

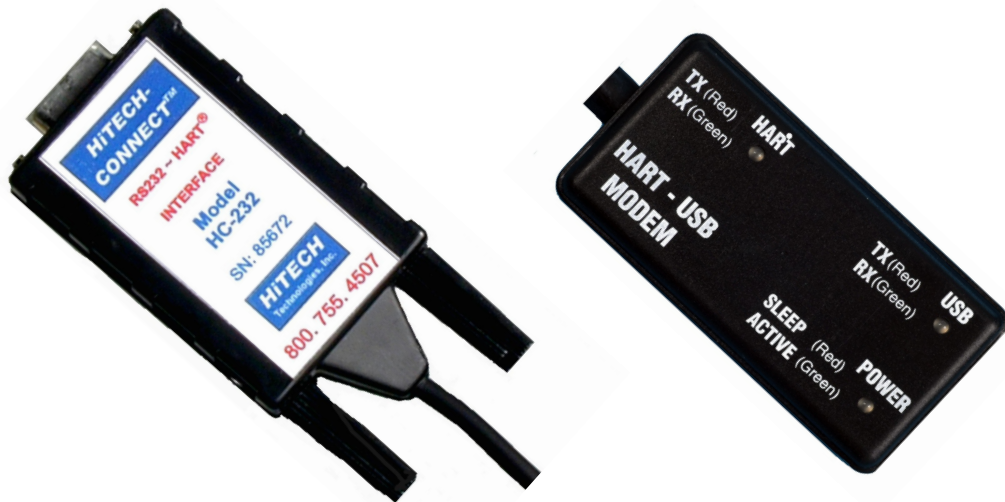
HiTECH

Technologies, Inc.

HiTECH-CONNECT™

HART modem interface

INSTRUCTION MANUAL



HiTECH Technologies Inc.

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Overview

Congratulations on purchasing the *HiTECH-CONNECT™* modem interface for HART. The Interface allows you to communicate with HART instruments using a personal computer, the computer's serial interface, and the appropriate HART software.

The Interface requires no special installation, operates on low power for notebook compatibility, and is isolated and fully HART-compliant. It draws power from the computer Interface and requires no external power supply. The Interface operates on as little as 2.0 mA at voltages as low as 4.0 VDC, which is well within the capabilities of most PC systems, including energy-efficient notebook computers. The Interface adheres to the EIA standards and supports hardware hand-shaking.

The *HiTECH-CONNECT™* modem Interface is enclosed in a small, rugged plastic case, suitable for the industrial environment. The Interface's small size allows you to attach it directly to your computer's serial interface.

Hardware and Software Requirements:

- *HiTECH-CONNECT™* modem Interface for HART
- Computer with at least one USB or RS-232 serial port. (RS-232 version)
- USB 1.1 B connector or Male 9-pin DB-9 connector on at least one serial port, or 25-pin DB25 connector with DB-25 to DB-9 converter cable (converter cable is not supplied) (RS-232 version only)
- Operating system software that supports USB or RS-232 serial ports (RS-232 version)
- Software for communication with HART instruments

Interface package contains the following items:

- The *HiTECH-CONNECT™* HART modem Interface
- Users' Manual
- Connector cable is integral to the Interface.

If anything is missing or damaged, please contact HiTECH Technologies, Inc.

Connectors and the Cable

The *HiTECH-CONNECT™* HART modem Interface has either a USB A-B cable (USB only) or a female 9-pin DB-9 serial port for connection to the computer. The standard interface has an integral, 6foot connector cable terminating in two, polarity-insensitive test clips.

Installation of the Interface

Attach either the USB (USB only) or the mating DB-9 connector on the Interface to your computer's 9-pin serial port. Secure the Interface. (RS-232 only)

Some computers have only a DB-25, 25-pin serial port. Use a short DB-25 to DB-9 converter cable if you do not have a DB-9 connector on your computer.

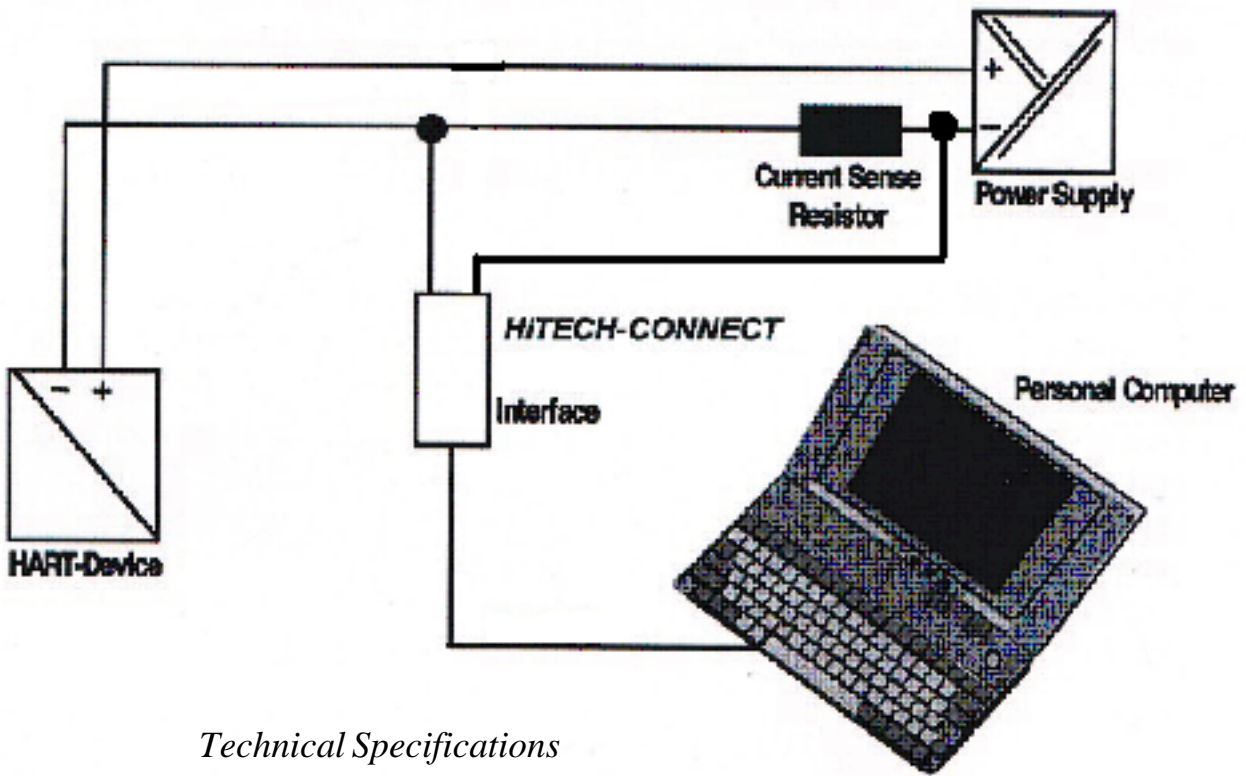
You may assign your HART software to the COM port used by your interface.

The Interface is transformer-isolated and polarity-insensitive. Transformer isolation allows you to connect the Interface across the current sense resistor or across the field device. Do not connect the Interface across the power supply; you cannot damage the unit, but communication cannot occur. Polarity insensitivity means that you may attach either one of the test clips to positive and negative poles. You do not have to check the direction of current flow before connecting the unit. RS-232 pinout specifications below.(RS-232 only)

Inputs:	Pin #	Impedance Ohms	Voltage Levels*	
			Mark/true	Space/false
Transmit data (TDX)	3	220K	2 to 12 V	-12 to 0 V
Data terminal ready (DTR)	4	% pwr Supply current +DSR load +RXD if true load current +CD if true load current	2 to 12 V	-12 to 0 V
Request to send (RTS)	7	220K +% pwr Supply current +CTS load current	2 to 12 V	-12 to 0 V
Ground	5	Ref	0 V	0 V

Outputs:

Carrier detect (CD)	1	4V thru 220 Ohm if true -4V thru 220 Ohm if false	3.5 V / -3.5V
Receive data (RXD)	2	4V thru 220 Ohm if true -4V thru 220 Ohm if false	3.5 V / -3.5V
Data set ready (DSR)	6	Hardwired from DTR	DTR
Clear to send (CTS)	8	Hardwired from RTS	RTS
Ring indicator (RI)	9	Not used	Not used



Technical Specifications

Electrical Specifications:

Power Supply:	No external supply required. System powered via RS232 inputs. Compatible with RS232 levels from +/- 4V to +/- 1.2V.
Supply Current:	1.5mA @ +/-4V inputs. 4.0mA @ +/-12V inputs. Power is drawn from DTR and/or RTS when positive. Supply current does not include current load on output pins. (RS-232 specs only)
Pin Connections:	
Computer	Industry standard IBM-PC compatible RS232 DB-9 connector (see Table II.1).
HART	Two test clips.
Output Level:	Fully HART compliant. 0.5 +/- .1 Vpp trapezoidal wave @ 1200/2200 Hz.
Isolation Certification:	1500VDC isolation - instrument & computer.

Software Requirements:

Operating System:	MSDOS Version 5.0 or higher, or equivalent OS that supports serial COM port (RS-232) or USB (USB).
Installation:	Set application software to COM port used by DB-9 serial port (RS-232) or USB(USB).

Environmental Specifications:

Temperature:	
Operating:	0° C to 50° C (32° F to 122° F)
Storage:	-40° C to 85° C (-40° F to 185° F)
Humidity:	0% to 95% relative humidity (non-condensing).

Physical Dimensions:

Enclosure:	49.5 x 33.3 x 15 mm ABS enclosure
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Interface:

Cable:	Jacketed twisted pair wire about 4.5 ft long, split into two independent test leads 1.5 ft long.
Connection	Minigrabber test clips, with polarity insensitive termination.