Description

The Hidex II V.34bis Industrial Grade Modem is the most versatile model for Dial up or leased analog telephone line interconnect. The Hidex HX II 33T offers speeds up to 33.6K over the analog switched telephone network. They are temperature tested, rugged modems designed for Industrial applications. Directly connected to RTU's, traffic controllers, variable message signs or any number of other applications, they communicate at 300 bps to 33.6 kbps over analog telephone lines. All HX models have High voltage surge protection on the telephone lines. The power converter delivers 5VDC from 100 to 240 VAC, 50-60 Hz with World Wide safety approvals and a locking connector to prevent vibration disconnects. A wide voltage range of DC power models are optional.

Features

Category	***Description***
Client-to-Server Data Rates	Supports V.34bis data rates
AGC Dynamic Range	43 dB
Data Rates	33,600; 31,200; 28,800; 26,400; 24,000; 21,600; 19,200; 16,800; 14,400; 12,000; 9600; 7200; 4800; 2400; 1200; 0-300 bps
Command Buffer	60 characters
DAA Isolation	1500 Vac
Data Compatibility	V.34 enhanced, V.34, V.32bis, V.32, V.22bis, V.22; Bell 212A and 103/113, V.21 & V.23
Data Compression	ITU-T V.44 (6:1 throughput); V.42bis (4:1 throughput); MNP 5 (2:1 throughput*Fax Compression* MH, MR, MMR
Data Format	Serial, binary, asynchronous (available with parallel interface)
Dimensions	5 x 3 x 1 inches plus mounting tabs
Case Material	Black zinc oxide plated steel
Error Correction	Data Mode: V.42 (LAP-M or MNP 3–4)

Fax Compatibility	ITU-T "Super" Group 3; Class 1.0 (2.0, 2.1 – V.92 build only) Group 3, Class 1 and 2, T.4, T.30 Annex A & C, V.21, V.27ter, V.29, V.34, V.17, and TIA/EIA TR29.2 V.34 Super G3 fax at speeds up to 33.6Kbps V.17 G3 fax at speeds up to 14.4Kbps
Fax mode error correction	T.30 Annex A & C
Fax Data Rates	33,600; 31,200; 28,800; 26,400; 24,000; 21,600; 19,200; 16,800; 14,400; 12,000; 9600; 7200; 4800; 2400; 1200; 0-300 bps
Flow Control	XON/XOFF (software), RTS/CTS (hardware)
Operational Temperature	–40 to +85° C ambient under closed conditions; humidity range 20–90% (non-condensing)
Power Consumption	Typical: TBD Standby or Sleep: TBD Maximum: TBD
Receiver Sensitivity	–43 dBm under worst-case conditions
Serial Speeds	Serial port data rates adjustable to 300, 1200, 2400, 4800, 9600, 19,200, 38,400, 57,600, 115,200, and 230,400 bps
Storage Temperature	–50 to +100° C
Model Number:	HX II 33T
Registration No:	AU7USA-25814-M5-E
Ringer Equivalence:	0.3B
Modular Jack (USOC):	RJ11
Intelligent Features	Fully AT command compatible, Leased-line operation, Sleep mode Autodial, redial, Pulse or tone dial, Dial pauses, Auto answer Adaptive line probing, Automatic symbol and carrier frequency during start-up, retrain, and rate renegotiations. DTMF detection, Distinctive ring, Call status display, auto-parity and data rate selections Keyboard-controlled modem options, On-screen displays for modem option parameters, remote configuration, DTR dialing, phone number storage flash memory for firmware updates, NVRAM storage for user-defined options

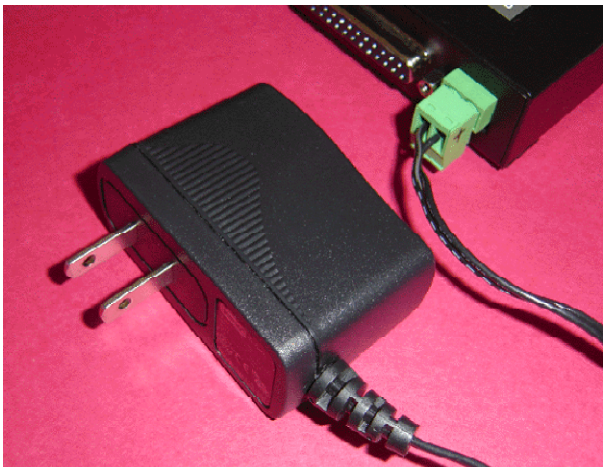
Compliance to Global Telephone Standards

Hidex II modems have passed the following homologation:
FCC Part 68
FCC Part 15
IC-CS03
ETSI TS 103 021-1,2,3 v.1.1.2 2003-09 (originally CTR21)
ESD

Power Supply

5 volt DC power to the modem is supplied through a 2-pin locking connector. Included with each modem is a switching power supply that will accept 90 to 240 VAC or DC. If you are going to power the modem from 5VDC remove the connector and attach to another pair of wires to connect to 5 VDC. CAUTION NOTE THE POLARITY ON THE CONNECTOR. The wire with the white dashes along the wire edge is the negative side.

An alternate power connection is available via pin 10 and pin 1 on DB25 connector. Simply connect the minus (ground) wire to pin 1 and the plus +5VDC to pin 10.



Data Interface

Data is interfaced via a DB25 female connector.

Pin 1 GRD	Signal Ground
Pin 2 TXD	Transmit Data
Pin 3 RXD	Receive Data
Pin 4 RTS	Request to Send
Pin 5 CTS	Clear to Send
Pin 6 DSR	Data Set Ready
Pin 7 SG	Signal Ground
Pin 8 DCD	Carrier Detect
Pin 10	(Alternate power input +5VDC)
Pin 20 DTR	Data Terminal Ready
Pin 22 RI	Ring Indicate

LED Indicators

DCD	Data Carrier Detect
RTS	Request To Send
CTS	Clear To Send
TXD	Transmit Data
RXD	Receive Data
RI/DSR	Ring Indicate/Data Set Ready
DTR	Data Terminal Ready

Hardware Setup:

Setup Procedure:

1. Use the RS-232 cable to connect the DB25 connector (J1) on the modem to a PC serial port (Typically COM1).

2. Connect the RJ11 connector to a phone line.
3. Connect external power to the power jack via wall adapter or +5VDC.

Hyper Terminal setup:

The modem can be tested as a standard serial data modem by connecting it to a personal computer or other data terminal equipment (DTE). Any standard terminal program such as HyperTerminal or ProComm running on a PC will communicate with the modem.

Procedure to setup HyperTerminal:

Check if HyperTerminal is installed in your PC. If not, see HELP on Windows Operating System for HyperTerminal installation.

1. Start -> Program -> Accessories -> Communications -> HyperTerminal

   When the HyperTerminal is opened for the first time, the application will ask for a title for storing all parameters you want to key in. After a title is given, there will be a prompt for the COM port to be used. Choose the corresponding port (COM1 is recommended). Then the port setting will be asked. Configure the terminal emulation program to 19200 bps, 8 data bits, no parity, one stop bit, and hardware (CTS) handshaking.

2. When the terminal program is properly configured and running, type “AT<cr>” inside the terminal window and the modem should return “OK”, indicating the modem is working in the command mode and communicating with the terminal. If the “OK” response is not received, try resetting the modem by pressing the manual reset switch (S1) then again type “AT<cr>”. If it is still not working, ensure that the right COM port is selected and make sure the correct port setting is entered.

3. If there is no line-feed after the “OK” response, click File->Properties. In the properties panel, choose “Settings”. In this panel, choose ASCII setup. In the ASCII panel, click the append line feeds to incoming lines. Click OK. You are now talking to one modem with the PC.

4. Use a similar procedure to setup the other modem with a different COM port.

5. Once the second modem is set up, the user can choose either one of the modems as the ANSWER modem.

6. If the modem is chosen as the ANSWER modem, type “ATI6<cr>”. The modem should respond with “2493”, “2457”, “2434”, “2415”, or “2404”, indicating the terminal is communicating with a Hidex modem.

7. Type “ATS0=2<cr>”. It means answer the phone after the second ring.

8. To take the modem off-hook, type “ATH1<cr>”. The modem should go to the off-hook state, draw loop current, and respond with an “OK”.

9. Next type “ATH<cr>” or “ATH0<cr>” and the modem should hang-up (go on-hook) and stop drawing loop current.

10. To make a modem connection, type “ATDT (called modem phone number)<cr>”. Once the connection is established, a “CONNECT” message will appear indicating the two modems are in the data mode and communicating. Typing on one terminal should appear on the other terminal.

11. To return to the command mode without interrupting the connection between the two modems, type "+++". Approximately two seconds later, "OK" will appear. The modem is now in command mode and will accept "AT" commands.

12. To return to the data mode, type "ATO<cr>". The modem will resume the data connection and no longer accept AT commands.

13. Type "ATH<cr>" (or "ATH0<cr>") to terminate the data connection.

AT Commands

AT refers to the command prefix (attention sequence) that precedes each command to the modem. With the exception of A/ all commands must be preceded by AT and end with a carriage return <return>. Some useful AT commands commonly used are:

AT	The attention command prefix, a set/reset command.
ATA	Answer
ATDT101	Dial the number (101)
ATH0	Forces the modem on-hook. Hangs up the modem's connection to the telephone line.
ATH1	Forces the modem off-hook.
ATI	Information -asks the modem for its product ID code.
ATO	Goes online.
ATS0=1	Set number of rings (1) before answering
ATX0	Blind dial – no dial tone necessary.
AT*Y1D2	Send continuous DTMF digit (2).
A/	Repeat last command

The A/ command instructs the modem to repeat the last command line. A command line termination character is not required for the execution of this command (that is, the command is executed as soon as the slash is typed).

+++ Return to command state (escape sequence)
The escape sequence is used to force the modem back to the local command state from the on-line state

Complete AT commands and programming

The complete AT commands can be downloaded from the web address http://www.industrial-grade-modem.com/down_loads.htm and select HX II 33T user manual or AT commands manual.

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Industrial Grade Modems

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