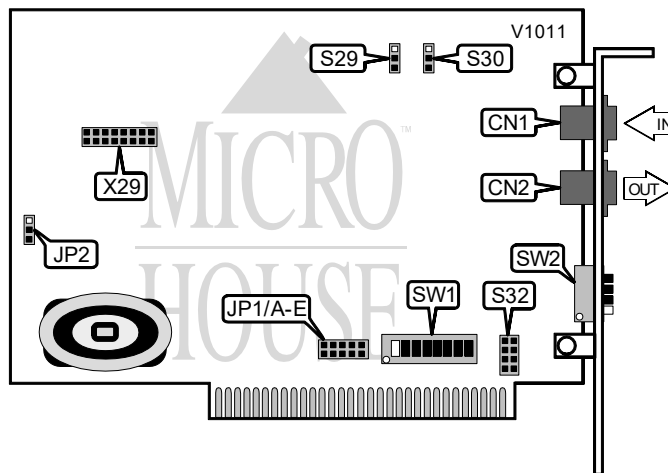


MULTITECH SYSTEMS, INC.

MT932BC/MT932BCI

| | |
|-------------------------------------|---------------------------------------|
| Modem Type | Data (synchronous/asynchronous)/Fax |
| Maximum Data Rate | 9600bps |
| Maximum Fax Rate | 9600bps |
| Data Bus | 8-bit ISA |
| Fax Class | Class I & II |
| Data Modulation Protocol | Bell 103A/212A |
| Fax Modulation Protocol | ITU-T V.21, V.22, V.22bis, V.23, V.32 |
| Error Correction/Compression | ITU-T V.21CH2, V.27ter, V.29 |
| | MNP2-5, V.42, V.42bis |



| CONNECTIONS | | | |
|---------------|----------|----------|----------|
| Purpos | Location | Purpos | Location |
| Line in | CN1 | Line out | CN2 |
| External LEDs | X29 | | |

| INTERRUPT SELECTION | | | | | |
|---------------------|--------|--------|--------|--------|--------|
| IRQ | JP1/A | JP1/B | JP1/C | JP1/D | JP1/E |
| 2 | Closed | Open | Open | Open | Open |
| 3 | Open | Closed | Open | Open | Open |
| 4 | Open | Open | Closed | Open | Open |
| 5 | Open | Open | Open | Closed | Open |
| 7 | Open | Open | Open | Open | Closed |

| BASE I/O ADDRESS SELECTION MODE | |
|---------------------------------|-------|
| Mode | SW1/8 |
| i DOS compatible | Off |
| Extended | On |

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MULTITECH SYSTEMS, INC.
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| EXTENDED MODE BASE I/O ADDRESS SELECTION | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|
| Address | SW1/1 | SW1/2 | SW1/3 | SW1/4 | SW1/5 | SW1/6 | SW1/7 |
| 100h | Off | On | On | On | On | On | On |
| 200h | On | Off | On | On | On | On | On |
| 300h | Off | Off | On | On | On | On | On |
| 400h | On | On | Off | On | On | On | On |
| 500h | Off | On | Off | On | On | On | On |
| 2E8h (COM4:) | Off | On | Off | Off | Off | On | Off |
| 2F8h (COM2:) | Off | Off | Off | Off | Off | On | Off |
| 3D8h | Off | Off | On | Off | Off | Off | Off |
| 3E0h | On | On | Off | Off | Off | Off | Off |
| 3E8h (COM3:) | Off | On | Off | Off | Off | Off | Off |
| 3F0h | On | Off | Off | Off | Off | Off | Off |
| 3F8h (COM1:) | Off | Off | Off | Off | Off | Off | Off |
| Note: A total of 127 memory base I/O address settings are available. The switches are a binary representation of the hexadecimal addresses. Switch SW1/1 is the Least Significant Bit and switch SW1/7 is the Most Significant Bit. The switches have the following decimal values: switch SW1/1=8, SW1/2=16, SW1/3=32, SW1/4=64, SW1/5=128, SW1/6=256, SW1/7=512. Turn off the switches and add the values of the off switches to obtain the correct base I/O address. (on=0, off=1) | | | | | | | |

| DTR MODE | |
|-------------|-------|
| Mode | SW2/1 |
| i Normal | Off |
| Forced high | On |

| COMPATIBLE MODE BASE I/O ADDRESS SELECTION | | |
|--|-------|-------|
| Address | SW2/2 | SW2/3 |
| COM1: (3F8h) | On | On |
| COM2: (2F8h) | On | Off |
| COM3: (3E8h) | Off | On |
| COM4: (2E8h) | Off | Off |

| CARRIER DETECT MODE | |
|---------------------|-------|
| Mode | SW2/4 |
| i Normal | Off |
| Forced high | On |

| NVRAM WRITE PROTECT | |
|---------------------|-------------------|
| Mode | JP2 |
| Disabled | Pins 1 & 2 closed |
| Enabled | Pins 2 & 3 closed |

Continued on next page . . .

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| FACTORY CONFIGURED - DO NOT ALTER | |
|-----------------------------------|-------------------|
| Jumper | Position |
| S29 | Pins 2 & 3 closed |
| S30 | Pins 2 & 3 closed |
| S32 | Open |

Proprietary Command Set

| AUTO-RELIABLE TIME BUFFER CONFIGURATION | |
|---|--|
| Type: | Configuration |
| Format: | AT [cmds] \$An [cmds] |
| Example: | AT \$A1 &W<CR> |
| Description: | Controls the handling of incoming data during auto-reliable time period. |
| Command | Function |
| i \$A0 | Data is discarded. |
| \$A1 | Data is buffered. |

| BIT MODE | |
|---------------------|-----------------------------|
| Type: | Configuration |
| Format: | AT [cmds] \$EBn [cmds] |
| Example: | AT \$EB1 E1<CR> |
| Description: | Selects 10- or 11-bit mode. |
| Command | Function |
| i \$EB0 | Sets 10-bit mode. |
| \$EB1 | Sets 11-bit mode. |

| CALLBACK ATTEMPTS | |
|---------------------|--|
| Type: | Register |
| Format: | AT [cmds] S16=n [cmds] |
| Example: | AT S16=6 <CR> |
| Default: | 4 |
| Range: | 1-255 |
| Unit: | 1 attempt |
| Description: | Sets the maximum number of login attempts after initial callback connection. |

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MULTITECH SYSTEMS, INC.
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| CALLBACK NUMBER | |
|-----------------|--|
| Type: | Configuration |
| Format: | AT [cmds] [+/-]DT<#>Nnn |
| Examples: | AT#DB2 +-DT555-1212N10<CR> |
| Description: | Sets the phone number associated with the password at memory location <i>nn</i> . |
| Command | Function |
| +DT | Modem will initiate callback on successful login. |
| -DT | Modem will allow immediate entry on successful login without callback. |
| +-DT | If password is followed by a -, modem will allow immediate entry. If password is followed by a + or nothing, modem will initiate callback. |

| CALLBACK PARITY | |
|-----------------|---|
| Type: | Configuration |
| Format: | AT [cmds] #P <i>n</i> [cmds] |
| Example: | AT #P0 #DB1<CR> |
| Description: | Sets the parity of the modem when in callback mode. |
| Command | Function |
| i #P0 | No parity. |
| #P1 | Odd parity. |
| #P2 | Even parity. |

| CALLBACK PASSWORD | |
|-------------------|---|
| Type: | Configuration |
| Format: | AT [cmds] #CBNnnxxxx |
| Example: | AT#DB2 #CBN09snarf<CR> |
| Description: | Sets the callback password at memory location <i>nn</i> to <i>xxxx</i> . The password must be between 6 and 10 characters, inclusive. |

| CALLBACK SECURITY | |
|-------------------|---|
| Type: | Configuration |
| Format: | AT [cmds] #DB <i>n</i> [cmds] |
| Example: | AT #DB1 S0=1<CR> |
| Description: | Sets the security level of the callback function. |
| Command | Function |
| i #DB0 | Disables security and clears callback memory. |
| #DB1 | Enables remote security only. |
| #DB2 | Enables local and remote security. |

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| COMMAND ESCAPE TYPE | |
|---------------------|--|
| Type: | Configuration |
| Format: | AT [cmds] %En [cmds] |
| Example: | AT %E3 &W<CR> |
| Description: | Sets type and response of command escape sequence. |
| Command | Function |
| %E0 | Command escape disabled. |
| i %E1 | TIES escape (+++AT...) |
| %E2 | <BREAK>AT method. |
| %E3 | Both TIES and BREAK methods. |
| %E4 | OK response to command escape disabled. |
| %E5 | OK response to command escape enabled. |

| COMMAND SET | |
|--------------|--|
| Type: | Configuration |
| Format: | AT &Qn |
| Example: | AT &Q1<CR> |
| Description: | Selects standard Hayes or custom command sets. |
| Command | Function |
| i &Q0 | Multi-Tech custom command set enabled. |
| &Q1 | Standard Hayes command set enabled. |

| COMPRESSION | |
|--------------|----------------------------|
| Type: | Configuration |
| Format: | AT &En |
| Example: | AT &E15 #L0<CR> |
| Description: | Selects data compression. |
| Command | Function |
| &E14 | Data compression disabled. |
| i &E15 | Data compression enabled. |

| COMPRESSION MODE | |
|------------------|---------------------------------------|
| Type: | Configuration |
| Format: | AT #Ln |
| Example: | AT #L2 DT555-1212<CR> |
| Description: | Selects active compression protocols. |
| Command | Function |
| i #L0 | V.42 negotiation enabled. |
| #L1 | MNP negotiation enabled. |
| #L2 | LAP-M negotiation enabled. |
| #L3 | LAP-M enabled, no negotiation. |

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| CTS SIGNAL | |
|---------------------|---|
| Type: | Configuration |
| Format: | AT [cmds] &RF <i>n</i> [cmds] |
| Example: | AT &RF0<CR> |
| Description: | Selects the function of the CTS signal. |
| Command | Function |
| &RF0 | CTS is set to RTS. |
| i &RF1 | CTS is independent of RTS. |

| DIAL STORED PHONE NUMBER | |
|--------------------------|---|
| Type: | Immediate |
| Format: | AT [cmds] N <i>n1</i> [N <i>n2</i> , N <i>n3</i> ...] |
| Example: | ATM0 N1N3N5<CR> |
| Description: | Dials stored phone number(s). If the first number is busy, the modem will proceed to the next number in the list. |

| DSR SIGNAL | |
|---------------------|---|
| Type: | Configuration |
| Format: | AT [cmds] &SF <i>n</i> [cmds] |
| Example: | AT &SF0<CR> |
| Description: | Selects the function of the DSR signal. |
| Command | Function |
| i &SF0 | DSR is set to CD. |
| &SF1 | DSR is independent of CD. |

| DTR DIALING | |
|---------------------|-------------------------------|
| Type: | Configuration |
| Format: | AT [cmds] \$D <i>n</i> [cmds] |
| Example: | AT \$D1 DT555-1212<CR> |
| Description: | Turns DTR dialing on and off. |
| Command | Function |
| i \$D0 | DTR dialing disabled. |
| \$D1 | DTR dialing enabled. |

| DTR TIMEOUT | |
|---------------------|---|
| Type: | Register |
| Format: | AT [cmds] S24= <i>n</i> [cmds] |
| Example: | ATS24=40<CR> |
| Default: | 20 |
| Range: | 0-255 |
| Unit: | 50 ms |
| Description: | Sets the time to drop the DTR signal to hangup. |

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| ERASE CALLBACK PASSWORD | |
|-------------------------|--|
| Type: | Immediate |
| Format: | AT [cmds] #RCBN <i>n</i> [cmds] |
| Example: | AT #RCBN05 #RDN05<CR> |
| Description: | Erases the callback password at the memory location specified. |

| ERASE CALLBACK NUMBER | |
|-----------------------|--|
| Type: | Immediate |
| Format: | AT [cmds] #RDN <i>n</i> [cmds] |
| Example: | AT #RCBN05 #RDN05<CR> |
| Description: | Erases the callback phone number at the memory location specified. |

| ERROR CORRECTION DISABLE ON CONNECT | |
|-------------------------------------|---|
| Type: | Configuration |
| Format: | AT [cmds] \$F <i>n</i> [cmds] |
| Example: | AT \$F1 DT555-1212<CR> |
| Description: | Selects whether error correction can be disabled by a <CR> while handshaking. |
| Command | Function |
| \$F0 | Error correction handshake interrupt disabled. |
| i \$F1 | Error correction handshake interrupt enabled. |

| ESCAPE SEQUENCE BUFFER SIZE | |
|-----------------------------|---|
| Type: | Register |
| Format: | AT [cmds] S34= <i>n</i> [cmds] |
| Example: | AT S34=30<CR> |
| Default: | 10 |
| Range: | 0-60 |
| Unit: | 1 byte |
| Description: | Sets the size of the buffer used to store commands during an escape sequence. |

| ESCAPE SEQUENCE - OUT OF BAND | |
|-------------------------------|--|
| Type: | Immediate |
| Format: | <BREAK> AT [cmds]<CR> |
| Example: | <BREAK> AT #F1<CR> |
| Description: | Puts the modem in Command Mode. |
| Notes: | Do not precede this command with AT. <BREAK> refers to the hardware modem break signal. |

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| ESCAPE SEQUENCE TIMEOUT | |
|-------------------------|--|
| Type: | Register |
| Format: | AT [cmds] S32= <i>n</i> [cmds] |
| Example: | AT S32=30 <CR> |
| Default: | 20 |
| Range: | 0-255 |
| Unit: | 1 second |
| Description: | Sets the maximum amount of time the modem will wait for a <CR> while executing an escape sequence. |

| FACTORY DEFAULTS | |
|---------------------|--|
| Type: | Immediate/Configuration |
| Format: | AT &F[<i>n</i>] |
| Example: | AT &F8 <CR> |
| Description: | Loads factory defaults, or sets write protect on NVRAM. |
| Command | Function |
| &F | Reloads defaults by setting. (Immediate, see below.) |
| i &F8 | Sets &F to read factory defaults from ROM, and disables NVRAM write protect. |
| &F9 | Sets &F to read defaults from NVRAM, and enables write-protect. |

| FLOW CONTROL NORMAL MODE | |
|--------------------------|------------------------------|
| Type: | Configuration |
| Format: | AT [cmds] &E <i>n</i> [cmds] |
| Example: | AT &E11 O<CR> |
| Description: | Selects normal flow control. |
| Command | Function |
| i &E10 | Normal mode disabled. |
| &E11 | Normal mode enabled. |

| FLOW CONTROL TYPE | |
|---------------------|--|
| Type: | Configuration |
| Format: | AT [cmds] &E <i>n</i> [cmds] |
| Example: | AT &E4 &W<CR> |
| Description: | Sets type of flow control used by modem. |
| Command | Function |
| &E3 | Flow control disabled. |
| i &E4 | CTS/RTS flow control enabled. |
| &E5 | XON/XOFF flow control enabled. |

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| HANDSHAKE ATTEMPTS | |
|---------------------|--|
| Type: | Configuration |
| Format: | AT [cmds] #An [cmds] |
| Example: | AT #A1 #L3<CR> |
| Description: | Configures the initial handshake phase. |
| Command | Function |
| #A0 | Attempts in order: 9600bps, 4800bps, 2400bps, 1200bps, 300bps. |
| #A1 | Attempts only 9600bps. |
| #A2 | Attempts in order: 9600bps, 4800bps. |
| #A3 | Attempts in order: 2400bps, 1200bps, 300bps. |

| HELP SCREENS | |
|---------------------|---------------------------|
| Type: | Immediate |
| Format: | AT \$Hn |
| Example: | AT \$H1<CR> |
| Description: | Shows modem help screens. |
| Command | Function |
| \$H1 | Shows help screen 1. |
| \$H2 | Shows help screen 2. |
| \$H3 | Shows help screen 3. |

| LIST CONFIGURATION | |
|---------------------|--------------------------------------|
| Type: | Immediate |
| Format: | AT Ln |
| Example: | AT L5<CR> |
| Description: | Lists modem configuration. |
| Command | Function |
| L5 | Lists all settings. |
| L6 | Lists the values of all S-registers. |
| L7 | Lists extended parameters. |

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| LOCAL SERIAL PORT SPEED | |
|-------------------------|-----------------------------------|
| Type: | Configuration |
| Format: | AT [cmds] \$SBnnn [cmds] |
| Example: | AT \$MB9600 \$SB19200 <CR> |
| Description: | Sets serial port speed. |
| Command | Function |
| \$SB300 | Sets 300baud speed. |
| \$SB1200 | Sets 1200baud speed. |
| \$SB2400 | Sets 2400baud speed. |
| \$SB4800 | Sets 4800baud speed. |
| \$SB9600 | Sets 9600baud speed. |
| \$SB19200 | Sets 19.2Kbaud speed. |
| \$SB38400 | Sets 38.4Kbaud speed. |
| \$SB57600 | Sets 57.6Kbaud speed. |

| LOCK SERIAL PORT | |
|---------------------|--|
| Type: | Configuration |
| Format: | AT [cmds] \$BA <i>n</i> [cmds] |
| Example: | AT \$SB57600 \$BA0 <CR> |
| Description: | Sets operation of serial port speed. |
| Command | Function |
| i \$BA0 | Serial speed locked at rate set by \$SB. |
| \$BA1 | Serial speed follows connect speed, ignoring \$SB. |

| LOGIN PASSWORD | |
|---------------------|---|
| Type: | Configuration |
| Format: | AT [cmds] #lxxx |
| Example: | AT #IMicroHouse <CR> |
| Description: | Sets the login password to xxxx. The password must be between 6 and 10 characters, case sensitive. It defaults to MULTI-TECH. |

| MAXIMUM BLOCK SIZE FOR TRANSMISSION | |
|-------------------------------------|---|
| Type: | Configuration |
| Format: | AT [cmds] &BS <i>n</i> [cmds] |
| Example: | AT &BS1 &MB28800<CR> |
| Description: | Sets the maximum transmittable block size. |
| Command | Function |
| &BS0 | Maximum block size is 64 characters. |
| i &BS1 | Maximum block size is 128 characters for LAP-M, and 256 characters for MNP. |

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| PACING | |
|---------------------|------------------------------|
| Type: | Configuration |
| Format: | AT [cmds] &E <i>n</i> [cmds] |
| Example: | AT &E13<CR> |
| Description: | Selects ENQ/ACK pacing. |
| Command | Function |
| &E12 | Disables ENQ/ACK pacing. |
| i &E13 | Enables ENQ/ACK pacing. |

| PACING - ENQ/ACK | |
|---------------------|------------------------------|
| Type: | Configuration |
| Format: | AT [cmds] &E <i>n</i> [cmds] |
| Example: | AT &E9<CR> |
| Description: | Selects ENQ/ACK pacing. |
| Command | Function |
| i &E8 | Enables ENQ/ACK pacing. |
| &E9 | Disables ENQ/ACK pacing. |

| REDIAL | |
|---------------------|--|
| Type: | Immediate |
| Format: | ATA: |
| Example: | ATA:<CR> |
| Description: | Redials the last number dialed until it is no longer busy. |

| REMOTE CONNECT SPEED | |
|----------------------|---|
| Type: | Configuration |
| Format: | AT \$MB <i>nnn</i> |
| Example: | AT \$MB9600 \$SB19200<CR> |
| Description: | Sets maximum remote connect speed. |
| Command | Function |
| \$MB75 | Sets V.23 (1200bps/75bps bi-directional). |
| \$MB300 | Sets 300bps connect. |
| \$MB1200 | Sets 1200bps connect. |
| \$MB2400 | Sets 2400bps connect. |
| \$MB4800 | Sets 4800bps connect. |
| \$MB9600 | Sets 9600bps connect. |

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| RETRANSMIT FAIL ACTION | |
|------------------------|--|
| Type: | Configuration |
| Format: | AT [cmds] \$Rn [cmds] |
| Example: | AT \$R1<CR> |
| Description: | Sets whether the modem gives up on a bad connection. |
| Command | Function |
| i \$R0 | Hang up after 12 failed retransmissions. |
| \$R1 | Do not hang up after 12 failed retransmissions. |

| STORE PHONE NUMBER IN NVRAM | |
|-----------------------------|--|
| Type: | Configuration |
| Format: | AT [cmds] D<#>Nn [dialstring] |
| Example: | ATD555-1212N1<CR> |
| Description: | Stores a phone number in the modem's memory. |

| TRELLIS MODULATION | |
|--------------------|------------------------------------|
| Type: | Configuration |
| Format: | AT [cmds] #Tn [cmds] |
| Example: | AT #T1<CR> |
| Description: | Controls Trellis Coded Modulation. |
| Command | Function |
| #T0 | Disables TCM. |
| i #T1 | Enables TCM. |

| UUCP SPOOFING | |
|---------------|--------------------------------------|
| Type: | Configuration |
| Format: | AT [cmds] \$SPn [cmds] |
| Example: | AT \$SP1 O<CR> |
| Description: | Controls the UUCP spoofing function. |
| Command | Function |
| i \$SP0 | Spoofing disabled. |
| \$SP1 | Spoofing enabled. |

| V.42 MODE | |
|--------------|--|
| Type: | Configuration |
| Format: | AT [cmds] &En [cmds] |
| Example: | AT &E0 <CR> |
| Description: | Configures the operation of V.42 mode. |
| Command | Function |
| &E0 | Error correction disabled. |
| i &E1 | V.42 set to auto-reliable. |
| &E2 | V.42 set to reliable. |

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| XON/XOFF PASS-THROUGH | |
|-----------------------|--|
| Type: | Configuration |
| Format: | AT [cmds] &En [cmds] |
| Example: | AT &E7 O<CR> |
| Description: | Selects whether XON/XOFF signals are sent to remote modem. |
| Command | Function |
| i &E6 | XON/XOFF signals trapped by local modem. |
| &E7 | XON/XOFF passed through local modem. |