Meets the demands of today's business environment for reliable high-throughput telecommunications

IBM 7858 Professional Modem

- ***Flexible operations in both synchronous and asynchronous mode***
- ***Compatibility with a wide range of ITU standards***
- ***Automatic adaptation to changes in network environment***
- ***High-throughput telecommunications over switched and leased lines***
- ***Flexible setup, operation and management***
- ***Enhanced system security***



The IBM 7858 Model 336 is a stand-alone modem with Link Problem Determination Aid (LPDA) support for those environments requiring centralized management from a NetView console. It allows your data terminal equipment (DTE) to communicate with other DTEs using a synchronous or asynchronous protocol. The 7858 operates in duplex mode at line speeds of up to 33.6 Kbps over switched and 2-wire or 4-wire leased lines.

Product Overview

Flexible operations in both synchronous and asynchronous mode

The 7858 provides flexible operation in synchronous and asynchronous mode, over switched and 2- or 4-wire leased telecommunication lines.

Each 7858 modem can be controlled and configured from the front panel, from a DTE using AT commands, or NetView using LPDA commands.

The following command sets are available:

- Hayes Attention (AT) command set
- ITU V.25bis asynchronous command set
- ITU V.25bis synchronous command set
- IBM's LPDA commands.

The modem can be configured to operate in asynchronous or synchronous mode:

- Asynchronous mode:
  - AT Command mode / Hayes Autosynch
  - Asynchronous V.25bis Command mode
  - Dumb Mode (The modem does not accept any command from the DTE.)
- Synchronous mode:
  - Asynchronous Command mode and Synchronous Data mode
  - Synchronous Command mode and Synchronous Data mode
  - Synchronous V.25bis Command mode
  - LPDA-2 mode.

Standards compliance

The 7858 modem supports a wide range of ITU and industry standards:

Digital Interface standards:

- ITU V.24
- ITU V.28

Modulation Mode standards:

- ITU V.21
- ITU V.22 alternative A/B with V.25 autoanswer
- ITU V.22bis
- ITU V.23
- ITU V.32
- ITU V.32 bis and V34

Other standards:

- ITU V.14 Async/Sync conversion with overspeed range selection
- ITU V.42 Asynchronous error checking compatible with the Microcom Networking Protocol (MNP) class 4 service. With this error checking, the data integrity in asynchronous operation is as good as typical synchronous protocols.
- ITU V.42bis data compression compatible with MNP class 5 service
- ITU V.54 loop testing capabilities
- ITU AT and ITU V.25bis Automatic Calling Interfaces
- IBM LPDA-2 command set for network management
- Fax support Group 3 Class 1 ITU V.29, V.27 ter, and V.17

Automatic adaptation to a network environment

The 7858 supports functions that automatically adapt to the changing network environment. For example, it supports auto-mode capability to automatically select the modulation scheme at connection set up. This function determines the appropriate modulation scheme (V34, V.32bis,or V.32) based on compatibility with remote modem capabilities.

The 7858 also has an adaptive line rate facility that automatically decreases or increases the transmission speed to constantly achieve the highest performance compatible with the line quality. It adjusts the speed if telecommunication line conditions degrade or improve and according to the transmission protocol negotiated at connection set up.

Switched Network Backup (SNBU) capability establishes a switched connection when a leased line is down. A SNBU connection is associated with a timer selected at modem setup.

With *leased line monitoring* one of the following actions can occur after a time out, depending on the modem configuration:

- The active SNBU line is released and the modem switches back to a leased line. If the leased line is still down, a new SNBU call is set up.
- The modem switches back to the leased line operation without releasing the SNBU line. If the leased line communication is operational for one minute, then the SNBU line is released; otherwise the communication is resumed through the SNBU line.

The 7858 also incorporates asynchronous speed buffering which allows the DTE speed to remain constant even when the modem-to-modem line speed changes from call to call. For example, the DTE speed might be 115.2 Kbps while the line speed is 33.6 Kbps.

Supported Line speeds (kbps)

Modulation	Modem Data Rate
V.34	33.6 - 2.4
V.32bis	14.4 - 4.8
V.32Trellis	9.6
V.32	9.6, 4.8
V.22bis	2.4, 1.2
V.23	1200/75
V.22	1.2
V.21	0.3
Fax Group 3:	
ITU V.29	9.6, 7.2
V.27 ter	4.8, 2.4
V.17	14.4 - 7.2

Supported DTE speeds

Speed (Kbps)	Synchronous DTE	Asynchronous DTE
115.2	No	No*
57.6	No	No*
38.4	No	No*
33.6	Yes	No
31.2	Yes	No
28.8	Yes	No
26.4	Yes	No
24.0	Yes	No
21.6	Yes	No
19.2	Yes	Yes
16.8	Yes	No
14.4	Yes	Yes
12.0	Yes	No
9.6	Yes	Yes
7.2	Yes	Yes
4.8	Yes	Yes
2.4	Yes	Yes
1.2	Yes	Yes
0.3	No	Yes

*In Direct Mode (that is, when data Buffering and Error Control with or without modem compression are disabled)

High-throughput telecommunications over switched and leased lines

The 7858 modem operates on switched and 2- and 4-wire leased lines. The supported line and DTE speeds are listed in the Supported Line and DTE Speeds table.

Directory services

With the 7858 modem, you can define and store up to 20 different telephone numbers in Hayes AT mode and 12 in V.25bis mode. You can also associate a telephone number with a configuration. When the number is dialed, the configuration automatically activates.

Several dial numbers can be linked. When the first dialed number is detected as busy, the next number is dialed automatically.

Factory preset and user configurations

Ten different configurations are preset and available in the modem. You can select any of these configurations, modify it and store it as a user configuration.

Automatic Dialing
Data transmission over the public switched network is initiated after a communication path is established. Automatic calls can be initiated by the DTE with the V.24/V.28 interface.

Auto-call on the public switched network is feasible using one of the following commands:

- The Hayes Attention (AT) command set
- The ITU V.25bis command set
- The IBM LPDA-2 call-out and disconnect commands.

In call-originate mode, the 7858 modem automatically selects operation to match the remote modem.

Operator Panel
The operator panel contains four keys, five green lights and a display for status monitoring.

The following operations can be controlled from the operator panel, from a DTE or from NetView:

- Machine information display
- Manual operations
- Modem configuration
- Line quality indicators.

Enhanced System Security
The 7858 can be password- protected to disable configuration changes. You can also associate password protection to stored telephone numbers to reject incoming calls.

The call-back feature enables you to link a procedure to stored telephone numbers. With this feature, for example, a modem receiving a call can disconnect either immediately after the answer tone is sent, or after password checking. The modem can then call back a pre-stored number or one provided by the calling party.

7858 Professional Modem Specifications

Physical specifications	Desktop unit with self-contained power supply Width: 210 mm (8.27 in.) Depth: 150 mm (5.91 in.) Height: 44 mm (1.73 in.) Weight: 1.2 kg (2.65 lb)
Operating environment	•Temperature: 0° to 40°C •Relative humidity: 8 to 80% noncondensing •Class B EMC compliant
Power requirements	Input voltage: 100 to 127/200 to 240 volts nominal Frequency: 50 and 60 Hz. nominal Phase: single Input power: 5 W
Customer setup	Comes with power cord, telephone line cables and a Guide to Operations. Operational firmware can be upgraded by download transfer to Flash Memory.
NetView Support	Can be managed from a centralized NetView console through LPDA-2 commands.
Diagnostics	Power-on Self Test ITU V.54 loop tests can be invoked from the modem front panel or an attached DTE. Loop tests: •Local analog test loop (ITU loop 3), including self-test facility •Digital test loop (ITU loop 2) •Remote controlled digital test loop (ITU loop 2), including self-test facility.