



# Pathfinder 500 series

## MG-KVM-531

## MG-KVM-532

### Quick Start Guide V1.00

QSG-MG-KVM-53x-V1.00

Nov 2019

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Thanks for buying this Magenta Pathfinder device. Pathfinder devices provide a scalable, zero latency, KVM (Keyboard, Video, Mouse, and USB 2.0) extension and switching solution. Capable of over 3000 high-quality endpoints in a single system, Pathfinder is the perfect solution for mission critical control and collaboration including medical, broadcast, and control room operations. Pathfinder devices come with a choice of Small Form-factor Pluggable (SFP) transceivers. Choose from single-mode optical fiber, multi-mode optical fiber, or RJ45 Ethernet for a fully flexible experience.

## Features

Some features are only available in Pathfinder networks that include 500 and 800 series devices.

- KVM matrixing solution with over 3000 endpoints
- Use either Ethernet or fiber optic cable for KVM, USB, and video
- Up to 4K @60 Hz video
- Mix-and-match HD and 4K endpoints
- Zero latency performance
- Point-to-point extension up to 20 km (12 miles)
- Mix copper and fiber cables for maximum flexibility in your system design
- Plug'n'play installation over IP
- Monitor up to 4 PCs from a single 4K monitor, keyboard, and mouse
- Extend PC desktop to dual displays over single cable
- Local monitor loop out

## Hardware recommendations

At tvONE, we design our products to the highest quality standards. To get the best results from our products, we recommend that you use the best quality connectors, cables, and adapters. Consider the points below when you choose accessories and position equipment.

- For best results with HDMI/DVI, use cables under 15 m long, or shorter if you use connection adapters. If you need to place your products more than 15 m apart, use a signal extender.
- See our range of signal extenders at [tvone.com/signal-extension-systems](https://tvone.com/signal-extension-systems).
- For best results with HDMI, use High Speed or Premium High Speed HDMI cables.
- In industrial environments, use shielded Ethernet cables for signal extension systems.
- Shielded Ethernet cables are often marked F/UTP or FTP. Use shielded Cat 6 cables with HDBaseT input and output modules and Streaming media and 4K playback input modules.

### Multi-mode optical fiber

- Maximum length 500 m (1640 feet).
- Duplex Multimode 50/125  $\mu$  (OM2).
- LC connector 850 nm.

### Single-mode optical fiber

- Maximum length 20 km (12.43 miles).
- Duplex single-mode.
- LC connector 310 nm TX -1550 nm RX.

## Network switches

Your Pathfinder network requires its own dedicated network. As Pathfinder uses multicast, you must place it on its own VLAN or dedicated switches.

The network switch must fulfil the following specifications:

- The Pathfinder 500 series requires a 1 Gigabit switch, with true port-to-port transfer rates of 1 Gigabit/second.
- Network switches must support IGMP snooping and IGMP snooping must be switched on.

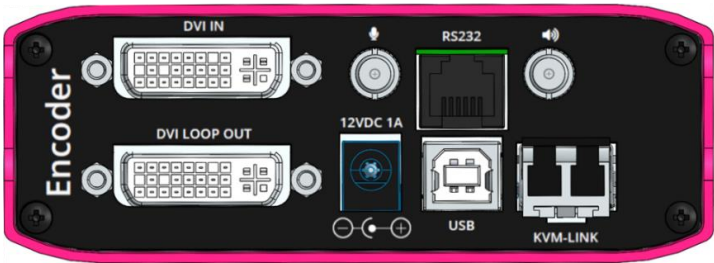
## System requirements for Pathfinder Control

- Windows 7 (32bit/64bit) or higher
- 1 GB RAM
- 50 MB free storage
- 1 Gbit dedicated network interface


## About your Pathfinder 500 series device

The Pathfinder 500 series includes a DVI encoder and decoder, capable of extending a 1080p signal up to 20 km (12 miles).


# MG-KVM-531 encoder rear panel



DVI IN    DVI-I in. Connect to the PC you want to control.

 Audio in from PC.  
Connect to the PC with 3.5 mm jack.

RS232    Connect to a control device with Ethernet cable.

 Audio out to PC.  
Connect to the PC with 3.5 mm jack.

DVI LOOP OUT    DVI-I out. Connect to a monitor.

12VDC    Connect to 12 V power supply.

USB    Connect to USB port of PC.

Depending on your SFP, connect to one of the following:

- KVM-LINK
- Single-mode optical fiber cable
  - Multi-mode optical fiber cable
  - Ethernet cable

# MG-KVM-532 decoder rear panel



Audio in.

- 🎤 Connect an audio input device, for example, a microphone.

RS232    Connect a control device.

Audio out.

- 🔊 Connect to an audio output device, for example, speakers.

12VDC    Connect to 12 V power supply.

DVI OUT    DVI-I out.  
Connect to a monitor.

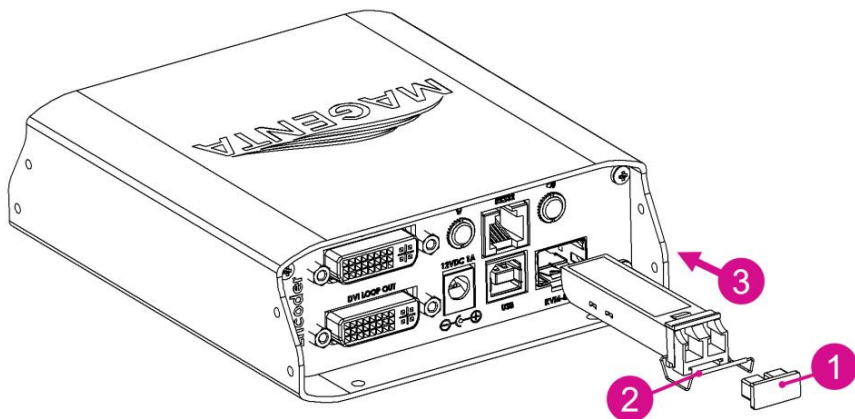
USB 2.0    Connect to a keyboard, a mouse, and any other USB devices.

KVM-LINK    Depending on your SFP, connect to one of the following:

- Single mode optical fiber cable
- Multi mode optical fiber cable
- Ethernet cable

## Fitting or replacing the SFP module

Only use SFP modules from, or recommended by, tvONE.



1. Remove the black dust protector from the SFP module.
2. Pull the metal latch of the SFP module forwards until it is at a right angle.
3. Insert or replace the SFP module.
4. Push the metal latch back into position.



## Installing single and multiple endpoints

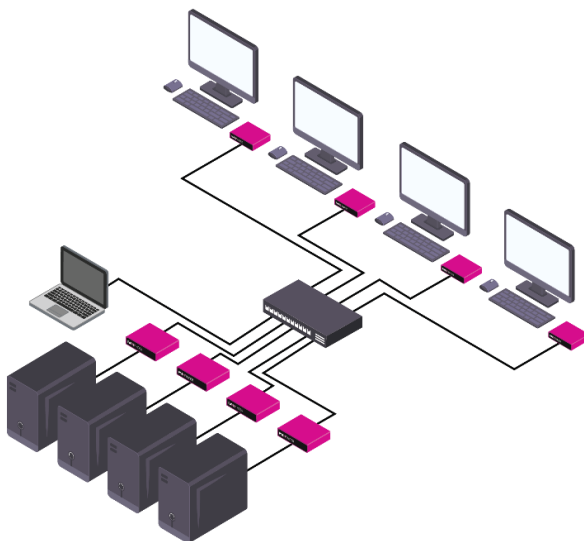
You can use your Pathfinder devices to extend a single PC, or you can use a network switch to connect multiple endpoints.

If your network only contains Pathfinder 500 series devices, use a 1G switch. If your network also contains Pathfinder 800 series devices, use a mixed 1G and 10G switch, or a 10G switch.

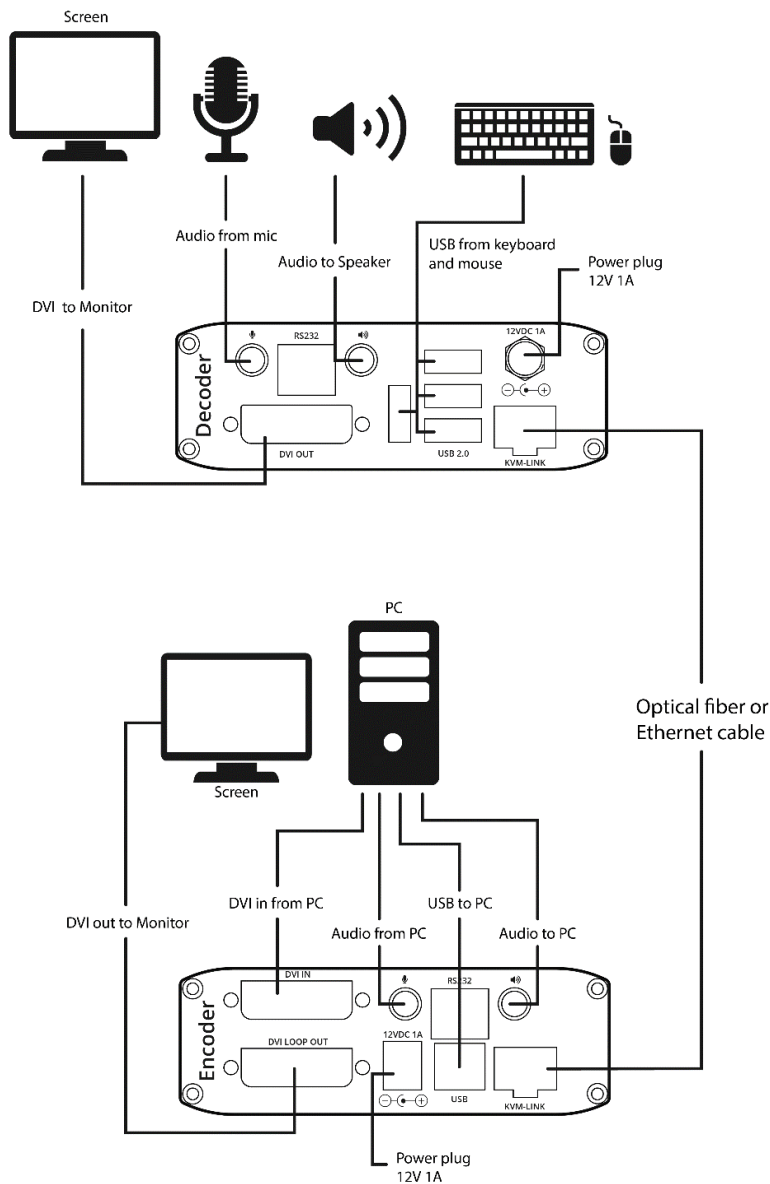
### Extending a single PC



### Connecting to multiple endpoints



# Quick start



If you're setting up a network with multiple endpoints, for best results connect just a few Pathfinder devices at a time, and then add them to Pathfinder Control and update the firmware before you move on to the next set. This makes it much easier to find, name, and connect your devices.

## Connecting your hardware

1. Connect the USB-A port on your PC to the USB-B port of the encoder.
2. Connect a keyboard and mouse to the decoder.
3. Connect the PC video output to the DVI In port of the encoder.
4. Connect the encoder and the decoder with fiber optical or Ethernet cable.

Or

Connect all endpoints to a network switch. Ensure that all connections have a bandwidth of 1 Gbit/sec minimum. For video sharing the network switch must support IGMP snooping, and IGMP snooping must be switched on.

5. Connect the remote monitor to the decoder with HDMI-DVI.
6. OPTIONAL: use a 3.5 mm jack to connect the out port of the encoder to a speaker or to the mic port of your PC. Connect the in port of the encoder to the headphone port of your PC.
7. OPTIONAL: use a 3.5 mm jack to connect the out port of the decoder to a speaker. Connect the in port to a microphone.
8. Switch on your PC and monitors.
9. If you're using a network switch, connect the power supply to an electrical outlet.

10. Connect the encoder and decoder to electrical outlets with the included 12 V 1 A power supplies.

Your Pathfinder devices start. The remote monitor shows the desktop of your PC.

## Setting up your system in Pathfinder Control

- If your Pathfinder network includes a network switch,

❗ Pathfinder Control must run on your Pathfinder network at all times. You don't have to be logged in.

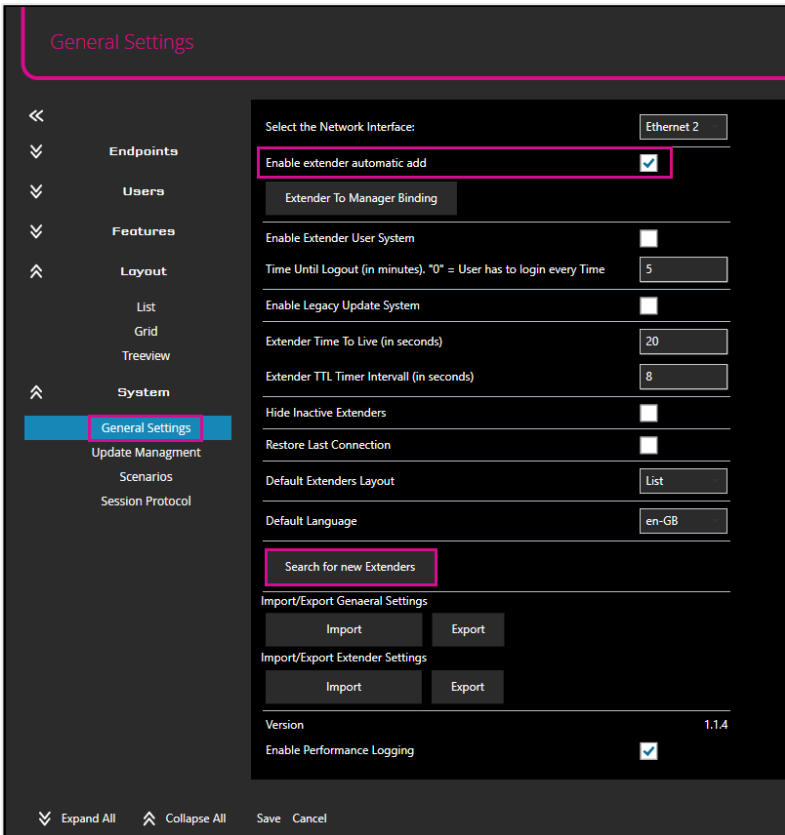
Use Pathfinder Control to set up your system and upgrade your firmware.

### To set up your system in Pathfinder Control

- ❗ This task is for administrators.

1. Install Pathfinder Control on a dedicated PC connected to the Pathfinder network.  
Download Pathfinder Control from [tvone.com/software](https://tvone.com/software).
2. Open Pathfinder Control and log in as an administrator. The default username is `admin`, and the default password is `admin`.

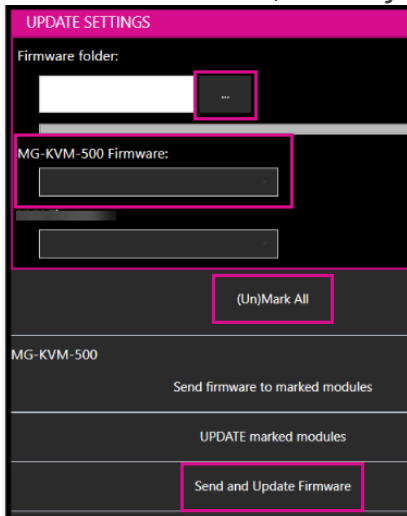
### 3. Select General Settings.



4. Make sure **Enable extender automatic add** is selected. If it isn't, select it, then save. Pathfinder Control closes. Open it again.
5. Select **Search for new Extenders**.
6. Select **Endpoints > Extender Settings**.
7. Double-click each extender and give it a name.

## Updating your firmware

1. Download the latest firmware from [tvone.com/software](http://tvone.com/software).
2. In Pathfinder Control, select **System > Update Management**.



3. In UPDATE SETTINGS, select ●●● and navigate to the firmware file you downloaded in step 1.  
The firmware .bmp file appears under **MG-KVM-500 Firmware**.
4. Select **(Un)Mark All** to select all the devices on your network.
5. Select **Send and Update Firmware**.  
Your devices update. When the firmware update is complete, **Finished!** appears under **Alerts**.  
If **Error! Try again!** appears, select the device or devices that did not update, and select **Send and Update Firmware**.

You can now add your next batch of devices. Start again from **To set up your system in Pathfinder Control** on page 10.

## Connecting encoders and decoders in Pathfinder Control

This task is for systems with multiple endpoints only. If you're only extending a single PC, skip this task and go to Using the on-screen display on page 14.

1. Select **Layout > List**.
2. For the devices you want to connect, select the box in the **Grid** column. If you don't want to connect a device right now, clear the box in the **Grid** column.
3. Select **Layout > Grid**.
4. From **Decoders**, select a decoder. When the decoder turns green, select an encoder from **Encoders**. When the two devices are connected, they turn blue.

## Next steps

Congratulations, your basic network is set up. You can now log on to and use your Pathfinder network with just the on-screen display. Read on for information about how users can log on to a PC and connect to an encoder.


You can also set up more sophisticated features in Pathfinder Control, such as device groups, Cross-Click, and WindowView. Read more about setting up extra features in the Pathfinder Control User Guide. There's a link at the back of this guide.

## Using the on-screen display

Use the monitor and keyboard connected to your decoder to open the on-screen display. The on-screen display opens displaying the Home menu.

### Opening the on-screen display

To open the on-screen display, press Scroll Lock (ScrLk) quickly five times.

-  If your keyboard doesn't have a Scroll Lock key, open the on-screen keyboard.  
Select **Start > Settings > Ease of Access > Keyboard**.

### The Home menu

The Home menu includes a list of sub menus and your current firmware version.

Update your firmware with Pathfinder Control software.

Read more in the User Guide. There's a link at the back of this guide.

```
PATHFINDER Home                               Decoder: Monitor 1  Encoder: links

T = Status Overview
O = DDC Option
L = Show Device List
F = Show Favourites
S = Show Share Device List
G = Extender Settings Menu
P = Point-To-Point Mode (Disabled)
A = Login Form
D = Disconnect from current Device
Q = Exit

Decoder FW Ver = 3.19
Encoder FW Ver = 3.19

Currently not logged in.
```



T	Status Overview	Menu status / current status
U	Update Flash FW	Update firmware
O	DDC Option	Set your DDC/EDID
W	Network Settings	Network settings
G	Extender Settings	Encoder and decoder settings
L	Show Device List	List of all pathfinder devices on the network
Q	Exit	Exit

## Connecting and disconnecting

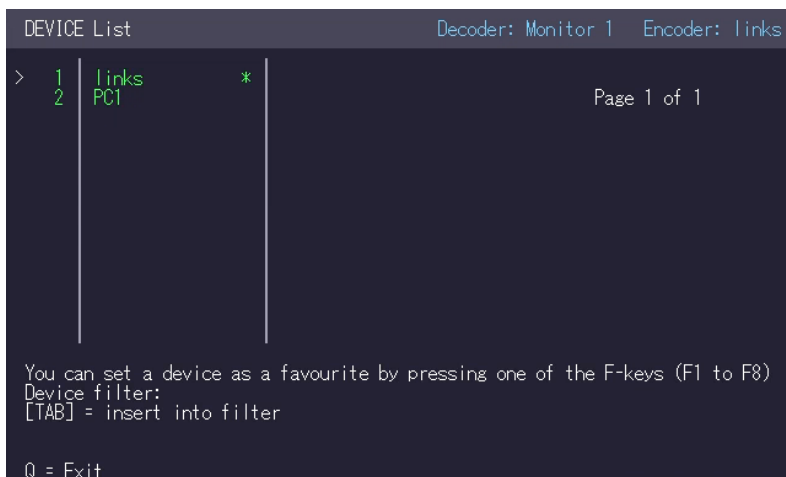
### To log in to a PC

1. Open the on-screen display.
2. In the Home menu, press A.
3. Enter your username and password.

### To connect to an encoder

1. Open the on-screen display.
2. In the Home menu, press L.

3. In the **Device List** menu, find the encoder you want to connect to, and press the number button for that encoder.



### To disconnect from an encoder

4. Open the on-screen display.
5. In the **Home** menu, press D.

### To open a point-to-point connection

If you are not connected through a network switch, you can connect directly to an encoder in point-to-point mode.

1. Open the on-screen display.
2. In the **Home** menu, press P.

## Get more help

For more information, download our user guides at  
[help.tvone.com/products/mg/mg-kvm](http://help.tvone.com/products/mg/mg-kvm)



## Contact us

[tvone.com](http://tvone.com)

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