



# USB Rover 1650/2650 User Guide



Powered By ExtendUSB™ Technology

USB Rover 1650/2650

Thank you for purchasing the USB Rover. Please read this guide thoroughly before installation.

This document applies to part numbers: 00-00084 and 00-00085.

### **FCC Radio Frequency Interference Statement Warning**

The USB Rover has been tested and found compliant 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 when installed and operated in a commercial environment. The USB Rover generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user guide, may cause harmful interference to radio communications. Operation of the USB Rover in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **CE Statement**

We, Icron Technologies Corporation, declare under our sole responsibility that the USB Rover, to which this declaration relates, is in conformity with European Standard EN 55022/A1 Class B, and EN 55024.

### **IC Statement**

This Class B digital apparatus complies with Canadian ICES-003.

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# Notes

## Introduction

This manual is intended to assist IT professionals install the USB Rover 1650/2650. The instructions in this guide assume a general knowledge of computer installation procedures, familiarity with cabling requirements, and some understanding of USB devices.

 **NOTE:** Notes give additional information that could make installation easier.

## Product Contents

When you open your product for the first time you should find the following items:

- USB Rover 1650/2650 User Guide
- LEX unit
- REX unit
- USB cable (2m long)

To complete the installation, you will also require the following items that are not included with the product:

- USB compatible computer
- USB device
- Category 5 Unshielded Twisted Pair (UTP) cable with two RJ45 connectors (if using surface cabling),  
OR,  
Category 5 UTP cabling with two information outlets and two Category 5 UTP patch cords with RJ45 connectors (if using premise cabling)

 **NOTE:** The maximum length of the Category 5 UTP cable, including patch cords, must not exceed 50 meters.

## About the USB Rover

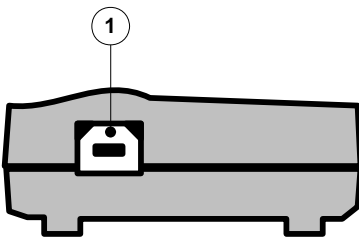
The USB Rover breaks the five-meter distance barrier for the connection of USB devices and allows users to enjoy the benefits of USB technology beyond the desktop. With the USB Rover, USB devices can be located up to 50 meters from the host computer. In addition, the USB Rover can supply power to remote low-power and some high-power USB devices.

The product is composed of two individual units, the LEX unit and the REX unit.

### The LEX Unit

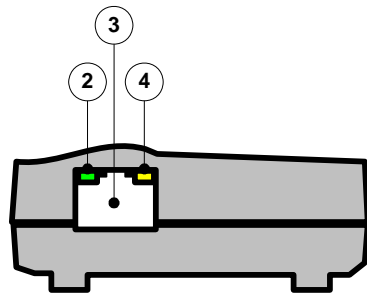
The LEX unit connects to the host computer using a conventional USB cable.

**Front View**



**1** Host Port (USB Type B)

**Rear View**



**2** Host LED (green)

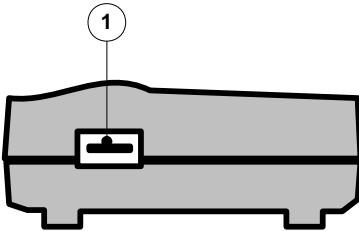
**3** Link Port (RJ45)

**4** Link LED (yellow)

## The REX Unit

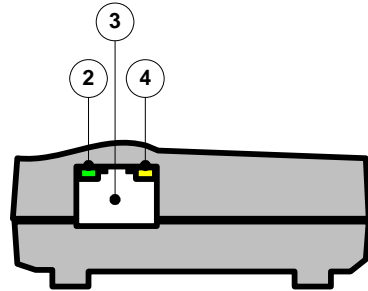
The REX unit connects to the USB device using a conventional USB cable. The REX unit of the USB Rover 1650 enables you to connect one full-speed or low-speed USB device. The REX unit of the USB Rover 2650 enables you to connect two full-speed or low-speed USB devices.

**Front View**



- 1** Device Port  
 (1 x USB Type A on 1650)  
 (2 x USB Type A on 2650)

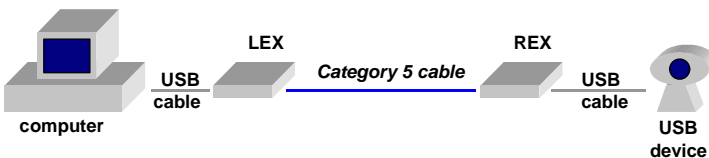
**Rear View**



- 2** Device LED (green)  
**3** Link Port (RJ45)  
**4** Link LED (yellow)

## Network Cabling

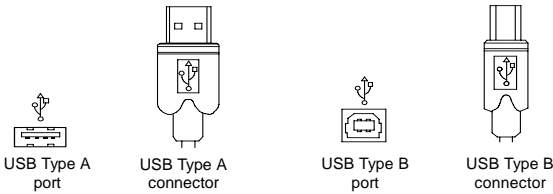
The LEX unit and REX unit are interconnected by up to 50 meters of Category 5 Unshielded Twisted Pair (UTP) cabling. The UTP cabling must have a straight-through conductor configuration, with no crossovers, and must be terminated with 8-conductor RJ45 connectors at both ends.



**NOTE:** Category 5 UTP cabling is the standard data communications cable installed in most commercial and some residential buildings.

## USB Cables

USB cables have two distinct connectors. The Type A connector is used to connect the cable from a USB device to the Type A port on a computer or hub. The Type B connector is used to attach the USB cable to a USB device.




## Power Handling

Some USB devices are powered directly from the USB and do not require individual power supplies. These devices are called bus-powered devices. The USB Rover can provide power to these devices so they can be operated remotely.

Bus-powered devices are further divided into low-power and high-power categories. Low-power devices are allowed to draw up to 100 mA from the USB. Typical examples include mice, joysticks, and keyboards without hubs. High-power devices are allowed to draw up to 500 mA from the USB. Typical examples include cameras and keyboards with hubs. To determine if a device is high-power or low-power, consult the user documentation for the device.

The USB Rover can supply sufficient power to support all low-power devices and most high-power devices. Devices that place a very heavy power drain on USB (>300 mA) are not supported. Most USB devices operate well within this power budget.

 **NOTE:** Devices with their own power source are usually considered to be low-power devices from a USB perspective and are thereby compatible with the USB Rover.

## Compatibility

The USB Rover complies with USB 1.1 specifications governing the design of full-speed and low-speed USB devices. However, Icron Technologies Corporation does not guarantee that all USB 1.1 devices are compatible with the USB Rover.



## Before You Begin

Before you can install the USB Rover, you need to prepare your site.

1. Determine where the host computer is to be located and set up the computer.
2. Determine where you want to locate the USB device.
3. If you are using surface cabling, ensure you have enough Category 5 UTP cabling to connect the two locations.

OR

If you are using premise cabling, ensure Category 5 UTP cabling is installed between the two locations, with Category 5 information outlets located near both the computer and the USB device.


## Installing the LEX unit

1. Place the LEX unit near the host computer.
2. Plug the Type B connector on the USB cable (included) into the Host port on the LEX unit.
3. Plug the Type A connector on the USB cable into the USB port on the computer.

## Installing the REX unit

1. Place the REX unit near the USB device.

## Connecting the LEX unit to the REX unit


 **NOTE:** To ensure proper operation, we recommend that only Category 5, or better, Unshielded Twisted Pair (UTP) cabling be used to connect the LEX unit to the REX unit. The UTP cabling must have a straight-through conductor configuration with no crossovers, and must be terminated with 8-conductor RJ45 connectors at both ends.

## With Surface Cabling

1. Plug one end of the Category 5 UTP cabling (not included) into the Link port on the LEX unit.
2. Plug the other end of the Category 5 UTP cabling into the Link port on the REX unit.

## With Premise Cabling

1. Plug one end of a Category 5 patch cord (not included) into the Link port on the LEX unit.
2. Plug the other end of the patch cord into the Category 5 information outlet near the host computer.
3. Plug one end of the second Category 5 patch cord (not included) into the Link port on the REX unit.
4. Plug the other end of the second patch cord into the Category 5 information outlet near the USB device.

 **NOTE:** The maximum length of the Category 5 UTP cable, including patch cords, must not exceed 50 meters.

## Checking the Installation

1. Check that the Link LEDs on both LEX unit and REX unit are on.

## Connecting a USB Device

1. Install any software required to operate the USB device. Refer to the documentation for this device, as required.
2. Connect the USB device to the Device port on the REX unit.
3. Check that the Host LED on LEX unit is on.
4. Check that the Device LED on REX unit is on.

## Troubleshooting

The following table provides troubleshooting help. The topics are arranged in the order in which they should be executed in most situations. If you are unable to resolve the problem after following these instructions, please contact technical support for further assistance (see page 11).

<b>Symptoms/Cause</b>	<b>Remedy</b>
<p>All LEDs on LEX unit are off.</p> <p><b>Cause:</b> The LEX unit is not receiving power from the computer</p>	<ol style="list-style-type: none"> <li>1. Ensure that the LEX unit is connected to a USB port on the computer</li> <li>2. Check that the computer is switched on and that the OS is running (not in Sleep mode).</li> </ol>
<p>Host LED on LEX unit is on; Link LED on LEX unit is off.</p> <p><b>Cause:</b> There is no connection between the LEX unit and the REX unit.</p>	<ol style="list-style-type: none"> <li>1. Ensure that a Category 5 UTP cable with straight-through conductors is connected between the LEX unit and the REX unit.</li> <li>2. Ensure that Category 5 cables and connectors are used throughout the entire link between the LEX unit and the REX unit.</li> <li>3. Check that Category 3 cable has not been substituted.</li> <li>4. Check that the cable length between the LEX unit and the REX unit does not exceed 50 metres.</li> <li>5. Connect a short Category 5 patch cord between the LEX unit and the REX unit. Recheck the operation of the system.</li> </ol>

<b>Symptoms/Cause</b>	<b>Remedy</b>
<p>Link LED on LEX unit is on; Host LED on LEX unit is on. Link LED on REX unit is on; Device LED on REX unit is off.</p> <p><b>Cause:</b></p> <ul style="list-style-type: none"> <li>a) The USB device is not connected to the REX unit.</li> <li>b) The USB device is malfunctioning.</li> <li>c) The computer does not recognise the USB device.</li> <li>d) The computer does not support USB hubs.</li> <li>e) The USB Rover is malfunctioning.</li> </ul>	<ol style="list-style-type: none"> <li>1. Check that the USB device is securely connected to the USB port on the REX unit.</li> <li>2. Disconnect the LEX unit from the computer.</li> <li>3. Connect the USB device directly to the USB port on the computer.</li> <li>4. If the device does not operate properly, consult the user documentation for the device.</li> <li>5. If the device operates properly when directly connected to the computer, connect another full speed device (of a different type) to the REX unit. Connect the LEX unit to the computer.</li> <li>6. If the second device does not operate, the extender may be malfunctioning. Contact technical support for assistance.</li> <li>7. If the second device does operate properly, the first device may not be compatible with the USB Rover. Contact technical support for assistance.</li> </ol>
<p>All LEDs on both LEX unit and REX unit are on but the device does not operate correctly</p> <p><b>Cause:</b></p> <ul style="list-style-type: none"> <li>a) The USB device is malfunctioning.</li> <li>b) The computer does not recognise the USB device.</li> <li>c) The USB Rover is malfunctioning.</li> </ul>	<ol style="list-style-type: none"> <li>1. Disconnect the LEX unit from the computer.</li> <li>2. Connect the USB device directly to the USB port on the computer.</li> <li>3. If the device does not operate properly, consult the user documentation for the device.</li> <li>4. If the device operates properly when directly connected to the computer, connect another full speed device (of a different type) to the REX unit. Connect the LEX unit to the computer.</li> <li>5. If the second device does not operate, the extender may be malfunctioning. Contact technical support for assistance.</li> <li>6. If the second device does operate properly, the first device may not be compatible with the USB Rover. Contact technical support for assistance.</li> </ol>

## Specifications

Range (over Category 5 UTP cable)	50 meters (165 ft)
USB device support	USB Rover 1650: 1 x full-speed (12 Mb/s) or low-speed (1.5 Mb/s) device. USB Rover 2650: 2 x full-speed (12 Mb/s) or low-speed (1.5 Mb/s) devices.
USB hub support	Up to 3 hubs connected in series. Each hub reduces the maximum range by 10 meters.
Maximum power available to USB at REX unit	300 mA when LEX unit is supplied with 500 mA; 600 mA when LEX unit is supplied with 1000 mA
USB cable	2 meters (6.6 ft)
LEX unit connector (upstream)	1 x USB Type B
LEX unit connector (downstream)	1 x RJ45
REX unit connector (upstream)	1 x RJ45
REX unit connector (downstream)	USB Rover 1650: 1 x USB Type A USB Rover 2650: 2 x USB Type A
LEX unit dimensions	100 mm x 70 mm x 30 mm (4.0" x 2.8" x 1.2")
LEX unit weight	0.1 kg (0.2 lb)
REX unit dimensions	100 mm x 70 mm x 30 mm (4.0" x 2.8" x 1.2")
REX unit weight	0.1 kg (0.2 lb)
Total system shipping weight	0.4 kg (0.8 lb)
Temperature range	4°C to 40°C
Regulatory testing	FCC, CE Class B

## **Limited Hardware Warranty**

Icron Technologies Corporation warrants that any hardware products accompanying this documentation shall be free from significant defects in material and workmanship for a period of one year from the date of purchase. Icron Technologies Corporation's hardware warranty extends to Licensee, its customers and end users.

## **Hardware Remedies**

Icron Technologies Corporation's entire liability and the Licensee's exclusive remedy for any breach of warranty, shall be, at Icron Technologies Corporation's option, either (a) return of the price paid or (b) repair or replacement of hardware, which will be warranted for the remainder of the original warranty period or 30 days, whichever is longer. These remedies are void if failure of the hardware has resulted from accident, abuse, or misapplication.

## **Limitation of Liability**

The hardware warranty set forth in this agreement replaces all other warranties. Icron Technologies Corporation expressly disclaims all other merchantability and fitness for a particular purpose and non-infringement of third-party rights with respect to the hardware. Icron Technologies Corporation dealer, agent, or employee is authorized to make any modification, extension, or addition to this warranty. Under no circumstances will Icron Technologies Corporation, its suppliers or licensors be liable for any costs of procurement or substitute products or services, lost profits, loss of information or data, or any other special, indirect, consequential, or incidental damages arising in any way out of the sale of, use of, or inability to use Icron Technologies Corporation product or service, even if Icron Technologies Corporation, its suppliers or licensors have been advised of the possibility of such damages. In no case shall Icron Technologies Corporation, its suppliers and licensors' liability exceed the actual money paid for the products at issue. Because some jurisdictions do not allow the limitation of implied warranties of liability for incidental, consequential, special, or indirect damages, the above limitation may not always apply. The above limitations will not apply in case of personal injury where and to the extent that applicable law requires such liability.

## Obtaining Warranty Service

To obtain warranty service, you must contact Icron Technologies Corporation within the warranty period for a Return Material Authorization (RMA) number. Be sure you have the serial number of the product before calling. Package the product appropriately for safe shipment and mark the RMA number on the outside of the package. The package must be sent prepaid to Icron Technologies Corporation. We recommend that you insure it or send it by a method that provides for tracking of the package. The repaired or replaced item will be shipped to you, at Icron Technologies Corporation's expense, not later than thirty days after Icron Technologies Corporation receives the defective product.

Address the returned product to:

RMA Coordinator  
Icron Technologies Corporation  
4664 Lougheed Highway, Suite 275  
Burnaby, BC V5C 5T5  
Canada  
Tel: 604-638-3920

## Contacting Technical Support

If you require technical assistance, send an e-mail message to:

[techsupport@icron.com](mailto:techsupport@icron.com)

To help us serve you better, please include the following information with your technical support request:

- Description of the problem
- Host computer make and model
- Type of operating system installed (e.g. Win98, Mac OS X, etc.)
- Part number and serial number of the LEX unit and REX unit
- Make and model of any USB device attached to the extender
- Description of the installation



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