central office at the optimum level of -12 dBm. Jack

arrangements for this mode are the RJ45S and RJ41S. RJ41S has a switch option that must be selected to Programmed (P).

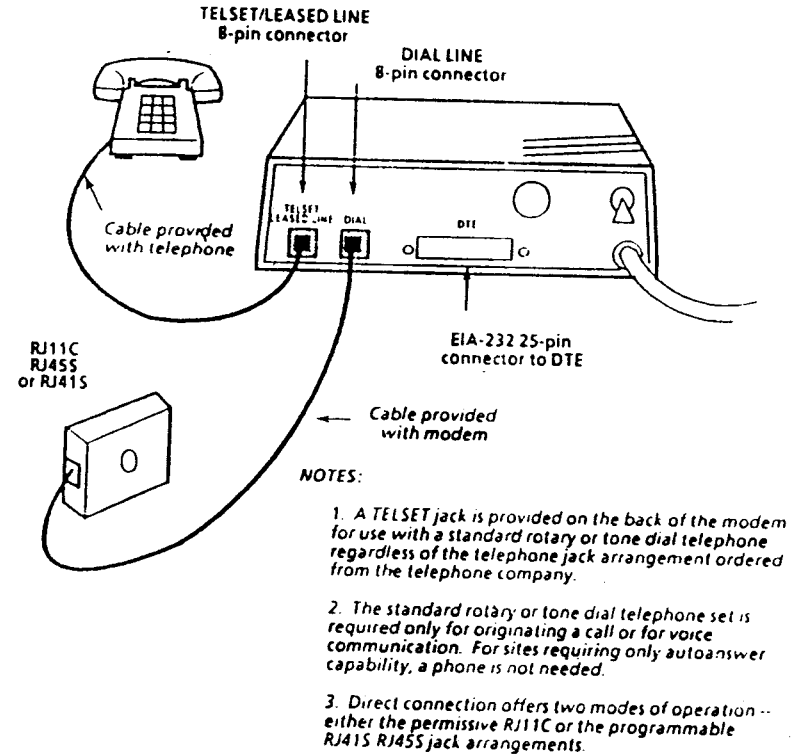


Figure 2-3
Permissive or Programmable Connection

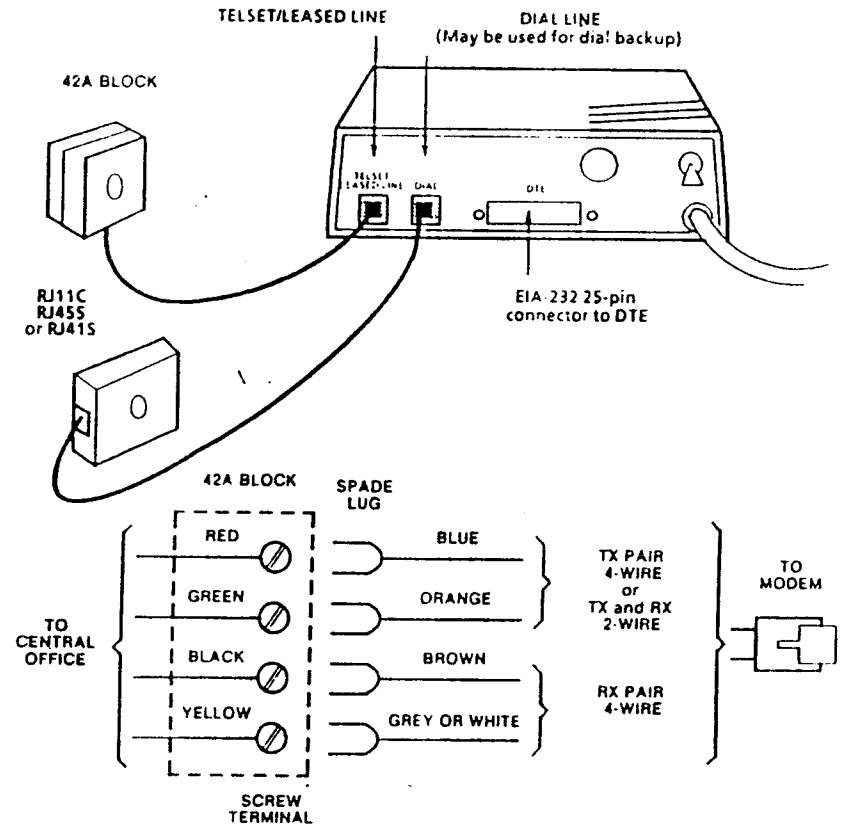
Exclusion Key Telephone

The exclusion key telephone can be used with permissive or programmable jack arrangements by installing an RJ36X series jack to interface with the modem jack arrangement (Figure 2-4).

Leased Line Connection

Leased lines use either a 2-wire or 4-wire connection. The telephone company will install the leased line and wall jack at your site. The line connects to the modem at the 8-position TELSET/LEASED LINE jack.

Figure 2-5 illustrates the typical hook-up of the modem for operation over private leased lines with dial backup.



NOTES:

1. Set the transmit output level to 0 dBm.
2. The LCD must show IDLE.
3. DTR (Data Terminal Ready) pin 20 on the digital interface must be high (active) in 2-wire private line operation.

Figure 2-5
Private Line Connection

