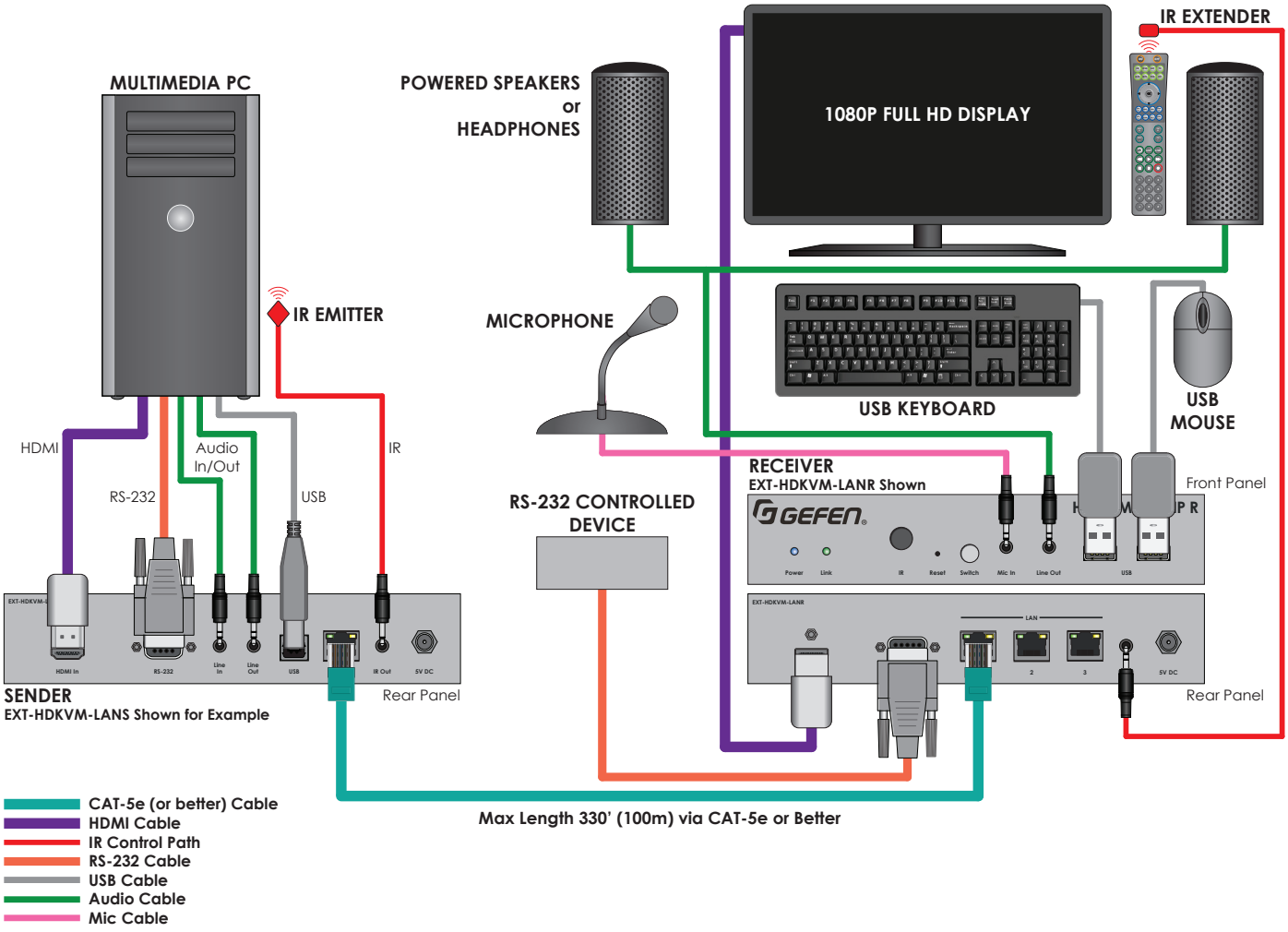
The Leader in Video Distribution

KVM over IP
Keyboard, Video & Mouse over IP

Gefen KVM and Video over IP products allow configuration of custom, scalable KVM and video matrixes. KVM, or Keyboard, Video & Mouse signals for up to 65,00 Sender and Receiver units can be matrixed via standard network infrastructure to create virtually limitless matrix and switching combinations.

A PC or video source can be located in one location and accessed from single or multiple locations on the matrix. System configuration can be simple KVM extension, a LAN based matrix with locally selectable sources or a master controlled system with the EXT-CU-LAN Matrix Controller.

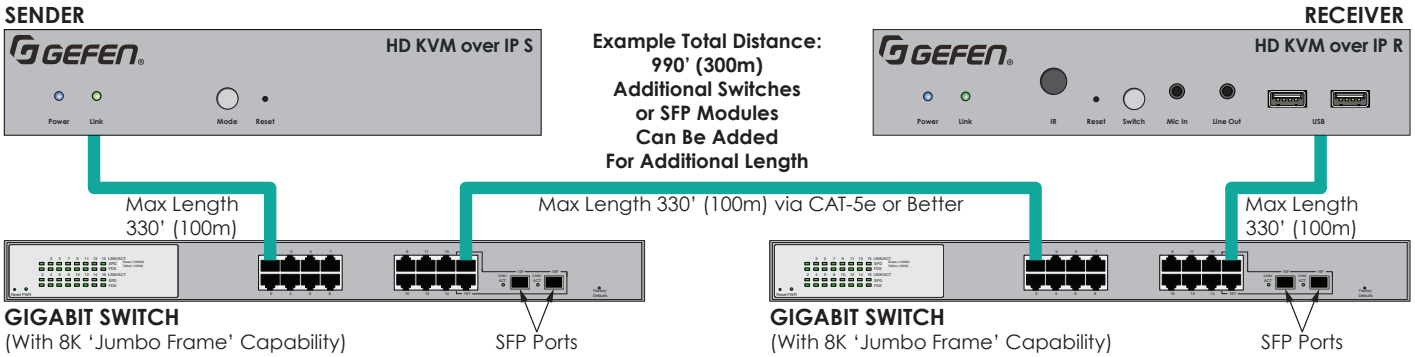
Application 1 - Direct Connect KVM Extension



The illustration shows the typical connections on a Gefen KVM Sender and Receiver. This application has the Sender and Receiver setup in a standalone, direct connect configuration for KVM extension. This application does not require a network switch. KVM Senders and Receivers can also be configured for extension, switching, distribution and matrix over IP. The Senders and Receivers are available with HDMI 1080p Full HD, VGA or DVI video, in addition to the other shown connections. An HDMI version with 2-way IR and RS-232 is also available.

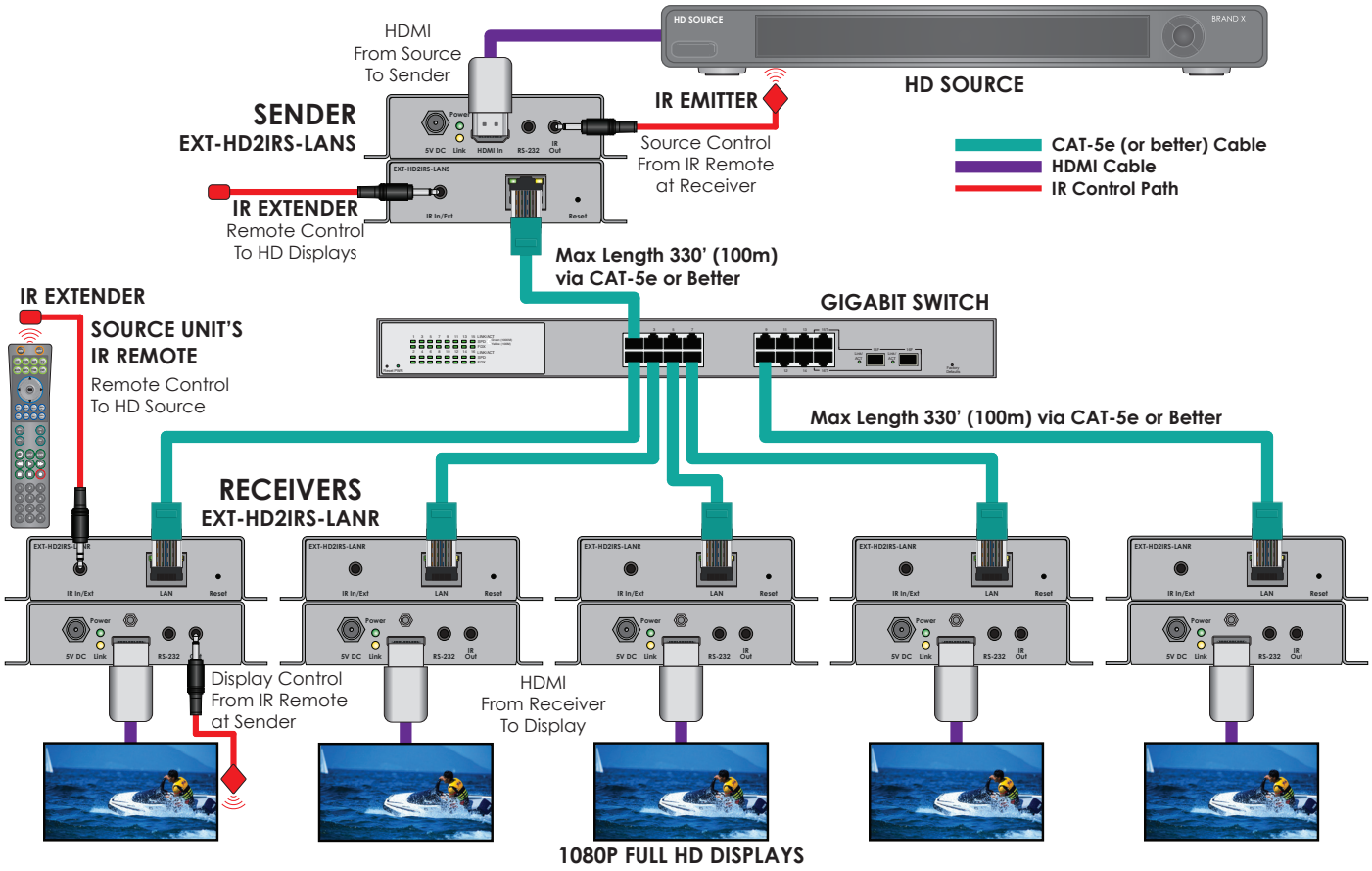
Gefen KVM over IP

Application 2 - KVM & Video Extension - Extended Range



Maximum cable length for direct connection between a Sender and Receiver is 330 feet (100m) on CAT-5e or better cable. A gigabit switch adds another 330 feet (100m), 660 feet (200m) total, from the Sender, to the switch, to the Receiver. Additional switches add increments of 330 feet (100m) per hop. Fiber optic SFP Gigabit Ethernet Modules can be connected to gig switch SFP ports to extend connected range up to 6.2 miles (10km).

Application 3 - Video Distribution - Video over IP



This application distributes a single HD video source to multiple HD Displays over IP. HDMI 1080p Full HD can be distributed from the Sender to as many Receivers as the network will allow. 2-way IR control allows control of the HD Displays from the Sender location and control of the HD source from or any or all of the Receiver locations. RS-232 can also be implemented to control the HD Displays, or other devices, from an RS-232 Controller connected to the Sender (connection not shown).

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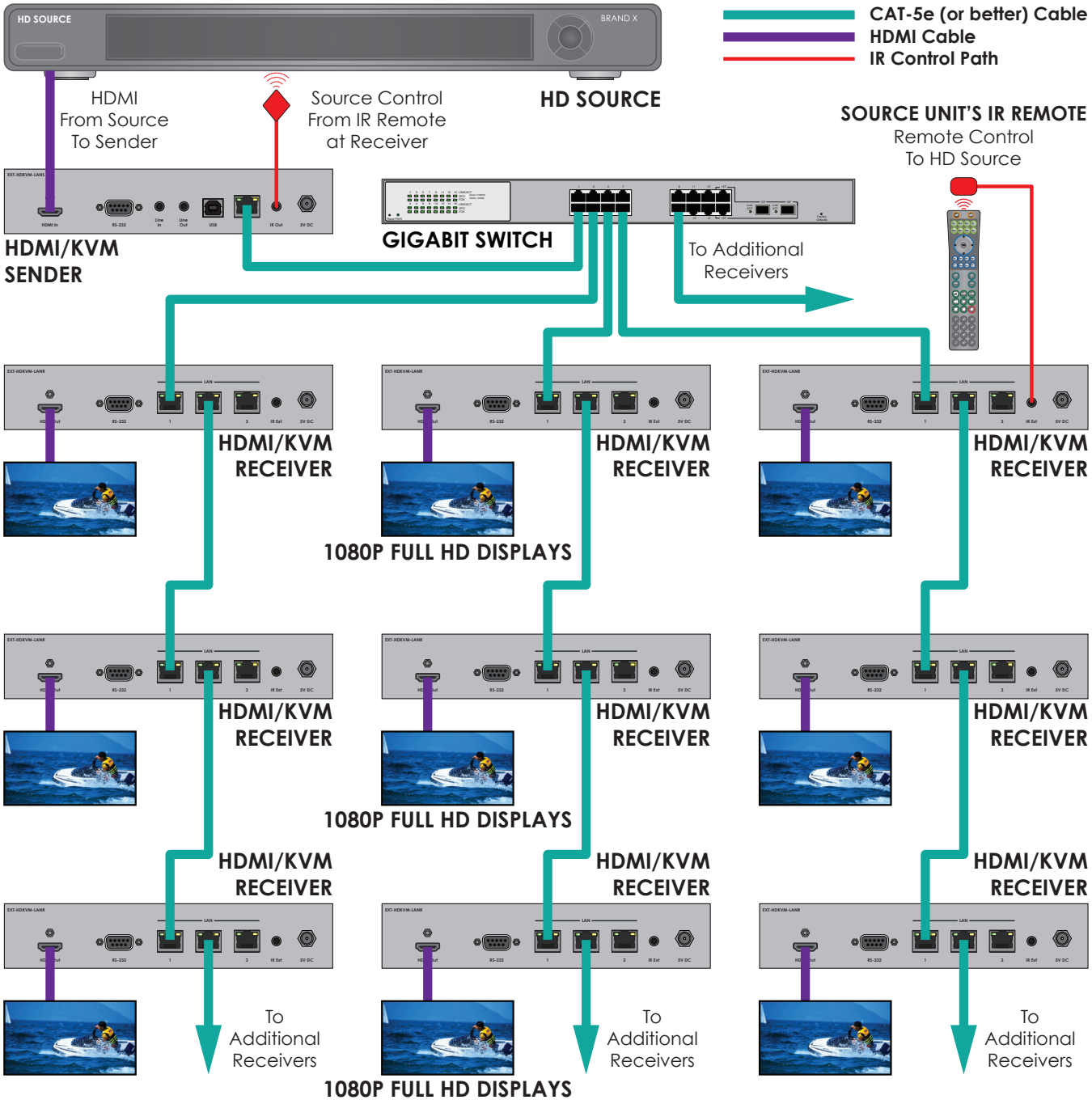
Application 4 - Video Distribution - Daisy Chain



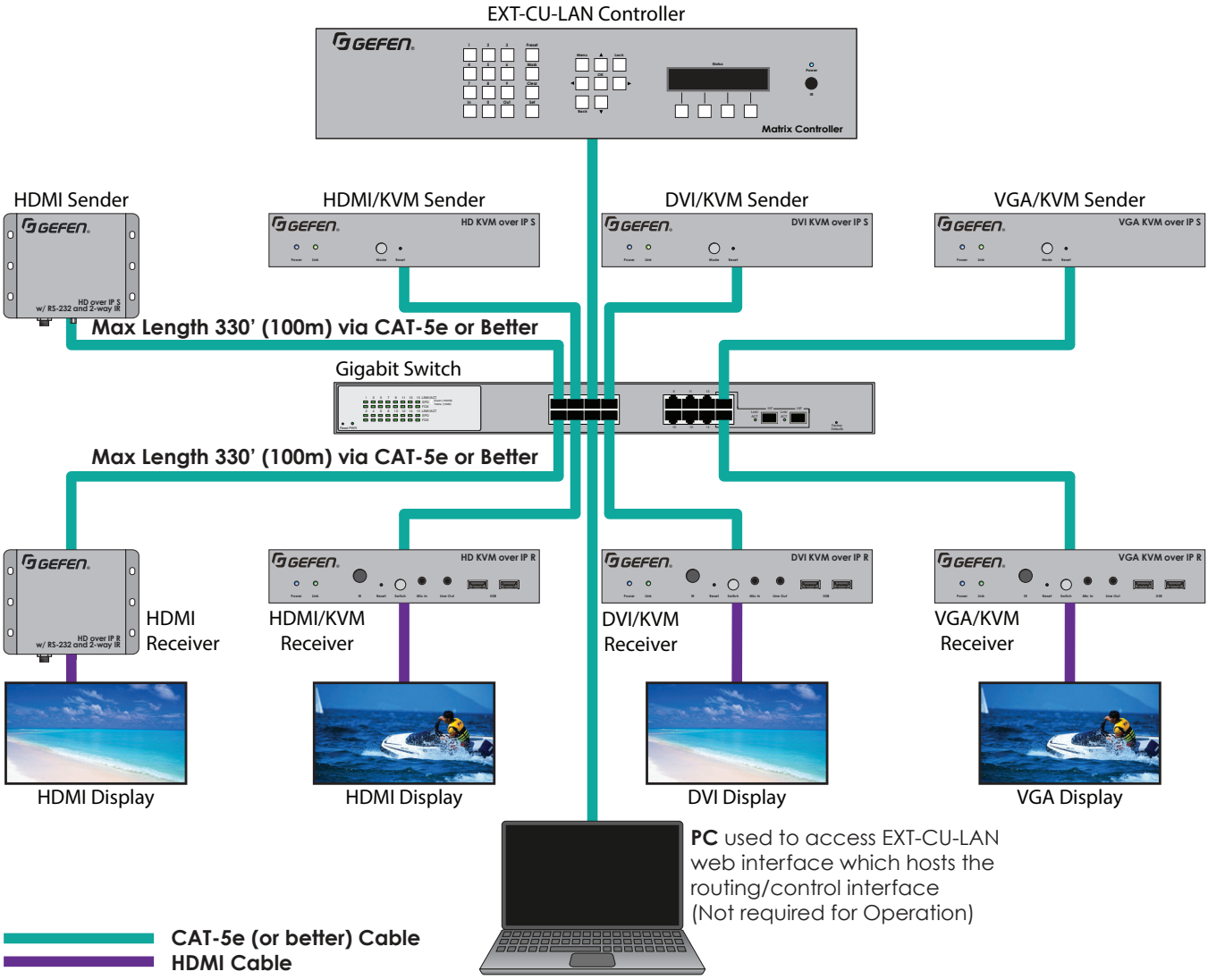
This application shows a daisy chain configuration with an EXT-HDKVM-LAN Sender feeding multiple EXT-HDKVM-LAN Receivers via a gigabit switch with 8K jumbo frame and multicast capabilities. Each Receiver has a built-in 3 port gigabit switch that can be used to connect multiple Receivers.

This application is best used for a single source system when a given video program or digital signage content is going to be distributed to multiple 1080p Full HD Displays.

IR Control from the Receiver(s) to the Sender or RS-232 control from the Sender to the Receivers can also be incorporated for control of the HD source and displays. (RS-232 connection not shown.)

Gefen KVM over IP

Application 5 - KVM & Video Matrix over IP (Combined Mode)



The illustration shows the KVM Senders and Receivers configured in a simple matrix. The example shows Gefen KVM Senders and Receivers for HDMI 1080p Full HD, VGA, DVI and the HDMI/IR/RS-232 model. All Senders and Receivers are connected to a gigabit switch with 8K jumbo frame and multicast capabilities.

The video format from any Sender can be converted to the video format of any Receiver on the matrix. (HDCP content is only supported by HDMI Sender and Receiver units.)

The EXT-CU-LAN Controller is optional, but is highly recommended for large systems or systems that will be frequently changing signal routing. Third-party controllers (Elan, Crestron, etc) can also be used for matrix control and only have to communicate with EXT-CU-LAN controller, simplifying third-party control setup. The example shown here uses the 'combined' mode of the EXT-CU-LAN Controller. In this mode a KVM over IP matrix can reside on a network with other devices as long as the network's bandwidth supports all devices without affecting performance (average bitrate of each sender is ~150Mbps). Setup can be performed via the Sender/Receiver embedded web pages or more quickly with the EXT-CU-LAN Controller that uses the same discovery service that's built into the Gefen Syner-G™ Software.

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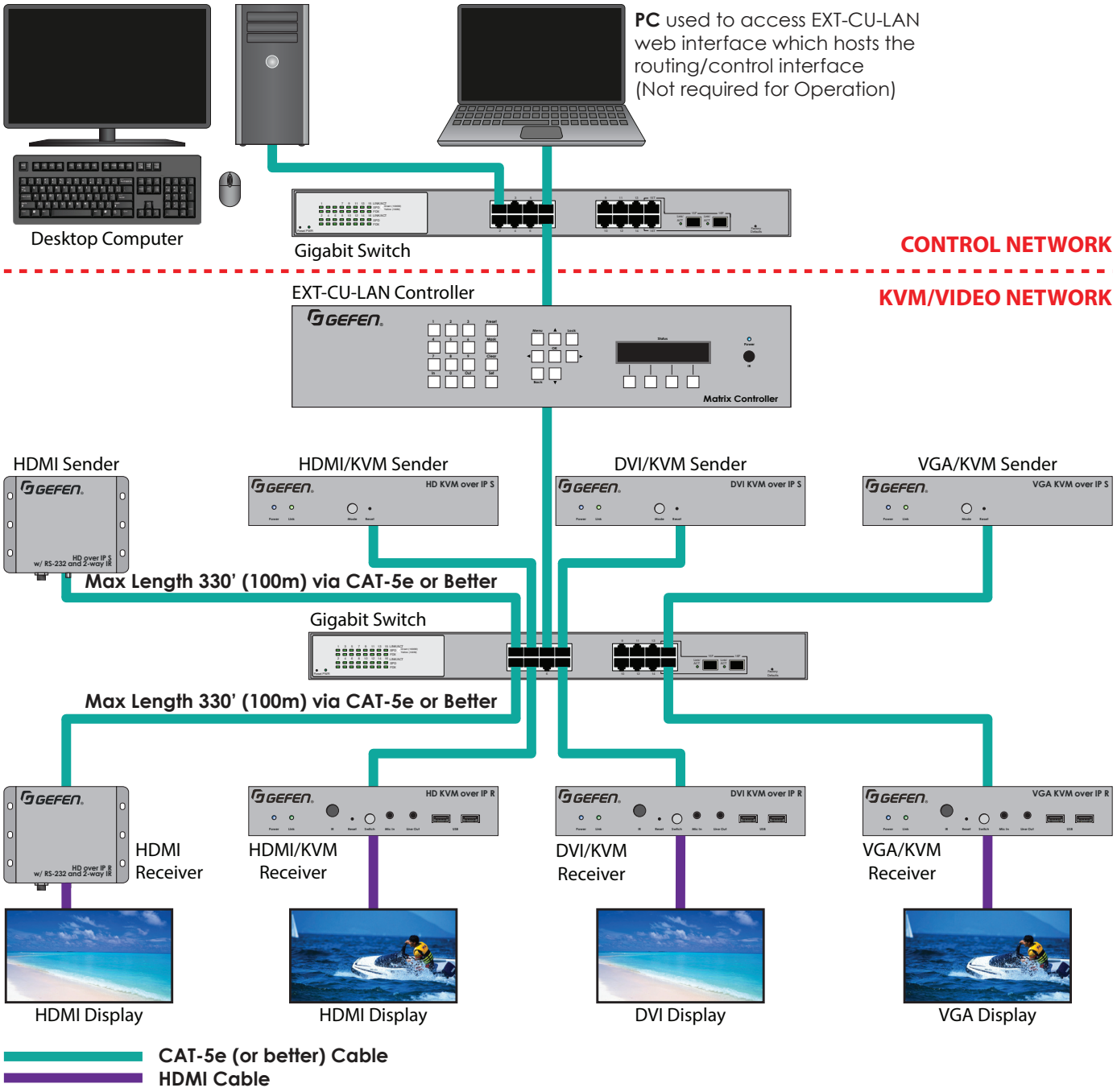
Application 6 - KVM & Video Matrix over IP (Separate Mode)

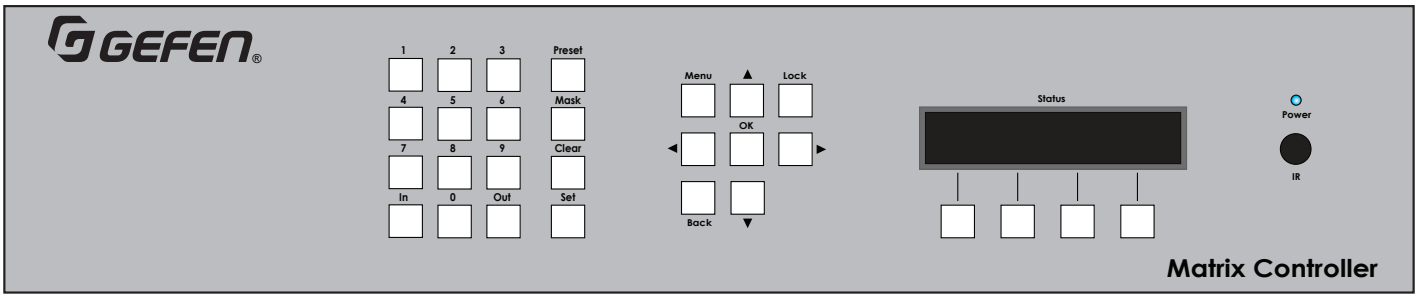


This application shows the KVM matrix setup in 'separate mode'. This configuration isolates all of the KVM traffic from other network data, VoIP services, Internet access, etc.

The EXT-CU-LAN Controller has two isolated LAN ports. This allows the controller to be connected to both the video and control networks. Although the LANs can be completely separate, the EXT-CU-LAN will allow control of Gefen KVM and Video over IP devices from computers or third-party controllers on the 'Control Network' and computers or third-party controllers on the Video Network.

Gefen KVM over IP

EXT-CU-LAN



There is a discovery protocol built into each KVM over IP Sender and Receiver. The software simply sends out a beacon that each unit responds to with its specific information, (model, IP Address, MAC Address, etc). In a simple Sender/Receiver extender configuration, this exchange of information allows the two units to communicate, connect and function. That same beacon is also built into the EXT-CU-LAN. The EXT-CU-LAN however, takes all of this a step further by having specific logic built-in that will allow the system to assign IP addresses and make setting changes on each unit remotely and automatically. Given the potential number of devices on a KVM over IP system, attempting the same thing manually would require having to address each device individually...and likely take longer than a typical client would care to pay for. EXT-CU-LAN's auto assignment capabilities reduce this discovery and configuration to mere minutes...automatically! Once all Senders and Receivers have been identified and configured, routing setup and control are easily managed either directly from the EXT-CU-LAN or a third-party controller.

Features & Benefits

Features

- Create scalable and expandable custom KVM (Keyboard, Video, Mouse) or video only matrixes in any configuration up to 256 sources and 65,000 displays
- Gefen KVM over IP allows 'non-square' matrix configurations (e. g., 5 x 20, 10 x 100, etc); just about any configuration can be created and controlled... and additional Senders and Receivers can be added or removed at any time
- Extend and matrix HDMI 1080p Full HD, DVI, VGA, USB 2.0, 2-way analog audio, RS-232 and IR over gigabit network
- EXT-CU-LAN Controller can automatically discover and configure compatible Gefen devices' network addresses and settings
- Once EXT-CU-LAN Controller is configured third-party control systems need only send single, simple commands to trigger complex matrix switching
- Standalone, direct-connect extension, does not require a network switch

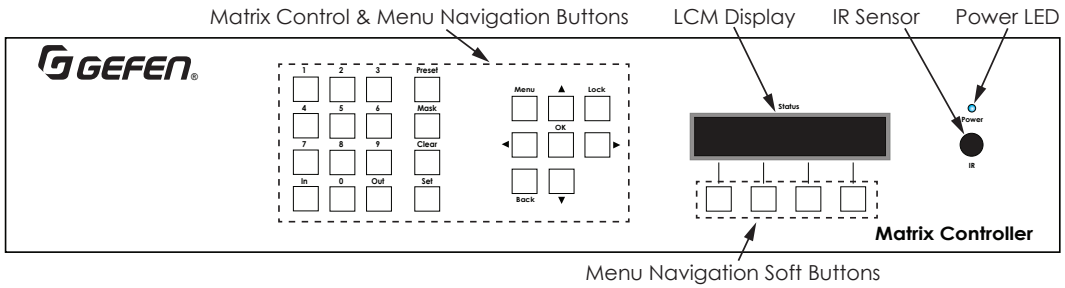
Benefits

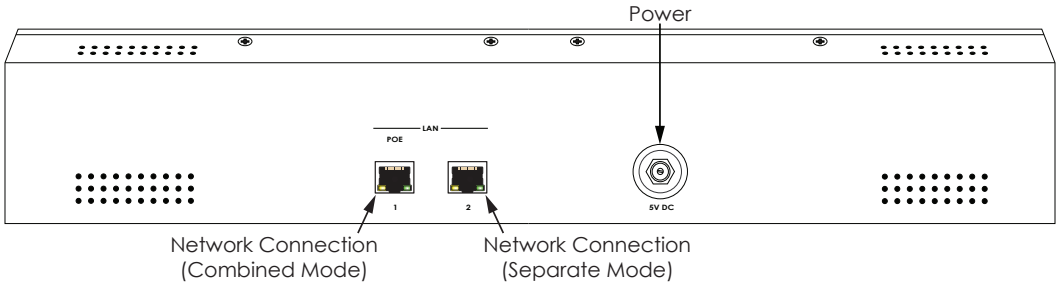
- Maximum flexibility of signal distribution and matrix over IP...from HDMI 1080p Full HD video only to complete KVM
- Design and implementation options from standalone extender to IP matrix
- Control options include manual, local source selection at the Receivers, built-in web interface, full system matrix control via EXT-CU-LAN Controller, IR control and third-party IP system control
- Gefen KVM over IP products are ideal for controlling multiple computers remotely, such as in edit bays, server rooms or classrooms
- Gefen Syner-G™ Software, as well as the Android and iOS Discover Tools auto-discover Gefen products, streamlining setup and reducing installation time of the EXT-CU-LAN
- Gefen Syner-G™, Android and iOS Discover Tools allow local management of network settings

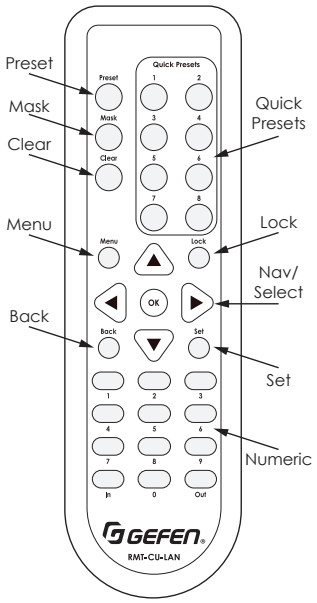
Gefen KVM over IP

Connections & Controls

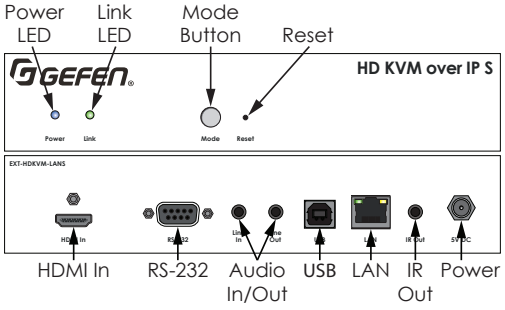
EXT-CU-LAN Controller

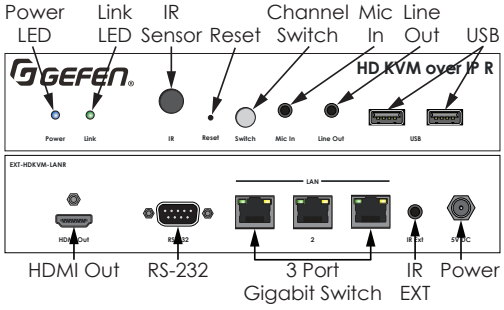






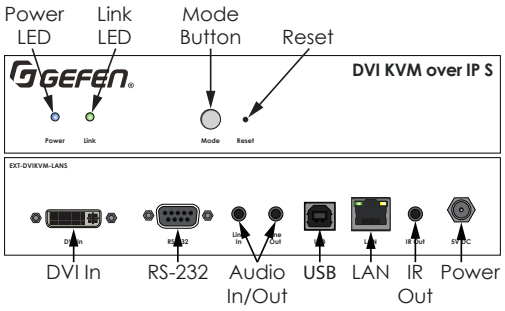
EXT-HDKVM-LAN

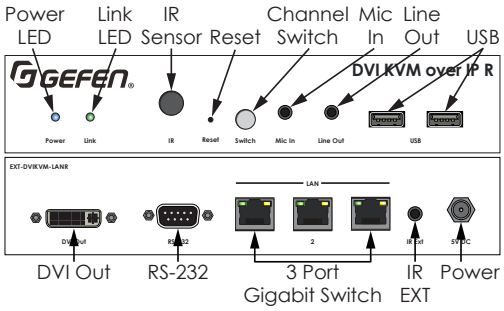




Sender **Receiver**

EXT-DVIKVM-LAN





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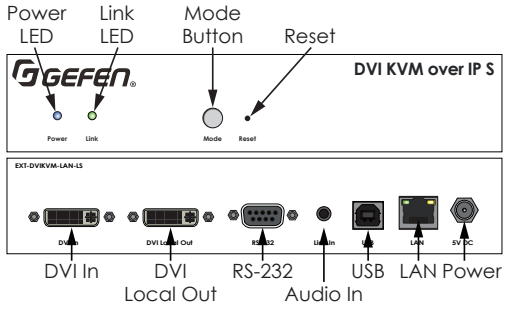
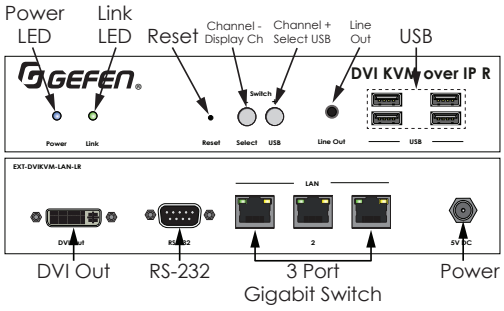
Connections & Controls

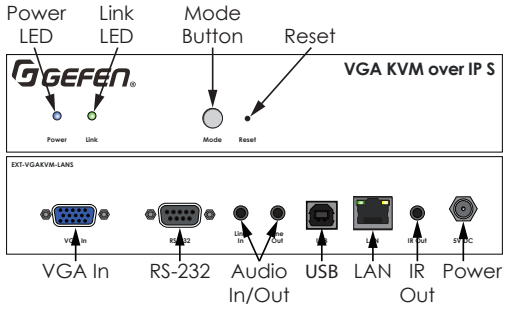
EXT-DVIKVM-LAN-L

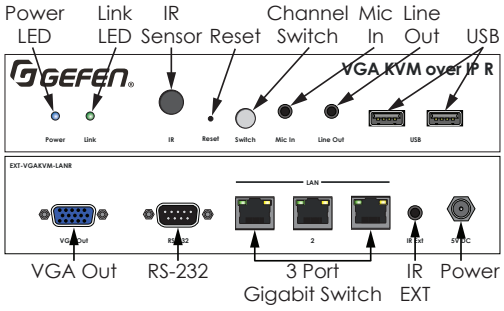




Sender **Receiver**

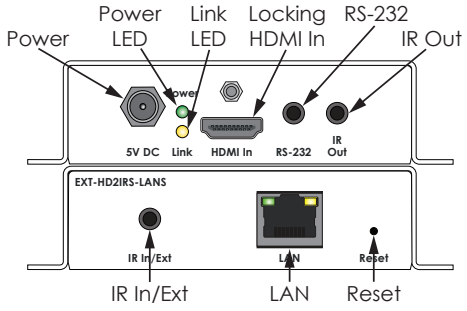
EXT-VGAKVM-LAN

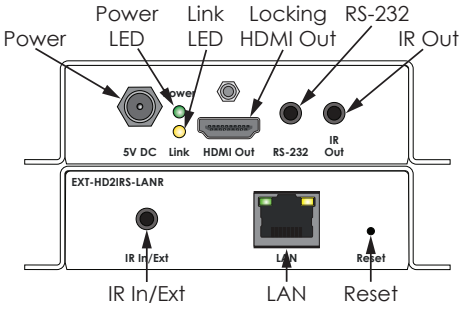




Sender **Receiver**

EXT-HD2IRS-LAN





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