

**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.

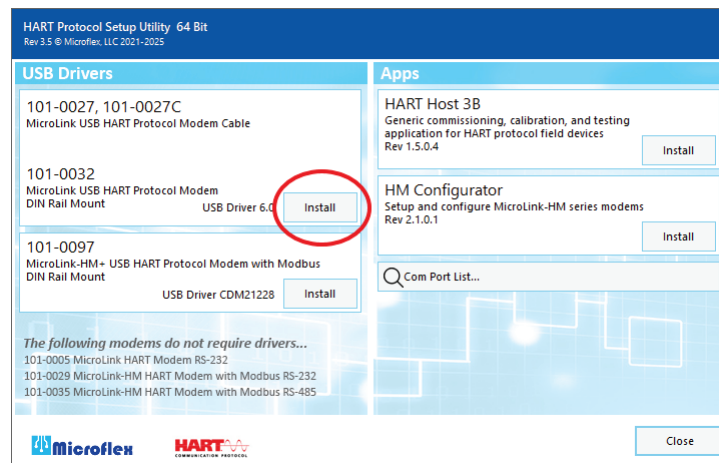
The DIN rail mounting clip is compatible with widely used 35 mm EN 50022 rails. It can be snap mounted and removed from the mounting rail without tools for quick installation and servicing. A status LED provides confirmation of the transmitted and received HART packets to help you quickly troubleshoot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

Modem Setup - USB Driver

Download the latest HART products setup software from microflx.com/products/hart-setup

Run the downloaded file to extract it to a folder.

Browse to the folder and run **Msetup.exe** to open the HART Protocol Setup Utility.



HART Protocol Setup Utility (Msetup.exe)

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.

After installing the drivers, connect your modem to a USB port to complete the 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.

Driver inf file - Manually Installed

To manually install the driver inf file...

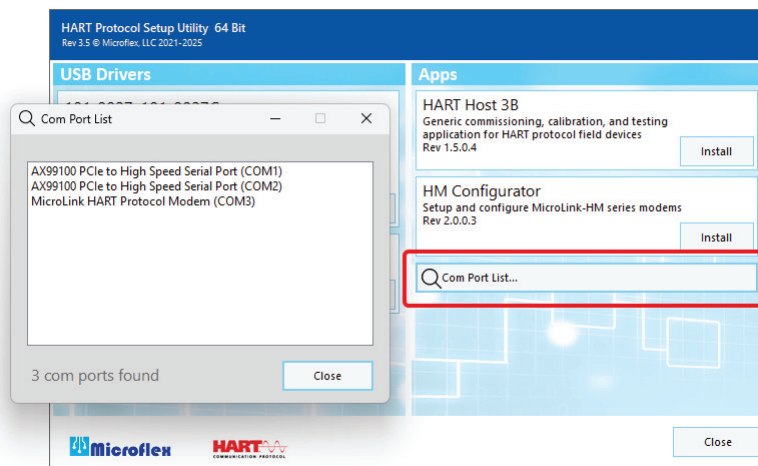
1. Connect the Converter to the USB port.
2. Open the Windows Device Manager.
3. The *New Device Wizard* will have added the converter under **Ports (COM & LPT)** and will appear as **MicroLink HART Protocol Modem (COMx)**. Right click the device and select **Update Driver Software...**
4. Choose to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

Finding the Assigned COM Port Number

When Windows installed the serial port driver, the next available COM port number was assigned to the modem. The software you use with the modem must be set to use the COM port number assigned to your modem. To locate your modem's COM port number, use the HART Protocol Setup Utility or the Windows Device Manager.

To find your COM port number using the HART Protocol Setup Utility

Click the Com Port List... button to view a list of ports found on your PC. The list is continuously updated. When you connect your modem to a USB port it will appear in the list. When you unplug from the USB port it will be removed from the list.



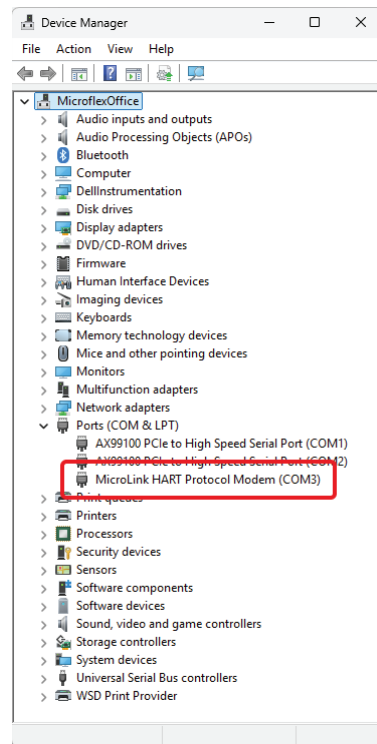
Com Port List view
MicroLink modem is assigned to COM 3

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.

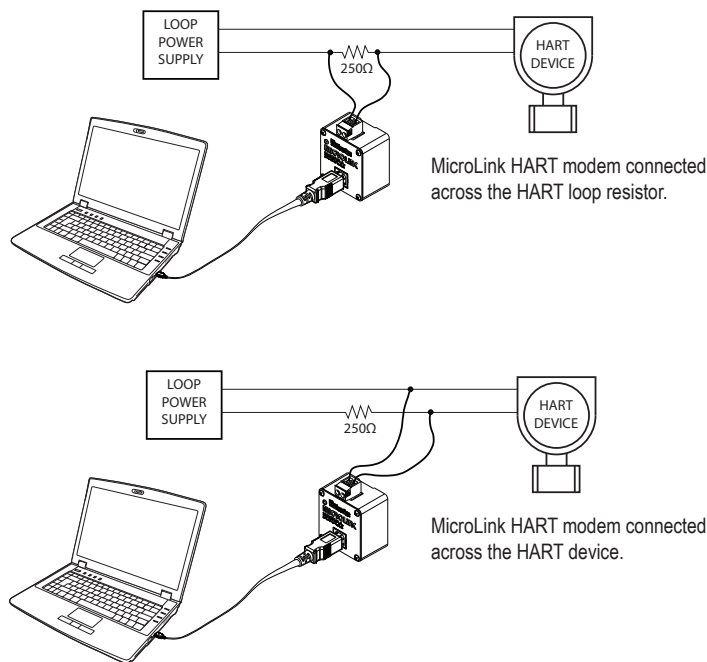
Software Setup

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.

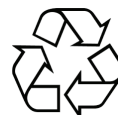
CE Emissions EN55022: 1998
Electrostatic Discharge EN61000-4-2: 1995, A1: 1998, A2: 2001
Radiated Immunity EN 61000-4-3: 2002
Safety Compliance EN 60950-1: 2002

 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.

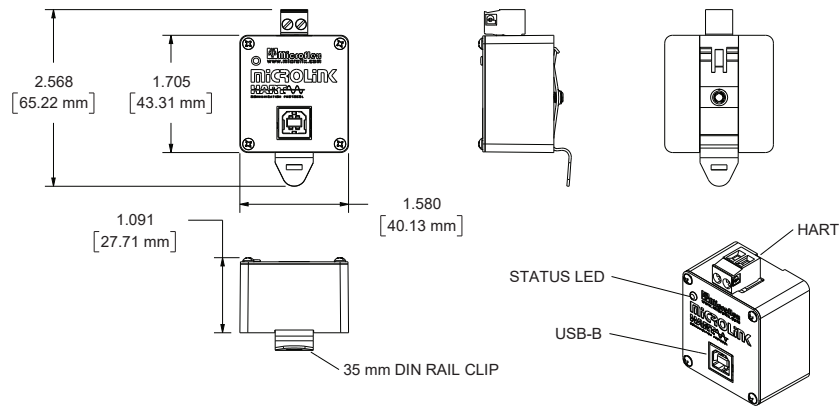
 This device is not intended for connection to the phone line through the appropriate converters and shall not be connected to telecommunication lines because it has no protection against over-voltages which may exist in these lines.

 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.

Microflex, LLC believes that the information in this manual is accurate. In the event that a typographical or technical error exist, Microflex, LLC reserves the right to make changes without prior notice to holders of this edition. The reader should consult Microflex, LLC if any errors are suspected. In no event should Microflex, LLC be liable for any damages arising out of or related to this document or the information contained in it.

EXCEPT AS SPECIFIED HEREIN, MICROFLEX, LLC MAKES NO WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CUSTOMER'S RIGHT TO RECOVER DAMAGES CAUSED BY FAULT OR NEGLIGENCE ON THE PART OF MICROFLEX SHALL BE LIMITED TO THE AMOUNT THEREFORE PAID BY THE CUSTOMER. MICROFLEX, LLC WILL NOT BE LIABLE FOR DAMAGES RESULTING FROM LOSS OF DATA, PROFITS, USE OF PRODUCTS, OR INCIDENTAL OR CONSEQUENTIAL DAMAGES, EVEN IF ADVISED OF THE POSSIBILITIES THEREOF. This limitation of the liability of Microflex, LLC will apply regardless of the form of action, whether in contract or tort, including negligence. Any action against Microflex, LLC must be brought within one year after the cause of action accrues. The warranty provided herein does not cover damages, defects, malfunctions, or service failures caused by owners failure to follow Microflex, LLC's installation, operation, or maintenance instructions; owners modification of the product; owner's abuse, misuse, or negligent acts; and power failure or surges, fire, flood, accident, actions of third parties, or other events outside reasonable control.

Microflex, LLC
35900 Royal Road
Pattison, Texas 77423
USA

Phone 281-855-9639
Fax 832-422-4391
www.microflx.com

