MICROLINK HM

101-0029

RS-232 HART Protocol Modem
HART Device to Modbus Accumulator
DIN Rail Mount

Quick Start Guide

HART
COMMUNICATION PROTOCOL

Features

- Can be used as a standard HART protocol modem or HART to Modbus accumulator

- As a HART modem, MicroLink-HM is compatible with most HART configuration software that uses a serial COM port for communications. The PACTware FDT frame and Generic HART DTM are included

- Unlike most HART protocol modems, Microlink-HM is compatible with USB to serial converters

- As a HART to Modbus accumulator, MicroLink-HM can be configured to poll 1 to 16 HART devices, storing variable data into Modbus registers - up to 4 variables per device

- HART variable data stored as 16 bit integer or single precision floating point

- Use standard Modbus-RTU commands to read HART variable data and write settings

- The managed HART protocol modem eliminates the Request-To-Send and Carrier Detect handshake lines. Critical RTS and CD timing for the HART modem is handled internally

- Use the HART protocol standard 1200 baud odd parity or up to 57,600 with odd, even or no parity. MicroLink-HM handles baud rate and parity conversions to allow connection to equipment that cannot be set to 1200 baud.

- Powered from the RS-232 port DTR line or an external 5 to 30 Vdc supply

Microflex

Power Supply Considerations

MicroLink-HM uses the DTR handshake line (pin 4 on the 9-pin connector) for power. It is possible to power the modem directly from the DTR handshake line, eliminating the need for an external power supply. To use an external power supply connect pin 4 on the 9-pin connector to a 5 to 30 volt power supply. Pin 5 is ground for power and RS-232 transmit/receive. Refer to the Installation, Operation, and Specifications Manual for details.

HART Protocol Modem Mode

To us the MicroLink-HM as a standard HART protocol modem, use the MicroLink-HM setup software to adjust the settings listed below. Refer to the **Configuration Software** section in this manual for details on how to do this. This is the default factory settings for MicroLink-HM.
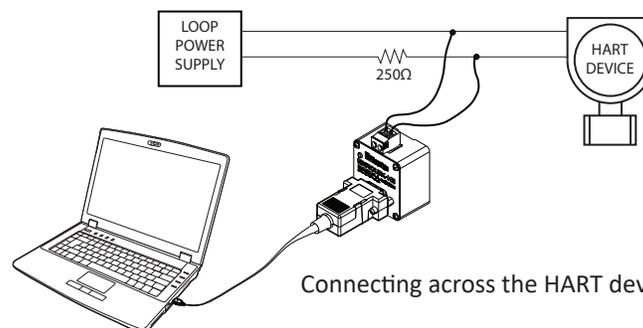
> - 1200 baud on the Modbus-RTU Settings dialog
> - Parity Odd on the Modbus-RTU Settings dialog
> - Un-check "Fill Modbus Registers" on the HART Protocol Settings dialog

With these settings you will be able to use most HART protocol configuration software.

Connecting to a HART Loop

Connect the two screw terminals to the HART device or HART loop. MicroLink-HM provides electrical isolation between the HART loop and the RS-232 serial port - making it safe to ignore grounding and polarity issues when connecting to the loop. HART protocol requires a loop resistance between 230 and 600 ohms, typically 250 ohms, as shown in the diagram below. Refer to your equipment installation instructions for details on connecting a HART master or configuration device to the loop. MicroLink-HM can be used on point-to-point single device loops as well as multi-drop loops.

Connecting across the HART device.

HART Device to Modbus-RTU Accumulator Mode

In modbus accumulator mode, the MicroLink-HM will continuously poll up to 16 HART devices and fill modbus register tables with HART device variable data. Standard modbus-RTU commands can then be used to read the HART device data. HART device polling, serial baud rate, and modbus address settings are quickly set using the MicroLink-HM configuration setup software using the RS-232 port. No special configuration cable is needed. Refer to the Installation, Operation, and Specification manual, included on the MicroLink-HM CD, for additional information.

Setup Software

The Configuration & Setup software is used to configure the MicroLink-HM serial port and accumulator mode. All of the configuration settings are saved in modbus registers and can also be set using modbus RTU command 6 or 16. Details, including register definitions, are included in the Installation, Operation, and Specification manual. The MicroLink-HM can be connected directly to a Windows PC RS-232 serial port or a USB to serial converter cable.

Installation
The MicroLink-HM configuration software is included on a CD with the unit. Simply insert the CD and follow the on-screen prompts to install the software. If AutoRun is not configured to run the CD file when the CD is inserted you will need to navigate to the **Msetup.exe** file on the CD and double-click the file name to run it.

After Installation, the HM Configurator icon will be added to your system.

Setting the COM Port
Set the software to use the same RS-232 COM port that the MicroLink-HM is connected to. From the top menu, select **Setup>Com Port**. Choose the COM port number from the list of available ports.

When you click **Connect**, the software will try to connect using the last known baud rate and parity. If it does not connect HM Configurator will then try all possible baud rates and parity settings to complete the connection.

HART Protocol Settings

The HART Protocol Settings dialog (**Setup>HART**)will allow you to enable the **Fill Modbus Register** function. When checked, MicroLink-HM will continuously poll the HART devices as setup here. Each HART device must have a unique polling address before being connected to the MicroLink-HM HART loop. Additional information is provided in the Installation, Operation, and Specification manual and from your specific HART device manuals. Un-check **Fill Modbus Registers** to disable the modbus accumulator polling.

Modbus-RTU Setup

Modbus settings can be accessed and changed by clicking **Setup>Modbus** from the top drop-down menu. This dialog will allow you to set the modbus slave address, baud rate, and parity for modbus RTU communications. You can also choose to have the data grouped by HART device or variable type. Choose the floating point word order to fit your modbus system if necessary. When a HART device no longer responds to poll request you can choose how to handle the error. The number of polling retries is set on the HART Protocol Settings dialog.

Additional Information

For additional information refer to the ***Setup Software, Installation, Operation, & Specifications Manual*** included on the MicroLink-HM CD in a PDF format. The manual can also be viewed using the Setup program. From the top drop-down menu choose **View>View Manual(PDF)**.

Modbus register maps are included on the MicroLink-HM CD in PDF format and can also be viewed using the Setup program. From the top drop-down menu choose **View>Modbus Register Maps**.

Additional information and downloads are available at www.microflx.com.

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