

# USB Extension SOLUTION GUIDE


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Featuring:

 **micron**

**CONNECTRONICS**

Distributors of

 Wireless and Connectivity Products

# ExtremeUSB® Extension Solutions



Many applications are challenged by USB's distance limitation of five meters for USB 2.0 and approximately three meters for USB 3.0, where the USB host on the computer and the device need to be separated. When you need your USB devices to operate reliably at extended distances, count on USB extenders from Icron Technologies with ExtremeUSB® – the industry recognized premium standard for USB extension.

All Icron USB extender solutions include the ExtremeUSB® suite of features:

- Transparent USB extension
- True plug and play (no software drivers)
- Hot swappable
- Compatibility with all major operating systems: Windows®, OS X®, and Linux®



## Icron's USB Extenders:

USB	USB Extender Model	Max Distance	Transmission Media	Power Adapter Location	USB Port(s)
USB 3.0*	USB 3.0 Spectra™ 3022	330ft/100m	Multimode Fiber	Remote Extender	2
USB 3.0*	USB 3.0 Spectra™ 3001-15	49ft/15m	Active Copper Cable	Bus-Powered	1
USB 2.0	USB 2.0 Ranger® 2304-LAN	330ft/100m	Cat 5e/6/7 or Local Area Network (LAN)	Remote Extender	4
USB 2.0	USB 2.0 Ranger® 2304	330ft/100m	Cat 5e/6/7	Remote Extender	4
USB 2.0	USB 2.0 Ranger® 2244	6.2mi/10km	Singlemode Fiber	Remote Extender	4
USB 2.0	USB 2.0 Ranger® 2224	1640ft/500m	Multimode Fiber	Remote Extender	4
USB 2.0	USB 2.0 Ranger® 2212	330ft/100m	Cat 5e/6/7	Local Extender	2
USB 2.0	USB 2.0 Ranger® 2211	330ft/100m	Cat 5e/6/7	Flexible: Local or Remote Extender	1
USB 2.0	USB 2.0 Ranger® 2204	330ft/100m	Cat 5e/6/7	Remote Extender	4
USB 2.0	USB 2.0 Ranger® 2201	330ft/100m	Cat 5e/6/7	Remote Extender	1
USB 1.1	USB 1.1 Rover® 2850	279ft/85m	Cat 5e/6/7	Bus-Powered	2
USB 1.1	USB 1.1 Rover® 1850	279ft/85m	Cat 5e/6/7	Bus-Powered	1

\*Please note: USB 3.0 Spectra™ extenders are USB 3.0 only and not backward compatible with USB 2.0/1.1

## Icron's KVM (Video + USB) Extenders:

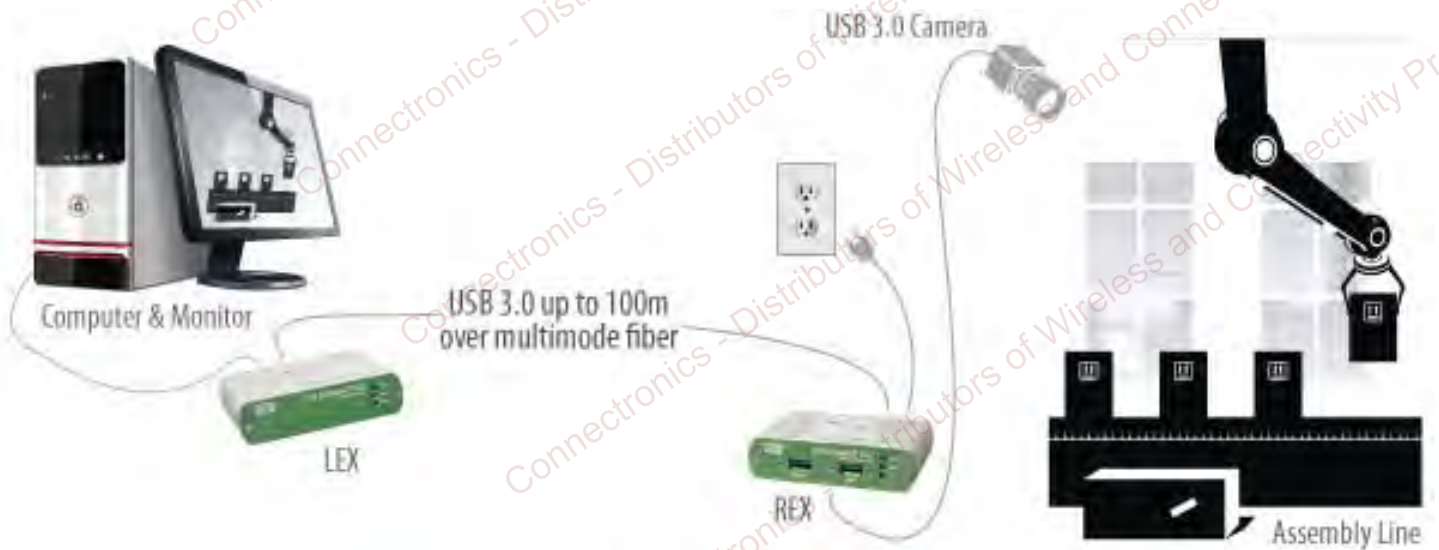
KVM	KVM Extender Model	Max Distance	Transmission Media	Power Adapter Location	USB Port(s)
DVI + USB 2.0	EL5100 DVI + USB 2.0	330ft/100m	Cat 5e/6/7	Local and Remote Extenders	3
HDMI + USB 2.0	EL5200 HDMI + USB 2.0	330ft/100m	Cat 5e/6/7	Local and Remote Extenders	3

# Markets and Applications

Market	Extension Application	Suggested Icron Extender Models
Aerospace & Defense	Desktop extension	Any Ranger extender
	FCC Class B	Ranger 2201, 2204, 2212, 2224, 2244, 2304, 2304-LAN, Spectra 3022
	Electrical isolation	Ranger 2224, 2244, Spectra 3022
Education	Keyboard/Mouse only	Rover 1850, 2850
	Interactive White Boards	Rover 1850, 2850, Ranger 2201, 2204, 2211, 2304
	Desktop extension	Any Ranger extender
Industrial Automation	Sensors/alarms	Rover 1850, 2850, Ranger 2201, 2204, 2211, 2212, 2304
	Work control stations	Any Rover or Ranger extender; if video needed EL5100
	Visual inspection/AIA USB3 Vision™*	Spectra 3001-15, 3022
	FCC Class B	Ranger 2201, 2204, 2212, 2224, 2244, 2304, 2304-LAN, Spectra 3022
	Electrical isolation	Ranger 2224, 2244, Spectra 3022
IT/ProAV	Keyboard/Mouse only	Rover 1850, 2850
	Desktop extension	Any Ranger extender
	Desktop extension over LAN	Ranger 2304-LAN
	Conferencing	Any Ranger or Spectra extender
Medical	Keyboard/Mouse only	Rover 1850, 2850
	Desktop extension	Any Ranger extender
	Imaging	Any Ranger or Spectra extender
	Electrical isolation	Ranger 2224, 2244, Spectra 3022
	FCC Class B	Ranger 2201, 2204, 2212, 2224, 2244, 2304, 2304-LAN, Spectra 3022

\*USB 3.0 Spectra extenders have been endorsed for ExtremeUSB interoperability by the following industrial camera manufacturers: Acamar, Artray, Basler, Baumer, Hamamatsu, IDS, JAI, Lumenera, Matrix Vision, Mightex, NET, PixellINK, Pleora, Point Grey, Sentech, The Imaging Source, Toshiba-teli, and XIMEA.

## Deployment Configuration



The system typically consists of a pair of extender units: a Local extender unit connected to a host such as a computer, and a Remote extender unit connected to USB peripherals such as keyboard, mouse, flash drive or camera. These two extender points are joined by a transmission link cable such as Cat5e or fiber to provide a point-to-point extension connection at the required distance. The diagram above is an example of extending Machine Vision Cameras with Icron Technologies' USB 3.0 Spectra 3022 Fiber Extender.