



# USB flex

## USBflex single in Copper

KT-6031L CPU/LOCAL

KT-6031R CON/REMOTE

## USBflex single in Fiber

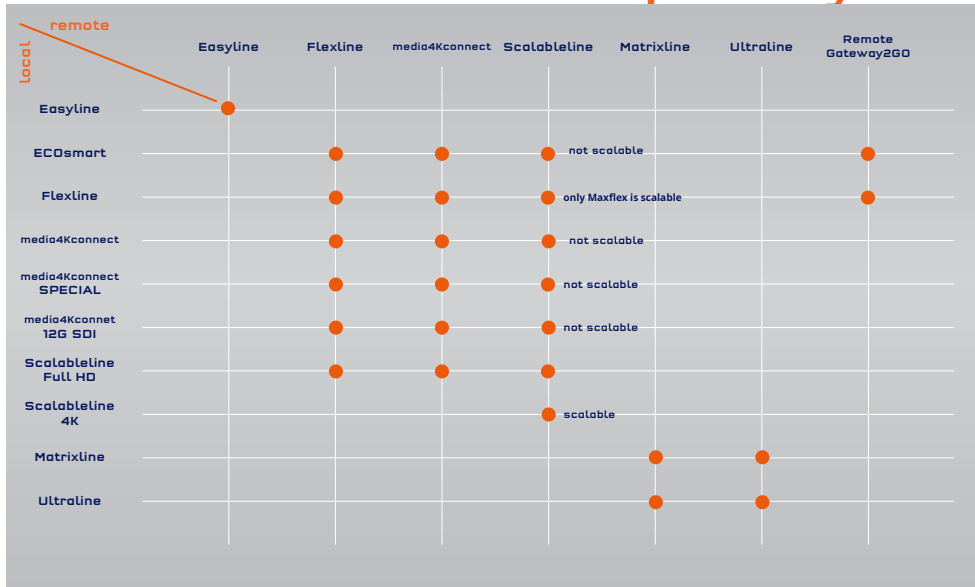
6032L CPU/LOCAL

6032R CON/REMOTE

## kvm-tec User manual

Check out  
our Installation Channel:

## kvm-tec Extender Compatibility



	ECOSmart	EasyLine	Flexline	media4Kconnect	media4Kconnect SPECIAL	media4Kconnect 12G SDI	Scalableline	Gateway2Go	Gateway
point to point	✓	✓	✓	✓	✓	✓		✓	✓
Matrix Switching System without Usersystem		✓ bis zu 56 Endpunkte							
Matrix Switching System Full HD with Switching Manager	✓ bis zu 2000 Endpunkte		✓ up to 100/100 endpoints Flexline					✓	
Matrix Switching System 4K/5K				✓	✓	✓	✓	✓ with simultaneous downscaling	
Matrix Switching System mixed (Full HD & 4K)	✓		✓	✓	✓	✓		✓ with simultaneous downscaling	
Scalableline Full HD			✓ Maxflex Dual Local				✓	✓	
Scalableline 4K							✓ Scalableline Local & Remote	✓ with simultaneous downscaling	

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**Congratulations on the purchase of your new USBflex KVM Extender. You have bought a high quality extender. These instructions are part of this product. They contain important information regarding safety, use and disposal for every user of the USBflex KVM Extender. Please familiarise yourself with the information within prior to using your product. Use the product only in the manner as described and for the areas of application as stated. When passing the product to a third party be sure to also supply all instructions and other relevant documentation. Following proper use and maintenance, your USBflex KVM Extender will bring you joy for many years to come.**

## 1.1 INTENDED USE

This product is intended to be used as a device to increase the distance that a keyboard, monitor and mouse can be placed from a computer. This product is intended for professional use. The product should not be used in potentially explosive environments.

The product may only be used according to the instructions as described in this manual. All use, other than that described in this manual, is seen as unintended use. Modifications in the course of technological progress are reserved. In these user instructions the USBflex Extender is referred to as 'product' or 'extender'. The USBflex is referred to as the 'local unit' CPU and the UB1/Monitor is referred to as the 'remote unit' / CON.

## 1.2 SAFETY INSTRUCTIONS

### **WARNING! Read and understand all safety instructions.**

- Follow all the instructions. This will avoid accidents, fire, explosions, electric shocks or other hazards that may result in damage to property and/or severe or fatal injuries. Please ensure that everyone who uses the product has read and followed these warnings and instructions.
- Keep all safety information and instructions for future reference and pass them on to subsequent users of the product.
- The manufacturer is not liable for cases of material damage or personal injury caused by incorrect handling or non-compliance with the safety instructions. In such cases, the warranty will be voided.
- This product is not intended for use by persons (including children) with restricted physical, sensory or intellectual capability or lack of experience and/or knowledge, unless they are supervised by a person who is responsible for their safety or provides them with instructions on how to use the product.
- **DANGER!** Not for use in potentially explosive environments.
- **DANGER!** Be vigilant at all times, and always take care around this product. Do not use electrical equipment if you are lacking in concentration or awareness, or are under the influence of drugs, alcohol or medication. Even a moment of inattentiveness can lead to serious accidents and injuries when using electrical equipment. Check the product and the cables for any damage before use. If there is any visible damage, a strong odour, or excessive overheating of components unplug all the connections immediately and stop using the product.
- If the product is not installed and used in accordance with this manual, it may cause disruptive interference with radio or television reception or affect other electronic products in residential areas.
- Use shielded cables only to connect the components in order to avoid such interference. Non-compliance invalidates the permission to operate this product.
- Only the mains adapter included with the product should be used as the power supply. Do not use other adapters.
- Prior to connecting to the mains, make sure your local mains voltage matches the rating indicated on the product.
- The product must be connected to a permanent and earthed AC wall socket.

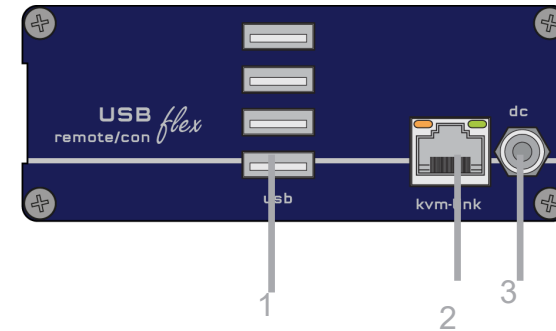
- Protect cables from being strained, pinched or buckled and place them in a way to prevent people from tripping over the cord.
- In particular, ensure to avoid damage to the mains adapter.
- Use the product with a suitable, properly installed and easily accessible mains power socket. Make sure the product can be disconnected from the power socket at all times.
- Unplug the product during electrical storms or when not in use.
- **DANGER!** Never touch the adapter with wet hands.
- Use the product within the specified performance limits.
- Keep the product away from flammable materials such as curtains and drapes.
- Protect the mains adapter from use by third parties (particularly children). Keep the unused mains adapter in a dry, elevated or locked location away from children.
- Do not place the product near heaters.
- Do not drop or hit the product.
- Unplug all connections before cleaning the product. Do not use wipes or chemicals as these could damage the surface. Wipe the housing with a damp cloth. Electrical/ electronic parts must not be cleaned.
- Alterations to the product and technical modifications are not permitted.

## 1.3 TECHNICAL SPEZIFICATIONS

Typ:	KVM Extender local/CPU Unit and remote/CON Unit
Modell:	USBflex single copper UB1 KVM Extender USBflex single fiber UB1-F KVM Extender
Voltage supply:	100 - 240 V; 50/60 Hz AC
Power supply	12VDC2A, external power supply
Power Input	6W pro Extender (without USB devices)
Operation environment:	0 °C to 45 °C / /32 to 113 °F
Storage environment	-25°C to 80 / /-13 to 176 °F
Relative Luftfeuchtigkeit:	max. 80% (non condensing )
Humidity for storage:	max. 80% (non condensing)
Housing material:	anodized aluminum
Dimension:	109 x 43 x 107,5 mm/ 4.29 x 1.69 x 4,23 inch
Weight:	295 g/0,65 lb Local/CPU / 295g/0,65 lb Remote /CON
Shipment weight:	1005g/2,21 lb per set single
MTBF	82 820 calculated hours / 10 years

## 1.4 ABOUT THE PRODUCT - USBFLEX SINGLE COPPER

### Remote /CON Extender



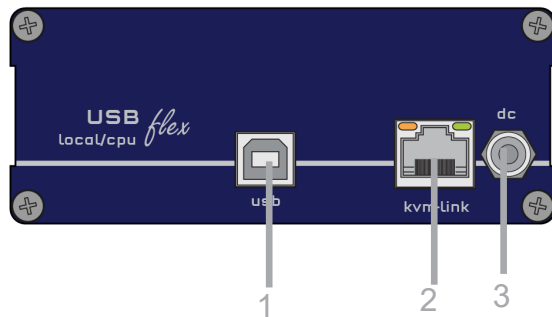
Nr.	Name	Function
1	USB	USB from Videocamera, Photocamera, Joystick
2	kvm-link	Networkcable
3	dc	Connection 12V2A power supply

### LED STATUS

yellow	LINK ok
green	Video ok
green blinking	Video and USB activity

# 1. INTRODUCTION

## Local /CPU Extender



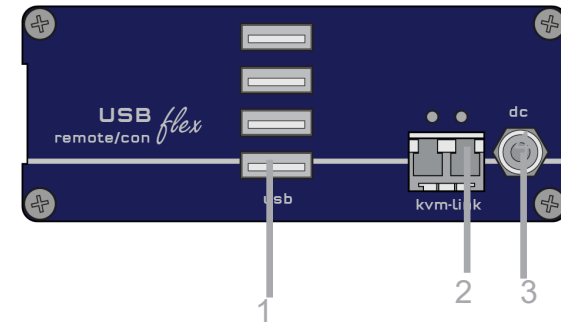
Nr.	Name	Function
1	USB	USB to PC
2	kvm-link	Conenction for CAT5/6/7 cable
3	dc	connection power supply 12V 2A

LED STATUS	
yellow	LINK ok
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green blinking	Video and USB activityx

# 1. INTRODUCTION

## 1.5 PRODUCT ELEMENTS - USBFLEX SINGLE FIBER

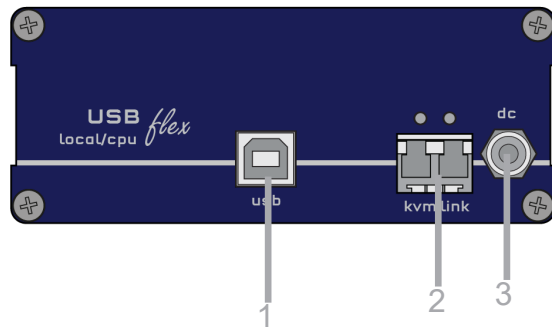
## Remote/CON Extender



Nr.	Name	Function
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2	kvm-link	Connection for CAT5/6/7 cable
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3	dc	Conenction 12V 2A power supply

LED STATUS	
yellow	LINK ok
green	Video ok
green blinking	Video and USB activity

## 1.6 PRODUCT ELEMENTS - USBFLEX BACKSIDE



Nr.	Name	Function
1	LED Status	Display the status of the extender
2	Reset	Button for reset

## 1.7 ABOUT THE STATUS LED

The Status LED (8/15) can light red, orange or green. Table 1 shows the meaning of each colour. Also see chapter *Troubleshooting*.

Normal Operation								
Colour	Blinking	Physical Link	Active Connection	Video Extended	USB Initialisation	USB Data Received	Identify Command	Autoupdate Mode
<b>Main LED</b>								
Red	-	Yes	No	No				Update Failed
Red	Slow	No	No	No				
Orange	-	Yes	Yes	No				
Orange	Fast							Update in Progress
Green	-	Yes	Yes	Yes				Update Succeeded
Green	V. fast				Yes**			
Red/Green	V. fast						Yes	
<b>RJ45 Socket LEDs *</b>								
Yellow	-	No						
Yellow	Slow	Yes						
Green	-			Yes				
Green	V. fast					Yes		

\* MX only

\*\* Rem. Only

*Meaning of LED indicators*

## 1.8 UNPACKING AND CHECKING THE CONTENTS

Before using the product for the first time it should be checked for damage. In case of damage due to transport inform the carrier immediately. Before delivery the product is checked for its function and its operating safety.

- Make sure that the packaging contains the following content:

### USBflex Single copper

#### Local/CPU Unit

- 1 x UB1 local/CPU
- 1 x wall power supply unit 12 V 1A (EU-plug or Int plug)
- 1 x USB cable 1,8m/5.9ft
- 4 x rubber feet

#### Remote / CON Unit

- 1 x UB1 remote/CON
- 1 x wall power supply unit 12 V 1A (EU-plug or Int plug)
- 4 x rubber feet

### USBflex Single fiber

#### Local/CPU Unit

- 1 x UB1-F local/CPU
- 1 x wall power supply unit 12 V 1A (EU-plug or Int plug)
- 1 x USB cable 1,8m/5.9ft
- 1 x SFP module multimode up to 500m (optionally with single mode up to 20km)
- 4 x rubber feet

#### Remote / CON Unit

- 1 x UB1-F remote/CON
- 1 x wall power supply unit 12 V 1A (EU-plug or Int plug)
- 1 x SFP module multimode up to 500m (optionally with single mode up to 20km)
- 4 x rubber feet



## 1.9 MOUNTING OPTIONS

### 1.9.1 MOUNTING PADS AND RUBBER FEET

The mounting pads and rubber feet can be used to hold the extenders in place and prevents them from sliding and falling.

#### To attach the mounting pads or rubber feet:

1. Remove the protection layer from the **mounting pads** or **rubber feet** (G).
2. Attach the **mounting pads** or **rubber feet** (G) to the bottom the units.

### 1.9.2 MOUNTING KITS (OPTIONAL)

#### The following mounting kits are available:

*Rackmounting RMK-FLEX-F* Part Nr. *KT-6232 RMK-FLEX-F*

The rack mounting kit RMK-FLEX- F is for mounting kvm-tec USBflex single extenders. It consists of a 19" rack shelf and an alu-faceplate.

*Rackmounting RMK- FLEX- FN - T* Part-Nr. *KT - 6233 RMK- FLEX-FN*

The rack mounting kit RMK-FLEX-FN is for assembling kvm-tec USBflex extenders. It consists of 19" Rack Shelf, an alu-faceplate and a power supply. For 4 Single Extender in one Rack

*Under table mounting kit* Part Nr *KT-6231 UMK-FLEX*

The Under Desk Mounting kit is for underdesk mounting of the USBflex extender.

*Din Rail mounting* Part-Nr. *KT- 6235 DINMK-FLEX*

The DIN rail mounting is used for space-saving installation in control cabinets or on DIN rails. The attachment to the USBflex Extenders is possible in several ways.

*Vesa mounting* Part-Nr. *KT-6236 VH-FLEX*

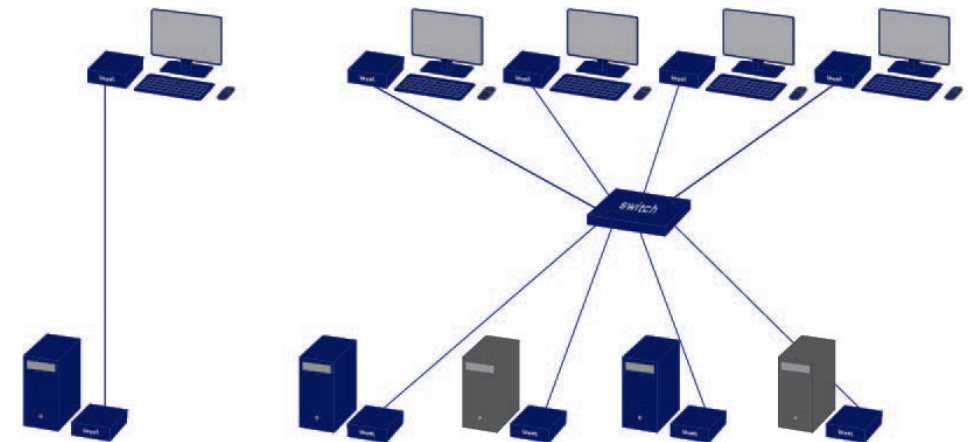
The robust VESA mounting is used to attach an extender to a monitor with existing VESA mounting points. The Extender becomes one unit with the monitor and saves a lot of space and cable clutter.

## 2.1 INSTALLING THE EXTENDER

**WARNING!** Read and understand all safety information before installing the product.

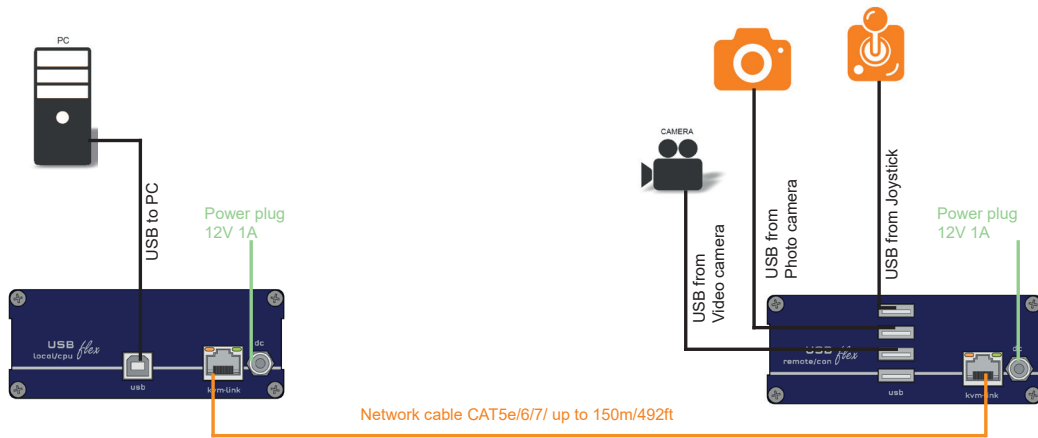
The units can be set up to access one host computer, or to access numerous host computers. In the case of the latter, an additional Network Switch must be installed. With a Network Switch, each user can gain quick access to any of the required computers.

### point to point connection & Matrix Switching System



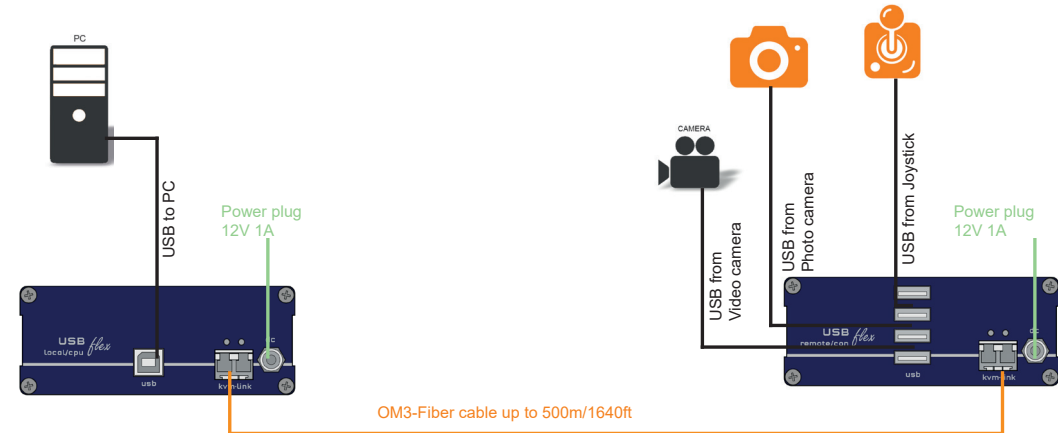
## 2. INSTALLATION OF THE EXTENDER

### 2.2 QUICKINSTALLATION USBFLEX SINGLE COPPER



## 2. INSTALLATION OF THE EXTENDER

### 2.3 QUICKINSTALLATION USBFLEX SINGLE FIBER



#### Quick Installation USBflex local / CPU – remote/ CON

1. Connect the CON / Remote and the CPU / Local Unit to the included 12V 1A power supply.
2. Now connect the USB cable to a USB port on your PC and connect the other end of the USB cable to the CPU / Local Unit. Connect some USB devices to the CON / Remote Unit.
3. Connect the CPU / Local and the CON / Remote Unit with a network cable.

**HAVE FUN - your kvm-tec Extender is now in use for many years ( MTBF approx 10 years)**

#### Quick Installation USBflex Fiber local / CPU – remote/ CON

1. Connect the CON / Remote and the CPU / Local Unit to the included 12V 1A power supply.
2. Now connect the USB cable to a USB port on your PC and connect the other end of the USB cable to the CPU / Local Unit. Connect some USB devices to the CON / Remote Unit.
3. Connect the CPU / Local and the CON / Remote Unit with a network cable.

**HAVE FUN - your kvm-tec Extender is now in use for many years ( MTBF approx 10 years)**

## 2. INSTALLATION OF THE EXTENDER

### 2.4 START UP

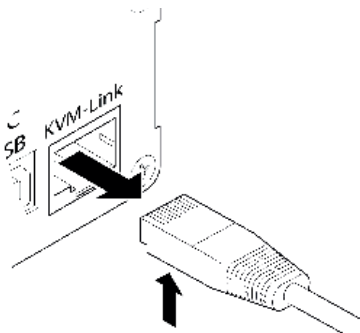
#### To start up the system without switch:

1. Make sure that the two monitors and the computer are switched on.
2. If you are using a Network Switch, connect the power supply to an earthed wall socket.
3. Connect both extender **power supplies** (C) to an earthed wall socket. Both extenders will start an initialisation process. The red status LED blinks a few seconds. After a few seconds the status LED lights green. The monitor will display your computer's desktop or any open applications.

### 2.5 REMOVING A CATX CABLE

#### To remove a CATx cable:

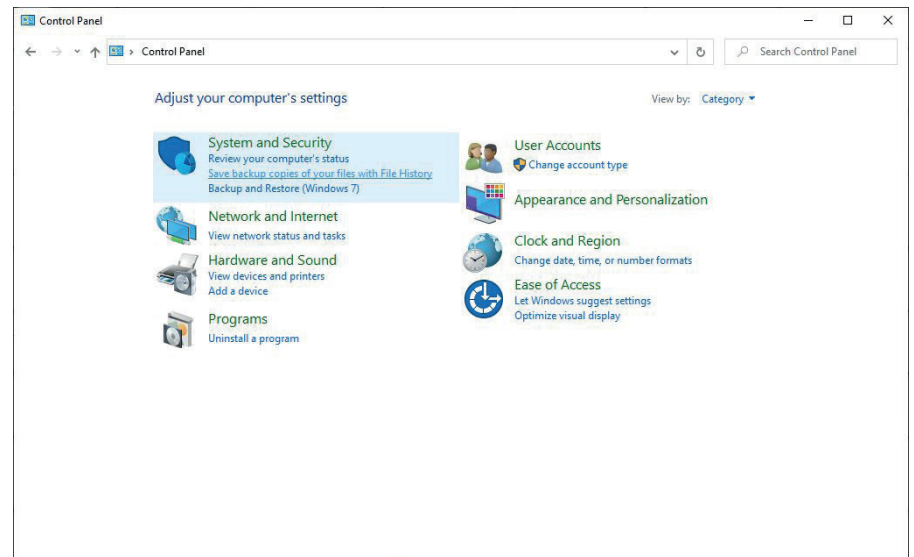
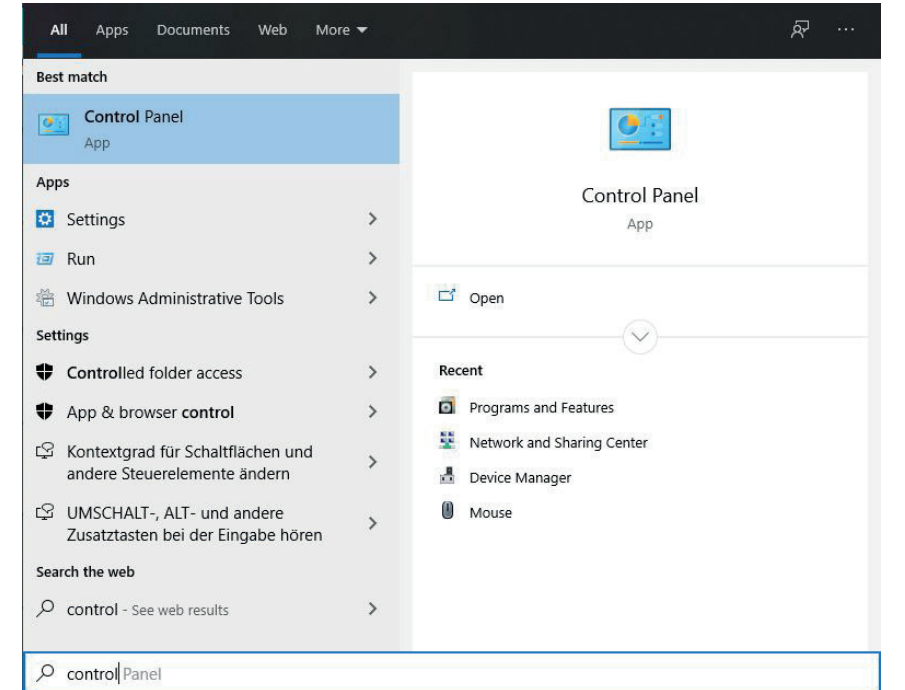
- Press the latch down and slowly pull the cable out.



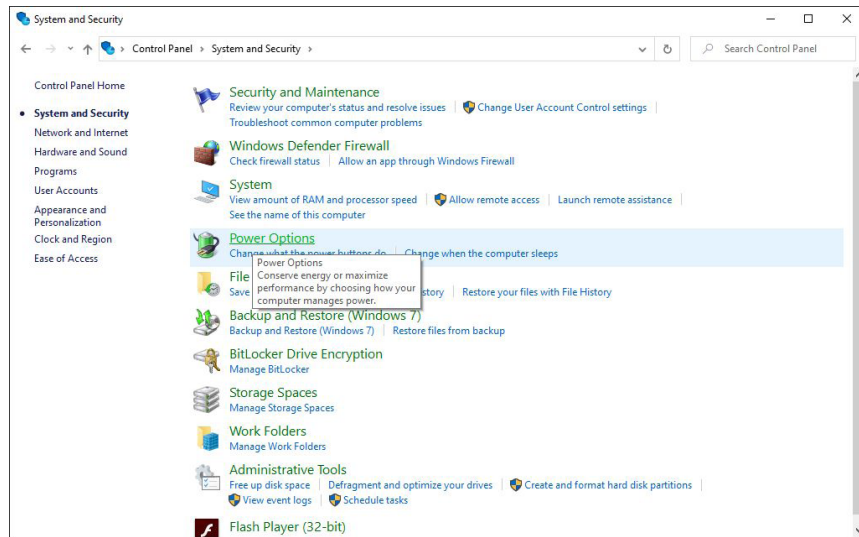
## 2. INSTALLATION OF THE EXTENDER

### 2.6 BEST PRACTICE FOR WINDOWS 10

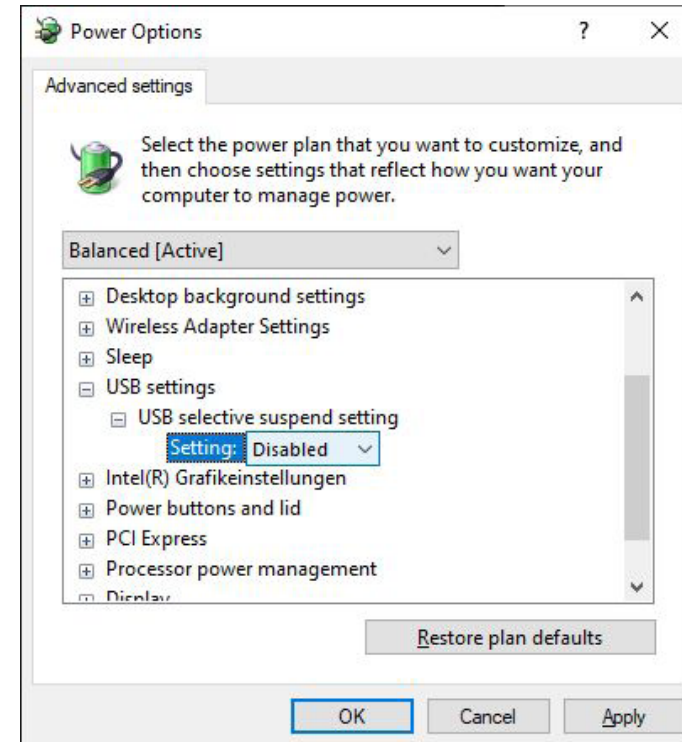
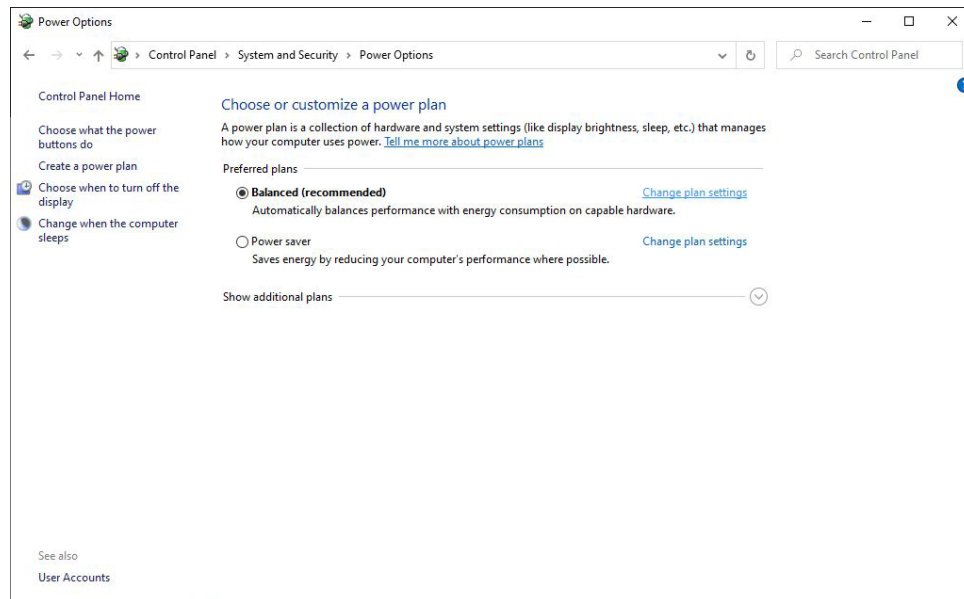
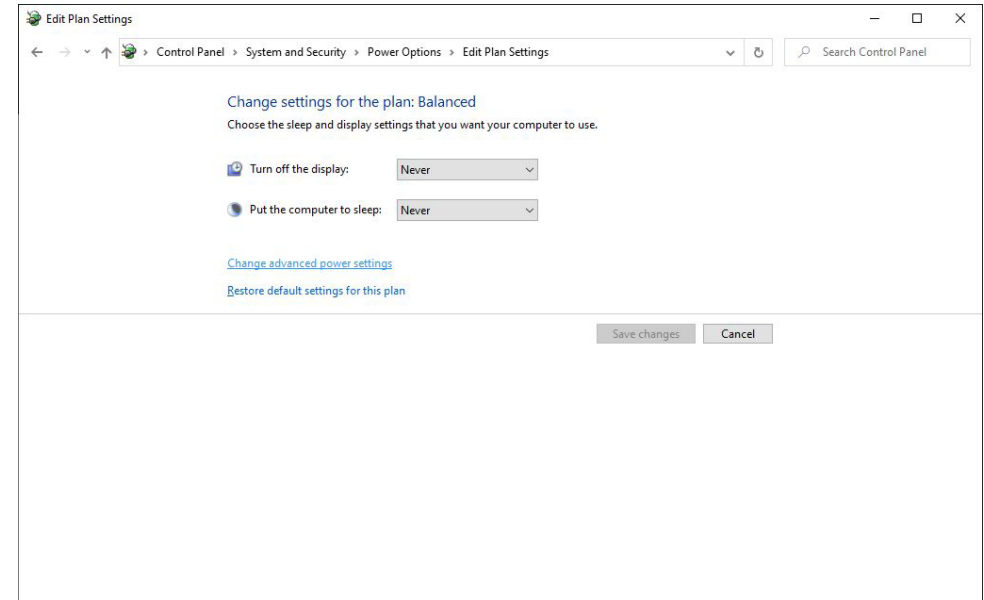
#### Disable USB Energy Savings in Windows 10



## 2. INSTALLATION OF THE EXTENDER



## 2. INSTALLATION OF THE EXTENDER



# 3. CONFIGURE THE EXTENDER

## 3. NETWORK SETTINGS AND MANAGEMENT SWITCHING SYSTEMS

All network settings, user administration and extender management are done via the included Switching Manager software and all functions are described in the Switching Manager 2000 manual. You can download the manual from our website. [www.kvm-tec.com](http://www.kvm-tec.com)

### 3.1 MATRIX SWITCHING SYSTEM

The configuration is done via the Switching Manager

### 3.2 POINT TO POINT CONNECTION

Connect the cables - plug & play

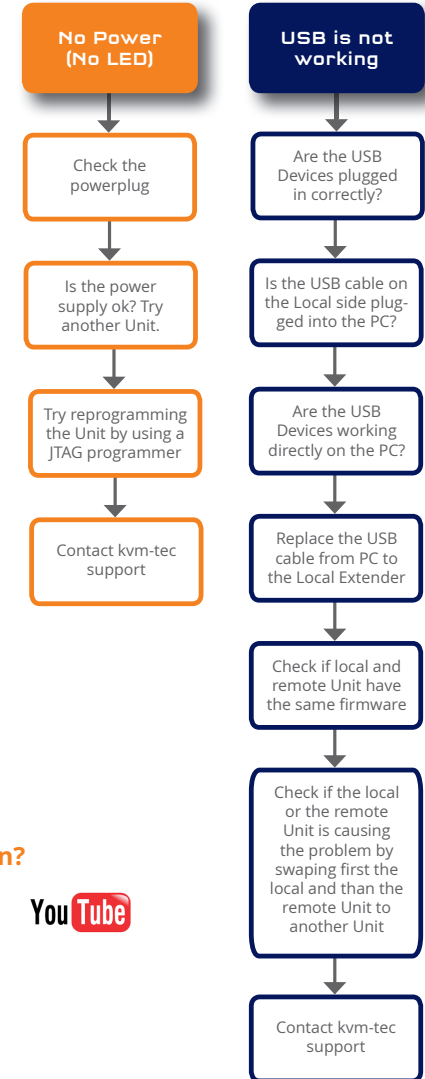
### 3.3 UPDATE WITH USB-STICK

- 1. Plug the USB stick with update file into USB Flex.
- 2. press the button on the back left (if PtP, the USB channel will be disconnected) ~ 4 sec
- 3. wait until LED flashes orange (USB stick is scanned for updates) ~ 10-20 sec
- 4. LED lights up specifically for 3 seconds
  - LED red -> no update on stick found (remove stick and start at step 1)
  - LED green -> Update found, ready to start
- 5. press button again
- 6. wait until the update is completed or an error occurs (for PtP local is updated first) ~ 2-3 min (PtP ~ 5-6 min)
  - While update is running, LED flashes green, if data is transferred or copied, LED flashes very fast.
  - At the end of the update, the LED flashes orange 4 more times and then starts the reboot process (the Extender must not be disconnected from the power supply during this process!)

# 4. FIRST AID



smart connection



kvm-tec Support  
support@kvm-tec.com  
Phone: +43 2253 81912 - 30

**We are here for you to answer your questions about installation?**

Manual download [www.kvm-tec.com](http://www.kvm-tec.com)  
or  
kvm-tec Installationchannel on our homepage  
personally +43 2253 81912



### 5.MAINTANCE AND CARE

#### 5.1 EXTENDER CARE

**Caution!** Do not use solvent-containing cleaners. Do not use wipes, alcohols (e.g. spiritus) or chemicals as these could damage the surface.

#### 5.2. DISPOSAL



This symbol on the product, the accessories or packaging indicates that this product must not be treated as unsorted municipal waste, but must be collected separately! Dispose of the product via a collection point for the recycling of waste electrical and electronic equipment within the EU and in other European countries that operate separate collection systems for waste electrical and electronic equipment. By disposing of the product in the proper manner, you help to avoid possible hazards for the

environment and public health that could otherwise be caused by improper treatment of waste equipment. The recycling of materials contributes to the conservation of natural resources. Therefore do not dispose of your old electrical and electronic equipment with the unsorted municipal waste.

The packaging is made of environmentally friendly materials, which may be disposed through your local recycling facilities. By disposing of the packaging and packaging waste in the proper manner, you help to avoid possible hazards for the environment and public health.

### 6.1. STANDARD WARRANTY

The warranty period is 24 months from the date of purchase. The warranty expires in case of:

- External effort
- improper maintenance
- Violation of the operating instructions
- lightning damage

Please, contact us first before returning the product.

### 6.2 EXTENDED WARRANTY



2 years standard warranty



Art Nr KT-9003 warranty extension to 5 years per Set

Art Nr KT-9002 warranty extension to 5 years per Unit

# 7. CABLE REQUIREMENTS

## 7.1 REQUIREMENTS FOR CAT5E/6/7 CABLES

A Cat5e/6/7 cable should meet the following requirements:

- The pins are connected 1:1. **Caution:** the cable pairs must be twisted to EIA/TIA- 568A (rare) or EIA/TIA-568 B (common) pairs.
- Erroneous assignments cannot be found with a simple cable tester.
- The pins for the green pair of wires are not adjacent to one other.
- The cable must at the very least meet the CAT5 specifications and be suitable for Gigabit transmission.
- The cable should meet one of the following standards: Class D ISO/IEC 11801:2002 or EN 50173-1:2002. Schema EIA/TIA-568 B.
- Only use shielded installation cable with min. cross section of 24 AWG throughout the length.
- The shield should be contiguous and connected to both ends. A shielded patch cable is allowed for connection to the device.

### Schema EIA/TIA-568 B

Pin	Color
1	Orange/White
2	Orange
3	Green/White
4	Blue
5	Blue/White
6	Green
7	Brown/White
8	Brown

# 8. REQUIREMENTS NETWORK-SWITCH

## 8. REQUIREMENTS NETWORK SWITCH

The entire switching network system requires its own separate network. For security reasons, it cannot be integrated into an existing corporate network.

The network switch must meet the following specifications:

1 Gigabit switch, with a port-to-port transfer rate of 1 Gigabit/second.

The following switches have all been tested and verified to work with all kvm-tec extenders.

### Network requirements Matrix System UDP Version

The KVM-TEC Matrix Switching System communicates via IP between the individual endpoints (local/CPU or remote/CON), as well as with the KVM-TEC Switching Manager, Gateway2Go and API. Sharing of videos is realized via the IGMP function of the switch via multicast.

Each endpoint joins a multicast group, even if only one connection is established. This process is repeated cyclically so that the switch keeps the multicast group active.

One exception is the Gateway2Go, which uses unicast and communicates via UDP just like the other devices.

#### The following UDP ports are required for the transmission:

Port Number 53248 (0xD000) to 53260 (0xD00C)

and Port Number 50000 (0xC350)

These ports must be taken into account when configuring the firewall. For the connection via WAN a secured VPN connection is necessary.

The KVM-TEC Matrix system supports DHCP management of IP addresses, static IP addresses are possible, internal default address range and assignment of IP addresses via a DHCP server. To meet all these requirements, the use of Layer 3 switches is recommended.

### 8.1 RECOMMENDED SWITCHES

Technology Partnership IHSE Group & Netgear

Netgear switches of the series M4250,M4500,M4300 are specially designed for AvoIP systems and therefore offer maximum compatibility. We offer kvm-tec Extenders and Netgear switches in a bundle and take over the system warranty.

(We can test Switches of other manufacturers for a test flat rate)

Switching Manager with hardware

We now also offer the Switching Manager as hardware configured version, with a Light Version

### 9. ADDRESS & PHONE/EMAIL

If you have any questions about our products, please contact kvm-tec or your dealer.

kvm-tec electronic gmbh  
Gewerbepark Mitterfeld 1A  
2523 Tattendorf  
Austria  
Phone: 0043 (0) 2253 81 912  
Fax: 0043 (0) 2253 81 912 99