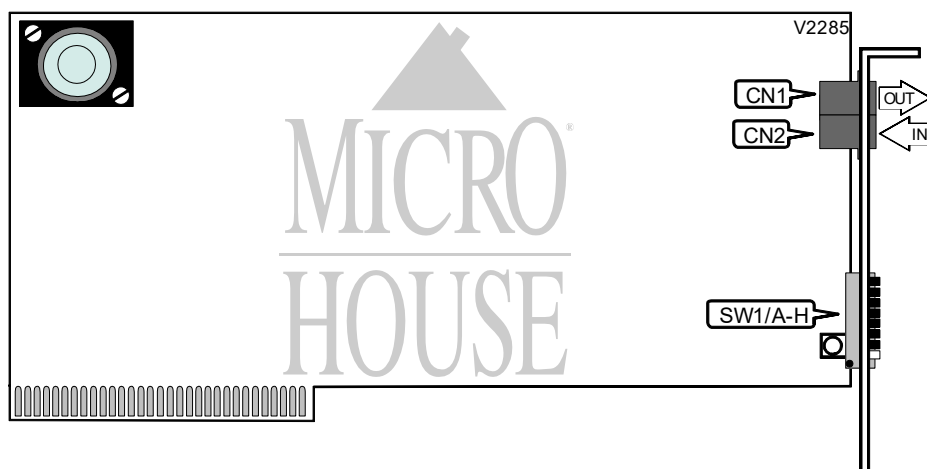


# DIGITAN SYSTEMS, INC.

## DS144FVM

|                              |                                    |
|------------------------------|------------------------------------|
| Card Type                    | Fax, Modem (asynchronous), Voice   |
| Chip Set                     | Rockwell                           |
| I/O Options                  | Voice-mail                         |
| Maximum Data Rate            | 14.4Kbps                           |
| Maximum Fax Rate             | 14.4Kbps                           |
| Data Bus                     | 8-bit ISA                          |
| Fax Class                    | Class I & II                       |
| Data Modulation Protocol     | Bell 103/212A                      |
|                              | ITU-T V.22, V.22bis, V.32, V.32bis |
| Fax Modulation Protocol      | ITU-T V.17, V.21CH2, V.27ter, V.29 |
| Error Correction/Compression | MNP5, V.42, V.42bis                |



| CONNECTIONS |       |          |       |
|-------------|-------|----------|-------|
| Function    | Label | Function | Label |
| Line out    | CN1   | Line in  | CN2   |

| SERIAL PORT ADDRESS |       |       |
|---------------------|-------|-------|
| Setting             | SW1/A | SW1/B |
| COM1 (3F8h)         | On    | On    |
| COM2 (2F8h)         | Off   | On    |
| COM3 (3E8h)         | On    | Off   |
| COM4 (2E8h)         | Off   | Off   |

| INTERRUPT SELECTION |       |       |       |       |       |       |
|---------------------|-------|-------|-------|-------|-------|-------|
| Setting             | SW1/C | SW1/D | SW1/E | SW1/F | SW1/G | SW1/H |
| 2                   | On    | Off   | Off   | Off   | Off   | Off   |
| 3                   | Off   | On    | Off   | Off   | Off   | Off   |
| 4                   | Off   | Off   | On    | Off   | Off   | Off   |
| 5                   | Off   | Off   | Off   | On    | Off   | Off   |
| 6                   | Off   | Off   | Off   | Off   | On    | Off   |
| 7                   | Off   | Off   | Off   | Off   | Off   | On    |

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## Proprietary AT Command Set

| BIT-MAPPED REGISTER S14 |  |  |
|-------------------------|--|--|
| Format:                 | AT [cmds] S14= <i>n</i> [cmds]   |  |
| Default:                | 138  |  |
| Range:                  | 0-174  |  |
| Unit:                   | Bit-mapped   |  |
| Description:            | Controls echo, result codes and display, dial mode, and answer/originate mode. |  |
| Bit                     | Value  | Function                               |
| 0                       | 0  | Not used                               |
| 1                       | 0  | Command echo disabled                  |
|                         | 1  | Command echo enabled                   |
| 2                       | 0  | Result codes enabled                   |
|                         | 1  | Result codes disabled                  |
| 3                       | 0  | Display result codes in numeric format |
|                         | 1  | Display result codes in verbose format |
| 4                       | 0  | Not used                               |
| 5                       | 0  | Tone dial enabled                      |
|                         | 1  | Pulse dial enabled                     |
| 6                       | 0  | Not used                               |
| 7                       | 0  | Answer mode enabled                    |
|                         | 1  | Originate mode enabled                 |

| BIT-MAPPED REGISTER S21 |   |   |
|-------------------------|---|---|
| Format                  | AT [cmds] S21= <i>n</i> [cmds]  |   |
| Default:                | 4   |   |
| Range:                  | 0-253   |   |
| Unit:                   | Bit-mapped  |   |
| Description:            | Selects jack type, CTS/DCD/DSR signals, low DTR action, and user defined profile. |   |
| Bit                     | Value   | Function  |
| 0                       | 0   | Selects RJ-11, RJ-41S, or RJ45S jack                  |
|                         | 1   | Selects RJ-12 or RJ-13 jack                           |
| 1                       | 0   | Not used  |
| 2                       | 0   | CTS follows RTS                                       |
|                         | 1   | CTS forced high                                       |
| 4, 3                    | 00  | DTR signal ignored                                    |
|                         | 01  | Modem goes to command mode on low DTR                 |
|                         | 10  | Modem disconnects on low DTR; Auto-Answer is disabled |
|                         | 11  | Modem is initialized on low DTR                       |
| 5                       | 0   | DCD forced high                                       |
|                         | 1   | DCD normal  |
| 6                       | 0   | DSR forced high                                       |
|                         | 1   | DSR normal  |
| 7                       | 0   | User defined profile 0                                |
|                         | 1   | User defined profile 1                                |

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| BIT-MAPPED REGISTER S22 |   |  |
|-------------------------|---|--|
| Format                  | AT [cmds] S22= <i>n</i> [cmds]                                  |  |
| Default:                | 117   |  |
| Range:                  | 0-255   |  |
| Unit:                   | Bit-mapped  |  |
| Description:            | Controls speaker volume and controls, and limits results codes. |  |
| Bit                     | Value   | Function   |
| 1, 0                    | 00  | Volume off   |
|                         | í 01  | Low level volume   |
|                         | 10  | Medium level volume  |
|                         | 11  | High level volume  |
| 3, 2                    | 00  | Speaker off  |
|                         | í 01  | Speaker off on carrier   |
|                         | 10  | Speaker always on  |
|                         | 11  | Speaker on during handshake  |
| 6 - 4                   | 000   | Basic result codes only enabled  |
|                         | 100   | Basic and connection speed result codes enabled                        |
|                         | 101   | Basic and connection speed result codes and dialtone detection enabled |
|                         | í 110   | All result codes except dialtone detection enabled                     |
|                         | 111   | All result codes enabled   |

| BIT-MAPPED REGISTER S23 |  |                                    |
|-------------------------|--|------------------------------------|
| Format                  | AT [cmds] S23= <i>n</i> [cmds]   |                                    |
| Default:                | 55   |                                    |
| Range:                  | 0-189  |                                    |
| Unit:                   | Bit-mapped   |                                    |
| Description:            | Grants/denies remote digital loopback, controls DTE rate and parity, and sets guard tone |                                    |
| Bit                     | Value  | Function                           |
| 0                       | 0  | Remote digital loopback denied     |
|                         | í 1  | Remote digital loopback allowed    |
| 3 - 1                   | 000  | Sets serial port speed to 0-300bps |
|                         | 001  | Sets serial port speed to 600bps   |
|                         | 010  | Sets serial port speed to 1200bps  |
|                         | 011  | Sets serial port speed to 2400bps  |
|                         | 100  | Sets serial port speed to 4800bps  |
|                         | 101  | Sets serial port speed to 9600bps  |
|                         | í 110  | Sets serial port speed to 19200bps |
| 5, 4                    | 00   | Parity even                        |
|                         | 01   | Not used                           |
|                         | 10   | Parity odd                         |
|                         | í 11   | No parity                          |
| 7, 6                    | í 00   | Guard tone disabled                |
|                         | 01   | Guard tone disabled                |
|                         | 10   | Guard tone 1800Hz enabled          |

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| BIT-MAPPED REGISTER S27 |   |   |
|-------------------------|---|---|
| Format                  | AT [cmds] S27= <i>n</i> [cmds]  |   |
| Default:                | 73  |   |
| Range:                  | 0-111   |   |
| Unit:                   | Bit-mapped  |   |
| Description:            | Selects synchronous/asynchronous mode, line type, clock source, and ITU-T/Bell modes. |   |
| Bit                     | Value   | Function  |
| 1, 0                    | 00  | Asynchronous mode, serial port speed follows connect speed  |
|                         | 01  | Asynchronous off-line command mode and synchronous connect mode   |
|                         | 10  | Asynchronous off-line command mode; modem auto-dials first number in directory, then synchronous connect mode |
|                         | 11  | Asynchronous off-line command mode on low DTR, synchronous connect mode on high DTR                           |
| 2                       | 0   | Switched line   |
|                         | 1   | Leased line   |
| 3                       | 1   | Not used  |
| 5, 4                    | 00  | Local modem generates transmit clock source   |
|                         | 01  | Local DTE generates transmit clock source   |
|                         | 10  | Remote DCE/DTE generates transmit clock source  |
| 6                       | 0   | ITU/T mode  |
|                         | 1   | Bell mode   |

| BIT-MAPPED REGISTER S28 |  |   |
|-------------------------|--|---|
| Format                  | AT [cmds] S28= <i>n</i> [cmds]   |   |
| Default:                | 0  |   |
| Range:                  | 0-31   |   |
| Unit:                   | Bit-mapped   |   |
| Description:            | Controls V.23 split speed, transmit/receive speed, pulse dialing and link negotiation. |   |
| Bit                     | Value  | Function  |
| 0                       | 0  | V.23 split speed operation disabled               |
|                         | 1  | V.23 split speed operation enabled                |
| 1                       | 0  | 75bps transmit, 1200bps receive enabled           |
|                         | 1  | 1200bps transmit, 75bps receive enabled           |
| 2                       | 0  | Not used  |
| 4, 3                    | 00   | 39ms make/61ms break at 10pps                     |
|                         | 01   | 33ms make/67ms break at 10pps                     |
|                         | 10   | 39ms make/61ms break at 20pps                     |
|                         | 11   | 33ms make/67ms break at 20pps                     |
| 5                       | 0  | Not used  |
| 7, 6                    | 00   | Link will be negotiated at highest possible speed |
|                         | 01   | Link will be negotiated at 1200bps                |
|                         | 10   | Link will be negotiated at 4800bps                |

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| BIT-MAPPED REGISTER S31 |  |   |
|-------------------------|--|---|
| Format:                 | AT [cmds] S31= <i>n</i> [cmds]                   |   |
| Default:                | 194  |   |
| Range:                  | 0-255  |   |
| Description:            | Select automode and extended result code format. |   |
| Bit                     | Value  | Function  |
| 0                       | 0  | Not used  |
| 1                       | 0<br>1   | Auto-mode detection disabled<br>In originate mode, handshake begins at line speed designated by the S37 register. Modem can shift to a slower speed if necessary.<br>In answer mode, handshake attempted with the following protocols in order - V.32bis, V.32, V.22bis, V.22 or Bell 212, and Bell 103 |
| 3, 2                    | 00<br>01<br>10                                   | Enables CONNECT result codes to report DTE speed<br>Full reporting of CONNECT result codes<br>Enables CONNECT result codes to report DCE speed  |
| 7 - 4                   | 1100   | Not used  |

| BIT-MAPPED REGISTER S40 |  |   |
|-------------------------|--|---|
| Format                  | AT [cmds] S40= <i>n</i> [cmds]   |   |
| Default:                | 105  |   |
| Range:                  | 0-255  |   |
| Unit:                   | Bit-mapped   |   |
| Description:            | Controls MNP extended services, MNP fallback, power level, break handling, and block size. |   |
| Bit                     | Value  | Function  |
| 0                       | 0<br>1   | MNP extended services disabled<br>MNP extended services enabled   |
| 1                       | 0<br>1   | MNP10 at 2400 and 1200bps disabled<br>MNP10 at 2400 and 1200bps enabled   |
| 2                       | 0<br>1   | Automatic power level adjustment enabled<br>Forced power level adjustment enabled   |
| 5, 4, 3                 | 000<br>001<br>010<br>011<br>100<br>101   | \K0<br>\K1<br>\K2<br>\K3<br>\K4<br>\K5  |
| 7, 6                    | 00<br>01<br>10<br>11   | MNP block size is 64 characters<br>MNP block size is 128 characters<br>MNP block size is 192 characters<br>MNP block size is 256 characters |

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| BREAK SEND   |                      |
|--------------|----------------------|
| Type:        | Configuration        |
| Format:      | AT [cmds] \Bn [cmds] |
| Default:     | 3                    |
| Range:       | 1-9                  |
| Unit:        | .1 second            |
| Description: | Sends break to modem |

| BREAK TYPE   |  |  |  |
|--------------|--|--|--|
| Type:        | Configuration  |  |  |
| Format:      | AT [cmds] \Kn [cmds]                                       |  |  |
| Description: | Configures action of break signal                          |  |  |
| Command      | Break from DTE   | Modem receives \B                              | Break received from remote modem         |
| \K0          | Online command mode enabled, send no break to remote modem | Break sent to remote modem and buffers cleared | Buffers cleared, break sent to DTE       |
| \K1          | Break sent to remote modem and buffers cleared             | Break sent to remote modem and buffers cleared | Buffers cleared, break sent to DTE       |
| \K2          | Online command mode enabled, send no break to remote modem | Send break to remote modem immediately         | Break sent immediately to DTE            |
| \K3          | Send break to remote modem immediately                     | Send break to remote modem immediately         | Break sent immediately to DTE            |
| \K4          | Online command mode enabled, send no break to remote modem | Send break with transmitted data               | Break sent with received data to the DTE |
| í \K5        | Send break with transmitted data                           | Send break with transmitted data               | Break sent with received data to the DTE |

| COMPRESSION  |                           |
|--------------|---------------------------|
| Type:        | Configuration             |
| Format:      | AT [cmds] %Cn [cmds]      |
| Description: | Selects data compression  |
| Command      | Function                  |
| %C0          | Data compression disabled |
| %C1          | MNP5 enabled              |
| %C2          | V.42bis enabled           |
| í %C3        | MNP5 and V.42bis enabled  |

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| CONNECT MODE |   |
|--------------|---|
| Type:        | Configuration   |
| Format:      | AT [cmds] \Nn [cmds]                                      |
| Description: | Controls the type of connection the modem will operate in |
| Command      | Function  |
| \N0          | Normal mode enabled                                       |
| \N1          | Direct mode enabled                                       |
| \N2          | Reliable mode enabled                                     |
| \N3          | Auto-reliable mode enabled                                |
| \N4          | V.42 reliable mode enabled                                |
| \N5          | MNP reliable mode enabled                                 |

| DIAL         |   |
|--------------|---|
| Type:        | Immediate   |
| Format:      | AT [cmds] D<#> [cmds]   |
| Description: | Dials telephone number according to any modifiers included in the string                    |
| Note:        | Any combination of modifiers can be used to produce the desired dial functions in sequence. |
| Modifier     | Function  |
| í P          | Pulse dialing enabled   |
| R            | Accepted, but not acted upon  |
| S=n          | Dial stored telephone number <i>n</i>   |
| T            | Tone dialing enabled  |
| W            | Dialing resumed following dial tone detection   |
| ,            | Dialing paused for amount of time specified in S8 register                                  |
| !            | Modem commanded to go off-hook for 750ms before returning on-hook                           |
| @            | Wait for quiet answer for 5 seconds   |
| ;            | Modem returned to command state after dialing   |

| FLASH DIAL MODIFIER TIME |   |
|--------------------------|---|
| Type:                    | Register  |
| Format                   | AT [cmds] S29= <i>n</i> [cmds]  |
| Default:                 | 70  |
| Range:                   | 0-255   |
| Unit:                    | .01 second  |
| Description:             | Time the modem will go on-hook upon receiving the ! dial modifier in dial string. |

| FLOW CONTROL |                                 |
|--------------|---------------------------------|
| Type:        | Configuration                   |
| Format:      | AT [cmds] \Gn [cmds]            |
| Description: | Selects modem port flow control |
| Command      | Function                        |
| í \G0        | Flow control disabled           |
| \G1          | Flow control enabled            |

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| FLOW CONTROL |  |
|--------------|--|
| Type:        | Read-only Register                             |
| Format:      | AT [cmds] S39? [cmds]                          |
| Description: | Displays the current flow control              |
| Value        | Meaning  |
| 0            | Flow control disabled                          |
| 3            | RTS/CTS flow control enabled                   |
| 4            | XON/XOFF flow control enabled                  |
| 5            | Transparent XON/XOFF flow control enabled      |
| 6            | Both XON/XOFF and RTS/CTS flow control enabled |

| FLOW CONTROL CHARACTER - XOFF |   |
|-------------------------------|---|
| Type:                         | Register                                  |
| Format:                       | AT [cmds] S33= <i>n</i> [cmds]            |
| 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= <i>n</i> [cmds]           |
| Default:                     | 17                                       |
| Range:                       | 0-255                                    |
| Unit:                        | ASCII                                    |
| Description:                 | Sets the character used to represent XON |

| INACTIVITY TIMER |   |
|------------------|---|
| Type:            | Register  |
| Format:          | AT [cmds] S30= <i>n</i> [cmds]  |
| Default:         | 0   |
| Range:           | 0-255   |
| Unit:            | 10 seconds  |
| Description:     | Maximum duration of DTE and DCE inactivity allowed prior to initiating hang-up process. |
| Note:            | S30=0 disable the timer   |

| MAXIMUM BLOCK SIZE FOR TRANSMISSION |   |
|-------------------------------------|---|
| Type:                               | Configuration                             |
| Format:                             | AT [cmds] \A <i>n</i> [cmds]              |
| Description:                        | Sets the maximum transmittable block size |
| Command                             | Function                                  |
| \A0                                 | MNP block size is 64 characters           |
| \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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| MNP - STREAM/BLOCK MODE |  |
|-------------------------|--|
| Type:                   | Configuration                          |
| Format:                 | AT [cmds] \Ln [cmds]                   |
| Description:            | Selects the transfer mode for MNP link |
| Command                 | Function                               |
| \L0                     | Stream mode for MNP enabled            |
| \L1                     | Block mode for MNP enabled             |

| SLEEP TIMER  |  |
|--------------|--|
| Type:        | Register   |
| Format:      | AT [cmds] S24= <i>n</i> [cmds]   |
| Default:     | 0  |
| Range:       | 0-255  |
| Unit:        | 1 second   |
| Description: | Maximum duration of DTE and DCE inactivity allowed prior to initiating low-power sleep mode. |
| Note:        | ATS24=0 will disable timer   |

| TEST MODES   |  |  |
|--------------|--|--|
| Type:        | Register   |  |
| Format:      | AT [cmds] S16= <i>n</i> [cmds]   |  |
| Default:     | 0  |  |
| Range:       | 0-125  |  |
| Unit:        | Bit-mapped   |  |
| Description: | Controls loopback tests: analog, digital, remote digital, and self tests |  |
| Bit          | Value  | Function   |
| 0            | 0  | Local analog loopback not in progress                |
|              | 1  | Local analog loopback in progress                    |
| 1            | 0  | Not used   |
| 2            | 0  | Local digital loopback not in progress               |
|              | 1  | Local digital loopback in progress                   |
| 3            | 0  | Modem not in remote digital loopback                 |
|              | 1  | Remote digital loopback in progress                  |
| 4            | 0  | Remote digital loopback not requested                |
|              | 1  | Remote digital loopback requested                    |
| 5            | 0  | Remote digital loopback w/ self-test not in progress |
|              | 1  | Remote digital loopback w/ self-test in progress     |
| 6            | 0  | Local analog loopback w/ self-test not in progress   |
|              | 1  | Local analog loopback w/ self-test in progress       |

| TRANSMISSION LEVEL - FAX |  |
|--------------------------|--|
| Type:                    | Register   |
| Format:                  | AT [cmds] S92= <i>n</i> [cmds]                           |
| Default:                 | 10   |
| Range:                   | 0-15   |
| Unit:                    | -1 dBm   |
| Description:             | Sets the signal level for transmission while in fax mode |

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| TRANSMISSION LEVEL - LEASED-LINE |  |
|----------------------------------|--|
| Type:                            | Register   |
| Format:                          | AT [cmds] S99= <i>n</i> [cmds]                           |
| Default:                         | 10   |
| Range:                           | 0-15   |
| Unit:                            | -1 dBm   |
| Description:                     | Sets the signal level for transmission over leased-lines |

| TRANSMISSION LEVEL - PSTN |  |
|---------------------------|--|
| Type                      | Register   |
| Format                    | AT [cmds] S91= <i>n</i> [cmds]                   |
| Default                   | 10   |
| Range                     | 0-15   |
| Unit                      | -1 dBm   |
| Description               | Sets the signal level for transmission over PSTN |