V.23 Modem

TABLE OF CONTENTS

1.   DESCRIPTION

The V.23 modem operates at 600 and 1200 bps, synchronous or asynchronous, with V.23 modulation. The modem accepts external transmit clock on pin 24. A 7.25" PC card, and stand alone configurations are available. The pc card uses the internal pc ISA bus only for power. The serial terminal interface is RS-232, DB-25. The phone line connector is an RJ-11 for 4-wire leased line operation. Transmit is on positions 2 and 3, receive 1 and 4 of the 4 position RJ-11 connector.

The modem has DIP switch controls for the V.23 mode, 1200 or 600 bps operation, 4 or 8 ms RTS/CTS delay, constant carrier (RTS forced on) or terminal controlled RTS, and transmit level settings of +3, 0, -16 and -30 dBm. The modem has a pushbutton switch for local digital loop on or off. The DIP switch is located on the PC card and is accessible behind the front panel of the standalone modem. The loopback switch is located on the rear of the unit, next to the DB-25 terminal connector.

2. SPECIFICATIONS

2.1   Modem

Analog full duplex
4-wire, 600 ohm balanced
Frequency Shift Keying with the following logic:
    Mark   1300 hertz at 600 and 1200 bps
    Space   1700 hertz at 600 bps
               2100 hertz at 1200 bps
600 and 1200 bps
Transmit and Receive clock supplied by modem
Modem supplies transmit clock and recovered received clock, allowing
    the modem to run sync or async without a switch.
Transmit level control from +3 dBm to -30 dBm, implement as +3, 0 –
    16 and –30
The modem operates with no errors when signal interruptions occur
    at less than 1/4 of a bit length (300 microseconds) at the selected
    bit rate
The modem operates with no errors when the signal level changes up
    to 25 dBm
The modem will drive up to 100 meters of cable
Switched carrier or constant carrier operation (RTS forced on or
    terminal controlled)

2.2   Digital Interface

RS-232, DB-25S
Signals are Tx, Rx, RTS, CTS, DSR, DCD, TxClock, RxClock, Ext
    TxClock
RTS/CTS delay is 4 or 8 ms in switched carrier mode. In constant
    carrier mode, RTS/CTS is forced on.
Rx data is clamped to mark when no receive carrier detect is present.
    Rx clock continues to run when carrier detect is off.

2.3   Loopback

Digital loop via rear panel switch or DIP switch #8. Test LED lights
    during test.

2.4   Switches

Controlled carrier (with RTS/CTS delay) or constant carrier with
     RTS/CTS on
RTS/CTS delay of 16 or 20 ms
Analog Loop or normal operation
Internal timing or external transmits timing
Synchronous speeds of 600 or 1200 bps
Transmit level of +3 db, 0 db, -16db or -30db

2.5   Indicators

Power, Tx Data, Rx Data, RTS, CTS, DCD, Test

2.6   Environmental

Operation: -40 to 70° C, 0 to 95% relative humidity, non-
     condensing

2.7   Physical / Electrical

PC ISA bus format
Full size card or half size, populated to ½ its length with the
     electronic circuitry.
PC bus is used for power and ground only
14 slot rack chassis is 16.5"W x 16"D x 7"H

3.   INSTALLATION

3.1   Unpacking

The following is included with each V.23 Modem:

- Modem and external power supply
- Cable for connection to phone line
- Manual
- Information regarding warranty, maintenance contracts and repair

3.2   Location

Place the modem in a clear area where you can see the front panel indicators and reach the rear panel to connect the cables.

3.3   Setup

See Section 4 for option switch settings.

3.4   Connections

See Section 5 for interface information.

4.   CONTROLS AND INDICATORS

4.1   Controls

4.1.1 DIP Switches

The option DIP switches are located behind the front panel. The switch functions are as follows:

Switch	DOWN	UP
1 Not Used		
2 Speed	1200 bps	600 bps
3 RTS/CTS delay	16 ms	20 ms
4 Carrier	Constant	RTS controlled
5 Clocking	Internal TxClock	External (pin 24)
6 Tx Level	see table below	
7 Tx Level	see table below	
8 Digital Loop	Loop ON	Loop OFF

Transmit Audio Level Settings

Level (dBm)	Switch 6	Switch 7
+3	UP	UP
0	UP	DOWN
-16	DOWN	UP
-30	DOWN	DOWN

4.1.2 Loopback Switch

The loopback switch is located on the rear of the modem.
DIP switch position 8 also performs loopback.

4.2   Indicators

Indicator	Condition	Meaning
POWER	ON	Unit has power
TXD	ON	Transmitting data
RXD	ON	Receiving data
RTS	ON	
CTS	ON	
DCD	ON	
TEST	ON	Unit is in loopback

5.   INTERFACE SIGNALS

5.1   Port Interface

5.1.1   RS-232 Port

Pin	Signal	In/Out
2	Transmit Data	IN
3	Receive Data	OUT
4	Request to Send	IN
5	Clear to Send	OUT
6	Data Set Ready	OUT
7	Signal Ground	------
8	Data Carrier Detect	OUT
15	Transmit Clock	OUT
17	Receive Clock	OUT
24	External Transmit Clock	IN

5.1.2   TELCO, RJ-11

Pin	Signal	In/Out
1	Receive Tip	IN
2	Transmit Ring	OUT
3	Transmit Tip	OUT
4	Receive Ring	IN

6.   TROUBLESHOOTING

6.1   General Approach

When troubleshooting problems, a rational plan can save you many
hours of frustration. The following is a brief outline of standard
troubleshooting procedures.

1. Gather the facts to determine the exact nature of the problem.

2. Draw a picture of the system showing the equipment at both
    the host and remote ends and the phone lines or in-house
    wiring. Use this as a reference to note your observations, test
    steps and test results. A picture keeps you focused and often
    saves duplicate effort.

3. Record the front panel indications before changing anything.
    This is an important part of fact gathering

4. If you change anything, change only one thing at a time.

5. Use the built-in test functions, especially the loopback tests.
    Record your results.

7.   WARRANTY

All DCB products are warranted to be free of defects in materials and workmanship for one year. Data Comm for Business, Inc. will repair or replace any equipment proven to be defective within the warranty period. All warranty work is F.O.B. Dewey, IL. This warranty is exclusive of abuse, misuse, accidental damage, acts of God or consequential damages, etc. DCB liability shall not exceed the original purchase price.

All equipment returned for repair must be accompanied by a Returned Material Authorization (RMA) number. To receive an RMA number, call (217) 897-6600 between the hours of 8 AM and 5 PM central time. Equipment must be shipped prepaid to DCB and will be returned at DCB's expense.

Ship returned items to:

Data Comm for Business
2949 CR 1000E
Dewey, IL 61840

Data Comm for Business, Inc.
PO Box 6329
Champaign, IL 61826-6329

Tel   (217) 897-6600
Fax   (217) 897-1331
Email   support@dcbnet.com