

USB 2.0 RG2211

1-port USB 2.0 100m Cat 5e Extender System
with Flexible Power

User Guide



←EXTREME→
USB®

Thank you for purchasing the USB 2.0 RG2211.

Please read this guide thoroughly.

This document applies to, but is not limited to Part Numbers: 01-00382, 01-00383, 01-00384, 01-00385.

FCC Radio Frequency Interference Statement Warning

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.

CE Statement

We, Icron Technologies Corporation, declare under our sole responsibility that the USB 2.0 RG2211, to which this declaration relates, is in conformity with European Standard EN 55022 Class A, EN 61000 and EN 55024.

IC Statement

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

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Introduction

The instructions in this guide assume a general knowledge of computer installation procedures, familiarity with cabling requirements, and some understanding of USB devices.


 Notes provide additional information that could be useful.

 Caution symbols are followed by very important information about an operational requirement.

USB 2.0 RG2211 Product Contents

Your RG2211 is packaged with:

- Local Extender
- Remote Extender
- AC Power Adapter
- Country Specific Power Cord
- USB 2.0 Cable
- Quick Start Guide and Warranty Information


 The RG2211 provides the option to apply power at the local or remote extender. The included 24V, 1A power adapter can be connected to either the local or remote extender for normal operation. This option gives added flexibility and convenience to installers.

 **NEVER power BOTH the local extender and remote extender at the same time.**

Requirements


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

- USB 1.1 or 2.0 compatible computer (host computer) with a USB compliant operating system
- USB 1.1 or 2.0 compatible device(s)
- Cat 5e solid core Unshielded Twisted Pair (UTP) cable with two RJ45 connectors (if using surface cabling), or Cat 5e cabling with two information outlets and two Cat 5e patch cords with RJ45 connectors (if using premise cabling)

 This product supports Cat 5e solid core or better cabling (i.e. Cat 6, Cat 7, etc). All references to “Cat 5e” should be read as “Cat 5e or better”.

About the USB 2.0 RG2211

The USB 2.0 RG2211 enables users to extend beyond the standard 5m cable limit for USB peripheral devices. With the RG2211, USB device(s) can be located up to 100 meters (330 feet) from the computer. The RG2211 is composed of two individual units: the local extender and remote extender.

 The local and remote extenders may be hot to the touch during operation.

The RG2211 includes the ExtremeUSB® suite of features:

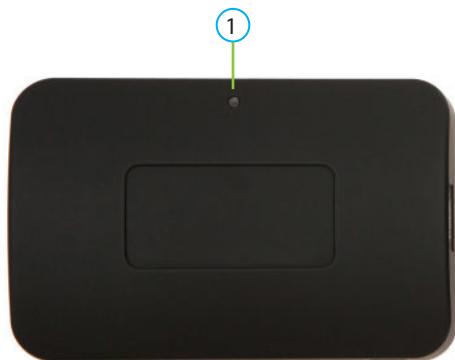


- Transparent USB extension
- True plug and play; no software drivers required
- Works with all major operating systems: Windows®, Mac OS X®, and Linux®

Local Extender Description

The local extender connects to the computer using a standard USB cable (included). Power for the local extender is provided by the host computer. Power for the remote extender is provided by the 24V AC adapter connected at **either** the local or the remote extender. The local extender delivers power over the Cat 5e extension link to the remote extender when the included power supply is connected to the local extender.

Top View



Left Side



Right Side

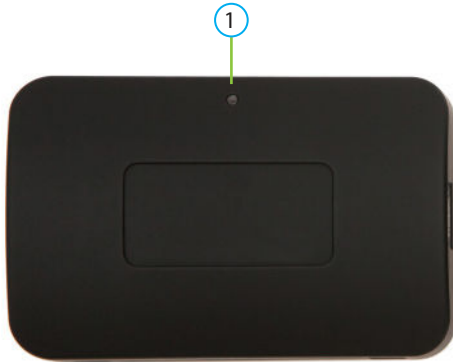


ITEM	TYPE	DESCRIPTION
1	Link LED (Green)	Indicates both the local and remote extenders have power and the Cat 5e cable is connected properly.
2	Power Port	The Power Port gives the option to connect power to either the local extender or the remote extender. Connect the supplied 24V, 1A power adapter to either the local extender or remote extender.
3	Link Port (RJ45)	Accepts RJ45 connector for Cat 5e cabling (or better).
4	USB Type B connector	Used to connect the local extender unit to the host computer.

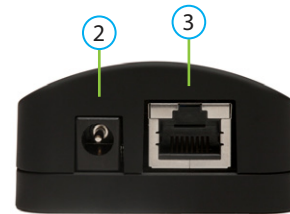
Remote Extender Description

The remote extender provides a USB Type A port for connecting standard USB devices. The remote extender allows you to connect one USB device directly. Additional devices may be connected by attaching USB hubs to the remote extender. The remote extender is powered **either** directly by the included power supply, or via the Cat 5e link extension cable from the local extender. The USB port delivers 500mA of current to the attached USB device.

Top View



Left Side



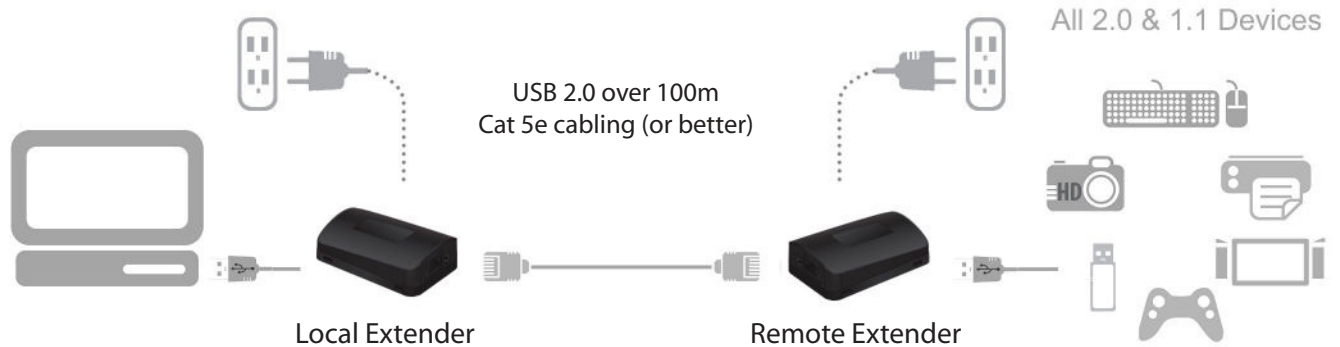
Right Side



ITEM	TYPE	DESCRIPTION
1	Link LED (Green)	Indicates both the local and remote extenders have power and the Cat 5e cable is connected properly.
2	Power Port	The Power Port gives the option to connect power to either the local extender or the remote extender. Connect the supplied 24V, 1A power adapter to either the local extender or remote extender.
3	Link Port (RJ45)	Accepts RJ45 connector for Cat 5e cabling (or better).
4	Device Port (USB Type A)	Accepts a USB device.

Installation Guide

Connect the power adapter to **either** the local or remote extender.



Mounting the Local Extender or Remote Extender

If mounting is required, the local and remote extenders have two mounting slots on each side for use with cable tie/zap straps (not included).



mounting slot

Preparing for Installation

Before you can install the RG2211, you need to prepare your site:

1. Determine where the computer is to be located and set up the computer.
2. Determine where you want to locate the USB device(s).
3. If you are using surface cabling, the RG2211 supports a maximum distance of 100m.

OR

If you are using premise cabling, ensure Cat 5e cable is installed between the two locations, with Cat 5e information outlets located near both the computer and the USB device(s), and the total length, including patch cords is no more than 100m.

Installing the Local Extender

1. Place the local extender near the computer.
2. Install the supplied USB cable between the local extender and USB port on the host computer.

Installing the Remote Extender

1. Place the remote extender near the USB device(s) in the desired remote location.

Installing Flexible Power

1. Connect the included AC power adapter to the local **or** remote extender, based on installation requirement.

! Use only the AC adapter supplied with the RG2211. Use of substitute adapters may cause permanent damage to the system and will void the warranty.

! NEVER plug a power adapter to BOTH local and remote extenders, as this may cause permanent damage to the system and will void the warranty.

Connecting the Local Extender to the Remote Extender



To ensure proper operation, it is recommended that only solid core Cat 5e (or better) cabling be used to connect the local extender to the remote extender. The cabling must have a straight-through conductor configuration with no crossovers and must be terminated with 8 conductor RJ45 connectors at both ends. The combined length of any patch cords using stranded conductors must not exceed 10m.

With Surface Cabling

1. Plug one end of the Cat 5e cabling (not included) into the Link port (RJ45) on the local extender.
2. Plug the other end of the Cat 5e cabling into the Link port (RJ45) on the remote extender.

With Premise Cabling

1. Plug one end of a Cat 5e patch cord (not included) into the Link port (RJ45) on the local extender.
2. Plug the other end of the patch cord into the Cat 5e information outlet near the host computer.
3. Plug one end of the 2nd Cat 5e patch cord (not included) into the Link port (RJ45) on the remote extender.
4. Plug the other end of the 2nd patch cord into the Cat 5e information outlet near the USB device.

Checking the Installation

1. Check that the green Link LED is illuminated on both the local and remote extenders.
2. For Windows users (2000, XP, Vista, 7, 8), open Device Manager to confirm that the RG2211 has installed correctly. Expand the entry for Universal Serial Bus controllers. If the RG2211 has been installed correctly, you should find it listed as a "Generic USB Hub".
3. For Mac OS X users, open the System Profiler to confirm that the RG2211 has installed correctly. In the left hand column under Hardware, select "USB" and inspect the right hand panel. If the RG2211 has been installed correctly, you should find it listed as a "Hub" under the USB high-speed Bus/USB Bus.
4. If the RG2211 is not detected correctly or fails to detect, please consult the Troubleshooting section.



To open System Profiler in Mac OS X:

Open the Finder, select Applications, then open the Utilities folder and double click on the System Profiler icon.

To open Device Manager in Windows 2000 or XP:

Right click "My Computer" then select: Properties >> Hardware tab >> Device Manager.

To open Device Manager in Windows Vista or Windows 7:

Open the Start menu, right click on "Computer" then select: Manage >> Device Manager.

To open Device Manager in Windows 8:

Right click on the lower left bottom corner of your screen, then select: Device Manager

Connecting a USB Device

1. Install any software required to operate the USB device(s). Refer to the documentation for the USB device(s), as required.
2. Connect the USB device to the device port on the remote extender.
3. Check that the device is detected and installed properly in the operating system.

Compatibility

The RG2211 complies with USB 1.1 and USB 2.0 specifications governing the design of USB devices. However, Icron Technologies Corporation does not guarantee that all USB devices are compatible with the USB RG2211, as there are a number of different factors that may impact the operation of USB devices over extended distances.

Troubleshooting

The following table provides troubleshooting tips. 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.

PROBLEM	CAUSE	SOLUTION
USB device is attached but not functioning.	<ul style="list-style-type: none"> • The USB device requires drivers that were not installed. • The USB device does not support USB hubs. • The USB device has malfunctioned. 	<ol style="list-style-type: none"> 1. Install the required USB device driver on the computer operating system prior to attaching the USB device into the remote extender. Please see your USB device manufacturer's website for details. 2. In the Universal Serial Bus controllers section of Device Manager, check that the USB device has enumerated. 3. Contact Technical Support for assistance.
USB device is attached but not functioning.	<ul style="list-style-type: none"> • Overcurrent condition has occurred because the USB device has drawn more current than can be supplied per USB specification (500mA). Operating system may generate a status bubble indicating an issue. 	<ol style="list-style-type: none"> 1. Power cycle remote extender by unplugging the power adapter from the extender. Wait approximately 30 seconds and then plug the power adapter back into the remote extender. 2. If overcurrent continues to occur, either: <ol style="list-style-type: none"> (a) the USB device may use more power than the USB specification, or (b) the USB device may be damaged. 3. Consult your USB device documentation and power your USB device with the required power supply.
Link LED on the local and remote extenders blink intermittently.	<ul style="list-style-type: none"> • The Cat 5e cable connecting the local extender and remote extender is faulty. • Firmware mismatch between the local and remote extenders 	<ol style="list-style-type: none"> 1. Ensure the Cat 5e cable is of decent quality. 2. Use a different local and remote extender pair which have the same firmware revision. 3. Upgrade the local and remote extender firmware; contact Technical Support for assistance.

PROBLEM	CAUSE	SOLUTION
Link LED on the local and remote extenders is off.	<ul style="list-style-type: none"> • The remote extender is not receiving power. • The local extender is not receiving power. • The link cable is malfunctioning. • The RG2211 is malfunctioning. 	<ol style="list-style-type: none"> 1. Confirm the host computer is on and providing power to local extender. 2. Ensure the supplied AC power adapter is properly connected to the local extender or the remote extender. Not both. 3. Ensure the Cat 5e cabling between the local and remote extenders is properly installed or replace the link cable. 4. Check that the AC adapter is connected to a live source of electrical power. 5. Contact Technical Support for assistance.

NOTES

Specifications

Range	100m (330ft) over Cat 5e (or better) cable
USB Device Support	High-speed devices (480 Mbps) (USB 2.0) Full-speed devices (12 Mbps) (USB 1.1) Low-speed devices (1.5 Mbps) (USB 1.1)
USB Hub Support	Any single chain can include up to 4 USB hubs plus 1 RG2211
USB Host Support	EHCI (USB 2.0) and OHCI/UHCI (USB 1.1)
Maximum USB Devices Supported	14 USB devices and hubs.
AC Adapter	Input: 100/240 V AC, 50 – 60 Hz, Output: 24V DC, 1A
AC Adapter Connector	2.1 mm centre-positive jack
Current Available to USB Device at Remote Extender	500mA
System Shipping Weight	0.62 kg (1.35 lbs.)
LOCAL EXTENDER	
USB Connector	1 x USB Type B
Link Connector	1 x RJ45
Dimensions	85mm x 57mm x 28mm (3.35" x 2.25" x 1.10")
REMOTE EXTENDER	
USB Connector	1 x USB Type A
Link Connector	1 x RJ45
Dimensions	85mm x 57mm x 28mm (3.35" x 2.25" x 1.10")
ENVIRONMENTAL	
Operating Temperature Range	32°F to 122°F (0°C to 50°C)
Storage Temperature Range	-4°F to 158°F (-20°C to 70°C)
Operating Humidity	20% to 80% relative humidity, non-condensing
Storage Humidity	10% to 90% relative humidity, non-condensing
COMPLIANCE	
EMC	FCC (Class A), IC (Class A)
Immunity	CE Criteria A
Environmental	RoHS2 (CE)
Safety	Flammability V-0
SUPPORT	
Warranty	2-year

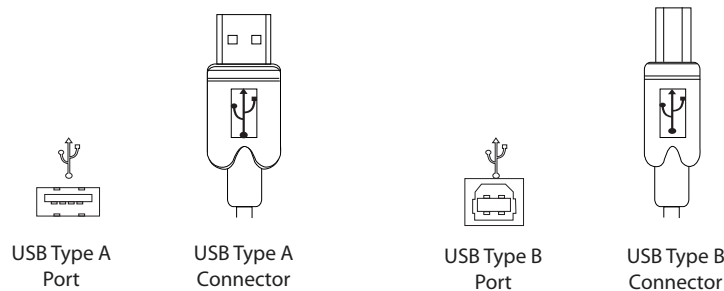
Technical Glossary

Category 5e (Cat 5e) Network Cabling

Category 5e cable is commonly also referred to as Cat 5e. This cabling is available in either solid or stranded twisted pair copper wire variants and as UTP (Unshielded Twisted Pair) or STP (Shielded Twisted Pair). UTP cables are not surrounded by any shielding making them more susceptible to electromagnetic interference (EMI). STP cables include shielding over each individual pair of copper wires and provides better protection against EMI.

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.



RJ45

The Registered Jack (RJ) physical interface is what connects the network cabling (Cat 5e) to the local extender and remote extender. You may use either the T568A scheme (Table 1) or the T568B scheme (Table 2) for cable termination as the RG2211 uses all four pairs of the cable. RJ45 connectors are sometimes also referred to as 8P8C connectors.

RJ45 Pin Positioning

Table 1 - T568A Wiring

PIN	PAIR	WIRE	CABLE COLOR
1	3	1	WHITE/GREEN
2	3	2	GREEN
3	2	1	WHITE/ORANGE
4	1	2	BLUE
5	1	1	WHITE/BLUE
6	2	2	ORANGE
7	4	1	WHITE/BROWN
8	4	2	BROWN

Table 2 - T568B Wiring

PIN	PAIR	WIRE	CABLE COLOR
1	2	1	WHITE/ORANGE
2	2	2	ORANGE
3	3	1	WHITE/GREEN
4	1	2	BLUE
5	1	1	WHITE/BLUE
6	3	2	GREEN
7	4	1	WHITE/BROWN
8	4	2	BROWN

