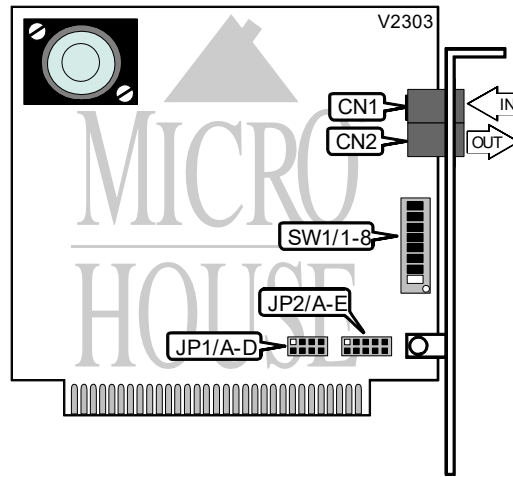


# PURETEK INDUSTRIAL CO, INC.

## 28800BPS FAX/MODEM ADAPTER (INT)

Card Type	Fax, Modem (asynchronous)
Chip Set	Unidentified
Maximum Data Rate	28.8Kbps
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.23, V.25, V.32, V.32bis, V.34 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				
Function	Label	Function	Label	Label
Line in	CN1	Line out	CN2	

USER CONFIGURABLE SETTINGS			
Setting	Label	Position	
í DTR normal	SW 1/1	Off	
Modem ignores DTR	SW 1/1	On	
í Verbose result codes	SW 1/2	Off	
Numeric result codes	SW 1/2	On	
í Result code display enabled	SW 1/3	On	
Result code display disabled	SW 1/3	Off	
í Local echo enabled	SW 1/4	Off	
Local echo disabled	SW 1/4	On	
í Auto answer disabled	SW 1/5	On	
Auto answer enabled	SW 1/5	Off	
í CD signal normal	SW 1/6	Off	
CD forced high	SW 1/6	On	
í Load Y or Y1 configuration from NVRAM	SW 1/7	Off	
Load &F0 generic template configuration from ROM	SW 1/7	On	
í Smart mode	SW 1/8	On	
Dumb mode	SW 1/8	Off	

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SERIAL PORT ADDRESS				
Setting	JP1/A	JP1/B	JP1/C	JP1/D
COM1 (3F8h)	On	Off	Off	Off
i COM2 (2F8h)	Off	On	Off	Off
COM3 (3E8h)	Off	Off	On	Off
COM4 (2E8h)	Off	Off	Off	On

INTERRUPT					
Setting	JP2/A	JP2/B	JP2/C	JP2/D	JP2/E
2	On	Off	Off	Off	Off
i 3	Off	On	Off	Off	Off
4	Off	Off	On	Off	Off
5	Off	Off	Off	On	Off
7	Off	Off	Off	Off	On

SUPPORTED COMMAND SET
Basic AT Commands
AT, '+++', A/
A, B, E, H, L, M, P, S, T, V
&G, &T
S Registers
S0, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12
<b>Note:</b> See MHI Help file for full command documentation.

### Proprietary AT Command Set

ABORT	
Type:	Immediate
Format:	Any key
Description:	Aborts answering/originating a call; modem hangs up.

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BIT-MAPPED REGISTER S13		
Format	AT [cmds] S13= <i>n</i> [cmds]	
Default:	0	
Range:	0-89	
Unit:	Bit-mapped	
Description:	Controls DTR reset, DTR dialing, reset dialing, and MNP3.	
Bit	Value	Function
0	0	DTR normal
	1	Reset on low DTR
1, 2	00	Not used
3	0	DTR dialing disabled
	1	DTR dialing enabled, dials number at position 0 in NVRAM.
4	0	Reset dialing disabled
	1	Reset dialing enabled, dials number at position 0 in NVRAM.
5	0	Not used
6	0	MNP 3 enabled
	1	MNP 3 disabled

BIT-MAPPED REGISTER S15		
Format	AT [cmds] S15= <i>n</i> [cmds]	
Default:	0	
Range:	0-56	
Unit:	Bit-mapped	
Description:	Controls non-error-correcting mode buffer, MNP4, and BS/DEL switch.	
Bit	Value	Function
0 - 2	0	Not used
3	0	Non-error-correcting mode transmit buffer set to 1.5KB
	1	Non-error-correcting mode transmit buffer set to 128 bytes
4	0	MNP 4 enabled
	1	MNP 4 disabled
5	0	Use backspace key for delete disabled
	1	Use backspace key for delete enabled

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BIT-MAPPED REGISTER S27		
Format:	AT [cmds] S27= <i>n</i> [cmds]	
Default:	0	
Range:	0-191	
Unit:	Bit-mapped	
Description:	Controls V.21, V.32 encoding and modulation, V.42 answer tone and handshake, and 9600 result codes.	
Bit	Value	Function
0	0	V.21 disabled
	1	V.21 enabled
1	0	V.32 non-trellis coding disabled
	1	V.32 non-trellis coding enabled
2	0	V.32 modulation enabled
	1	V.32 modulation disabled
3	0	2100Hz answer tone enabled
	1	2100Hz answer tone disabled
5, 4	00	V.42 detect, LAPM and MNP enabled
	01	V.42 detect and LAPM enabled, and MNP disabled
	10	MNP enabled
	11	LAPM enabled
6	0	Not used
7	0	Actual result codes displayed
	1	Force 9600 result codes

BIT-MAPPED REGISTER S56		
Format:	AT [cmds] S56= <i>n</i> [cmds]	
Default:	0	
Range:	0-255	
Unit:	Bit-mapped	
Description:	Controls non-linear coding, TX level deviation, pre-emphasis, pre-coding, shaping, V.34, and V.FC	
Bit	Value	Function
0	0	Non linear coding enabled
	1	Non linear coding disabled
1	0	TX level deviation enabled
	1	TX level deviation disabled
2	0	Pre-emphasis enabled
	1	Pre-emphasis disabled
3	0	Pre-coding enabled
	1	Pre-coding disabled
4	0	Shaping enabled
	1	Shaping disabled
5	0	Not used
6	0	V.34 enabled
	1	V.34 disabled
7	0	V.FC enabled
	1	V.FC disabled

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BAUD RATE		
Type:	Register	
Format:	AT [cmds] S54= <i>n</i> [cmds]	
Default:	0	
Range:	0-255	
Unit:	Bit-mapped	
Description:	Controls baud rate	
Bit	Value	Function
0	i 0	2400 baud rate enabled
	1	2400 baud rate disabled
1	i 0	2743 baud rate enabled
	1	2743 baud rate disabled
2	i 0	2800 baud rate enabled
	1	2800 baud rate disabled
3	i 0	3000 baud rate enabled
	1	3000 baud rate disabled
4	i 0	3200 baud rate enabled
	1	3200 baud rate disabled
5	i 0	3429 baud rate enabled
	1	3429 baud rate disabled
6	i 0	Call indicate during V.34 operation enabled
	1	Call indicate during V.34 operation disabled
7	i 0	V.8 during V.34 operation enabled
	1	V.8 during V.34 operation disabled

BREAK LENGTH	
Type:	Register
Format:	AT [cmds] S21= <i>n</i> [cmds]
Default:	10
Range:	Unidentified
Unit:	.01 second
Description:	Sets the length of error control mode breaks sent from DCE to DTE.

BREAK TYPE	
Type:	Configuration
Format:	AT [cmds] &Y <i>n</i> [cmds]
Description:	Configures action of break signal
Command	Function
&Y0	Empty buffer only
i &Y1	Empties buffer and break is sent immediately
&Y2	Do not empty buffer and break is sent immediately

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CARRIER DETECT (CD)	
Type:	Configuration
Format:	AT [cmds] &C <i>n</i> [cmds]
Description:	Controls the CD signal
Command	Function
&C0	Modem does not respond to CD signal
í &C1	CD signal normal

COMPRESSION	
Type:	Configuration
Format:	AT [cmds] &K <i>n</i> [cmds]
Description:	Selects data compression
Command	Function
&K0	Data compression disabled
í &K1	Auto enabled/disable data compression
&K2	Data compression enabled
&K3	MNP5 data compression disabled

COMPRESSION AND ERROR CORRECTION		
Format	AT [cmds] S51= <i>n</i> [cmds]	
Default:	0	
Range:	0-7	
Unit:	Bit-mapped	
Description:	Selects compression and error correction for specific modulations	
Bit	Value	Function
0	í 0	MNP/V.42 disabled during V.22 operation
	1	MNP/V.42 disabled during V.22 operation
1	í 0	MNP/V.42 disabled during V.22bis operation
	1	MNP/V.42 disabled during V.22bis operation
2	í 0	MNP/V.42 disabled during V.32bis operation
	1	MNP/V.42 disabled during V.32bis operation

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CONNECTION SPEED LOWER LIMIT	
Type:	Configuration
Format:	AT [cmds] &Un [cmds]
Description:	Sets minimum required connection speed
Command	Function
i &U0	Disabled
&U1	300bps
&U2	1200bps
&U3	2400bps
&U4	4800bps
&U5	7200bps
&U6	9600bps
&U7	12Kbps
&U8	14.4Kbps
&U9	16.8Kbps
&U10	19.2Kbps
&U11	21.6Kbps
&U12	24Kbps
&U13	26.4Kbps
&U14	28.8Kbps

CONNECTION SPEED UPPER LIMIT	
Type:	Configuration
Format:	AT [cmds] &Nn [cmds]
Description:	Sets maximum required connection speed, modem will hang up if it cannot connect.
Command	Function
i &N0	Variable
&N1	300bps
&N2	1200bps
&N3	2400bps
&N4	4800bps
&N5	7200bps
&N6	9600bps
&N7	12Kbps
&N8	14.4Kbps
&N9	16.8Kbps
&N10	19.2Kbps
&N11	21.6Kbps
&N12	24Kbps
&N13	26.4Kbps
&N14	28.8Kbps

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DATA SET READY (DSR)	
Type:	Configuration
Format:	AT [cmds] &Sn [cmds]
Description:	Selects DSR options
Command	Function
í &S0	DSR forced high
&S1	DSR controlled by modem

DATA TERMINAL READY (DTR)	
Type:	Configuration
Format:	AT [cmds] &Dn [cmds]
Description:	Selects modem response to DTR
Command	Function
&D0	Modem does not respond to DTR
&D1	Modem goes to command mode after DTR toggles
í &D2	Modem uses DTR as normal

DIAL	
Type:	Immediate
Format:	AT [cmds] D<#> [cmds]
Example:	<b>ATDT 443-3388,,,1111;</b>
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.
Command	Function
í P	Pulse dialing enabled
T	Tone dialing enabled
,	Dialing paused for amount of time specified by S8 (or 2 seconds)
;	Modem returned to command state after dialing. Can only be placed at the end of the dial command.
!	Flash function initiated
/	Pause for 125ms then proceed with dial string
@	Dial, wait for quiet answer, then continue to execute the rest of the dial string
W	Dial, wait for second dial tone for amount of time specified by S6, then continue to execute the rest of the dial string
R	Answer mode enabled, originate mode disabled following handshake initiation

DIAL - LAST NUMBER	
Type:	Immediate
Format:	AT [cmds] DL [cmds]
Description:	Re-dial last number dialed

DIAL - STORED NUMBER	
Type:	Immediate
Format:	AT [cmds] DS <i>n</i> [cmds]
Description:	Dial stored number from memory location <i>n</i>

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DISCONNECT BUFFER DELAY	
Type:	Register
Format:	AT [cmds] S38= <i>n</i> [cmds]
Default:	0
Range:	Unidentified
Unit:	1 second
Description:	Sets maximum duration allowed during buffered data calls to perform clearing functions after losing carrier-signal or receiving a clear call signal from the remote modem and before initiating hang-up process. A value of 0 will allow the modem to hanging-up after DTR drops.

DTR CHANGE THRESHOLD	
Type:	Register
Format:	AT [cmds] S25= <i>n</i> [cmds]
Default:	5
Range:	Unidentified
Unit:	.01 second
Description:	Sets maximum time a change in the DTR signal will be ignored

ERROR CORRECTION MODE (ARQ)	
Type:	Configuration
Format:	AT [cmds] &M <i>n</i> [cmds]
Description:	Selects active error correction protocols
Command	Function
&M0	Normal mode only
í &M4	Auto-detect mode
&M5	ARQ mode only

ESCAPE CHARACTER RESPONSE	
Type:	Register
Format:	AT [cmds] S14= <i>n</i> [cmds]
Description:	Controls reaction to escape character
Command	Function
í S14=0	Normal operation
S14=1	When +++ is received, modem goes on hook, enters command state and sends NO CARRIER result code.

EXTENDED RESULT CODES	
Type:	Configuration
Format:	AT [cmds] &A <i>n</i> [cmds]
Description:	Selects extended result codes
Command	Function
&A0	Extended result codes disabled
&A1	ARQ result codes enabled
&A2	ARQ result codes enabled and V.32 result code added
í &A3	Error control and compression result codes enabled

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FACTORY DEFAULT PROFILE	
Type:	Configuration
Format:	AT [cmds] &Fn [cmds]
Description:	Resets values in active profile to values found in the default profile, which are READ-ONLY.
Command	Function
&F0	Generic template
í &F1	Hardware flow control template
&F2	Software flow control template

FLOW CONTROL CHARACTER - XOFF	
Type:	Register
Format:	AT [cmds] S23= <i>n</i> [cmds]
Default:	19
Range:	0-127
Unit:	ASCII
Description:	Sets the character used to represent XOFF.

FLOW CONTROL CHARACTER - XON	
Type:	Register
Format:	AT [cmds] S22= <i>n</i> [cmds]
Default:	17
Range:	0-127
Unit:	ASCII
Description:	Sets the character used to represent XON.

FLOW CONTROL PASS-THROUGH	
Type:	Configuration
Format:	AT [cmds] &ln [cmds]
Description:	Allows modem to act on, then transmit XON/XOFF characters.
Command	Function
í &I0	Software flow control disabled
&I1	XON/XOFF passthrough enabled
&I2	XON/XOFF passthrough disabled

FLOW CONTROL TYPE	
Type:	Configuration
Format:	AT [cmds] &H <i>n</i> [cmds]
Description:	Sets type of flow control used by modem
Command	Function
&H0	Flow control disabled
í &H1	CTS/RTS flow control enabled
&H2	XON/XOFF flow control enabled
&H3	CTS/RTS and XON/XOFF flow control enabled

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FLOW CONTROL TYPE	
Type:	Configuration
Format:	AT [cmds] &R <i>n</i> [cmds]
Description:	Controls receive data hardware flow control and RTS signals
Command	Function
&R1	Modem ignores RTS
í &R2	Received data to DTE when RTS is on

HANDSHAKE TIMER	
Type:	Register
Format:	AT [cmds] S28= <i>n</i> [cmds]
Default:	8
Range:	0-255
Unit:	.1 second
Description:	Sets the length of handshake time, so modems with V.32bis are given a chance to connect at 9600bps or higher.

INACTIVITY TIMER	
Type:	Register
Format:	AT [cmds] S19= <i>n</i> [cmds]
Default:	0
Range:	Unidentified
Unit:	1 minute
Description:	Sets the length of time that the modem does not receive information before it disconnects.

LIST AMPERSAND COMMANDS	
Type:	Immediate
Format:	AT [cmds] &\$ [cmds]
Description:	Displays ampersand (&) commands

LIST DIAL COMMANDS	
Type:	Immediate
Format:	AT [cmds] D\$ [cmds]
Description:	Displays dial commands

LIST S-REGISTERS	
Type:	Immediate
Format:	AT [cmds] S\$ [cmds]
Description:	Displays the S-registers

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LOCK SERIAL PORT	
Type:	Configuration
Format:	AT [cmds] &Bn [cmds]
Description:	Sets operation of serial port speed
Command	Function
&B0	Serial speed follows connect speed
í &B1	Serial speed locked
&B2	Serial speed locked in ARQ mode only

MAPPING		
Format:	AT [cmds] S55=n [cmds]	
Default:	0	
Range:	0-15	
Unit:	Bit-mapped	
Description:	Controls all Map options	
Bit	Value	Function
0	í 0	8S-2D map enabled
	1	8S-2D map disabled
1	í 0	16S-4D map enabled
	1	16S-4D map disabled
2	í 0	32S-2D map enabled
	1	32S-2D map disabled
3	í 0	64S-4D map enabled
	1	64S-4D map disabled

ON-LINE	
Type:	Immediate
Format:	AT [cmds] On [cmds]
Description:	Controls on-line command (data transmission) mode options.
<b>Note:</b> The O command must be placed at the end of the command string.	
Command	Function
O0	On-line command mode with no retraining enabled
O1	On-line command mode with retraining enabled

ON-LINE HELP	
Type:	Immediate
Format:	AT [cmds] \$ [cmds]
Description:	On-line help; displays basic command list

POWER-UP/HARD RESET CONFIGURATIONS	
Type:	Configuration
Format:	AT [cmds] Yn [cmds]
Description:	On power-up modem uses default profiles
Command	Function
í Y0	Use default setting 0 saved in non-volatile RAM
Y1	Use default setting 1 saved in non-volatile RAM

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PULSE DIALING RATIO	
Type:	Configuration
Format:	AT [cmds] &Pn [cmds]
Description:	Selects pulse dial make/break ratio
Command	Function
í &P0	39/61ms at 10pps (North America)
&P1	33/67ms at 10pps (Europe)

REPORT INFORMATION	
Type:	Immediate
Format:	AT [cmds] In [cmds]
Description:	Displays information requested
Command	Function
I0	Reports 4-digit product code
I1	Reports ROM checksum
I2	Reports RAM checksum
I3	Reports product type
I4	Reports current command settings
I5	Reports NVRAM settings
I6	Reports link diagnostics
I7	Reports product configuration

RESULT CODES	
Type:	Configuration
Format:	AT [cmds] Qn [cmds]
Description:	Enables modem to send result codes to the DTE
Command	Function
í Q0	Result code sending enabled
Q1	Result code sending disabled
Q2	Result code sending enabled while in originate mode

SELECT CALL PROGRESS RESULT CODES	
Type:	Configuration
Format:	AT [cmds] Xn [cmds]
Description:	Enables selection of tone detection and associated result code format options
Command	Function
X0	Busy and dial tone detection disabled; result codes 0-4 enabled.
X1	Busy and dial tone detection disabled; result codes 0-5, 10-107 enabled
X2	Busy tone detection disabled, dial tone detection enabled; result codes 0-6, 10-107 enabled; also adaptive dialing, wait for second dial tone, and fast dialing enabled.
X3	Busy tone detection enabled, dial tone detection disabled; result codes 0-5, 7-107 enabled; also adaptive dialing, and wait for answer enabled.
í X4	Busy and dial tone detection enabled; result codes 0-1 3-25 enabled; also adaptive dialing, wait for second dial tone, wait for answer, and fast dialing enabled.
<b>Note:</b> Valid numeric result codes; 0-8, 10, 13, 18, 20, 21, 25, 43, 85, 91, 99, 103, and 107.	

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SOFT RESET	
Type:	Immediate
Format:	AT [cmds] Zn [cmds]
Description:	Restores modem profiles previously saved in non-volatile RAM
Command	Function
i Z0	Restore setting used by ATY command
Z1	Restore setting 0
Z2	Restore setting 1
Z3	Restore factory setting 0 (AT&F0)
Z4	Restore factory setting 1 (AT&F1)
Z5	Restore factory setting 2 (AT&F2)

STATUS-REGISTER	
Type:	Configuration
Format:	Read: AT [cmds] Sn? [cmds] Write: AT [cmds] Sn=x [cmds]
Description:	Writes to or reads from a specified register
<b>Note:</b> See the section on S-registers for detailed listing of commonly used S-registers.	
Command	Function
Sn.b=x	Write to register bit <i>b</i> using values 0 (off) and 1 (on) for <i>x</i>

STORE ACTIVE PROFILE	
Type:	Configuration
Format:	AT [cmds] &Wn [cmds]
Description:	Writes the values for the active profile into the non-volatile RAM templates
Command	Function
&W0	Write the active profile to stored profile 0
&W1	Write the active profile to stored profile 1

STORE TELEPHONE NUMBER	
Type:	Configuration
Format:	AT [cmds] &Zn=x [cmds]
Description:	Writes selected telephone numbers into the non-volatile memory at location <i>n</i>
<b>Note:</b> The characters described in the D command are valid for use in the &Z command.	
Command	Function
&Zn=L	Writes last executed dial string into the non-volatile memory at location <i>n</i>
&Zn?	Displays phone number from non-volatile memory at location <i>n</i>
&ZL?	Displays last executed dial string

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TEST TIMER	
Type:	Register
Format	AT [cmds] S18= <i>n</i> [cmds]
Default:	0
Range:	Unidentified
Unit:	1 second
Description:	Sets the maximum duration for modem tests
<b>Note:</b> S18=0 disables the timer and allows an indefinite duration.	

TONE DIALING TEST	
Type:	Register
Format:	AT [cmds] S16= <i>n</i> [cmds]
Description:	Selects the tone dialing test
Command	Function
í S16=0	Tone dialing test disabled
S16=2	Tone dialing test enabled

V.32 AND V.32bis MODULATIONS		
Format	AT [cmds] S34= <i>n</i> [cmds]	
Default:	0	
Range:	0-9	
Unit:	Bit-mapped	
Description:	Controls V.32 and V.32bis modulations.	
Bit	Value	Function
0	0	V.32bis enabled
	1	V.32bis disabled
2, 1	00	Not used
3	0	V.23 modulation disabled
	1	V.23 modulation enabled