Notice

The PC card modem meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

The RINGER EQUIVALENCE NUMBER (REN) for this terminal equipment is Not Applicable. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination of an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five (5.0).

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(217) 897-6600
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Firmware Version: 1.7

December 2, 2010

8500090
The 202T modem operates at 0 to 1200 bps asynchronous, with FSK modulation. It uses the latest DSP modem circuitry to insure excellent performance and future availability. It has 900 hz soft carrier turn off for multidrop applications and an anti-streaming option. PC half card, standalone and custom OEM board configurations are available. The PC card uses the internal ISA bus for power and ground. The PC card fits into a 20 slot rack mount chassis that is only 7” high. The phone line connector is an RJ-11 for 2 wire or 4-wire leased line operation. Transmit is on positions 3 and 4, receive 2 and 5 of the 6 position jack. For 2-wire operation, a special cable configuration is required (see Section 5).

The modem has DIP switch controls for reset, anti-streaming, RTS/CTS delay, constant or controlled carrier, soft carrier turn-off, 2-wire or 4-wire line, transmit level and loopback. The modem also has a pushbutton switch for local digital loopback. The DIP switches are accessible from the front of the modem. A pushbutton loopback switch is located on the rear of the unit.
12, 24 or 48 VDC Power Option

- POWER
- TXD
- RXD
- RTS
- CTS
- DCD
- TEST

DIP SWITCHES

Rack Mount
2. SPECIFICATIONS

2.1 Modem

- Analog full duplex, 4-wire, 600 ohm balanced, Frequency Shift Keying
- Mark-1200 hertz, Space-2200 hertz
- Speed: 0 to 1200 bps ASYNC
- Transmit level: 0 or -16 dBm
- Receive range: 0 to -42 dBm
- Carrier turn-on time: less than 12 ms
- 900 Hertz Soft Carrier Turn-Off for multidrop operation
- Switched carrier or constant carrier operation (RTS forced on or terminal controlled)
- Will drive up to 30 Km of cable depending upon wire gauge

2.2 Digital Interface

- RS-232, DB-25S
- Signals are Tx, Rx, RTS, CTS, DSR, DCD
- RTS/CTS delay: 12ms or 20ms switch selectable
- Rx data is clamped to mark when no receive carrier detect is present.

2.3 Loopback

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

2.4 Switches

- Reset
- Anti-streaming (8 seconds)
- RTS/CTS Delay
- Constant or Controlled Carrier
- Soft Carrier Turn-off
- 2-Wire or 4-Wire Line
- Transmit Level 0 or -16 dBm
- Loopback

2.5 Indicators

- Power, Tx Data, Rx Data, RTS, CTS, DCD, Test
2.6 Environmental
   - 40 to 70°C, 0 to 95% relative humidity, non-condensing

2.7 Physical / Electrical

Stand Alone
   5.5W x 7.375D x 1.5H
   110VAC wall mount power supply, 9VDC, 500ma output
   Optional 240VAC, +12VDC, +24VDC, -48VDC or +125VDC power supplies available

PC Card
   half card, 7.25D x 4.25H
   ISA bus format
   PC bus is used for power and ground only
   20 slot rack chassis available, 19W x 16D x 7H, 110VAC, 250W
3. INSTALLATION

3.1 Unpacking

The following is included with each unit:

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

3.2 Location

Place the unit 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 and cabling information.
4. CONTROLS AND INDICATORS

4.1 Controls

4.1.1 DIP Switches

The option DIP switches are located on the front of the unit. The switch functions are as follows:

<table>
<thead>
<tr>
<th>Switch</th>
<th>DOWN</th>
<th>UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Reset</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>2 Anti-Streaming</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>3 RTS/CTS delay</td>
<td>12 ms</td>
<td>20 ms</td>
</tr>
<tr>
<td>4 Carrier</td>
<td>Constant</td>
<td>RTS controlled</td>
</tr>
<tr>
<td>5 Soft Carrier Turn-off</td>
<td>disabled</td>
<td>enabled</td>
</tr>
<tr>
<td>6 Line Type</td>
<td>4-wire</td>
<td>2-wire</td>
</tr>
<tr>
<td>7 Tx Level</td>
<td>-16 dBm</td>
<td>0 dBm</td>
</tr>
<tr>
<td>8 Digital Loop</td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**NOTE**
For operation on 2-wire lines, switches 4 and 6 must both be UP.

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

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Condition</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>ON</td>
<td>Unit has power</td>
</tr>
<tr>
<td>TXD</td>
<td>ON</td>
<td>Transmitting data</td>
</tr>
<tr>
<td>RXD</td>
<td>ON</td>
<td>Receiving data</td>
</tr>
<tr>
<td>RTS</td>
<td>ON</td>
<td>RTS high or forced on (switch 4)</td>
</tr>
<tr>
<td>CTS</td>
<td>ON</td>
<td>CTS high to terminal</td>
</tr>
<tr>
<td>DCD</td>
<td>ON</td>
<td>Receiving carrier</td>
</tr>
<tr>
<td>TEST</td>
<td>ON</td>
<td>Unit is in loopback</td>
</tr>
</tbody>
</table>
### Interface Signals and Cables

#### 5.1 Interface

**RS-232 Port, DB-25S**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>In/Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Frame Ground</td>
<td>------</td>
</tr>
<tr>
<td>2</td>
<td>Transmit Data</td>
<td>IN</td>
</tr>
<tr>
<td>3</td>
<td>Receive Data</td>
<td>OUT</td>
</tr>
<tr>
<td>4</td>
<td>Request to Send</td>
<td>IN</td>
</tr>
<tr>
<td>5</td>
<td>Clear to Send</td>
<td>OUT</td>
</tr>
<tr>
<td>6</td>
<td>Data Set Ready</td>
<td>OUT</td>
</tr>
<tr>
<td>7</td>
<td>Signal Ground</td>
<td>------</td>
</tr>
<tr>
<td>8</td>
<td>Data Carrier Detect</td>
<td>OUT</td>
</tr>
</tbody>
</table>

**TELCO, RJ-11**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Color</th>
<th>In/Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Receive Tip</td>
<td>Black</td>
<td>IN</td>
</tr>
<tr>
<td>3</td>
<td>Transmit Ring</td>
<td>Red</td>
<td>OUT</td>
</tr>
<tr>
<td>4</td>
<td>Transmit Tip</td>
<td>Green</td>
<td>OUT</td>
</tr>
<tr>
<td>5</td>
<td>Receive Ring</td>
<td>Yellow</td>
<td>IN</td>
</tr>
</tbody>
</table>

#### 5.2 Cables

Cables are included for connection to 4-wire circuits. For connection to 2-wire circuits, special wiring is required.

**Modem to 2-wire TELCO Circuit**

<table>
<thead>
<tr>
<th>Modem</th>
<th>Demarc</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ-11</td>
<td>RJ-11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Black</td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
</tr>
<tr>
<td>4</td>
<td>Green</td>
</tr>
<tr>
<td>5</td>
<td>Yellow</td>
</tr>
</tbody>
</table>
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.

6.2 Assistance

If you need assistance troubleshooting your system, contact DCB customer support at (217) 897-6600 between 8:00 am and 5:00 pm central time Monday through Friday.
DCB modems are warranted to be free of defects in materials and workmanship for two years. 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 County Road 1000E
Dewey, IL 61840
ATTN: RMA#