



## DLM-336

Dial-up line modem  
for industrial applications



### Introduction

The MuLogic DLM-336 is a voiceband modem for reliable data communication over dial-up lines and 2-wire leased lines. It supports data rates up to 33.6 kbps. The DLM-336 was designed for industrial applications: it can be powered from a 9 to 36 Volts power source and can be mounted against a DIN rail.

The modem supports full and half duplex operation modes for data transmission. The DLM-336 can also be used as a Class1 Fax modem for communication with group 3 fax machines.

Although the DLM-336 is mainly intended for dial-up line applications, the modem can also be used on 2-wire leased lines where the modem is controlled by the connected computer system or PLC.

The DLM-336 is also available in a rugged steel housing and as rack card for the 19" UCF-16.3 and MCF-16.3 [racks](#).

### Features

- V.34, V32bis, V.32, V.22bis, V.22, V.21; full duplex operation from 300 bps to 33,6 kbps
- V.23; half duplex operation with DTE interface rate conversion.
- T.4/T.30, V.17, V.29, V.27ter fax operation from 4800 to 14,4 kbps
- Automatic dial and automatic answer
- Automatic dial on signal from PLC or other device
- Automatic mode detection for full duplex modes
- 2-wire leased line operation under control of DTE
- Asynchronous data rates up to 115.2 kbps for buffered or error corrected data
- Supports 10 and 11 bit async formats
- Synchronous data rates up to 33,6 kbps
- V.42/MNP2-4 error correction for asynchronous data
- V.42bis/MNP5 data compression for asynchronous data
- Isolated power input for industrial applications: 9..36Vdc/10..28Vac, 18..62Vdc/18..50Vac
- Din-Rail mounting bracket (DLM-336D)
- Extended temperature range

### Application Areas

#### Asynchronous applications

For applications with asynchronous data, the DLM-336 supports a buffered DTE (terminal) interface. The modem accepts data rates from 300 bps to 115200 bps and supports error correction and data compression according to the V42/V.42bis and MNP5 protocols. Both 10 and 11 bit formats are supported.

## Synchronous applications

For applications with synchronous data, the DLM-336 supports data rates from 1200 to 33600 bps. Synchronous transmit clocking information can be generated by the modem, externally supplied by the DTE, or slaved to the receive clock.

## Half duplex applications

The DLM-336 supports half duplex (switched carrier) operation in V.23 mode and offers a buffered interface which enables the DTE to operate at a higher rate than the modem. This feature is often used for communication with cash terminals and pay phone systems.

For applications that require the local DCD signal to be controlled by the remote RTS signal, the DLM-336 offers V.13 simulated switched carrier operation. This can be used for connecting DTEs that expect a half duplex modem while offering the benefits of the higher data rates as supported by the V.34 modulation mode.

## Power supply

The DLM-336 is equipped with an internal galvanic isolated power supply that can be powered from any 9 to 36 Vdc or 9 to 30 Vac source. For 230 Volts AC operation a regular 12 Vac power adapter can be used. A version for 48 Vdc operation is available on request.

## Extended temperature range

The modem can be used in many environments. It is suitable for operating at ambient temperatures ranging from -25 to +70 C

## Technical Specifications

### Full duplex modulation modes

- ITU/TSS V.34; 33k6, 28k8, 26k4, 21k6, 19k2, 14k4, 12k and 9600 bps async/sync.
- ITU/TSS V.32bis; 14k4, 12k and 7200 bps async/sync.
- ITU/TSS V.32; 9600 and 4800 bps async/sync.
- ITU/TSS V.22bis; 2400 and 1200 bps async/sync.
- ITU/TSS V.22; 1200 bps async/sync.
- ITU/TSS V.21; 0..300 bps asynchronous.

### Half duplex modulation mode

- ITU/TSS V.23; 1200 bps asynchronous.

### Fax modes

- ITU/TSS V.17; 14.400 bps
- ITU/TSS V.29; 9600 bps
- ITU/TSS V.27ter; 4800 bps
- ITU/TSS T.4/T.30.
- Class 1 DTE interface

### Error correction and data compression

- ITU/TSS V.42 LAPM error correction
- MNP2-4 error correction
- ITU/TSS V.42bis data compression
- MNP5 data compression

### Auto dial and configuration

- AT commands
- Dial on DTR (circuit 108.1 mode)
- Dial on contact closure.
- DTMF tone dial and pulse dial

### Supported DTE data rates

- Async.: 300, 600, 1200, 2400, 4800, 7200, 9600, 19k2, 38k4, 57k6, 115k2 bps
- Sync.: 1200, 2400, 4800, 7200, 9600, 12k, 14k4, 16k8, 19k2, 21k6, 26k4, 28k8, 33k6 bps

### Supported DTE interface signals

- TxD, RxD, RTS, CTS, DSR, DCD, DTR, RxClk, TXclk, ExtClk, TST, RI

### Line connection

- PSTN line at RJ-11 connector
- RJ-11 connector for telephone set
- Line impedance 600 Ohms
- Transmit level: -9 .. -15 dBm
- Receive threshold -43 dBm On, -48 dBm Off.

### Versions

- DLM-336D: Compact plastic housing (Stand alone or DIN rail mounting)
- DLM-336R: 3HE, 5TE Rack card for the UCF-16.3 and MCF-16.3 racks
- DLM-336S: Rugged steel housing (mounting flanges optional)

### Dimensions and weight

- DLM-336D: 95x145x30 mm LxWxH, Weight: 220 gr.
- DLM-336R: 3U high, 5HP wide, Eurocard, 160 mm.
- DLM-336S: 250x130x30 mm LxWxH, Weight: 980 gr.

### General

- Power supply: 9..36 Vdc (10..28Vac) or 18..62Vdc (18..50Vac)
- Power consumption: 2 W
- Temperature range: -25~+70 C Humidity: 5~95%

### Compliances

- CE mark: 89/336/CEE, 72/23/CEE, EN55022, EN50082-2, EN60950
- PSTN operation: CTR21
- Leased line operation CTR15
- Climate: EN50125-3
- Vibration: EN50125-3

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