EnOcean

# U10 LON FT USB Network Interface

## REVISIONS

The following table summarizes revisions for this document:

| Version | Author | Reviewer | Date | Major Changes |
|---|---|---|---|---|
| A | CM | | 3-Mar-2005 | Initial release |
| B | CM | | 26-Jan-2015 | Editorial updates |
| C | RB | | 18-Jul-2025 | Delete U20, specification updates (enclosure size, cable length, connector quantity, and certifications), and EnOcean branding |

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## WARNINGS

This information describes the subject product and shall not be considered as assured characteristics. No responsibility is assumed for possible omissions or inaccuracies. Specifications are subject to change without notice. For the latest product specifications, refer to www.enocean.com.

As far as patents or other rights of third parties are concerned, liability is only assumed for the subject product, not for the described applications, processes and circuits.

EnOcean does not assume responsibility for use of the subject product and limits its liability to the replacement of subject product determined to be defective due to workmanship.

The subject product must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with applications that can result in danger for people, animals or real value.

Subject product is considered and should be disposed of as hazardous waste following local government regulations.



Caution, electrostatic sensitive devices

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# 1. INTRODUCTION




*U10 FT USB Network Interface*

The EnOcean U10 FT USB Network Interface is a low-cost, high-performance LON interface for edge servers with the SmartConnect software and computers with Microsoft Windows. The U10 connects directly to LON TP/FT-10 Free Topology (FT) Twisted Pair (ISO/IEC 14908-2) channels through a removable connector and is fully compatible with LON link-powered channels.

You can use the U10 with the SmartConnect Edge Server software and with any OpenLDV compliant application including the IzoT Commissioning Tool, OpenLNS Commissioning Tool, LonMaker Integration Tool, LonScanner Protocol Analyzer, and other tools and applications compatible with OpenLDV.

See edgedocs.enocean.com for more information.

# 2. SPECIFICATIONS

| | |
|---|---|
| **LON Transceiver** | TP/FT-10 Free Topology (FT) Twisted Pair (ISO/IEC 14908-2) |
| **LON Data Rate** | 78 kbps |
| **LON Network Connector** | Removable lever-arm spring-clamp connector |
| **USB Interface Connector** | USB-A |
| **USB Extension Cable** | 460mm with USB-A connectors |
| **USB Operating Input Current** | 110mA maximum @5VDC |
| **LED Indicators** | LON Transmit (green)<br>LON Receive (green)<br>LON Service (amber) |
| **Temperature**<br>Operating<br>Non-operating | <br>0 to +70°C<br>-20° to +85°C |
| **Humidity**<br>Operating (non-condensing)<br>Non-operating (non-condensing) | <br>25 to 90% RH @ +50°C<br>95 RH @ +70°C |
| **Shock and Vibration** | ETS1300 019-2-3 T3.2 |

| | |
|---|---|
| **Dimensions** | 19.9 x 113.3 x 22.4 mm |
| **EMC** | EN 55032 Class B; EN 55035; FCC Part 15 Level B<br>CISPR 22 Class B |
| **Agency Listings** | IEC/UL 62368-1; EN IEC 62368-1<br>cTUVus; CE; UKCA; C-Tick |
| **Warranty** | 1-year limited warranty |

# 3. GETTING STARTED

To get started with the U10, follow these steps:

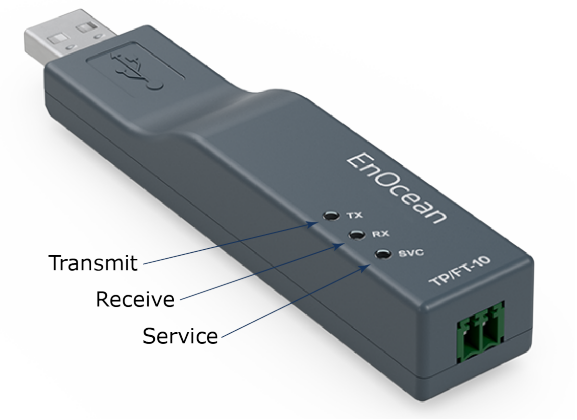
1. The EnOcean OpenLDV driver is required for the U10. You can download and install the standalone version of OpenLDV, or you can install an application that includes OpenLDV such as the IzoT Commissioning Tool. If you do not already have the EnOcean OpenLDV driver on your computer, follow these steps to download and install the standalone OpenLDV driver:
    a. Download OpenLDV from the OpenLDV Network Driver section at edgedocs.enocean.com.
    b. Using an account with Administrator privileges on your computer, double-click the downloaded file.
    c. Follow the instructions displayed by the OpenLDV installation software. Choose to continue the installation if any warnings are displayed.
    d. If prompted, restart your computer after the installation completes.
2. Insert the U10 extension cable into an available USB port on your computer.
3. Plug the U10 into the other end of the U10 extension cable.
4. Connect the detachable LON network connector to your LON FT channel twisted-pair wires. You can connect the wires in any order; LON FT is polarity insensitive.
5. If the LON network connector is not plugged into a U10, plug it into the LON network socket on the U10.
6. Open the LonWorks Interfaces application in Windows Control Panel. Your available LON interfaces are listed on the left side. If this is the only LON interface on your computer, it will automatically be named **LON1** in Windows. If you do not see the U10 in the LON interface list, follow the first procedure in Troubleshooting.
7. The U10 is now ready to use. See Finding the U10 Name in Windows in the next section to find your U10 name if you have installed multiple U10s in your computer.

# 4. USAGE

This section describes how to use the U10 LEDs, how to find the name assigned to your U10 in Windows, and how to change the configuration of your U10.

### Using the U10 LEDs

You can use the U10 LEDs, shown in the following figure, to monitor its state during operation.




*U10 FT LEDs*

The following table summarizes the state reported by each LED.

| Name | Label | Description |
|---|---|---|
| **Transmit** | TX | Flashes when the host sends a LON message through the U10 to the LON FT channel. The Transmit LED illuminates for a minimum of 40ms during LON message transmission. The Transmit LED remains on if the host sends LON messages with less than 40ms between messages. |
| **Receive** | RX | Flashes when the U10 receives a message from the LON FT channel. The Receive LED illuminates for a minimum of 40ms when the U10 receives a LON message. The Receive LED remains on if the U10 receives LON messages with less than 40ms between messages. |
| **Service** | SVC | Flashes briefly when the U10 powers up.<br>Flashes when the U10 LON interface is not configured. Flashing occurs with a 2 second period and 50% duty cycle.<br>Illuminates for several seconds after you wink the U10 from the LonWorks Interfaces application in Control Panel. You can use the wink command to differentiate one U10 from another if you have more than one U10 attached to your computer.<br>Remains off if the U10 LON interface has not received a wink request and has been configured by a LON application or tool on the host computer, or by a LON application or tool on the attached LON network. |

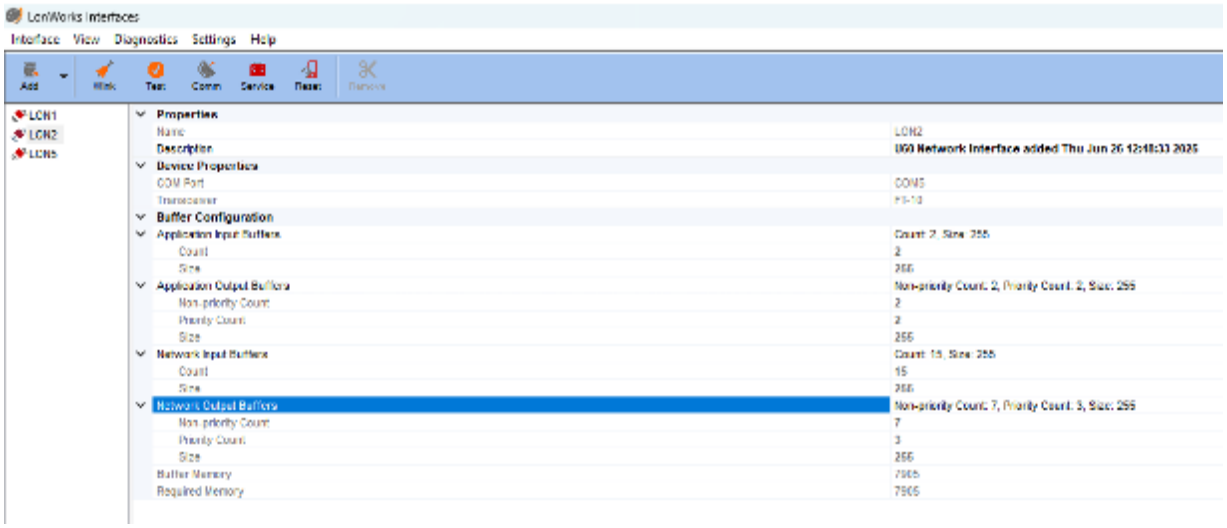
### Finding the U10 Name in Windows

If you have only installed one U10 on your computer, its device name will be **LON1**. If you have installed multiple U10s on your computer, their names will be sequentially assigned. The second will be **LON2**, the third will be **LON3**, and so on.

You can use the LonWorks Interfaces application in Windows Control Panel to determine the available LON interfaces on your computer, and to identify each one.

To determine the available LON interfaces on your computer, follow these steps:

1. Open the LonWorks Interfaces application in Windows Control Panel. Your available LON interfaces are listed on the left side. You can click a network interface name in the network interface list on the left to display properties for the network interface on the right and to select actions for it from the action bar at the top. The following figure shows a LonWorks Interfaces application with three U10 interfaces named **LON1**, **LON2**, and **LON3**.




*LonWorks Interfaces USB Tab*

2. To associate a network interface in the USB tab with a physical U10, click a network interface in the USB tab and then click the **Wink** button. If the network interface you selected is available and is a U10, the Service LED on the selected U10 will illuminate for several seconds.
3. Repeat step 3 for each network interface listed.

### Selecting Actions for a U10

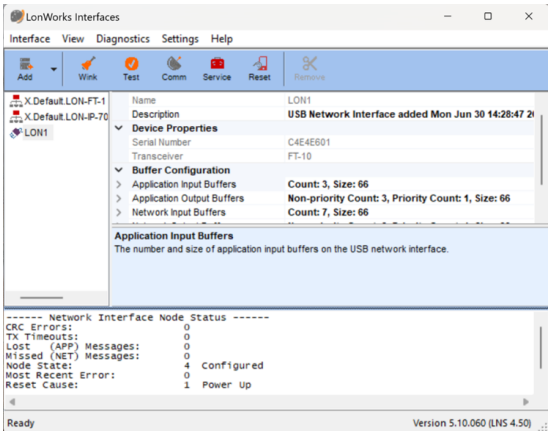
You can select actions for a U10 to verify your host computer can communicate with the U10, to verify that your host computer and U10 can communicate with LON devices attached to the same LON network as your U10, to wink a U10 to physically identify it, and to reset a U10 to clear statistics maintained by the U10. To select an action for a U10, follow these steps:

1. Close any LON applications or tools using the U10. You cannot test or reset a U10 that is in use by a LON application or tool.

2. Open the LonWorks Interfaces application in Windows Control Panel.
3. Click a network interface in the network interface list on the left and then click a button in the action bar at the top to select the action. The following table lists and describes the available actions.

| Button | Action |
|---|---|
| **Test** | Confirms that your host computer can communicate with the U10. If communication is successful, the statistics shown in the Network Interface Test Dialog figure above are shown. |
| **Comm** | Confirms that your host computer and U10 can communicate with other LON devices on the same LON network. The LonWorks Interfaces application configures the U10 to received Service messages from other LON devices on the same LON network. Press the Service button on a LON device to send a Service message on the LON network. If the LonWorks Interfaces application receives the Service message, it changes the **Comm** button to a **Quit** button and starts querying the LON device once a second. If the LonWorks Interfaces application receives the response from the LON device, it increments the displayed count of queries received. Click **Quit** to stop the communications test. |
| **Service** | Sends a Service message to the LON network. |
| **Reset** | Resets the U10 to clear statistics counts displayed by the **Test** button. |

When you select an action, a status pane opens at the bottom with results and status of the action. The following figure is an example display from selecting a U10 and then clicking Test. You can make the status pane larger by dragging the bar at the top of the pane up.




*Network Interface Test Dialog*

# 5. TROUBLESHOOTING

The OpenLDV software combined with the U10 provide an easy-to-use auto-configuring solution for connecting your computer to a LON network. In the unlikely event that a problem occurs, this section describes the problems you might encounter and describes how to solve them.

1. I have attached my U10 to a USB port on my computer with Windows, but I do not see the interface in the LonWorks Interfaces application in Control Panel.
    - Type "device manager" in the Windows Search box and then press Enter to open Windows Device Manager. Expand **Universal Serial Bus Controllers**. Right-click the Echelon USB Network Interface entry in the list and then click **Update Driver**.
    - Disconnect the U10 from any USB extension cables and USB hubs, plug it directly into a USB port on your computer, and then restart your computer.
    - Verify that the Service LED flashes briefly when you insert the U10 into a USB port. If it does not, the U10 is not getting power from your computer.
    - Download the current version of OpenLDV Network Driver section at edgedocs.enocean.com and then reinstall it as described in **Getting Started**.
2. My U10 is listed in the USB tab of the LonWorks Interfaces application in Control Panel. However, it does not respond to tests from the LonWorks Interfaces application.
    - Type "device manager" in the Windows Search box and then press Enter to open Windows Device Manager. If any devices are marked with a yellow exclamation or question mark, resolve the issue with the device. The yellow marks can indicate a problem that can cause the driver for another device to conflict with the USB subsystem on your computer or can prevent the U10 driver from functioning properly.
    - Try the other solutions listed for problem 1.

# 6. REGULATORY COMPLIANCE STATEMENTS

### EU and UKCA Declaration of Conformity

The U10, when used as specified in this document, has been tested and found to comply with the technical requirements of the EU and UKCA standards and provisions, and the essential requirements of the directives, listed in the EU and UKCA Declarations of Conformity available at www.enocean.com/en/product/u10-usb-network-interface.

### FCC Compliance Statement – Class B

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if no installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, try correcting the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

### IC Compliance Statement – Class B

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations of ICES-003.

This device complies with ISED's license-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d' ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

### VCCI Compliance Statement – Class B ITE

This is a Class B product based on the standard of the Voluntary Control Council for Interference (VCCI) for information technology equipment. If this equipment is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

### Device Modification

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.