MICROLINK

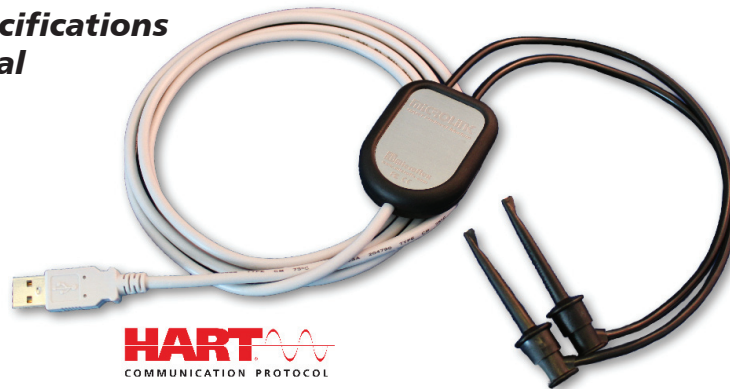**HART Protocol Modem - USB Interface**

101-0027

Installation
Operation
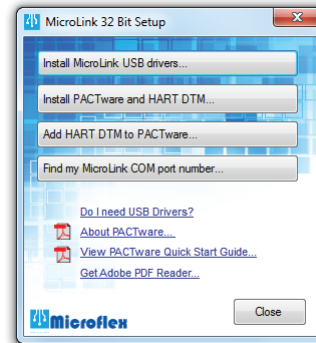*& Specifications*
Manual

General Description

The MicroLink 101-0027 is a USB to HART® protocol modem. It provides the hardware interface between Highway Addressable Remote Transducer devices (HART) and a computer with a USB interface, such as a Windows® PC. Universal Serial Bus (USB) drivers make MicroLink compatible with most software developed for RS-232 serial port interfaces because MicroLink appears as an RS-232 port to your HART software.

A rugged design makes MicroLink an ideal choice for field engineers and technicians who service HART devices in an industrial environment. MicroLink is compatible with all registered HART devices and all leading HART configuration and monitoring software that us an RS-232 serial port for their interface. For a HART modem with a 9-pin RS-232 interface Microflex offers the 101-0005 MicroLink modem.

Microflex

CE FC

Driver Pre-Installation - 8, 7, Vista, XP, and 2000

To simplify the installation the USB drivers should be installed before the MicroLink HART modem is connected to the PC's USB port. After the drivers are installed, Windows will automatically detect the modem when it is connected to a USB port and complete the setup.

To pre-install the drivers, run **Msetup.exe** from the included CD and follow the on-screen prompts. The CD will auto-run this file if the Windows autorun feature is enabled for your CD drive. The **Msetup.exe** is a utility that will determine your operating system and run the correct installer. Click the **Install MicroLink USB drivers...** button to pre-install the drivers. The driver installer will guide you through the setup process.

MicroLink HART modem setup utility.

Important!
Run the setup utility before connecting to the USB port.

To run the driver package installer utility directly from the CD use **\x86\dpinst.exe** for 32 bit operating systems or **\x64\dpinst.exe** for 64 bit operating systems.
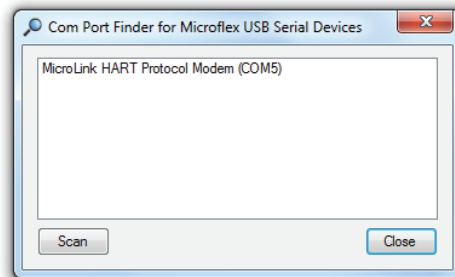
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Driver - Manually Installed

To manually install the driver...
1. With the MicroLink converter connected to the USB port...
2. Open the Windows Device Manager.
3. The new device wizard will have added the converter under **Ports (COM & LPT)** and will appear as **MicroLink HART Protocol Modem (COMx)**. Right click the device and select **Update Driver Software...**
4. Choose to Browse for the driver software and browse to the CD or the location of the **MxHART.inf** file.
5. Follow the wizard prompts to complete the driver setup.

Finding the Assigned COM Port Number

When Windows installed the serial port emulator driver the next available COM port number was assigned to the converter. The software you use with the converter must be set to use the same COM port number. To find the number assigned to your converter run the setup utility from the CD and click **Find my Converter's COM port number...**
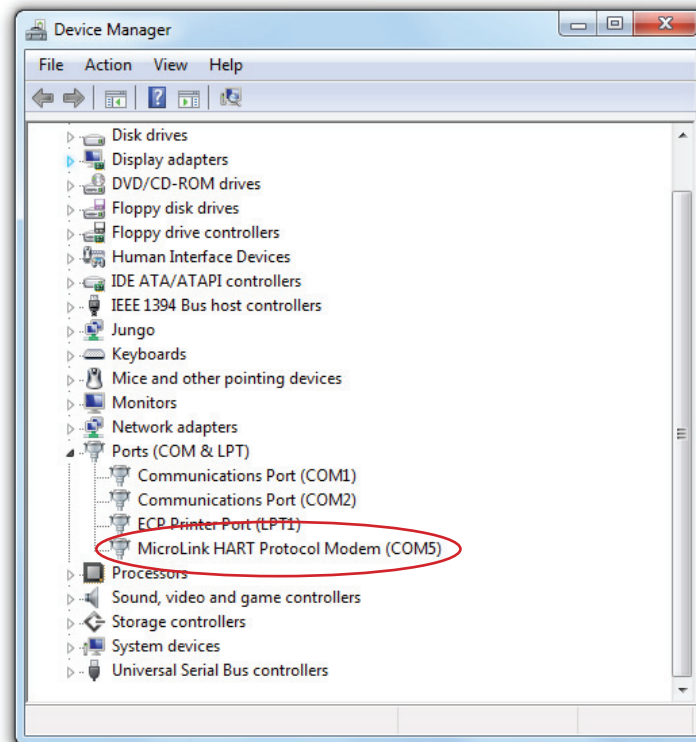
The assigned COM port number can also be found using the Windows Device Manager. You may need to expand the Device Manager tree under **Ports (COM and LPT)** to see the converter.

COM Port Number Finder - modem is assigned to COM 5.

Changing the COM Port Number

The assigned serial COM port number can be changed to any available COM port by using the Device Manager. Open the Device Manager and select **View > Devices by Type**. Expand **Ports (COM & LPT)** in the list to see which port the converter is assigned to. In the example shown below, the modem is assigned to COM5.

Windows Device Manager.

Right click on **MicroLink HART Protocol Modem** and select **Properties** from the pop-up menu.

On the **Port Settings** tab, click **Advanced**. Drop down the **COM Port Number** list and select the desired port number. Click **OK** to use the new port number and close the window.

Unplug the MicroLink modem from the USB port and then re-connect it to the USB port. This will allow Windows® to update the USB device parameters.
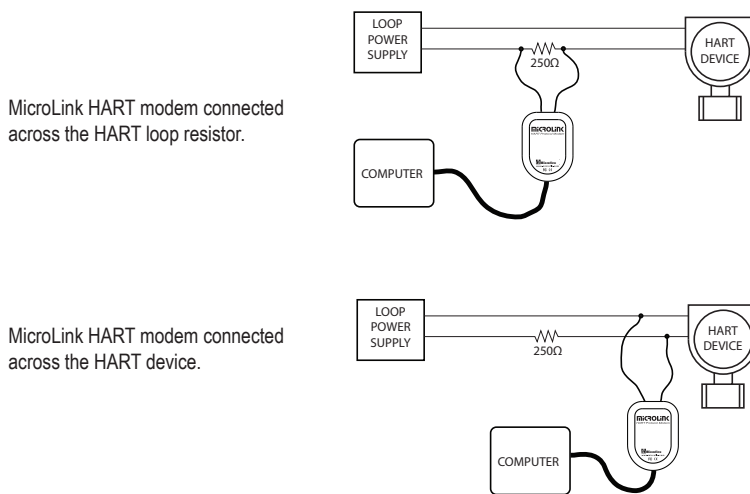
Click **OK** again to close the Properties window.

Software Setup

Make sure your HART software is set to use the same serial COM port number that the Microlink modem is connected to. There are no hardware settings required by the Microlink modem and modem power is provided by the USB port. All other settings, such as BAUD rate, are taken care of by your HART software. If you are using PACTware, refer to the "PACTware Quick Start Guide" and the PACTware manual for installation and setup details.

Connecting to the HART Device

Connect the two mini-clips to the HART device or HART loop. Microlink provides electrical isolation between the HART loop and the PC. It is safe to ignore grounding and polarity issues when making the HART connections. The HART protocol requires a loop resistance of 230 to 600 ohms, typically 250 ohms. Refer to your equipment installation instructions for details on connecting a HART master or configuration device to the loop.

MicroLink HART modem connected across the HART loop resistor.

MicroLink HART modem connected across the HART device.

Two common methods for connecting the HART modem to a loop powered device.

Uninstalling the USB Drivers

For Windows 8, 7, Vista, XP, and 2000 - use the Device Manager to uninstall the driver from your system. With the MicroLink modem connected to your USB port, locate the modem in the hardware tree under **Ports(Com & LPT)**. For details on how to do this refer to the section on *Changing the COM Port Number* in this manual and Windows® help. Right click on **MicroLink HART Protocol Modem** and select **Uninstall** from the pop-up menu. When the process has finished, unplug the modem from the USB port.

Safety Considerations

Conformity in accordance with Part 2, and Part 15, Subparts A and B of the Federal Communications Rules and Regulations, and ICES-003 of the Industry Canada standards.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by Microflex could void the user's authority to operate this equipment.

Emissions EN55022: 1998

Electrostatic Discharge EN61000-4-2: 1995, A1: 1998, A2: 2001

Radiated Immunity EN 61000-4-3: 2002

Safety Compliance EN 60950-1: 2002

This device does not have protection from over-voltages which may exist on USB ports of computers and relies on the protection existing in a host computer.

This device is not intended for connection to the phone line through the appropriate converters and shall not be connected to telecommunication lines because it has no protection against over-voltages which may exist in these lines.

The user shall ensure the protection of the operator from access to areas with hazardous voltages or hazardous energy in their equipment.

The user shall ensure that the connection port of the field device and the modem is separated at least by basic insulation from any primary circuit existing in the field device.

MicroLink Specifications

Enclosure

Molded Buna-N 90 Durometer Rubber with
Stainless Steel Cover
Weight ....5 ounces
Modem Dimensions .... 1.75" x 2.375" x 0.625"

USB

Connector .... USB-A
Cable Length.. 6 feet
Compatibility .... USB 1.1 and USB 2.0
Active Current .... 30mA Max
Suspend Current .... Less than 200µA Typical

HART

Termination .... Pamona Electronics Mini-Clips
Leads ....1 Foot High Flexibility Test Lead Wire
Connection Method .... Transformer Isolated, Capacitor Coupled
DC Loop Voltage... 50Vdc Max
Demodulation Jitter .... 12% of 1 bit Typical
Carrier Detect Threshold..100mV Typical
Leakage to Process Loop .... ±10µA Max

Environmental

Operating Temperature ....-20ºC to 50ºC (-4ºF to 122ºF)
Storage Temperature ....-40ºC to 85ºC (-40ºF to 185ºF)
Humidity .... 0 to 99% (non-condensing)

Limited Warranty

Microflex, LLC warrants this unit against defects in materials and workmanship for a period of one year from the date of shipment. Microflex, LLC will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

A Return Materials Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before equipment will be accepted for warranty work.

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