

MicroLink
HART Protocol Modem
USB Interface
DIN Rail Mount

101-0032

**Installation
Operation
& Specifications
Manual**



General Description

The MicroLink 101-0032 is a USB to HART® protocol modem featuring standard DIN rail mounting. It provides the hardware interface between Highway Addressable Remote Transducer devices (HART) and a Windows® PC with a USB interface.

MicroLink is used for commissioning, diagnostics, monitoring, and testing HART field devices. Communications direction control is handled internally so there is no need to control tricky request-to-send (RTS) handshake timing, greatly simplifying software development.

Virtual serial port drivers allow the USB MicroLink modem to appear as an RS-232 com port to Windows and your HART software for increased compatibility.

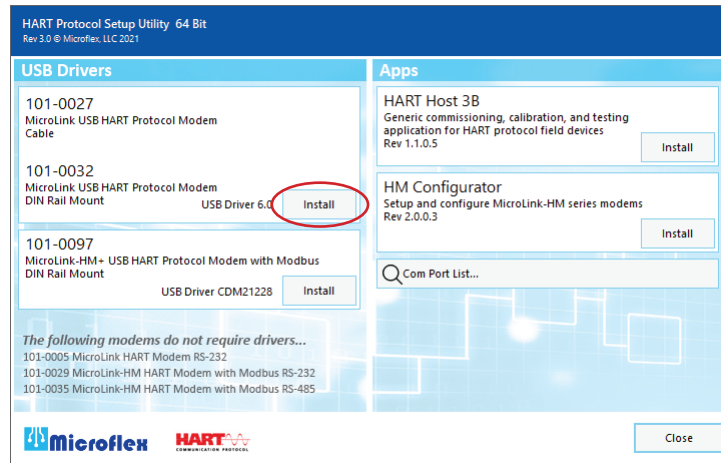
The DIN rail mounting clip is compatible with widely used 35 mm EN 50022 rails. It can be snap mounted and removed from the mounting rail without tools for quick installation and servicing. A status LED provides confirmation of the transmitted and received HART packets to help you quickly troubleshoot your system and verify operation. Power is provided by the USB port so no external power supply is required.

Driver Pre-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 the USB port and complete the setup.

Important!
Install USB driver before connecting to the USB port.

To pre-install the drivers, run **Msetup.exe** from the included CD. The CD will auto-run this file if the Windows autorun feature is enabled for your CD drive.



Msetup.exe HART protocol modem setup utility

Click the **Install** button in the 101-0032 window to pre-install the USB drivers. The driver installer will guide you through the setup process.

Installers can also be run manually from the CD, without running Msetup, by running `\x86\dpinst.exe` file for 32 bit operating systems or `\x64\dpinst.exe` for 64 bit operating systems.

Don't have a CD drive?

Download the HART Protocol CD image from www.microflex.com/pages/support

Running the file will self-extract the compressed files and start the Msetup.exe HART Protocol Setup Utility.

Driver inf file - Manually Installed

To manually install the driver inf file...

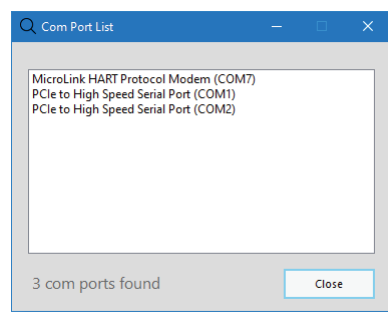
1. Connect the Converter to the USB port.
2. Open the Windows Device Manager.
3. The *New Device Wizard* will have added the converter under **Ports (COM & LPT)** and will appear as **MicroLink HART Protocol Modem (COMx)**. Right click the device and select **Update Driver Software...**
4. Choose to 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.

Uninstalling the USB Drivers

If needed, use Windows Device Manager to uninstall the driver from your system. With the modem connected to the USB port, locate the MicroLink modem in the Device Manager hardware tree under **Ports (COM & LPT)**. 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.

Finding the Assigned COM Port Number

When Windows installed the serial port 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 Msetup.exe utility from the CD and click the **Com Port List...** button to show a list of found devices and assigned COM port numbers.



Com Port List view
MicroLink modem is assigned to COM 7

To use the list...

Unplug the modem from the USB port and it will be removed from the Com Port List.

Plug the modem into the USB port and it will be added to the Com Port List.

Set your HART software to use the same COM number assigned to your modem.

Using Windows Device Manager

The assigned COM port number can be found using Windows Device Manager. Open Device Manager and select **View > Devices by Type**.

You may need to expand the Device Manager tree under **Ports (COM and LPT)** to see the converter.

In the example shown below, the modem is assigned to COM 7.

The assigned serial COM port number can be changed to any available COM port using Windows Device Manager.

Expand **Ports (COM & LPT)** in the list to see which port the converter is assigned to.

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

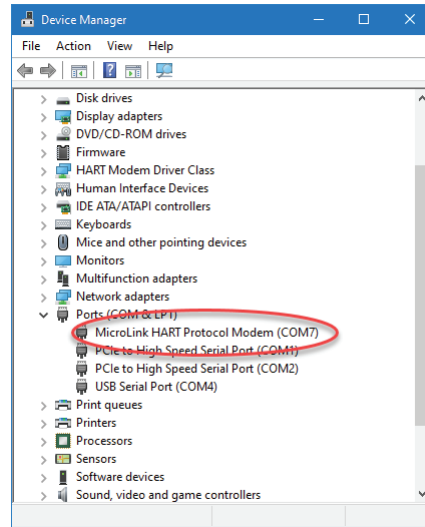
On the **Port Settings** tab, click **Advanced**.

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 allow Windows® to update the USB device parameters.

Click **OK** again to close the Properties window.



Windows Device Manager

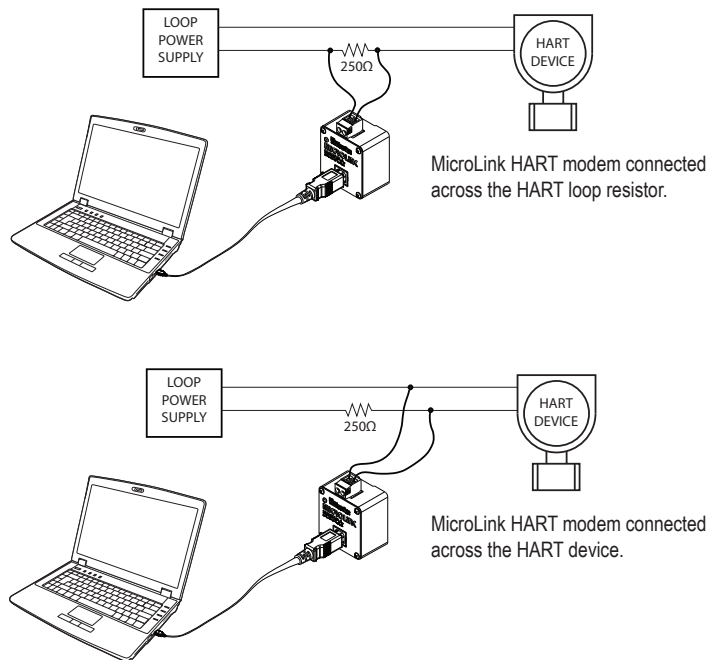
Software Setup

Make sure your HART software is set to use the same serial COM port number that the MicroLink modem is assigned 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 and parity, are taken care of by your HART software.

Connecting to the HART Device

Connect the two screw terminals 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.



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

Status LED Operation

When the modem is connected to the USB port with drivers installed, the status LED will be green indicating that the modem is ready. The LED will be red while transmitting or sending a packet to your HART protocol device. The LED will be orange while receiving the HART reply.

Safety Considerations

FC 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.

CE 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.

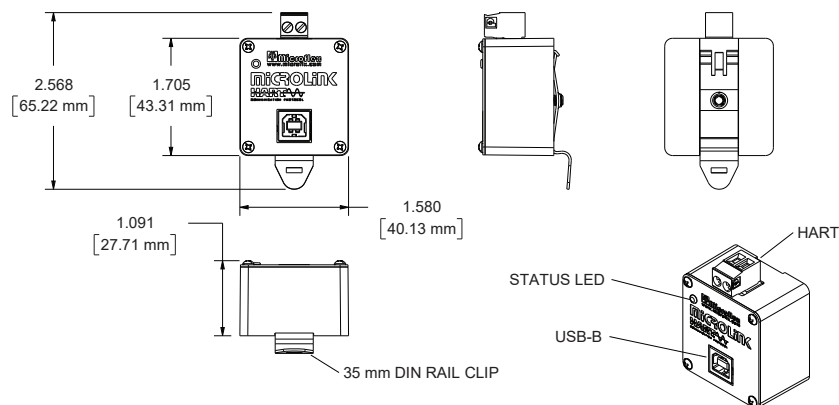
⚠ This device is not intended for connection to the phone line through the appropriate converters and shall not be connected to telecommunication lines because it has no protection against over-voltages which may exist in these lines.

⚠ 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.



Specifications



Enclosure

Polycarbonate plastic with Stainless Steel Cover
 Weight..... 5 ounces

USB

Connector..... **USB-B**
 Compatibility..... **USB 1.1, USB 2.0, and USB 3**
 Active Current..... **30mA Max**
 Suspend Current..... **Less than 600µA Typical**

HART

Termination..... Plugable Screw Terminals, 26-12 AWG
 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

Status LED

Green..... Ready & Healthy
 Red..... Transmitting HART packet
 Orange..... Receiving HART packet

Environmental

Operating Temperature..... -30°C to 60°C (-22°F to 140°F)
 Storage Temperature..... -40°C to 85°C (-40°F to 185°F)
 Humidity..... 0 to 95% (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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