KVM Extender Quick Start Guide

For full detailed instructions, including physical assembly, see the user manual that shipped with your KVM2-SEP-USB KVM Extender, also available online: https://www.hopeindustrial.com/support/accessory-docs/
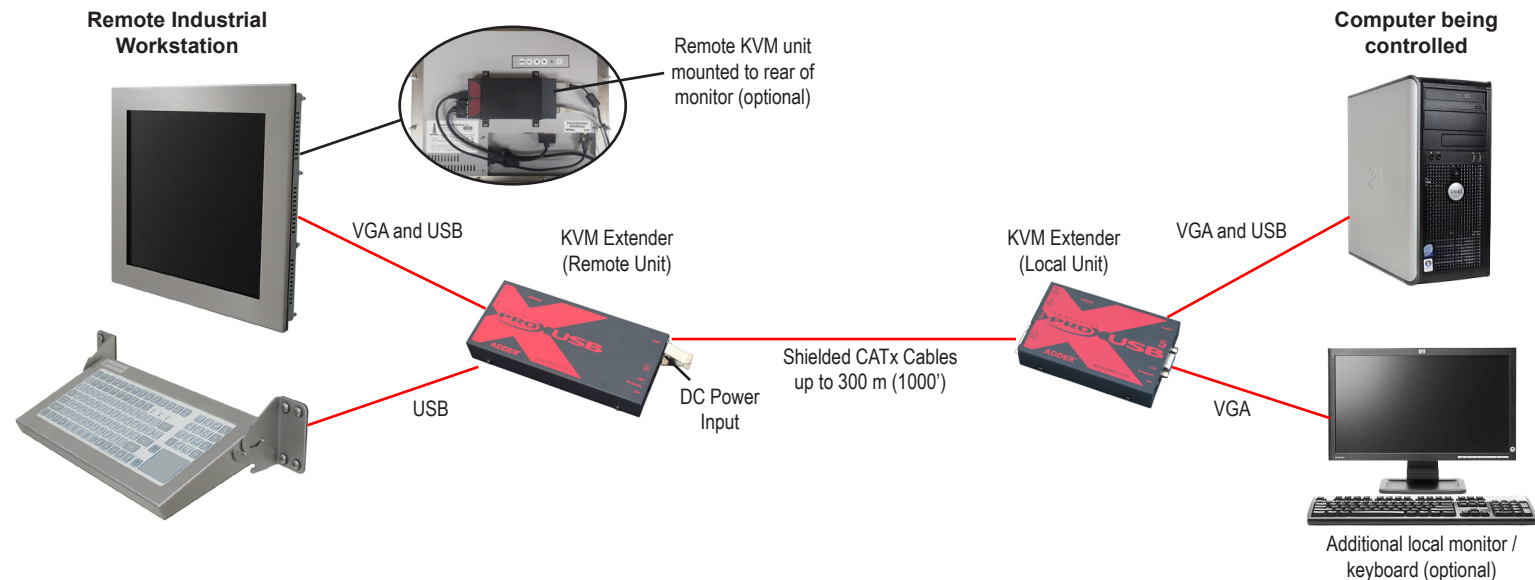
IMPORTANT! KVM Extender should be bench-tested before installing in the production environment!

HAZ LOC KVM2-SEP-USB models are open type devices only to be used in Class 1, Division 2 environments. Any steps marked with this symbol are required to ensure compliance with Class I, Division 2 Hazardous Location requirements.
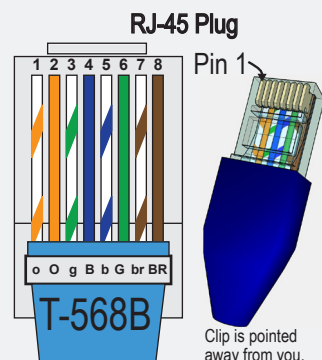
System Diagram

Remote Industrial Workstation

Remote KVM unit mounted to rear of monitor (optional)

Computer being controlled

VGA and USB

KVM Extender (Remote Unit)

KVM Extender (Local Unit)

VGA and USB

Shielded CATx Cables up to 300 m (1000')

VGA

USB

DC Power Input

Additional local monitor / keyboard (optional)

Cable Selection and Preparation

NOTE: Avoid routing cable along power lines, or near high power devices such as motors, motor controllers, or associated wiring. RF interference from these devices can cause image blanking and distortion.

- Shielded CATx cable with properly terminated shielded RJ45 connectors is required.

- The mains power feeding the local and remote workstations must share the same earth ground. Extending between locations not sharing an earth ground point is not supported.

- Cable type should be chosen based on total cable length:
    - CAT5 Trunk, shielded – up to 200 m (650 ft)
    - CAT5e Trunk, shielded – up to 250 m (820 ft)
    - CAT6 Trunk, shielded – up to 300 m (1000 ft)
    - CAT7 Trunk, shielded – up to 300 m (1000 ft)
    - CAT7a Patch, shielded – up to 200 m (650 ft)

- RJ45 connectors must be terminated using the T-568B standard *shown to the right*:

- Test cable termination and continuity using a cable tester such as a Tripp Lite Multi-Functional Network Cable Tester. Most issues are caused by CATx cable termination problems.

RJ-45 Plug

Pin 1

1 2 3 4 5 6 7 8

o O g B b G br BR

T-568B

Clip is pointed away from you.

1 Install Touch Screen Driver

If a touch screen monitor will be used, first install and test the touch screen driver with the monitor's USB and VGA cables connected directly to the PC, bypassing the KVM Extender.

elo

Driver installation instructions may be found in the monitor user manuals:

www.hopeindustrial.com/support/
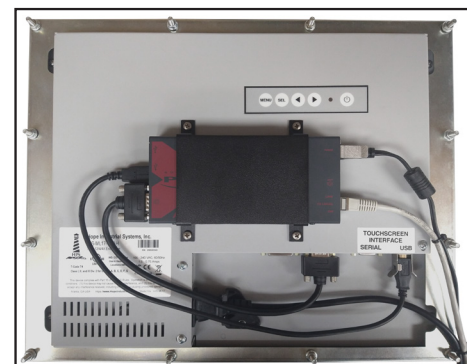
3 Remote Unit Monitor Connections

Install remote KVM unit to rear of monitor (optional).

HAZ LOC Install within an enclosure suitable for Class 1, Division 2 environment.

Make the following connections:

- VGA and touch screen USB (optional) from remote KVM unit to remote monitor

- USB from any Hope keyboard to remote KVM unit

- USB from any other peripherals in use to remote KVM unit

USB ports for Touch Screen, Keyboard, and other peripherals

VGA

4 Remote Unit Power/CATx Connections

Connect an AC power cable to the power input port on the remote monitor.

Connect the DC power adapter to the power input port on the remote KVM unit, then connect to AC power.

HAZ LOC DC power supply connector must be secured using the installed strain relief clip to comply with Class I, Division 2 Hazardous Location requirements.

HAZ LOC **NOTE: The HIS-supplied DC power supply CANNOT be used for Hazardous Location installations. A like-rated, HazLoc approved DC power supply with a 5.5 mm (OD), 2.5 mm (ID) barrel connector must be supplied by the customer.**

Connect local and remote KVM units with shielded CATx cable. When bench testing, use the same length of cable that will be used in the production environment.

NOTE: Proper CATx cable selection and preparation is crucial. Review the "Cable Selection and Preparation" section before proceeding.

Remote CATx Connection

Power Input

2 Local Unit Connections

Connect the local KVM unit to the PC using supplied USB and VGA cables.

If a separate local monitor will be used, connect it to the local KVM unit now.

NOTE: Local KVM unit is powered via the USB connection; no external power supply is needed.

To additional local monitor

5 Optimize Image

Program KVM Extender for CATx cable type and length

NOTE: Perform these steps when using >60m of CATx cable, or when image at remote station is not perfect.

a. Connect a keyboard to the remote KVM unit (at the monitor). If no keyboard will be used, temporarily connect any USB keyboard to the remote unit.

b. Set DIP switch #1 on remote KVM unit to the "ON" position.

c. On the remote keyboard: Press "C" followed by the number for your cable type:

   1 = CAT5   2 = CAT5e
   3 = CAT6   4 = CAT7   5 = CAT7a

d. Press Enter.

e. Press "L" followed by your cable length in meters.

f. Press Enter.

g. Set DIP switch #1 on remote KVM unit back to the "OFF" position.

   NOTE: If the switch is not returned to the "OFF" position, the KVM Extender will not function!

Switch set to "ON": Configuration mode

Switch set to "OFF": Run mode

Problem	Solutions
Image is blurry or distorted	Most image problems can be corrected by configuring the KVM Extender for your cable type and length, and adjusting the skew compensation. To set cable type and length, follow the steps in the "Optimize Image" section on reverse side. If image is still blurred, perform skew adjustment as noted in the "Video compensation" section of the included Adder KVM Extender manual.
Image is horizontally smeared from left to right	Perform a skew adjustment as noted in the "Video compensation" section of the included Adder KVM Extender manual.
No image or no signal at remote monitor	Multiple possible causes: 1. Confirm monitor is connected to AC power at the remote end. 2. Confirm all video connections have been made (see system diagram on reverse side). 3. Confirm proper CATx cable type per the "Cable Selection and Preparation" section on reverse side. 4. Confirm proper CATx cable termination per the "Cable Selection and Preparation" section on reverse side. We highly recommend use of a cable tester. 5. Confirm that proper cable length and type have been selected per the "Optimize Image" section on reverse side. 6. Confirm "Sleep" mode is disabled on the PC. Power cycle the remote KVM unit after waking up the PC. 7. Confirm USB or DC power supply is supplying power to local KVM unit.
Flashing or intermittent image at remote monitor	First, confirm that image at local unit is not also having this issue by connecting the monitor directly to either the video source or the secondary local monitor output of the local KVM unit. After confirming this, run through the steps in the "Optimize Image" section on reverse side. Finally, review the "Cable Selection and Preparation" section on reverse side. ***Failure to meet any of these criteria could cause this issue.***
Distorted colors at remote monitor (magenta, yellow, or cyan-tinted image)	This is almost always caused by a missing color signal somewhere in the video path, which is usually caused by a bad cable or connector for one of the 3 video color components. Check: • Remove, inspect, reconnect, and secure all 4 VGA connectors. • Replace VGA cables with known-good cables. • Remove and inspect RJ45 connectors at both ends; check CATx cable (a common culprit) with a signal tester.

Problem	Solutions
No response from remote touch screen, keyboard, mouse or other USB device	Confirm remote unit is not in configuration mode: DIP switch #1 should be in the "OFF" position as shown below: This can also be caused by a bad or improperly terminated CATx cable. Check CATx cable with cable tester and refer to the "Cable Selection and Preparation" section on reverse side.
Remote keyboard or mouse works but not remote touch screen	Check USB connection between remote KVM unit and the touch screen. If a remote keyboard or mouse works, this confirms the USB data connection is functioning. Bring the touch screen to the local station and plug directly into the PC (bypassing KVM Extender), then reinstall touch screen driver (see monitor manual) and confirm functionality before moving monitor back to remote end. Detailed driver installation instructions may be found in the monitor user manuals: www.hopeindustrial.com/support/
Remote touch screen works but not remote keyboard, mouse, or other USB device	If remote touch screen works, this confirms the USB data connection is functioning. Check USB connection between remote KVM unit and the remote keyboard, mouse, or other USB device.
Remote monitor shows "Out of Range" or similar message. **Remote monitor is displaying or defaulting to a non-native resolution.** **Operating system list of compatible resolutions does not include the remote monitor's native resolution.**	The KVM2 USB products are not capable of transmitting DDC/EDID display capability information from the remote monitor to the computer. The local KVM unit ships with a default DDC/EDID resolution set that includes all native resolutions used by Hope monitors from 800 x 600 to 1920 x 1080, with a default set to 1024 x 768. It is possible to re-program the local KVM unit's DDC/EDID resolution list by temporarily connecting the remote monitor to the local KVM unit's VGA output, then power-cycling the local KVM unit. Note that the DDC/EDID resolution list will always be pulled from any monitor connected to the VGA output of the local unit, so it is important that a local monitor, if used, match the capabilities of the remote monitor.

Please contact our support team if you have any questions:

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