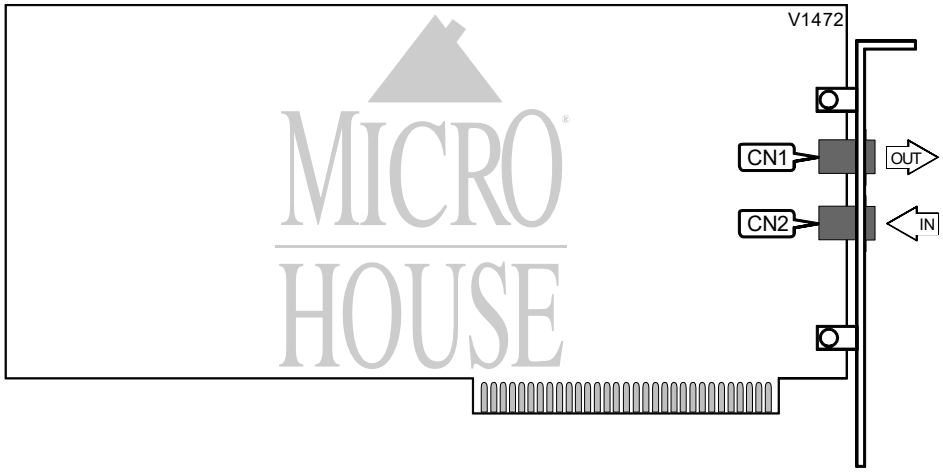
CARDINAL TECHNOLOGIES, INC.
MVP288IV

| | |
|---|---|
| **Modem Type** | Data (synchronous/asynchronous)/Fax/Voice |
| **Maximum Data Rate** | 28.8Kbps |
| **Maximum Fax Rate** | 14.4Kbps |
| **Data Bus** | 8 Bit ISA |
| **Fax Class** | Class I & II |
| **Data Modulation Protocol** | Bell 103A/212A<br>ITU-T V.21, V.22, V.22bis, V.23, V.32, V.32bis, V.34<br>Rockwell V.FC |
| **Fax Modulation Protocol** | ITU-T V.17, V.21CH2, V.27ter, V.29 |
| **Error Correction/Compression** | MNP5, V.42, V.42bis |




| CONNECTIONS | | | |
|---|---|---|---|
| Purpos | Location | Purpos | Location |
| Line out | CN1 | Line in | CN2 |

## Proprietary AT Command Set

| AUTO-RETRAIN - FALLBACK/FALLFORWARD | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] %E*n* [cmds] |
| **Example:** | AT **%E2** <CR> |
| **Description:** | Controls auto-retrain mode and fallback/fall forward. |
| **Command** | **Function** |
| %E0 | Auto-retrain disabled. |
| %E1 | Auto-retrain enabled. |
| í %E2 | Fallback/fall forward enabled. |

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| BIT-MAPPED REGISTERS | |
|---|---|
| Register | Default |
| S14 | 138 |
| S16 | 0 |
| S21 | 52 |
| S22 | 117 |
| S23 | 62 |
| S27 | 73 |
| S28 | 0 |
| S31 | 194 |
| S39 | 3 |
| S40 | 104 |
| S41 | 195 |

| BREAK SEND | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] \B*n* [cmds] |
| **Example:** | AT **\B3** &W<CR> |
| **Default:** | 3 |
| **Range:** | 1-9 |
| **Unit:** | .1 second |
| **Description:** | Sends break to modem. |

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| BREAK TYPE | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] \K*n* [cmds] |
| **Example:** | AT **\K5** <CR> |
| **Description:** | Configures action of break signal. |

| Command | Break from DTE Reliable/Normal mode | Modem receives \B | Break from remote modem |
|---|---|---|---|
| \K0 | Enter command mode, do not send break to remote modem. | Buffers cleared and break sent to remote modem. | Buffers cleared and break sent to DTE. |
| \K1 | Buffers cleared and break sent to remote modem. | Buffers cleared and break sent to remote modem. | Buffers cleared and break sent to DTE. |
| \K2 | Enter command mode, do not send break to remote modem. | Send break to remote modem immediately. | Send break to DTE immediately. |
| \K3 | Send break to remote modem immediately. | Send break to remote modem immediately. | Send break to DTE immediately. |
| \K4 | Enter command mode, do not send break to remote modem. | Send break to remote modem with transmitted data. | Break sent with received data to the DTE. |
| í \K5 | Send break with transmitted data. | Send break to remote modem with transmitted data. | Break sent with received data to the DTE. |

| COMPROMISE EQUALIZER | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] :E*n* [cmds] |
| **Example:** | AT **:E1** &W<CR> |
| **Description:** | Controls V.32 compromise equalizer. |

| Command | Function |
|---|---|
| :E0 | Equalizer disabled. |
| í :E1 | Equalizer enabled. |

| CONNECT MODE | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] \N*n* [cmds] |
| **Example:** | AT **\N1** DT555-1212<CR> |
| **Description:** | Sets connect mode. |

| Command | Function |
|---|---|
| \N0 | Normal mode. |
| \N1 | Direct mode. |
| \N2 | Reliable mode. |
| í \N3 | Auto-reliable mode. |
| \N4 | V.42 reliable mode. |
| \N5 | MNP error correction mode |

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| COMPRESSION | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] %C*n* [cmds] |
| **Example:** | AT *EC0 **%C1** *AP0<CR> |
| **Description:** | Selects data compression. |

| Command | Function |
|---|---|
| %C0 | Data compression disabled. |
| %C1 | MNP5 enabled. |
| %C2 | V.42bis enabled. |
| í %C3 | MNP5 and V.42bis enabled. |

| EXTENDED RING | |
|---|---|
| **Format:** | AT [cmds] -SDR=*n* [cmds] |
| **Example:** | AT**-SDR=3**<CR> |
| **Default:** | 0 |
| **Range:** | 0 - 7 |
| **Unit:** | Bit-mapped |
| **Description:** | Selects the response to extended ring types. |

| Bit | Value | Function |
|---|---|---|
| 0 | í 0 | Do not respond to ring type 1. |
| | 1 | Respond to ring type 1. |
| 1 | í 0 | Do not respond to ring type 2. |
| | 1 | Respond to ring type 2. |
| 2 | í 0 | Do not respond to ring type 3. |
| | 1 | Respond to ring type 3. |

| FLASH DIAL MODIFIER TIME | |
|---|---|
| **Format** | AT [cmds] S29=*n* [cmds] |
| **Example:** | AT**S29=70**<CR> |
| **Default:** | 70 |
| **Range:** | 0-255 |
| **Unit:** | .001 second |
| **Description:** | Time the modem will go on-hook upon receiving the ! dial modifier in dial string. |

| FLOW CONTROL | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] \G*n* [cmds] |
| **Example:** | AT **\G0** &K3<CR> |
| **Description:** | Selects modem port flow control. |

| Command | Function |
|---|---|
| í \G0 | Flow control disabled. |
| \G1 | Flow control enabled. |

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| FLOW CONTROL CHARACTER - XOFF | |
|---|---|
| **Type:** | Register |
| **Format:** | AT [cmds] S33=*n* [cmds] |
| **Example:** | AT**S33=20**<CR> |
| **Default:** | 19 |
| **Range:** | 0-255 |
| **Unit:** | ASCII |
| **Description:** | Sets the character used to represent XOFF. |

| FLOW CONTROL CHARACTER - XON | |
|---|---|
| **Type:** | Register |
| **Format:** | AT [cmds] S32=*n* [cmds] |
| **Example:** | AT**S32=20**<CR> |
| **Default:** | 17 |
| **Range:** | 0-255 |
| **Unit:** | ASCII |
| **Description:** | Sets the character used to represent XON. |

| LINE SIGNAL LEVEL | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] %L [cmds] |
| **Example:** | AT **%L** &W<CR> |
| **Description:** | Returns recieved line signal level. |

| MAXIMUM BLOCK SIZE FOR TRANSMISSION | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] \A*n* [cmds] |
| **Example:** | AT **\A1** %C1<CR> |
| **Description:** | Sets the maximum transmittable block size. |

| **Command** | **Function** |
|---|---|
| \A0 | MNP block size is 64 characters. |
| í \A1 | MNP block size is 128 characters. |
| \A2 | MNP block size is 192 characters. |
| \A3 | MNP block size is 256 characters. |

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| MNP10 TRANSMISSION LEVEL | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] -SEC*n*,*a* [cmds] |
| **Example:** | AT-**SEC1,24**<CR> |
| **Default:** | Unidentified |
| **Range:** | *a*=0-30 |
| **Unit:** | -1 dBm |
| **Description:** | Enables/disables and sets the transmission level for MNP10. |
| **Command** | **Function** |
| *n*=0 | MNP10 disabled. |
| *n*=1 | MNP10 enabled. |

| MODULATION SELECTION | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] +MS=*xx,y,zzz,aaa* [cmds] |
| **Example:** | AT **+MS11,1,300,28800** &W<CR> |
| **Description:** | Sets options for active protocol. The transfer rates specified by *z* and *a* must be valid for the protocol selected. |
| **Command** | **Function** |
| *x*=0 | V.21 |
| *x*=1 | V.22 |
| *x*=2 | V.22bis |
| *x*=3 | V.23 |
| *x*=9 | V.32 |
| *x*=10 | V.32bis |
| *x*=11 | V.34 |
| *x*=64 | Bell 103A |
| *x*=69 | Bell 212A |
| *x*=74 | V.FC |
| *y*=1 | Auto-detect highest speed enabled. |
| *y*=0 | Automode disabled. |
| *z, a*=300 | Set minimum or maximum transfer rate at 300bps, respectively. |
| *z, a*=1200 | Set minimum or maximum transfer rate at 1200bps, respectively. |
| *z, a*=2400 | Set minimum or maximum transfer rate at 2400bps, respectively. |
| *z, a*=4800 | Set minimum or maximum transfer rate at 4800bps, respectively. |
| *z, a*=7200 | Set minimum or maximum transfer rate at 7200bps, respectively. |
| *z, a*=9600 | Set minimum or maximum transfer rate at 9600bps, respectively. |
| *z, a*=12000 | Set minimum or maximum transfer rate at 12000bps, respectively. |
| *z, a*=14400 | Set minimum or maximum transfer rate at 14400bps, respectively. |
| *z, a*=16800 | Set minimum or maximum transfer rate at 16800bps, respectively. |
| *z, a*=19200 | Set minimum or maximum transfer rate at 19200bps, respectively. |
| *z, a*=21600 | Set minimum or maximum transfer rate at 21600bps, respectively. |
| *z, a*=24000 | Set minimum or maximum transfer rate at 24000bps, respectively. |
| *z, a*=26400 | Set minimum or maximum transfer rate at 26400bps, respectively. |
| *z, a*=28800 | Set minimum or maximum transfer rate at 28800bps, respectively. |

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| REPORT INFORMATION | |
|---|---|
| **Type:** | Immediate |
| **Format:** | AT [cmds] I*n* [cmds] |
| **Example:** | AT **I1** O<CR> |
| **Description:** | Displays modem properties. |
| **Command** | **Function** |
| I0 | Reports product code. |
| I1 | Reports firmware checksum. |
| I2 | Reports firmware checksum result. (Report OK if correct) |
| I3 | Reports firmware revision. |
| I4 | Reports identifier string. |
| I5 | Reports country code. |
| I6 | Reports Data Pump modem and revision. |

| REPORT SIGNAL QUALITY | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] %Q [cmds] |
| **Example:** | AT **%Q** &W<CR> |
| **Description:** | Reports signal quality. |

| SLEEP TIMER | |
|---|---|
| **Format** | AT [cmds] S24=*n* [cmds] |
| **Example:** | AT**S24=0**<CR> |
| **Default:** | 0 |
| **Range:** | 0 - 255 |
| **Unit:** | 1 second |
| **Description:** | Maximum duration of DTE and DCE inactivity allowed prior to initiating low-power sleep mode. |

| TRANSMISSION LEVEL | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] @M*n* [cmds] |
| **Example:** | AT **@M25** &W<CR> |
| **Default:** | 0 |
| **Range:** | 11-30 |
| **Unit:** | -1 dBm |
| **Description:** | Sets the signal level for transmission. |
| **Command** | **Function** |
| í @M0 | -26dBm |
| @M1 | -30dBm |
| @M2-@M10 | -10dBm |

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| VOICE SENSING OFF-HOOK | |
|---|---|
| **Type:** | Configuration |
| **Format:** | AT [cmds] #CEXT=*n* [cmds] |
| **Example:** | AT **#CEXT=1** &W<CR> |
| **Description:** | During Voicemail monitoring, user can pick-up phone on any extention phone, other than the one hooked-up to the modem. |

| Command | Function |
|---|---|
| #CEXT=0 | Sensing disabled. |
| í #CEXT=1 | Sensing enabled. |
| #CEXT? | Displays current value. |
| #CEXT=? | Displays valid range. |