USB Ranger 110/410

User Guide

Featuring ExtremeUSB® Technology

USB Ranger 110/410

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

This document applies to Part Numbers: 00-00005, 00-00006, 00-00017, 00-00018, 00-00022, 00-00023, 00-00027, 00-00028, 00-00029, and 00-00030.

FCC Radio Frequency Interference Statement Warning

The USB Ranger has been tested and found compliant with the limits for a Class A 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 Ranger 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 Ranger 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 Ranger, to which this declaration relates, is in conformity with European Standard EN 55022/A1 Class A, and EN 50082-1 (IEC 801-2, IEC 801-3, IEC 801-4)

IC Statement

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

Contents

Notes

Introduction

This manual is intended to assist IT professionals install the USB Ranger models 110 and 410. 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.

USB Ranger Product Contents

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

- USB Ranger User Guide
- LEX unit
- REX unit
- AC power adapter (optional)
- 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 100m.

About the USB Ranger

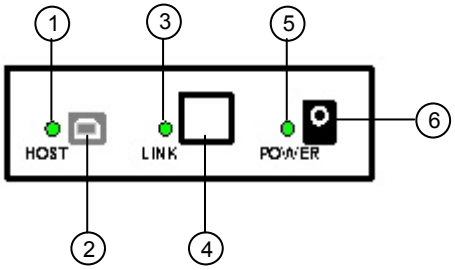
The USB Ranger incorporates Icron's *ExtremeUSB*® technology. This technology breaks the five-meter distance barrier for the connection of USB peripheral devices and allows users to enjoy the benefits of USB technology beyond the desktop. With the USB Ranger, USB devices can be located up to 100 meters from the host computer. In addition, the USB Ranger 110 and 410 can supply power to remote low-power or high-power USB devices.

The USB Ranger 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. Depending on your needs, it also connects to a power outlet through an AC power adapter.

Front View



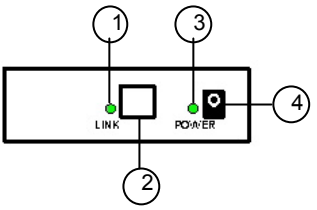
1 Host LED
2 Host Port (USB Type B)
3 Link LED
4 Link Port (RJ45)
5 Power LED
6 Power connector

NOTE: The power adapter for the USB Ranger 110 can be connected to either the LEX unit or to the REX unit, as convenient. With the USB Ranger 410, the location of the power adapter also depends on whether you are connecting high-power or low-power USB devices. (See Power Handling on page 4).

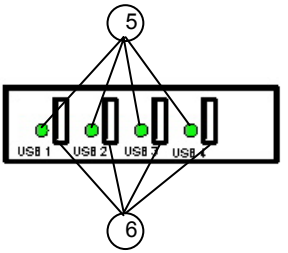
The REX unit

The REX unit connects to the USB device using a conventional USB cable. Depending on your needs, it also connects to a power outlet through an AC power adapter. The REX unit 110 unit allows you to connect one USB device. The REX unit 410 unit allows you to connect up to four USB devices.

Front View



Rear View (USB Ranger 410)

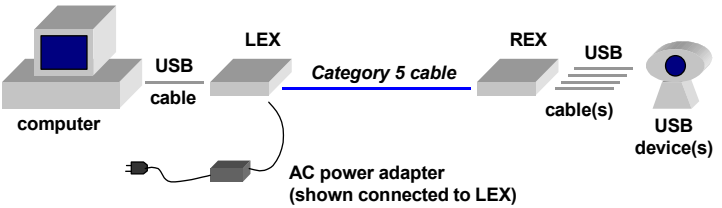


1 Link LED
2 Link Port (RJ45)
3 Power LED
4 Power connector

5 Device LED(s)
6 Device Port(s) (USB Type A)

Network Cabling

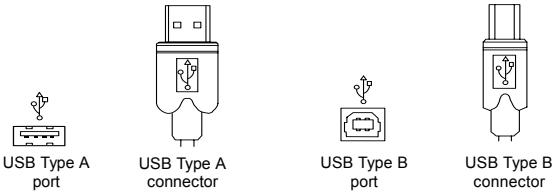
The LEX unit and REX unit are interconnected by up to 100 meters of Category 5 Unshielded Twisted Pair (UTP) cabling. The UTP cabling must have a straight-through conductor configuration, with no crossovers, and must be terminated with 8-conductor RJ45 connectors at both ends.



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 Ranger 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 Ranger 110 and 410 can supply power to both low-power and high-power devices when configured as follows:

USB Ranger 110

- To operate any USB device, connect the power adapter to the LEX unit or the REX unit, as convenient.

USB Ranger 410

- To operate up to four low-power devices, connect the power adapter to the LEX unit or the REX unit, as convenient.
- To operate up to four high-power devices, connect the power adapter to the REX unit.

NOTE: Devices with their own power source are usually considered to be low-power devices from a USB perspective.

Compatibility

The USB Ranger complies with USB 1.1 specifications governing the design of full speed USB devices. However, Icron Technologies Corporation does not guarantee that all full speed USB devices are compatible with the USB Ranger 110/410.

Before You Begin

Before you can install the USB Ranger, 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(s).
3. Decide whether the power adapter is to be connected to the LEX unit or the REX unit (see the discussion of power handling on page 4).
4. 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. If the power adapter is to be located with the LEX unit:
    a) Plug the power adapter into a suitable AC outlet.
    b) Connect the power adapter to the LEX unit.
3. Plug the Type B connector on the USB cable (included) into the Host port on the LEX unit.
4. 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.
2. If the power adapter is to be located with the REX unit:
    a) Plug the power adapter into a suitable AC outlet.
    b) Connect the power adapter to the REX unit.

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 100 meters.

Checking the Installation

1. Check that the Power LEDs on the LEX unit and REX unit are both on.
2. Check that the Link LEDs on the LEX unit and REX unit are both on.
3. Check that the Host LED on the LEX unit is on.
4. On the host PC, open the Device Manager applet. Expand the entry for Universal Serial Bus controllers by clicking the + sign. If the USB Ranger has been installed correctly you should find it listed as a Generic USB Hub.

Connecting a USB Device

1. Install any software required to operate the USB device(s). Refer to the documentation for the device(s), as required.
2. Connect the USB device to the Device port on the REX unit.
3. Check that the Device LED on the 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 14).

Symptoms/Cause	Remedy
All LEDs on LEX unit and REX unit are off. **Cause:** The USB Ranger is not receiving power from the adapter	1. Ensure that the power adapter is connected to the LEX unit or REX unit 2. Check that the adapter is connected to a live source of electrical power
Power LED on one unit is on, power LED on other unit is off. **Cause:** There is no connection between the LEX unit and REX unit.	1. Ensure that a Category 5 UTP cable with straight-through conductors is connected between the LEX unit and REX unit. 2. Connect a short Category 5 patch cord between the LEX unit and REX unit. Recheck the operation of the system.
Link LEDs on LEX unit and REX unit are off. **Cause:** There is no connection between the LEX unit and REX unit.	1. Ensure that a Category 5 UTP cable with straight-through conductors is connected between the LEX unit and REX unit. 2. Connect a short Category 5 patch cord between the LEX unit and REX unit. Recheck the operation of the system.
USB Hub Power Exceeded message is displayed by the computer. **Cause:** The USB device connected to the REX unit is a high-power device and the power adapter is connected to the LEX unit	1. Move the power adapter from the LEX unit to the REX unit.

Symptoms/Cause	Remedy
Link LED on LEX unit is on; Host LED on LEX unit is off. **Cause:** a) The computer is not functioning. b) The LEX unit is not connected to the computer. c) The computer does not support USB hubs. d) The USB Ranger is malfunctioning.	1. Disconnect all USB devices from the REX unit. 2. Disconnect the LEX unit from the computer. 3. Disconnect and then reconnect the power adapter to the USB Ranger. 4. Reconnect the LEX unit to the computer. 5. In the Universal Serial Bus controllers section of Device Manager, check that the USB Ranger is recognised as a “Generic USB Hub”. 6. If the USB Ranger is not recognised, contact Icron technical support for assistance (see page 14).
A device is connected to REX unit and the corresponding Device LED is off **Cause:** a) The USB device is malfunctioning. b) The computer does not recognise the USB device. c) The application software for the device is not operating. d) The USB Ranger is malfunctioning.	1. Disconnect the USB Ranger from the computer. 2. Connect the USB device directly to the USB port on the computer. 3. If the device does not operate properly, consult the user documentation for the device. 4. If the device operates properly when directly connected to the computer, connect another device (of a different type) to the USB Ranger. Connect the USB Ranger to the computer. 5. If the second device does not operate, the USB Ranger may be malfunctioning. Contact technical support for assistance. 6. If the second device does operate properly, the first device may not be compatible with the USB Ranger. Contact technical support for assistance.

Symptoms/Cause	Remedy
All LEDs on both the LEX unit and REX unit are on but the device does not operate correctly **Cause:** a) The USB device is malfunctioning. b) The computer does not recognise the USB device. c) The application software for the device is not operating. d) The USB Ranger is malfunctioning.	1. Disconnect the USB Ranger from the computer. 2. Connect the USB device directly to the USB port on the computer. 3. If the device does not operate properly, consult the user documentation for the device. 4. If the device operates properly when directly connected to the computer, connect another device (of a different type) to the USB Ranger. Connect the USB Ranger to the computer. 5. If the second device does not operate, the USB Ranger may be malfunctioning. Contact technical support for assistance. 6. If the second device does operate properly, the first device may not be compatible with the USB Ranger. Contact technical support for assistance.

Specifications

Range (over Category 5 UTP cable)	100 meters (330 ft)
USB device support	Full speed devices (12 Mb/s) Low speed devices (1.5 Mb/s)
USB hub support	Any single chain can include four USB hubs and one USB Ranger 110/410, in any order.
Power available to USB device at REX unit (USB Ranger 110)	1 x 500 mA
Power available to USB device at REX unit (USB Ranger 410)	4 x 100 mA (when powered at LEX unit) 4 x 500 mA (when powered at REX unit)
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)	1 x USB Type A (USB Ranger 110) 4 x USB Type A (USB Ranger 410)
LEX unit dimensions	107 mm x 84 mm x 34 mm 4.25” x 3.4” x 1.4”
LEX unit weight	0.3 kg (0.6 lb)
REX unit dimensions	107 mm x 84 mm x 34 mm 4.25” x 3.4” x 1.4”
REX unit weight	0.3 kg (0.6 lb)
Total system shipping weight	1.1 kg (2.4 lb)
Temperature range	4°C to 40°C
Regulatory testing	FCC, CE Class A

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 numbers of the LEX unit and REX unit units 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

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 the REX unit
- Make and model of any USB device attached to the USB Ranger
- Description of the installation

Notes

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