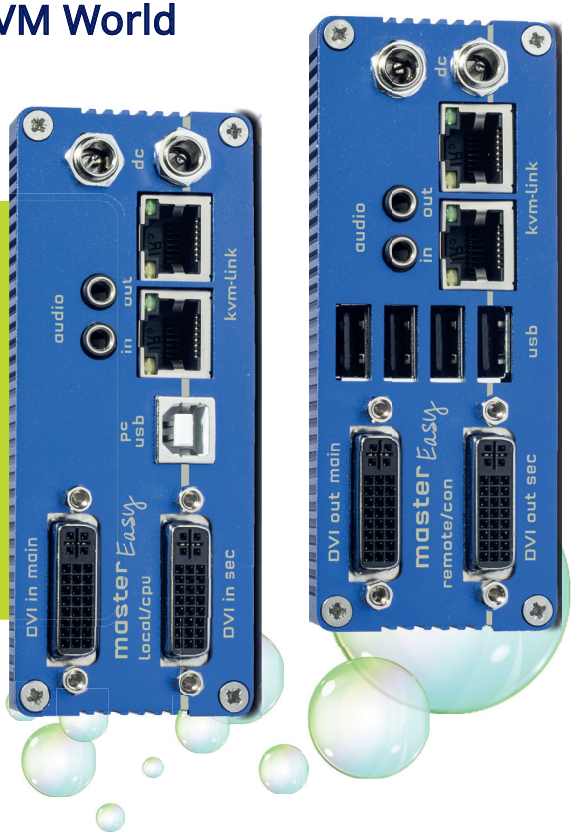
master Easy

kvm-tec over IP
an ihse.company

FULL HD - KVM EXTENDER OVER IP

Tune in the easy KVM World



- EASYLINE
- masterEASY Single in Copper/Fiber
- Dual in Copper/Fiber

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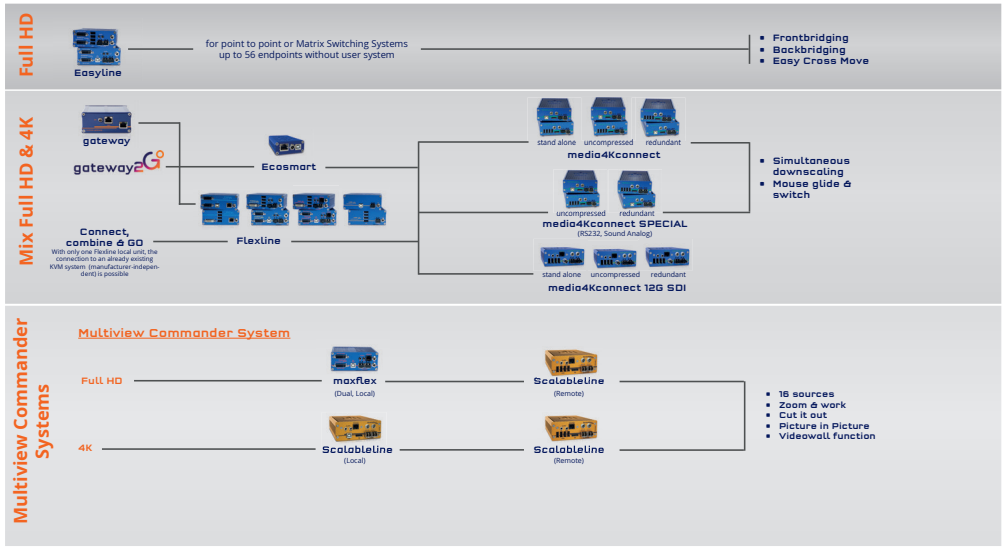
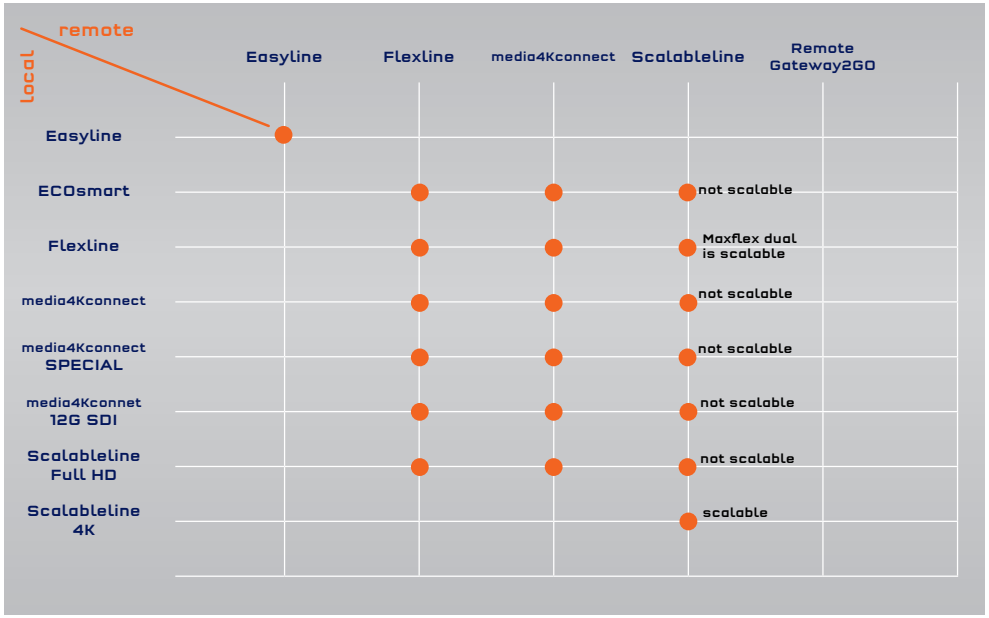
kvm-tec MANUAL

V102022

Check out
our Installation Channel:

OVERVIEW





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Congratulations on the purchase of your new masterEASY 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 masterEASY 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 masterEASY 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 masterEASY KVM Extender is referred to as 'product' or 'extender'. The ME/PC is referred to as the 'local unit' (CPU) and the ME/Monitor is referred to as the 'remote unit' (CON).

1. INTRODUCTION

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.
- ⚠ **DANGER!** The MV-F KVM Extender is a Class 1 Laser Product 1 according to DIN 40008/EN and VDE 0837.
- 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. INTRODUCTION

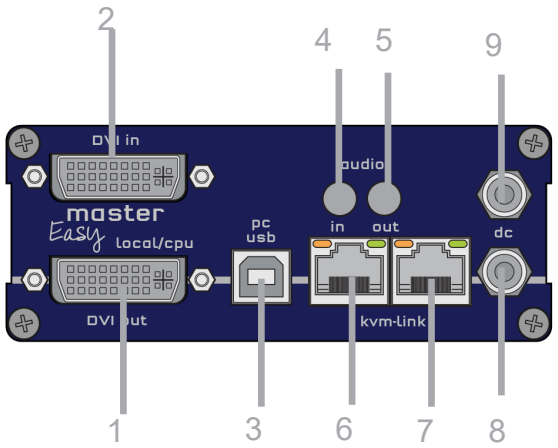
1.3 TECHNICAL SPECIFICATIONS

Type:	KVM Extender (local unit and remote unit)
Model:	masterEASY single and dual copper masterEASY single and dual fiber
Power supply output:	12VDC1A (external power supply)
Power requirement:	6W pro Extender (without connected USB devices)
Operating temperature range:	0 °C to 45 °C / 32 °F to 113 °F
Storage temperature range:	−25 °C to 80 °C / −13 °F to 176 °F
Relative humidity:	max. 80% (non-condensing)
Storage humidity:	max. 80% (non-condensing)
Casing Material:	Anodized aluminium
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 1895 g / 4,17 lb Dual
MTBF	82 820 calculated hours / 10 years

1. INTRODUCTION

1.4 ABOUT YOUR MASTEREASY SINGLE COPPER

Local Extender (CPU)

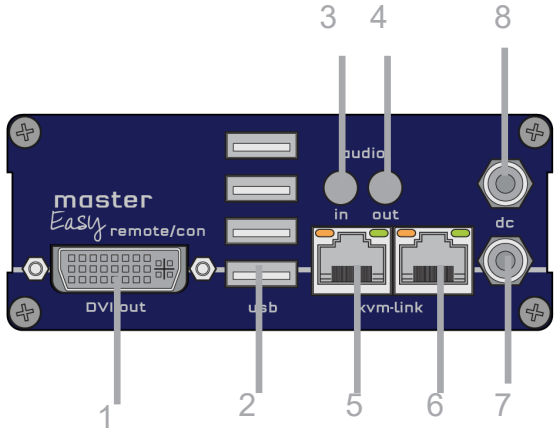


No.	Name	Function
1	dvi-in	DVI connection to PC
2	dvi-in	DVI connection fromPC
3	USB	USB to PC
4	audio in	Audio in from PC
5	audio out	Audio out to PC
6	kvm-link	Networkcable redundant
7	kvm-link	Networkcable
8	dc	connection for 12V1A power supply redundant
9	dc	connection 12V1A power supply

LED STATUS

red	no active connection
yellow	no video signal
green	everything works

Remote Extender (CON)



No.	Name	Function
1	DVI out	DVi to monitor .
2	USB	USB from keyboard and mause
3	audio in	Audio in from microfon etc.
4	audio out	Audio to loudspeaker
5	kvm-link	connection for 12 V 1A network cable
6	kvm-link	connection for CAT5/6/7 cable redundant
7	dc	connection power supply 12V1A redundant
8	dc	connection power supply 12 V1A

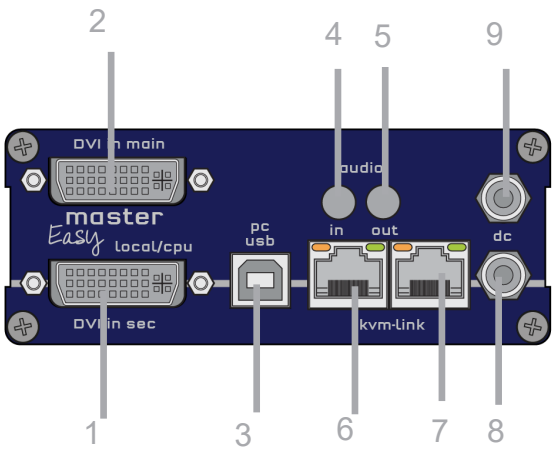
LED STATUS

red	no active connection
yellow	no video signal
green	everything works

1. INTRODUCTION

1.5 ABOUT YOUR MASTEREASY DUAL COPPER

Local Extender (CPU)

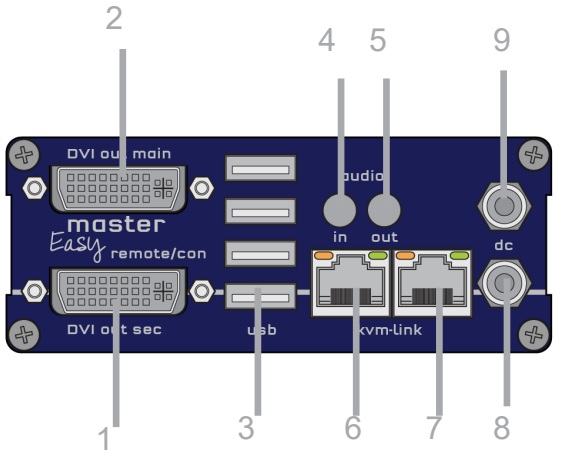


No.	Name	Function
1	dvi-in	DVI in 2 from PC
2	dvi-main	DVI connection to PC
3	USB	USB to PC
4	audio in	Audio Out from PC
5	audio out	Audio Out to PC
6	kvm-link	connection network cable
7	kvm-link	connection network cablel
8	dc	connection 12V1A power supply
9	dc	connection 12V1A power supply

LED STATUS

red	no active connection
yellow	no video signal
green	everything works

Remote Extender (CON)



No.	Name	Function
1	DVI	DVI to Monitor 2
2	DVI	DVI to Monitor 1
3	USB	USB from Keyboard and mouse
4	audio in	Audio in from Microphone.
5	audio out	Audio to loudspeakerr
6	kvm-link	connection for 12 V networkcable
7	kvm-link	connection for CAT5/6/7 cable
8	dc	connection power supply 12V1A
9	dc	connection power supply 12V1A

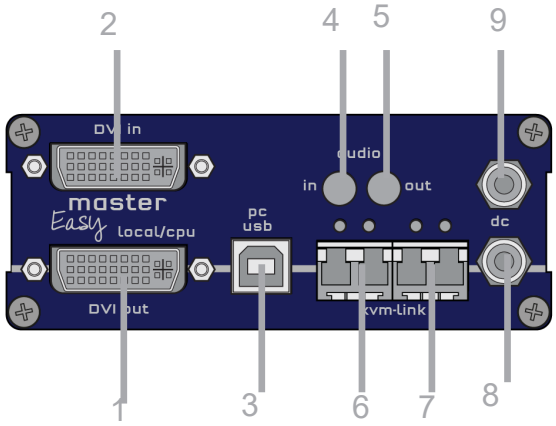
LED STATUS

red	no active connection
yellow	no video signal
green	everything works

1. INTRODUCTION

1.6 ABOUT YOUR MASTEREASY EXTENDER SINGLE IN FIBER

Local Extender (CPU)

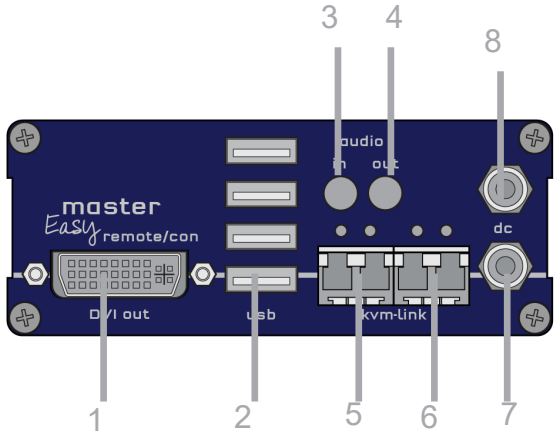


No	Name	Function
1	dvi-out	DVI connection to monitor
2	dvi-in	DVI in from PC
3	USB	USB to PC
4	audio in	Audio in from PC
5	audio out	Audio out to PC
6	kvm-link	connection fiber cable redundant
7	kvm-link	connection fibercable
8	dc	connection power supply redundant
9	dc	conenction power supply

LED STATUS

red	no active connection
yellow	no video signal
green	everything works

Remote Extender (CON)



No.	Name	Function
1	DVI-out	DVI to Monitor.
2	USB	USB from keyboard and mouse
3	audio in	Audio in from microphone
4	audio out	Audio out to loudspeaker
5	kvm-link	connection fiber cable
6	kvm-link	connection fiber cable redundant
7	dc	connection 12V1A powee supply redundant
8	dc	connection power supply

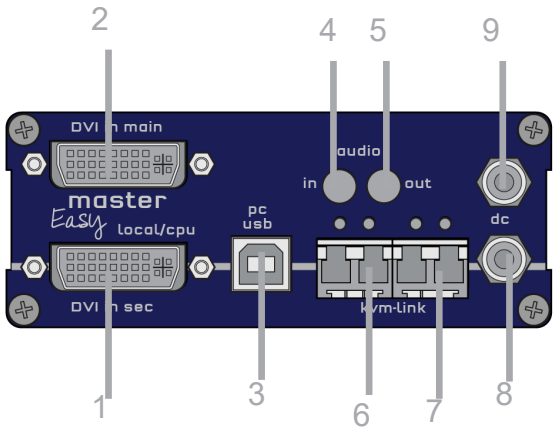
LED STATUS

red	no active connection
yellow	no video signal
green	everything works

1. INTRODUCTION

1.7 ABOUT YOUR MASTEREASY EXTENDER DUAL IN FIBER

Local Extender (CPU)

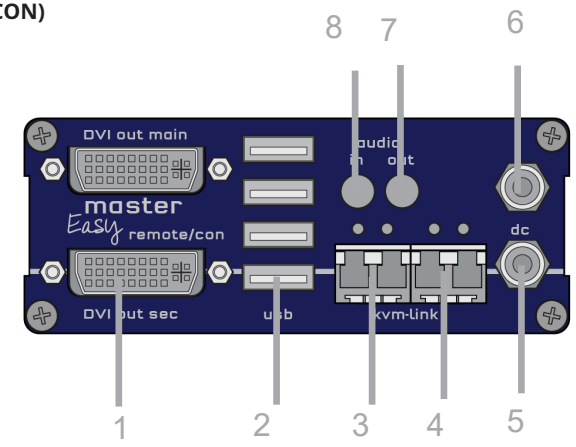


No.	Name	Function
1	dvi-in	DVI in 2 from PC
2	dvi-main	DVI connection from PC
3	USB	USB to PC
4	audio in	Audio Out from PC
5	audio out	Audio Out to PC
6	kvm-link	connection Fibercable redundant
7	kvm-link	connection for fibercable
8	dc	connection 12V1A power supply redundant
9	dc	connection 12V1A power supply

LED STATUS

red	no active connection
yellow	no video signal
green	everything works

Remote Extender (CON)



No.	Name	Function
1	DVI out	DVI to Monitor .
2	USB	USB from keyboard and mouse
3	kvm-link	connection for fibercable redundant
4	kvm-link	connection for fibercable
5	dc	connection power supply 12V1A redudant
6	dc	connection power supply 12V1A
7	audio out	Audio to loudspeaker
8	audio in	Audio in from microphone etc .

LED STATUS

red	no active connection
yellow	no video signal
green	everything works

1.8 ABOUT YOUR MASTEREASY BACKPANEL

BACKSIDE masterEASY Single & masterEASY Dual

No.	Name	Function
1	LED Status	display LED Status
2	Reset	Button for Reset

1.9 ABOUT THE STATUS LED

Meaning LED displays

Color	Light display	Meaning
	fast flashing	no active connection
	shining	no video signal
	shining	everything works

2.1 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:

masterEASY single copper
delivery content - Local (CPU)

1 x ME1 local (CPU)
1 x wall power supply 12V 1A (EU-plug or int plug))
1 x DVI - DVI cable 1,8m/5.9 ft)
1 x USB cable 1,8m/ 5.9 ft
1 x VGA - DVI cable 1,8m / 5.9 ft (opt)
2 x Audio cable 1,8m/5.9ft (opt)

delivery content - Remote (CON)
1 x ME1 remote (CON)
1 x wall power supply 12V 1A (EU-plug or int plug)
4 x rubber feet

masterEASY dual copper
delivery content - Local (CPU)

1 x ME2 local (CPU)
1 x wall power supply 12V 1A (EU-plug or int plug)
2 x DVI - DVI cable 1,8m/5.9ft
1 x USB cable 1,8m/5.9ft
2 x VGA - DVI cable 1,8m/5.9 ft (opt)
2 x Audio cable 1,8m/5.9ft (opt)

delivery content - Remote (CON)

1 x ME2 remote (CON)
1 x wall power supply 12V 1A (EU-plug or int plug)
4 x rubber feet

2. INSTALLATION OF THE EXTENDER

Make sure that the packaging contains the following content:

masterEASY single fiber
Delivery content - Local (CPU)

1 x ME1-F local (CPU)
1 x wall power supply 12V 1A (EU-plug or Int plug))
1 x DVI - DVI cable 1,8m/5.9ft
1 x USB cable 1,8m/5.9ft
1 x VGA - DVI cable 1,8m/5.9ft (opt)
2 x Audio cable 1,8m/5.9 ft (opt)
2x SFP Module-Multimode up to 500m/1640 ft duplex LC
alternativ with Single-Mode up to 20km/12mi /ItemNr 6835
4 x rubber feets

Delivery content- Remote (CON)
1 x ME1-F Remote (CON)
1 x wall power supply 12V 1A (EU-plug or INT plug)
2 x SFP Module Multimode up to 500m/1640 ft duplex LC
Alternativ with Single-Mode up tp 20km/12mi ItemNo 6831
4 x rubber feet

masterEASY dual fiber
Delivery content- Local (CPU)

1 x ME2-F local (CPU)
1 x wall power supply 12V 1A (EU-plug or INT plug)
2 x DVI - DVI cable 1,8m/5.9ft
1 x USB cable 1,8m/5.9 ft
2 x VGA - DVI cable 1,8m/5.9ft
2 x Audio cable 1,8m/5.9ft (opt)
2 x SFP Module-Multimode up to 500m/1640ft
(alternativ Single-Mode up to 20km/12mi ItemNo 6831)
4 x rubber feet

Delivery content Remote (CON)
1 x ME2 remote (CON)
1 x wall power supply 12V 1A (EU-plug or INT plug)
4 x rubber feet

2.2. MOUNTING OPTIONS
2.2.1 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.

2.2.2 MOUNTING KITS (OPTIONAL)

The following mounting kits are available:

Rackmounting RMK-EASY-F *Part Nr. 6232 RMK-EASY-F*
The rack mounting kit RMK-EASY- F is for mounting kvm-tec smartEASY single and dual extenders. It consists of a19“ rack shelf and an alu-faceplate.

Rackmounting RMK- EASY- FN - T *Part-Nr. 6232 RMK- EASY-FN*
The rack mounting kit RMK-EASY-FN is for assembling kvm-tec smartEASY extenders. It consists of 19“ Rack Shelf, an alu-faceplate and a power supply. For 4 Single or dual Extender in one Rack

Under table mounting kit *Part Nr 6231 UMK EASY*
The Under Desk Mounting kit is for underdesk mounting of the MX extender.

Din Rail mounting *Part-Nr. 6235 DINMK- EASY*
The DIN rail mounting is used for space-saving installation in control cabinets or on DIN rails. The attachment to the smartEASY Extenders is possible in several ways.

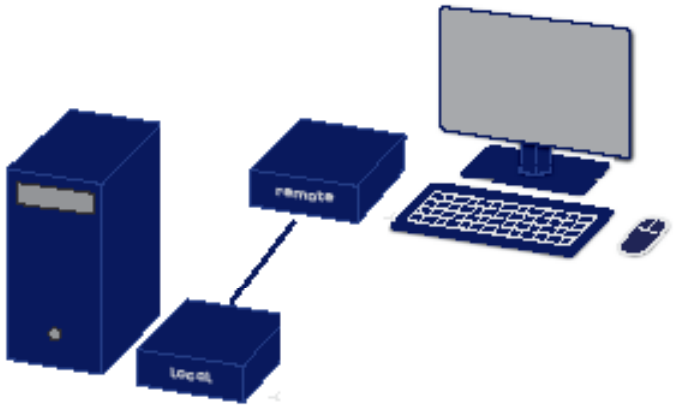
Vesa mounting *Part-Nr. 6236 VH-EASY*
The robust VESA mounting is used to attach an extender to a monitor with existing VESA mounting points. The Extender becomes one unit with the monitor and saves a lot of space and cable clutter.
.

2. INSTALLATION OF THE EXTENDER

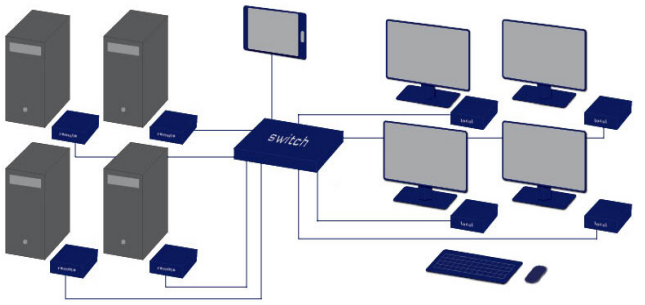
2.3 INSTALLING THE EXTENDER

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

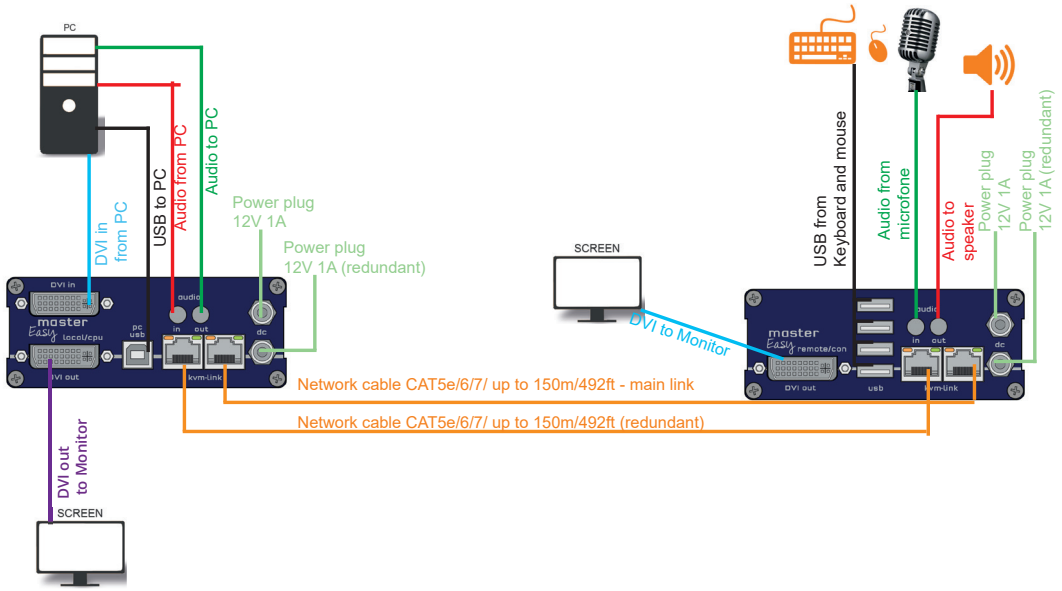
The units can be set up to access one host computer, or to access numerous host computers. In the case of the latter, an additional Network Switch must be installed. With a Network Switch, each user can gain quick access to any of the required computers.



point to point connection & Matrix Switching System



2.4 QUICKINSTALLATION MASTEREASY SINGLE COPPER



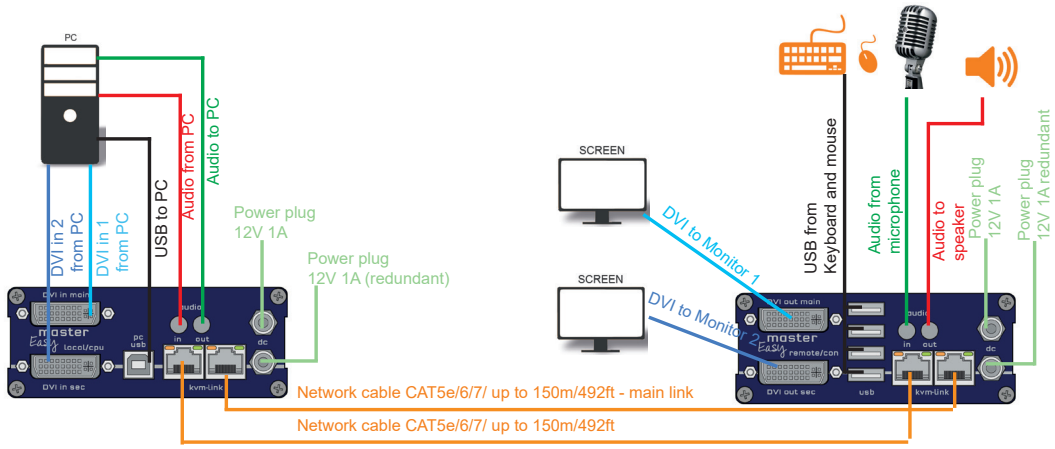
Quick Installation masterEASY Single local / CPU – remote / CON

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 keyboard and mouse to the CON / Remote Unit.
3. Connect the CPU / Local and the CON / Remote Unit with a network cable.
4. Now connect the DVI cable to the DVI socket of the PC and the other end to the DVI socket of the CPU Local Unit (PC-in).
5. Opt: Connect PC audio/out with the audio cable to local audio/in. Connect audio/out via the audio cable
6. Almost done! Opt: Connect the audio cable local audio/out to the PC audio/in and remote audio/out with audio cable to the microphone
7. If you are using a switch: Connect all endpoints to the switch. Ensure that all connections have a bandwith of 1Gbit/sec. For video sharing the network has to support IGMP snooping.

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

2. INSTALLATION OF THE EXTENDER

2.5 QUICKINSTALLATION MASTEREASY DUAL IN COPPER

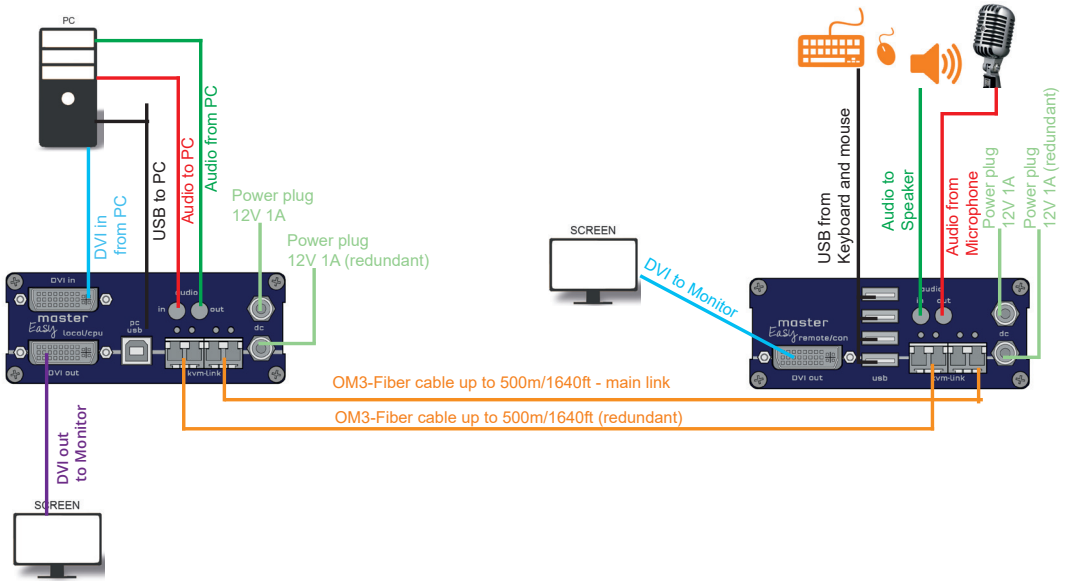


Quick Installation masterEASY Dual local / CPU – remote / CON

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 keyboard and mouse to the CON / Remote Unit.
3. Connect the CPU / Local and the CON / Remote Unit with a network cable.
4. Now connect the DVI cable to the DVI socket of the PC and the other end to the DVI socket of the CPU / Local Unit (PC-in).
5. Connect the DVI cable to the DVI socket of the PC and the other end to the DVI socket of the CON / Local Unit (PC-in 2). Then connect the monitor to the CON / Remote Unit using the DVI cable.
6. Opt: Connect PC Audio out with the audio cable to local audio/in. Connect audio/out via the audio cable
7. Almost done! Opt: Connect the audio cable local audio/out to the PC audio/in and remote audio/out with audio cable to the microphone
8. If you are using a switch: Connect all endpoints to the switch. Ensure that all connections have a bandwith of 1Gbit/sec. For video sharing the network has to support IGMP snooping.

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

2.6 QUICKINSTALLATION MASTERFLEX SINGLE IN FIBER

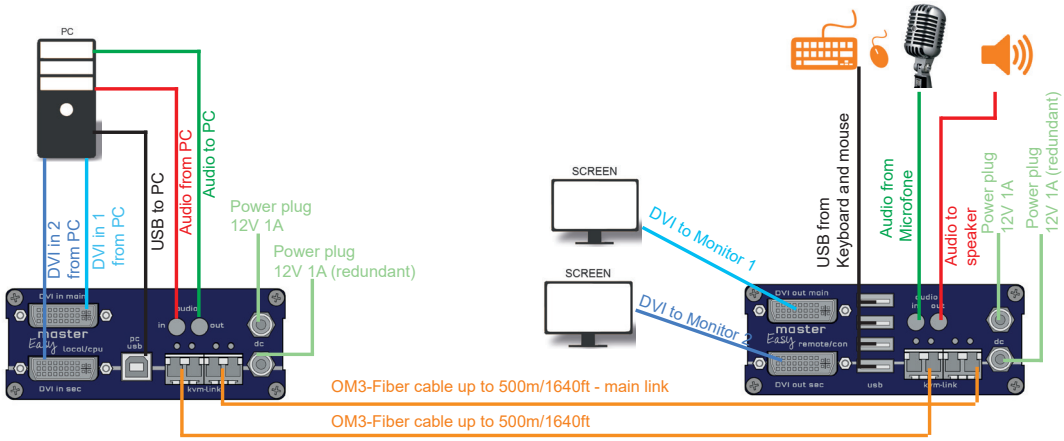


Quick Installation masterEASY Single Fiber local / CPU – remote / CON

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 keyboard and mouse to the CON / Remote Unit.
3. Connect the CPU / Local and the CON / Remote Unit with a network cable.
4. Now connect the DVI cable to the DVI socket of the PC and the other end to the DVI socket of the CPU / Local Unit (PC-in).
5. Then connect the monitor with the DVI cable to the CON / Remote Unit.
6. Opt: Connect PC audio/out with the audio cable to local audio/in. Connect audio/out via the audio cable
7. Almost done Opt: Connect the audio cable local audio/out to the PC audio/in and remote audio/out with audio cable to the microphone
8. If you are using a switch: Connect all endpoints to the switch. Ensure that all connections have a bandwith of 1Gbit/sec. For video sharing the network has to support IGMP snooping.

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

2.7 QUICKINSTALLATION MASTEREASY DUAL IN FIBER



Quick Installation masterEASY Dual 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 keyboard and mouse to the CON / Remote Unit.
3. Connect the CPU / Local and the CON / Remote Unit with a network cable.
4. Now connect the DVI cable to the DVI socket of the PC and the other end to the DVI socket of the CPU / Local Unit (PC-in).
5. Now connect the DVI cable to the DVI socket of the PC and the other end to the DVI socket of the CPU / Local Unit (PC-in 2). Then connect the monitor with the DVI cable to the CON / Remote Unit.
6. Connect PC audio/out with the audio cable to local audio/in. Connect audio/out via the audio cable
7. Almost done! Connect the audio cable local audio/out to the PC audio/in and remote audio/out with audio cable to the microphone
8. If you are using a switch: Connect all endpoints to the switch. Ensure that all connections have a bandwith of 1Gbit/sec. For video sharing the network has to support IGMP snooping.

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

2.8 START UP

To start up the system without switch:

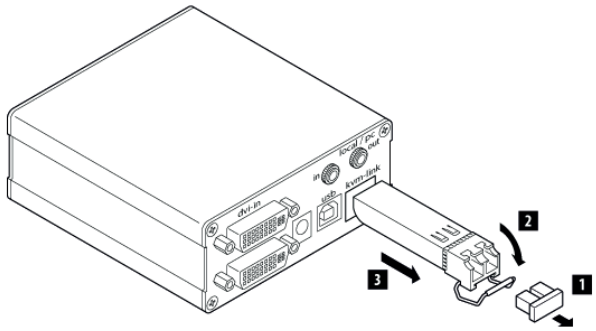
1. Make sure that the two monitors and the computer are switched on.
2. If you are using a Network Switch, connect the power supply to an earthed wall socket.
3. Connect both extender **power supplies** (C) to an earthed wall socket. Both extenders will start an initialisation process. The red status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

2.9 REPLACING THE SFP MODULE

The masterEASy Fiber is delivered with a multimode SFP module.

To replace an SFP module with a different SFP module:

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. Replace the SFP module with the other module. Put the metal latch back in position. Only use SFP modules from kvm-tec, or recommended by kvm-tec.

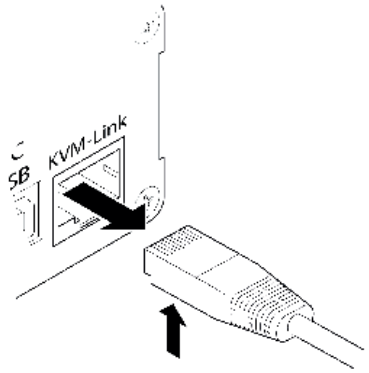


2. INSTALLATION OF THE EXTENDER

2.10 REMOVING A CATX CABLE

To remove a CATx cable:

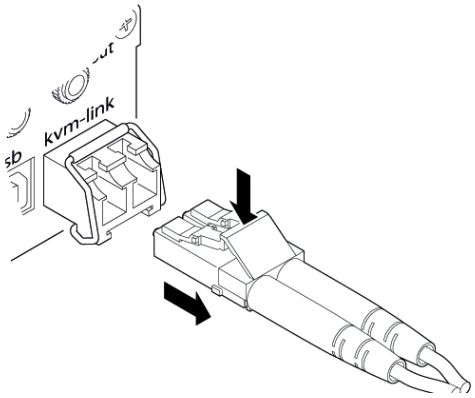
- Press the latch down and slowly pull the cable out.



2.11 REMOVING A FIBER CABLE

To remove a fiber cable:

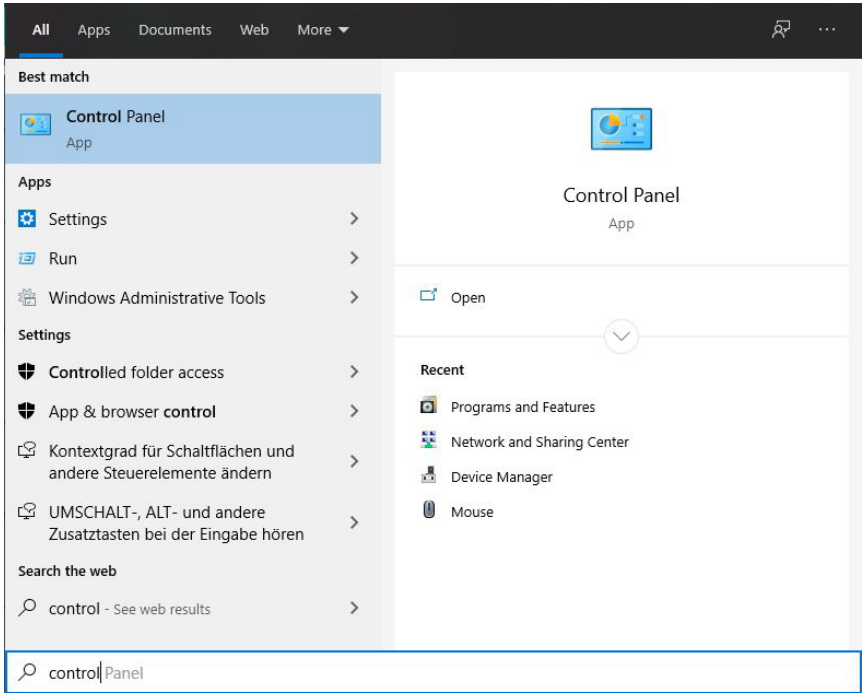
- Press the latch down and slowly pull the cable out.

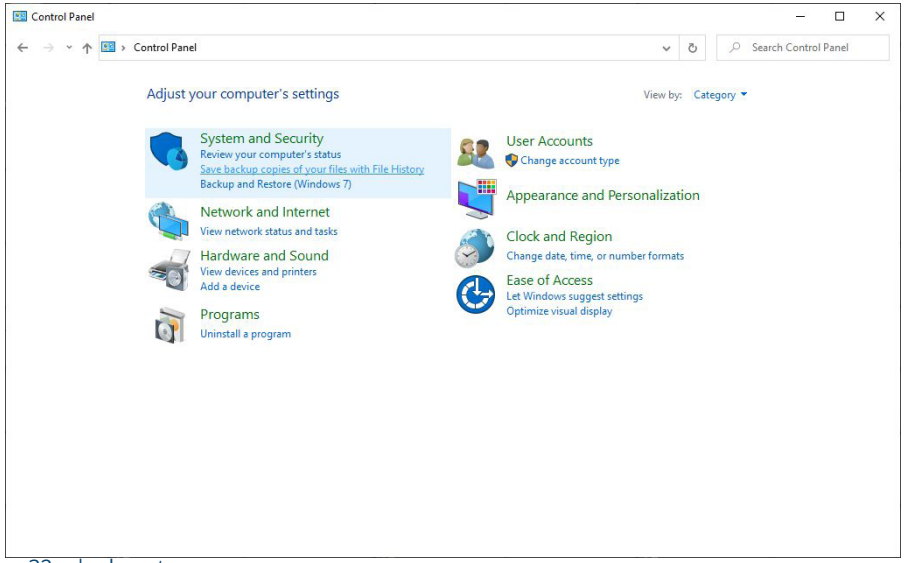


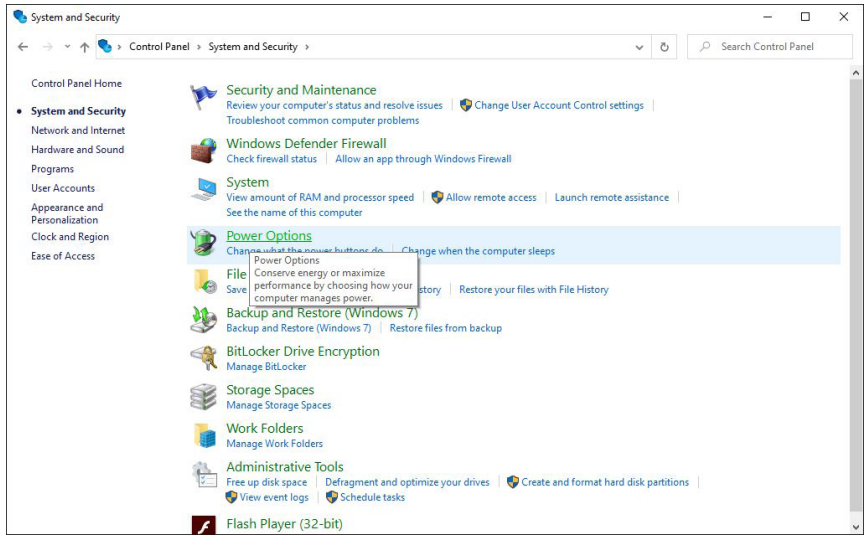
2. INSTALLATION OF THE EXTENDER

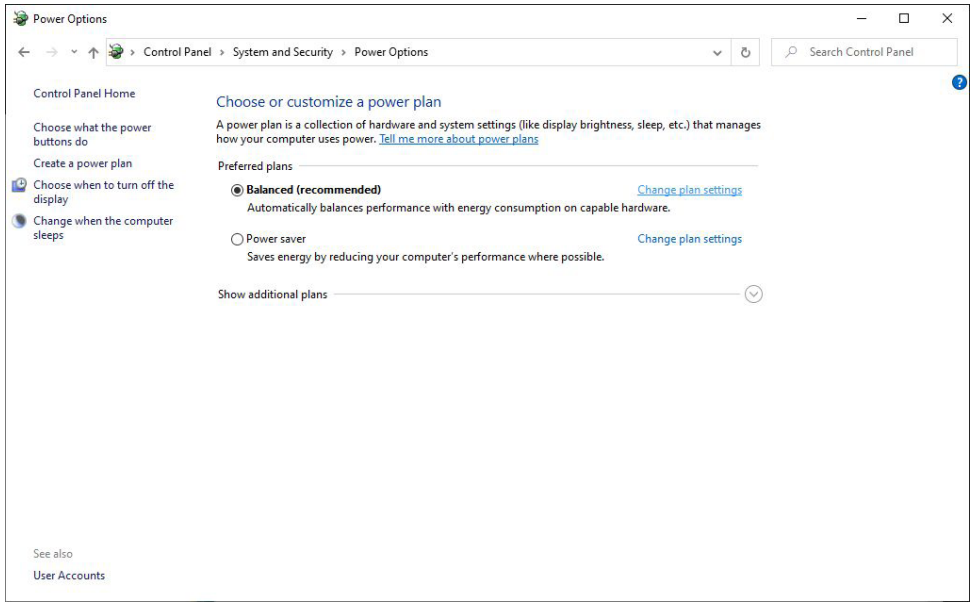
2.12 BEST PRACTICE FOR WINDOWS 10

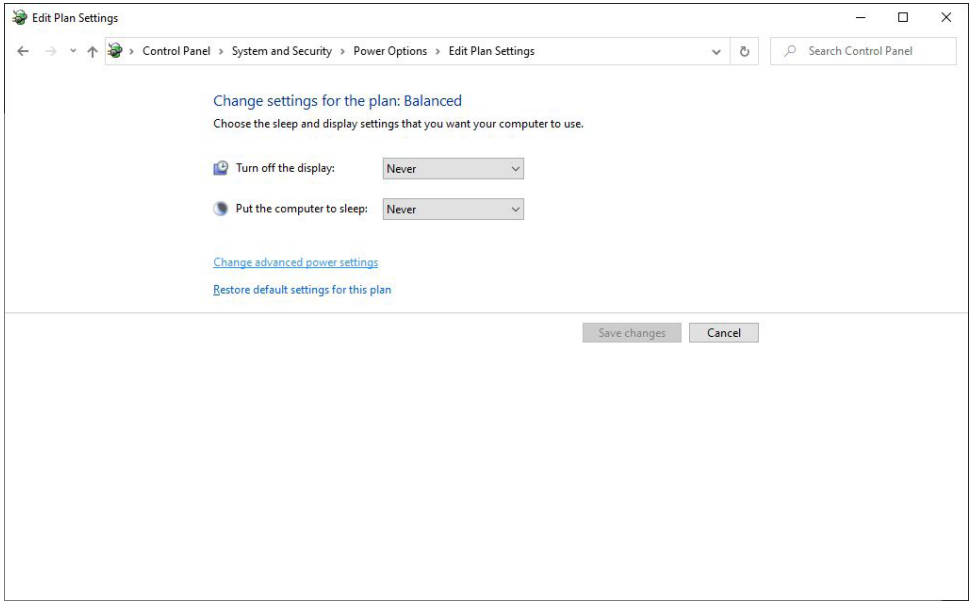
Disable USB Energy Savings in Windows 10

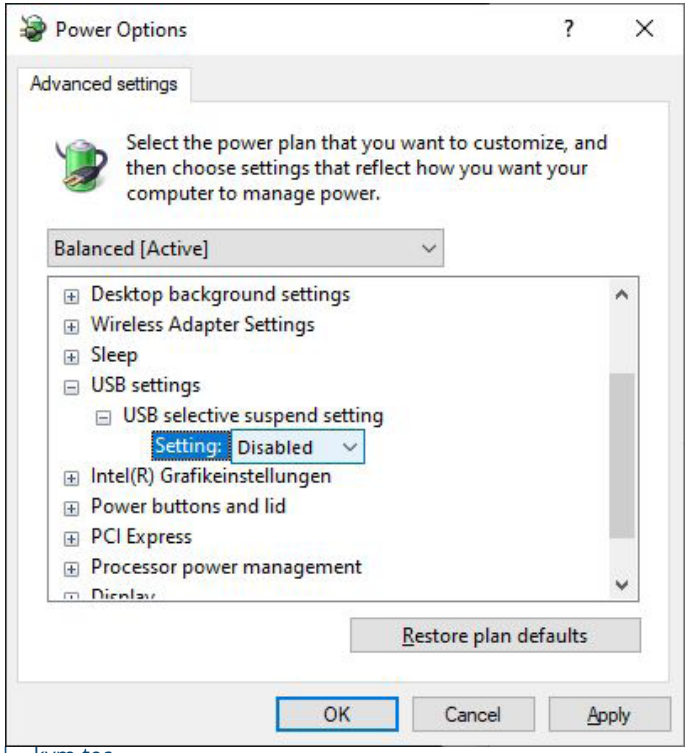










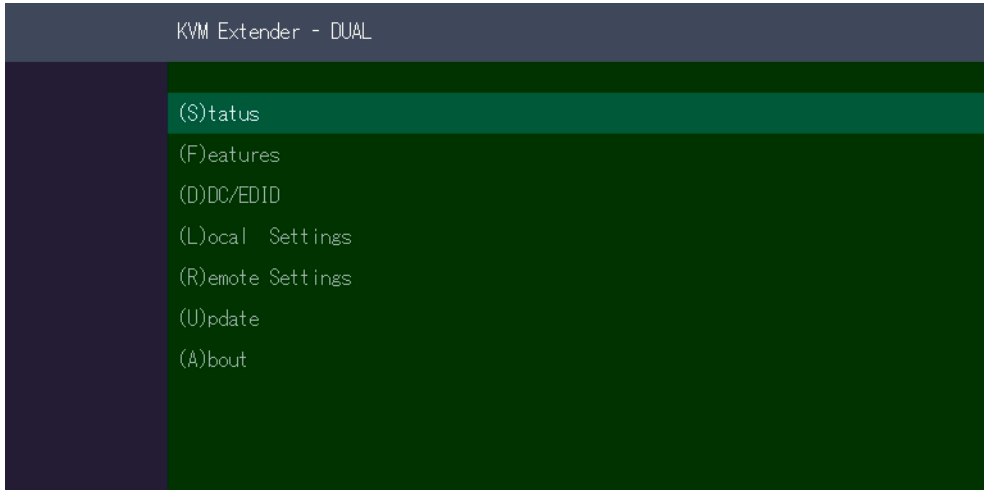


3.1 USING THE ON SCREEN MENU

Use the monitor and keyboard to access the main menu

Access to the main menu (main menu):

1. Make sure the extenders, monitors and computers are turned on.
2. Press the Scroll Lock key five times quickly. The **main menu** and an overview of the submenus are displayed.
3. Um in ein Untermenü zu gelangen, drücken Sie die entsprechende Taste.



Main menu short cuts :

S	Status Overview	Menu Status / current Status
U	Update Flash FW	Firmware update
F	Features Overview	Overview all Features
D	DDC Option	DDC Option Fixe Setting 1920 x 1080
L	Local Settings	Setting Local Overview
R	Remote Settings	Setting Remote Overview
A	About Overview	Overview all Upgrades
Key „ESC“		Exit

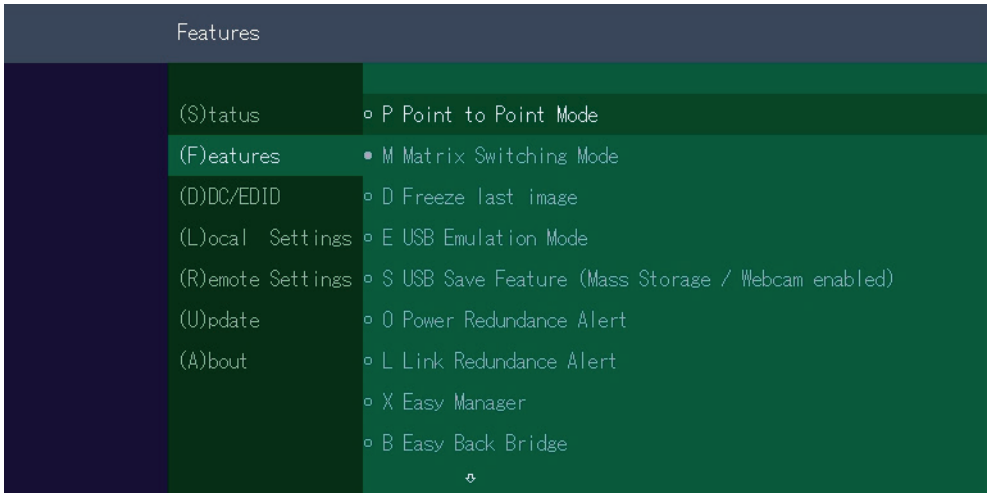
3.2 VIEWING THE CURRENT FIRMWARE VERSION

Make sure that the **main menu** is open. Under **„A“** - About the currently installed firmware version of the remote (CON) and local (CPU) extender is displayed.

The screenshot can be found in menu item 3.10

3.3 FEATURES

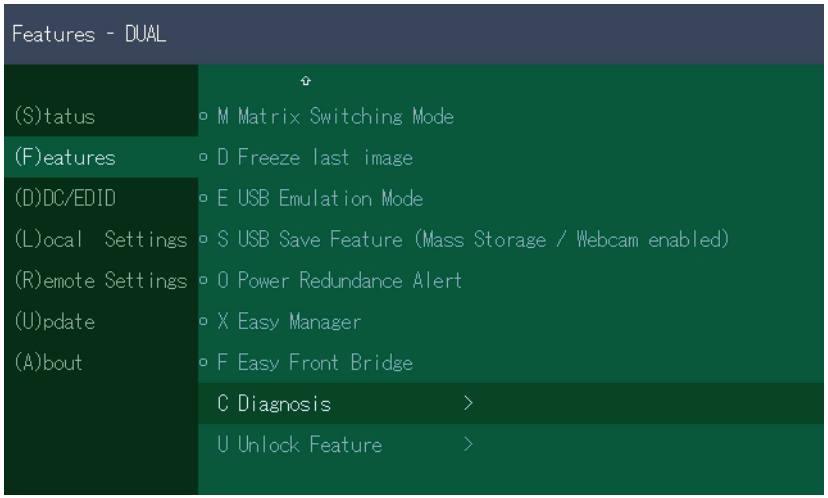
By pressing the F button the Fatures menu is displayed



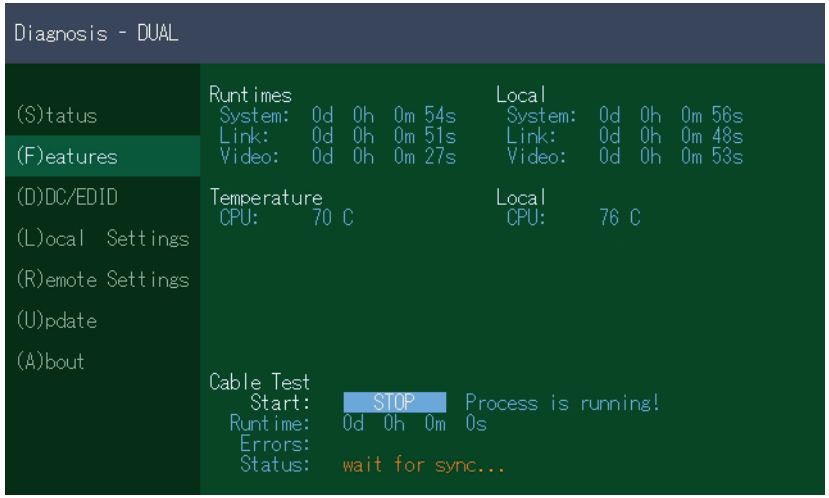
Features Menu
The individual menu items are described in more detail in chapter 4 (page 52).

3.4 DIAGNOSIS MENU

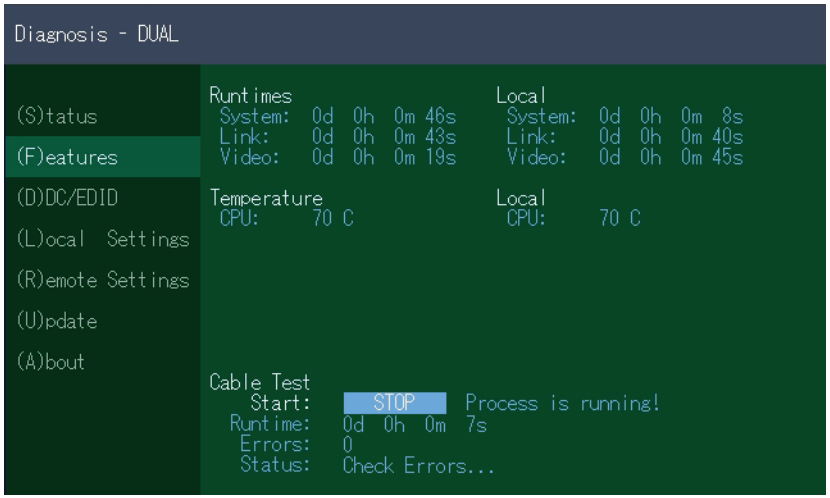
In the Diagnosis menu, the runtimes of the individual connected channels are displayed. Both Remote Unit and Partner Local Unit are listed.



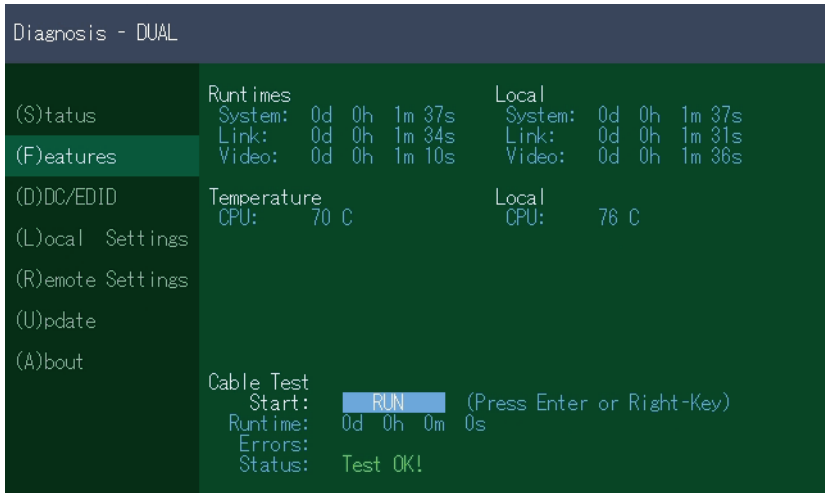
Additionally you get the CPU temperature information of both units.
Another feature is the cable test



As soon as a connection to the partner has been established, the test can be started with the „Enter“ key or the arrow key on the right „→“.
After a valid synchronization process, the test is started and the test run time and errors are displayed.



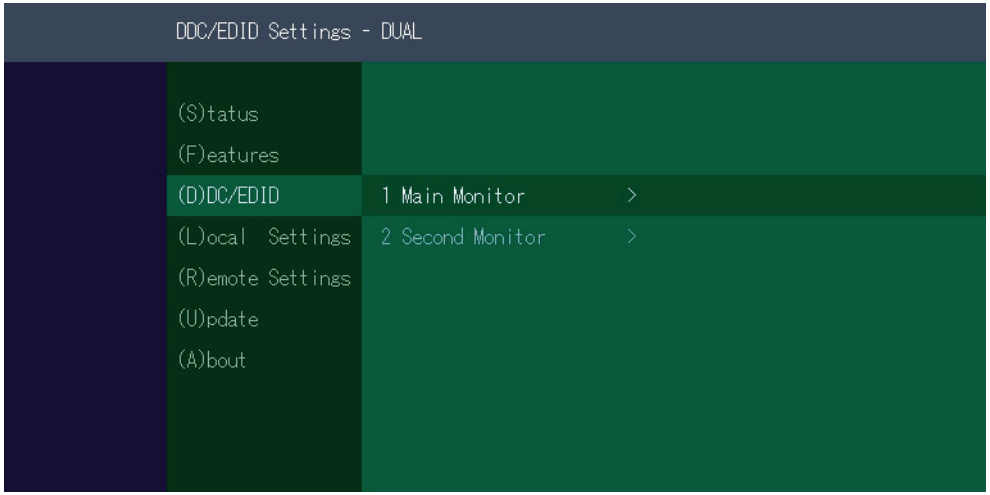
The test can be ended at any time by pressing the “Enter” or “→” key. If no error has occurred, the status reports: “Test OK! If errors occurred during the test, the status displays the sum of all errors that occurred.



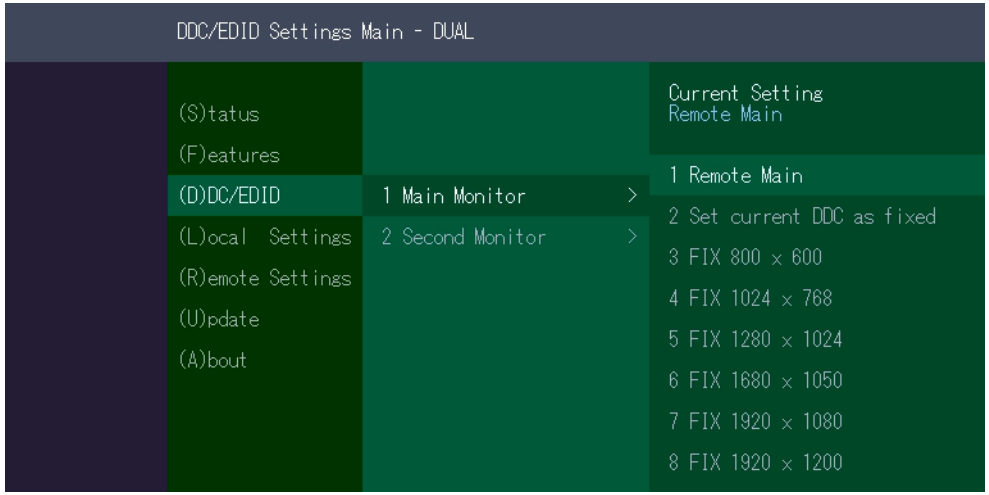
3.5 DDC MENU

The DDC Information menu allows the user to specify which DDC information is used by the PC.
Definition of the DDC information used by the PC:
1. make sure that the main menu is open.
Press the O button and the DDC option menu will be displayed.
- Press 0 to display the DDC information of the monitor connected to the remote (CON) Extender is connected.
- Press 2 to save the current DDC information. The system will applies the same settings after restarting the Extender
- Press the keys 3 to 8 to use a predefined resolution, which is saved.

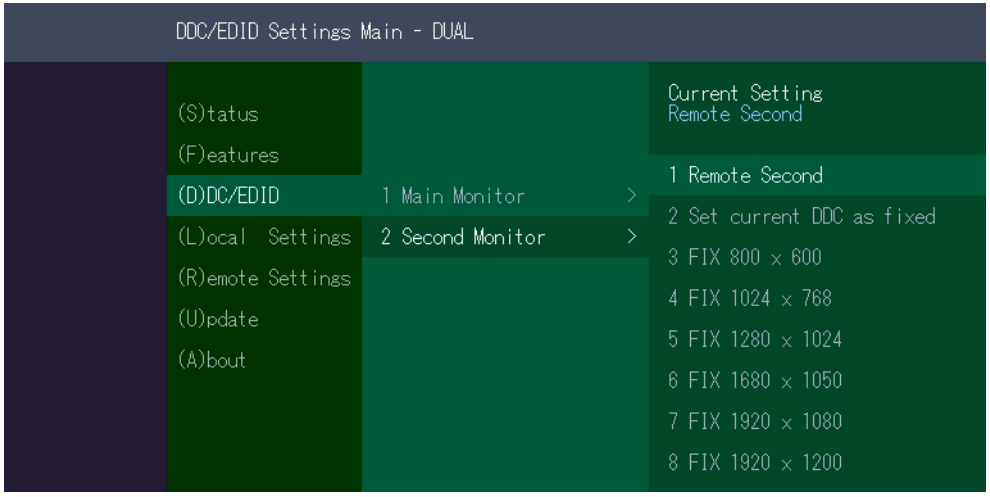
3. press ESC to return to the main menu



3.5.1 DDC MAIN (SINGLE UNITS)



3.5.2 DDC SECOND (DUAL UNITS)

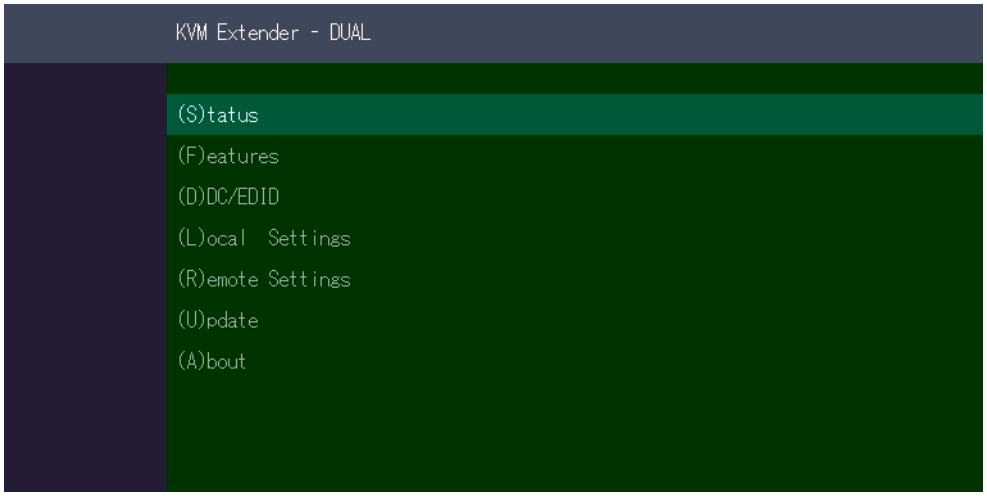


3.6 EXTENDER SETTINGS

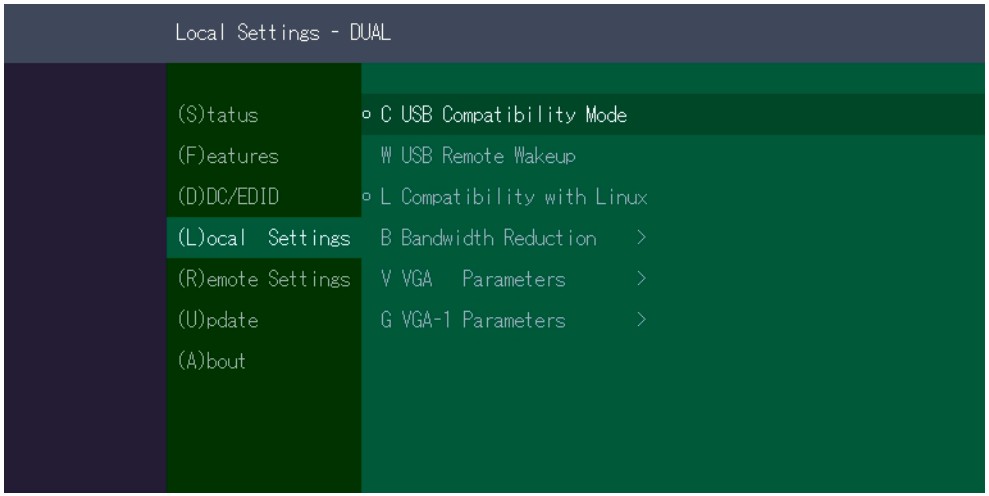
The **Extender Settings menu** allows the user to change a number of other settings. Select one of the three options (VGA, Audio and RS232) to enter the submenu. The other four can be activated or deactivated by pressing the corresponding button.

Display the Extender Settings menu:

1. Make sure that the main menu is open.
2. Press the **L** button. The **Local Settings** menu is displayed.
3. Press the **R** button. The **Remote Settings** menu is displayed



3.6.1 LOCAL SETTINGS



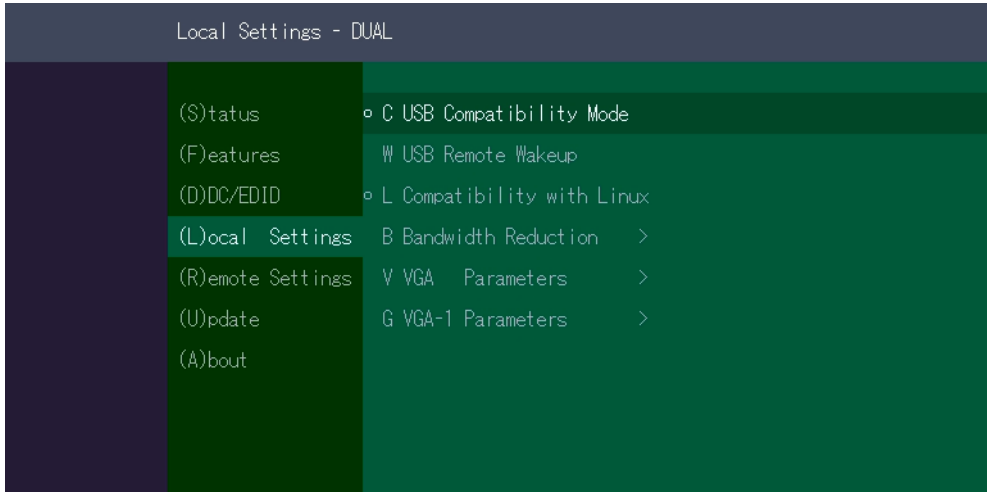
View the local or remote Extender settings:
- Press the **L** button to display the **Local Setting** menu.

C	USB Compatibility Mode	Disabled/Enabled
W	USB Remote Wakeup	Disabled/Enabled
L	Compatibility with Linux	Disabled/Enabled
B	Bandwidth Reduction	
V	VGA Parameters	
G	VGA-1 Parameters	

3. EXTENDER SETTINGS

3.6.2 USB COMPATIBILITY MODE

Some PC's require a USB FullSpeed (USB 1.1) connection at startup.
However, since our extenders are normally detected as USB 2.0 HUB's, some PC's may abort the boot process.
This can be avoided with the USB Compatibility Mode.

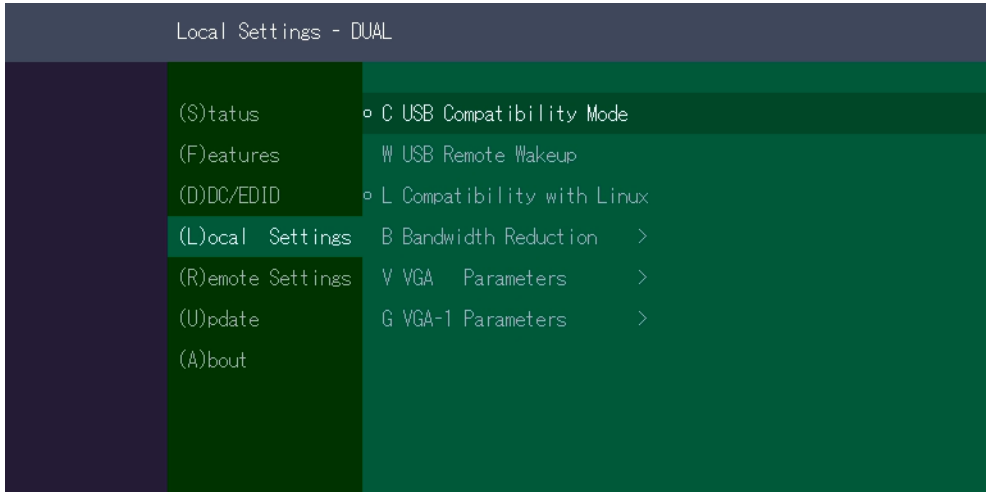


3.6.3 USB REMOTE WAKE UP

The PC can be put into sleep mode and reactivated with any key.

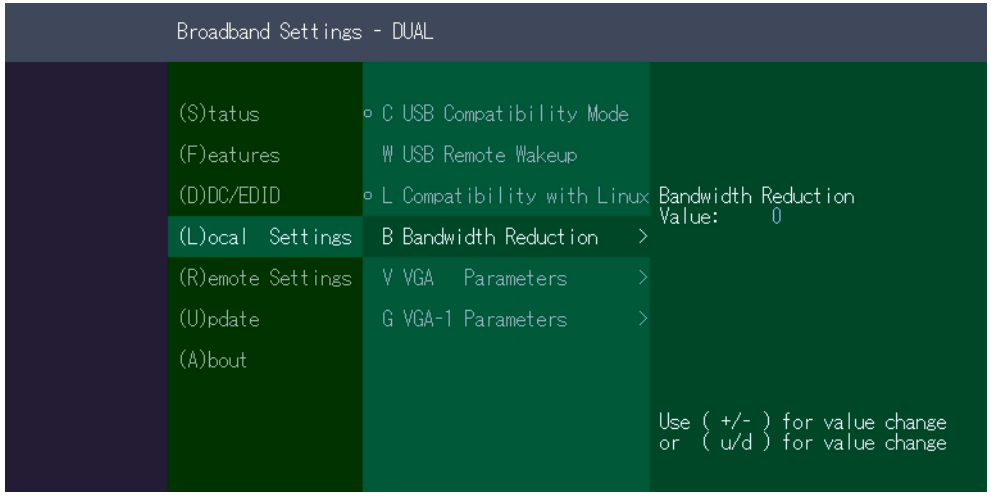
3.6.4 COMPATIBILITY WITH LINUX

Older Linux (before 2010) versions may not recognize the keyboard.
In this case please activate the Linux compatibility mode

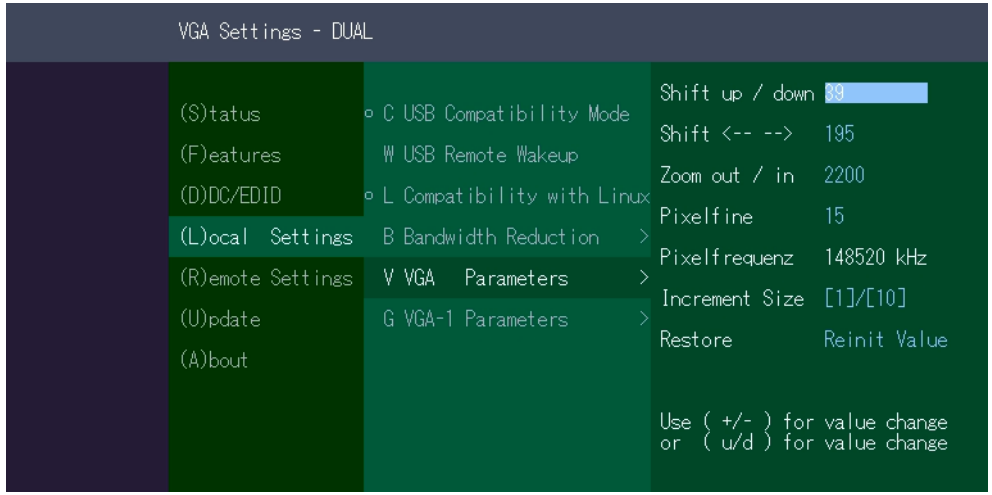


3.6.5 BANDWIDTH REDUCTION

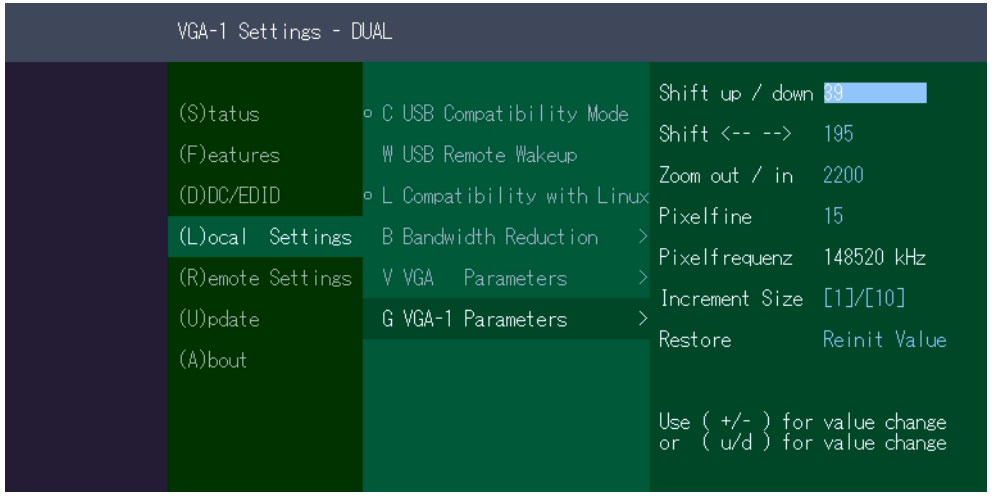
Here the bandwidth can be reduced. The basic setting is 0!
You can change the bandwidth with +/- or u/d.



3.6.6 VGA PARAMETERS



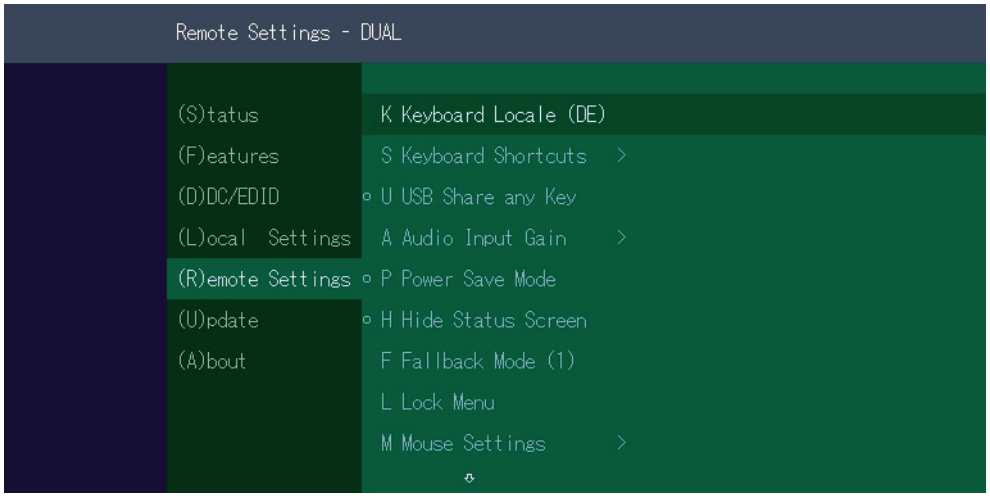
VGA Parameters

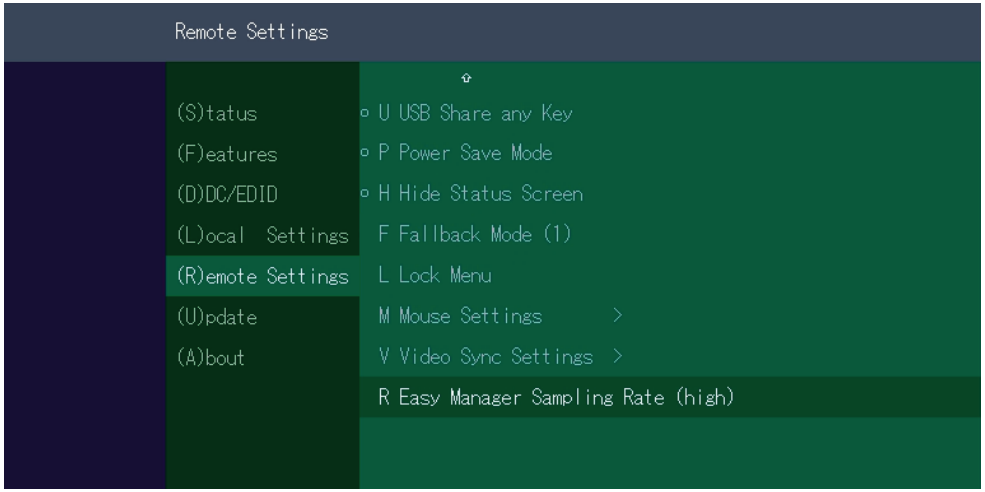


VGA-1 Parameters

3.7 REMOTE SETTINGS

- Press the **R** button to display the Remote Setting menu.





3.7.1 EDITING A KEYBOARD LAYOUT

The **Keyboard Local** menu lets you switch between keyboard layouts for navigating the on screen display menu (OSD). You can choose between French (FR), English (EN) and German (DE).

Selecting a keyboard layout:

1. Press **S** in the **Extender Settings** menu- The **Remote Settings** menu appears.
2. Press the **K** key. The **Keyboard Layout** will be changed.

3.7.2 KEYBOARD SHORTCUTS

Hotkeys allow you to select your preferred keyboard mappings for your common commands.

Setting keyboard mappings:

1. press the **R** key in the **Extender Settings** menu. The **Remote Settings** menu appears.
2. Press the **S** key. The **Keyboard Shortcuts** menu opens.
3. Use the arrows to select a command.
4. press **Enter** to select the keyboard layout
5. or press a key. To select the frequency press Arrow right and left or - you press a key combination

3.7.3 USB SHARE ANY KEY

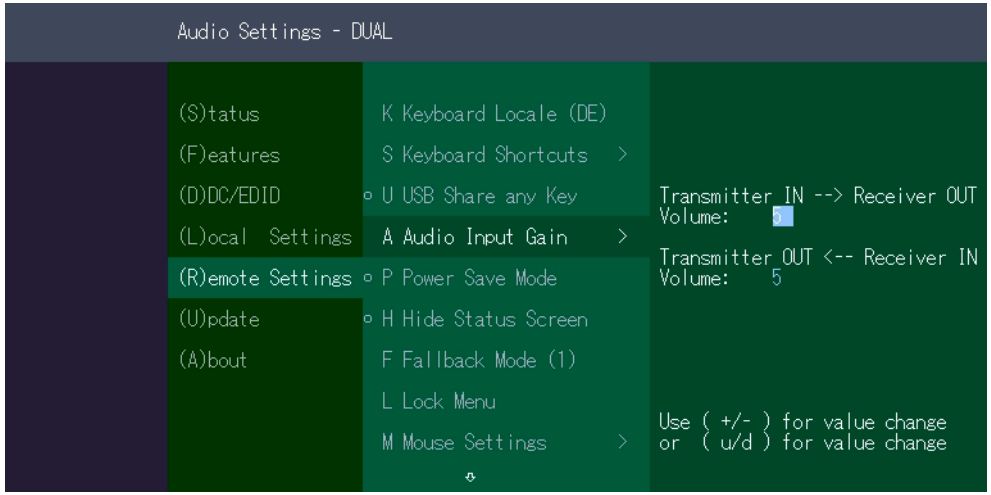
By pressing the button „**U**“ the USB Share any Key mode can be activated or deactivated.

If the USB share any key, the USB function can be taken over with any key.

If the function is deactivated, this works with the predefined hotkeys (see 3.7.2.)

3.7.4 AUDIO INPUT GAIN

The volume can be adjusted by pressing the **A** button.



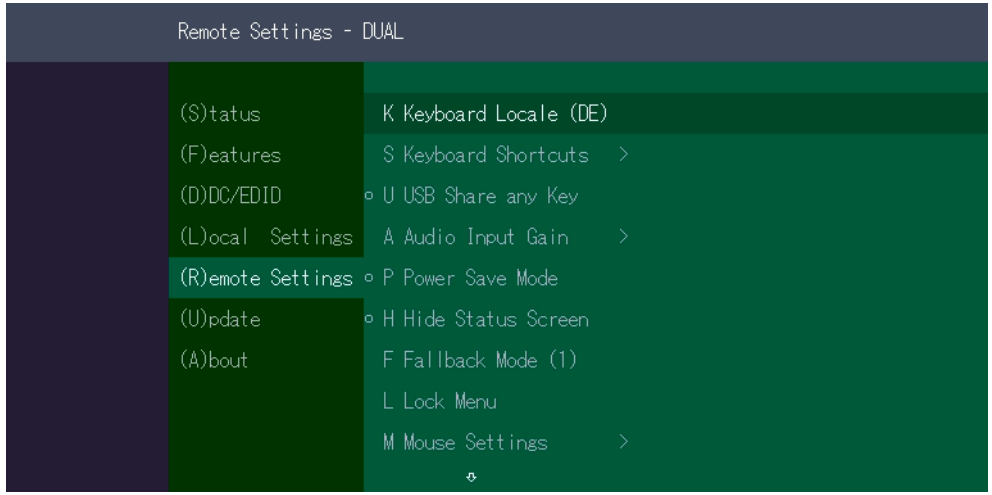
3.7.5 USING THE POWER SAVING MODE

In power save mode, the Extender can switch off the video output. The power off delay can be set or deactivated as desired in the Power Save Setting menu.

Power Save Modus

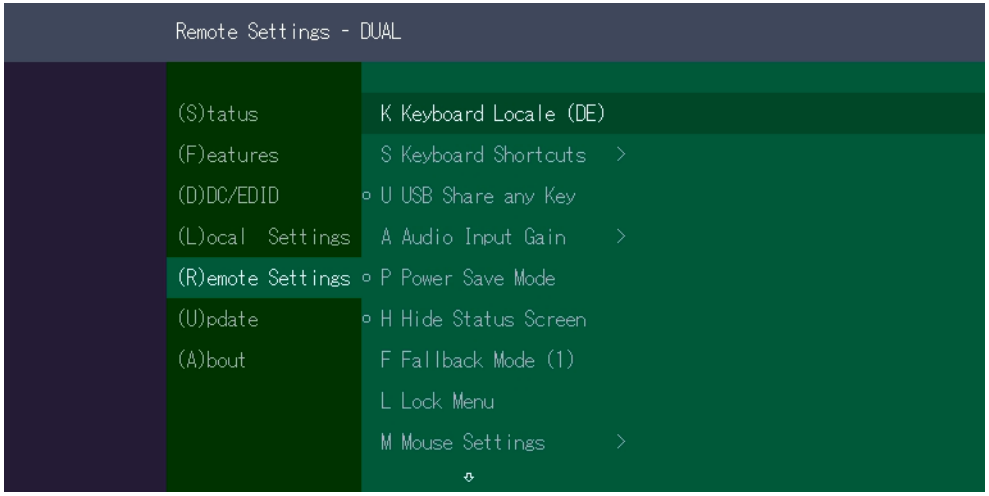
1. press the R key in the main menu. The Remote Settings menu is displayed.
2. Press the P button to enable or disable the Power Saving Mode.
3. When in Power Saving Mode, press any key to return to the menu.

If the powersave mode is active, the image output at the video outputs is turned off after the time has elapsed. To reactivate the monitor, press any key on the keyboard or connect to a partner.



3.7.6 HIDE STATUS SCREEN

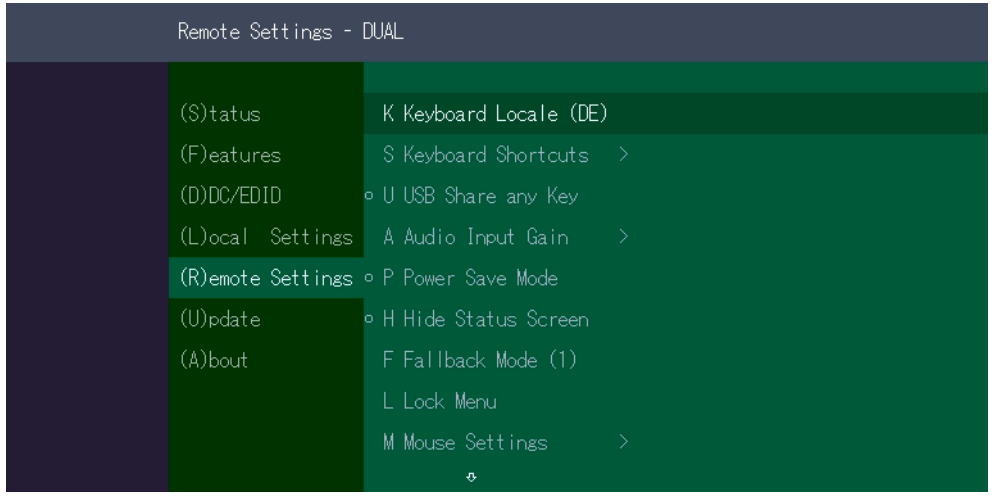
Press **H** in the Remote Settings menu.
The status screen is no longer displayed. In the disconnected state, the PC screen therefore remains dark.



3. EXTENDER SETTINGS

3.7.7 CHANGE KEYBOARD FALLBACK MODUS

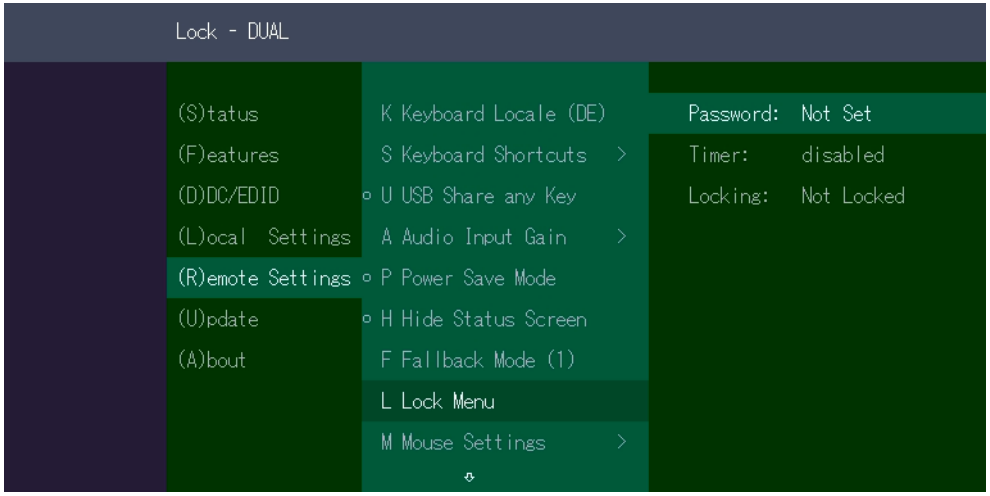
To use the OSD menu, the keyboard on the remote device must be identified.
For most keyboards, use the 0 setting.
When using USB, some mice act like a keyboard. In this case, select fallback mode 1 or 2.
To change the Keyboaed fallback mode press the button **F**



3.7.8 LOCK MENU

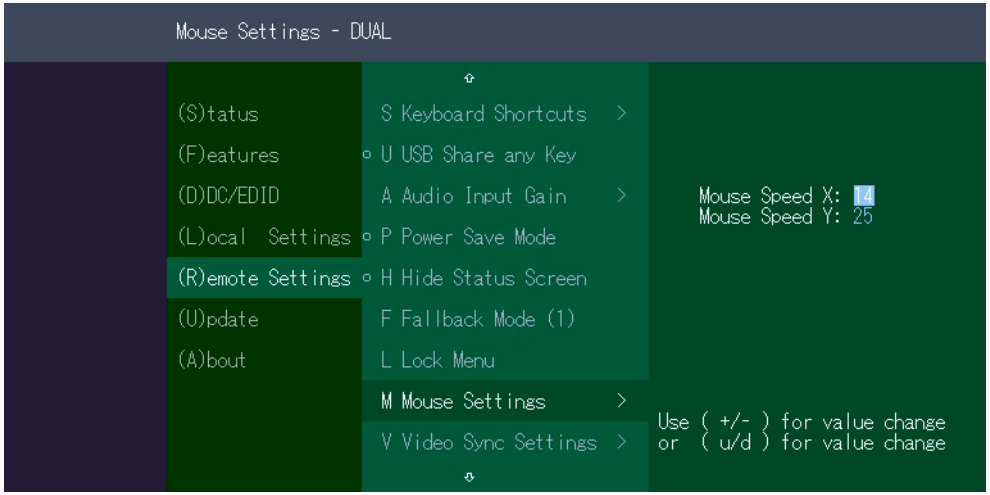
This menu protects the OSD control.
By pressing the **L** button, you can choose between:

Password	OSD can only be activated by password
timer	disabled, 1min, 5min, 10min, 15min, 30min, 60min



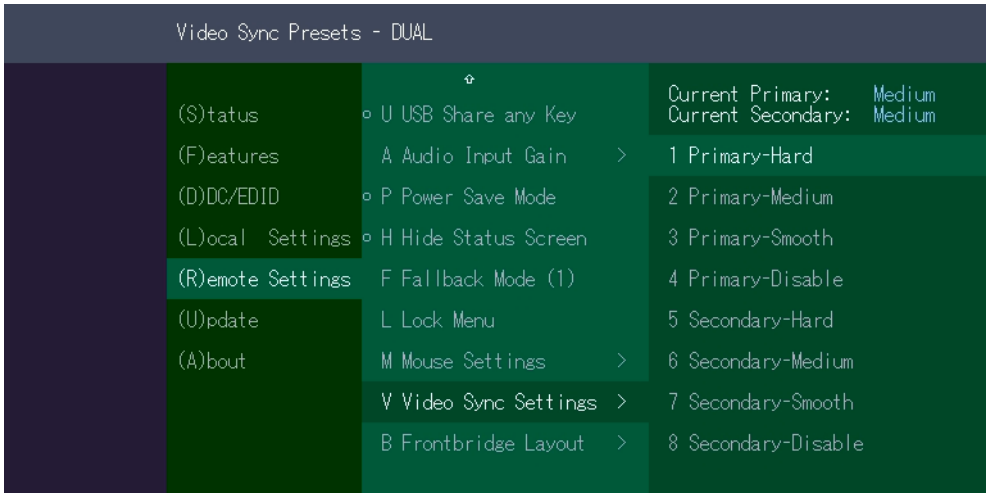
3.7.9 MOUSE SPEED

Can be used in USB Emultation mode.
With this function the horizontal and vertical speed can be adjusted
It can be chosen between 0-50 (Standard 30)
The mouse speed can be adjusted by pressing the **M** button



3.7.10 MONITOR SYNC STRENGTH

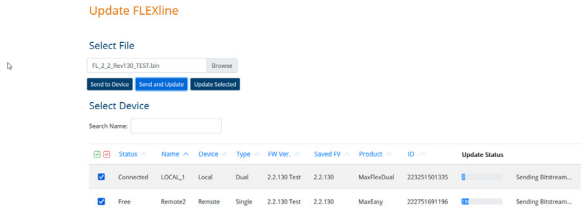
The frame start of the monitor is synchronized with the graphic card.
Some monitors are very sensible regarding frequency changes. Therefore the changes should be done slow and the synchronization takes a bit more time
The monitor sync strength can be adjusted between 0-3. - Hard/Medium/Smooth/Disable (Standard-Medium)
The monitor sync strength can be adjusted by pressing the **V** button.



3.8 UPDATE

3.8.1 FIRMWARE UPDATE WITH SWITCHING MANAGER WEB DEMOVERSION

The update management can be done comfortably via a Switching Manager WEB demo version.
The Switching Manager WEB software can be found on the website in the support area
https://www.kvm-tec.com/en/support/firmware-download/



In the Switching Manager WEB under the item Update -> FlexLine, all EasyLine extenders are displayed.
To update the extenders, the firmware must first be uploaded with the **„Select Option“** file.

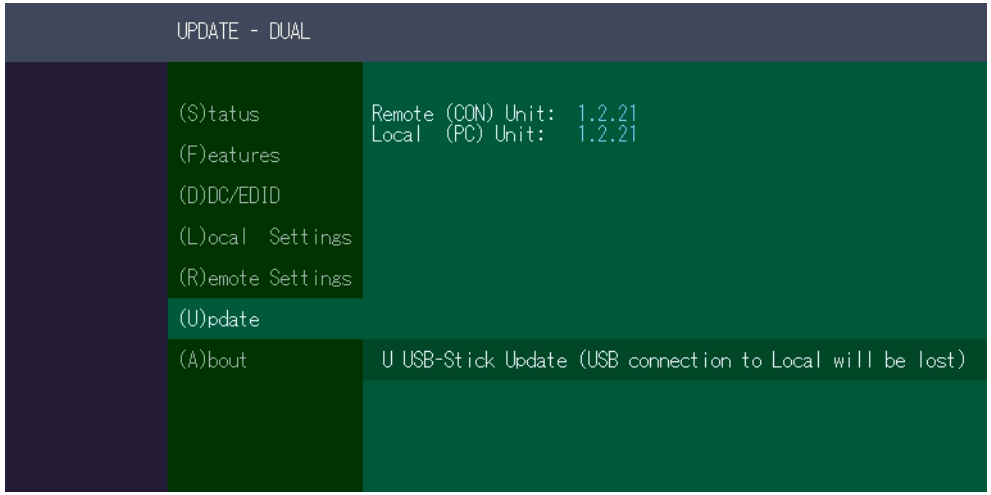
All extenders for which an update is to be performed are selected by a check mark.
By clicking the button **Send and Update** the update will be started.

You can see the progress by a blue bar and if a green check mark appears on the right side, the update was successful.

3.8.2 FIRMWARE UPDATE WITH USB STICK

For the update with an USB stick the following steps are necessary

1. you receive the message that you can plug in the USB stick.
2. copy the update file (ending in .bin) to the USB stick
3. make sure that the update file is directly on the stick and that it is not in any subdirectory
4. the USB stick must be formatted with FAT-32



3. EXTENDER SETTINGS

3.9 UNLOCK AN UPGRADE

1. Make sure that the Features menu is open.
2. Press the **U** key. The Options Overview menu opens. The device ID is displayed.
3. Order the unlock code from your supplier by providing the 9-digit device ID and the serial number of the KVM Extender.
4. Enter the unlock code from the supplier.
5. The extender will automatically reboot.
6. To confirm that the option has been unlocked, return to the Unlock Features menu and verify that the corresponding option is now displayed under Unlocked Features.

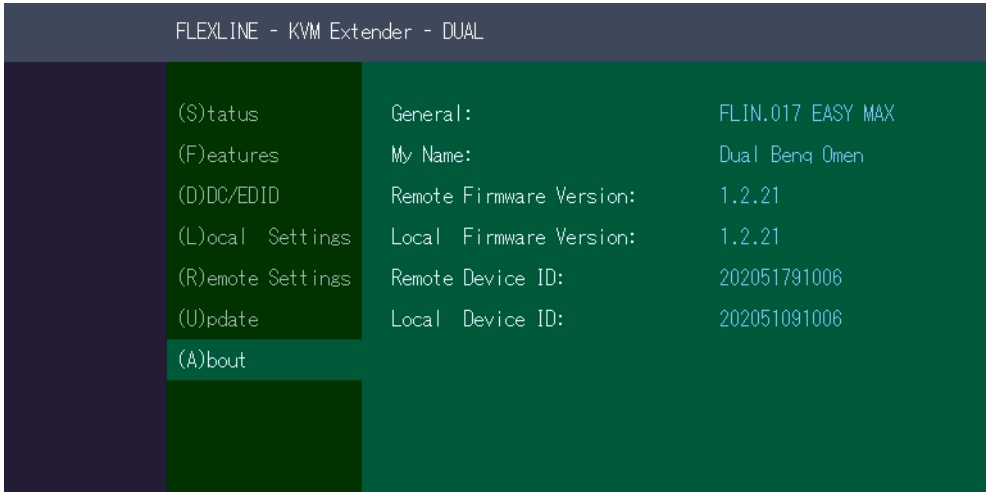
3.9.1 ENABLE OR DISABLE USB MEMORY UPGRADE

The USB memory option allows the user to enable or disable the memory option. when the USB memory option is enabled, USB flash memory and external storage devices can be accessed through the extender. If your extender is equipped with the USB Memory Option, you can enable and disable it at any time.

To enable or disable the USB Memory upgrade:
1. make sure the Features Menu is open.
2. Press the **U** button. The Options Overview will open and the currently stored USB memory status will change (Enabled or Disabled).

3.10 ABOUT THIS DEVICE

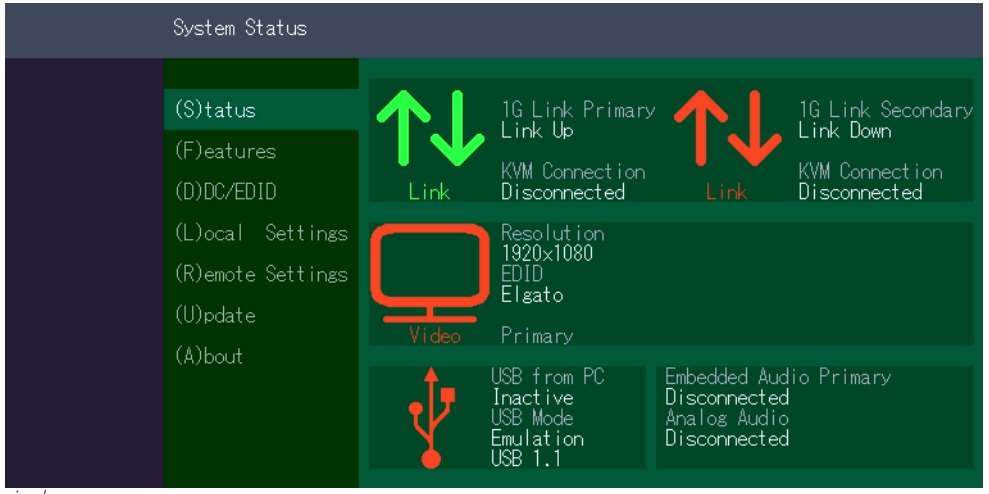
By pressing the **„A“** key, or by selecting the arrow keys, you can access the info menu, where you can obtain information about hardware and software versions. You can also see the current firmware version here.



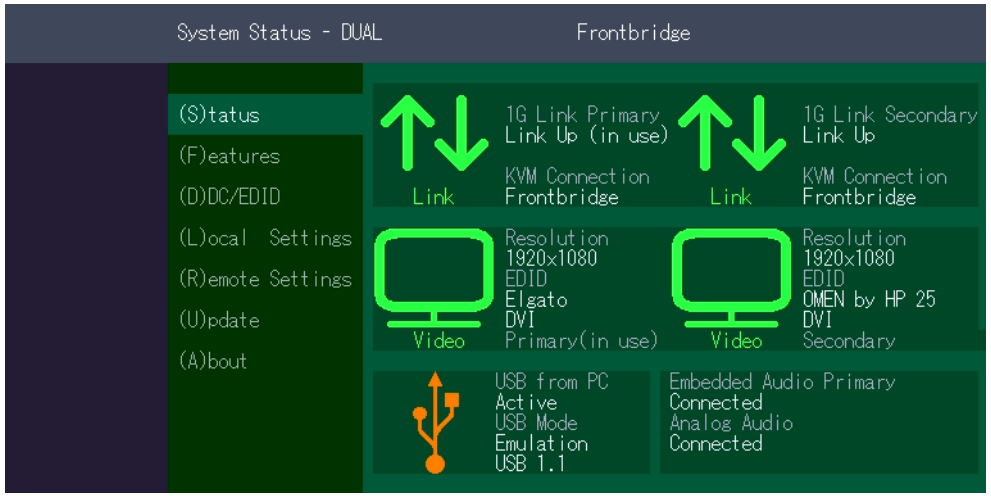
4.1 DISPLAY SWITCHING LIST

4.1.1 SWITCHING STATUS

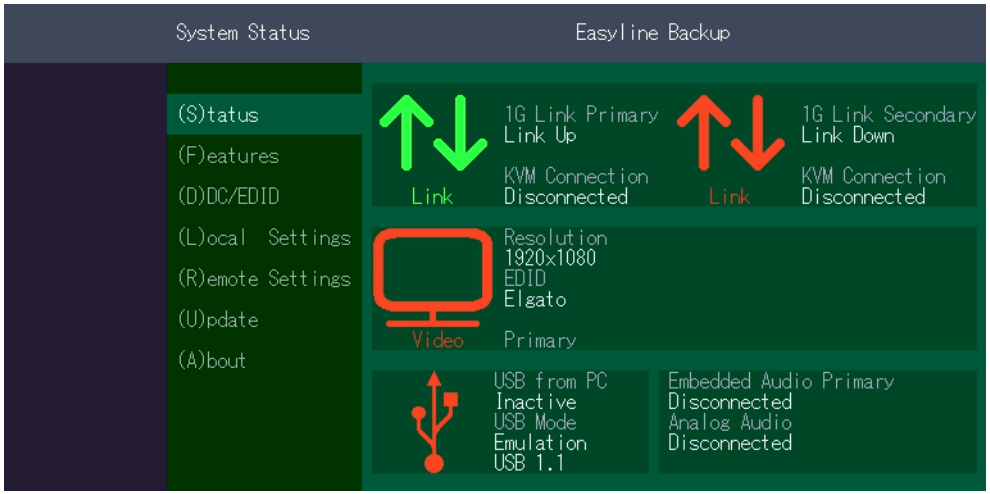
The „Status Menu“ displays the current status of the extender connection. The menu shows the information about the connection, the resolution of the video channel and the USB status.
The link status shows if a connection is possible. **Connected** shows if the kvm data can currently be transferred.
Video and USB show whether data is currently being transferred.



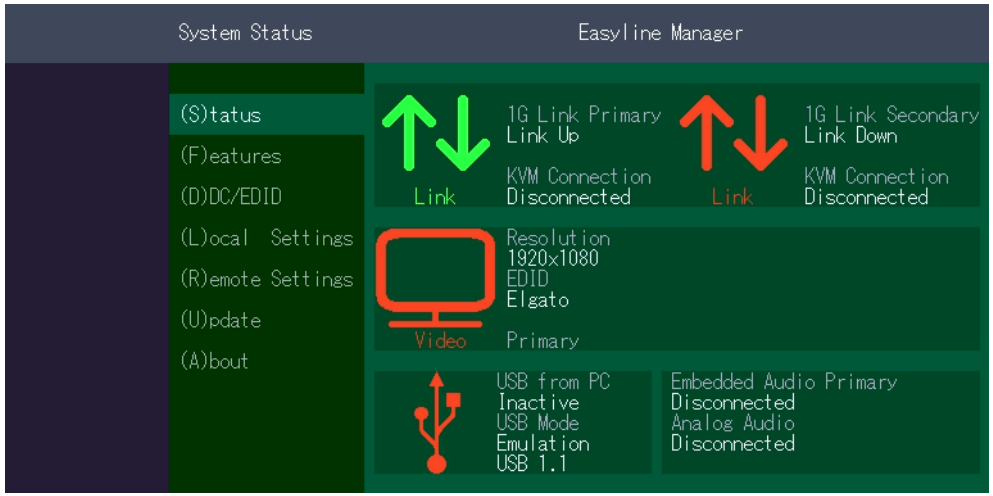
single



dual



Switching Status as Backup

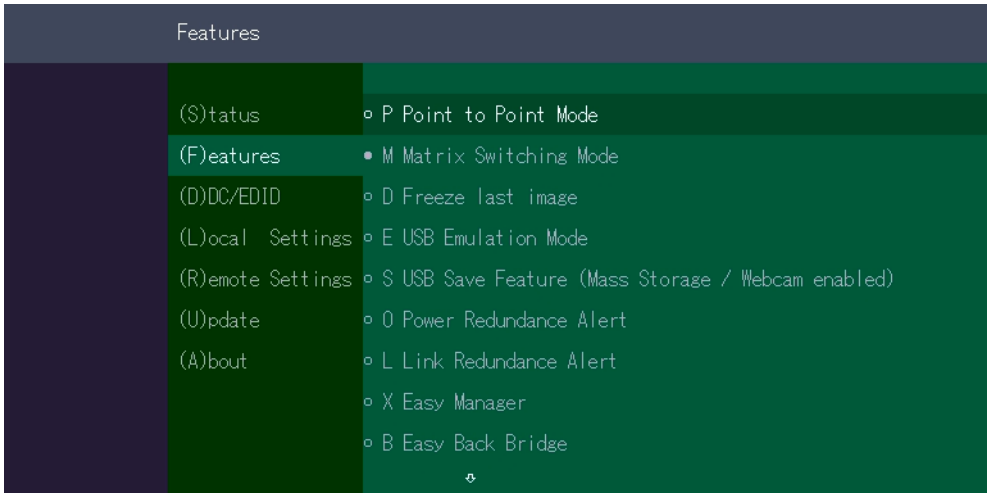


Switching Status as EasyManager

4. NETWORK SETTINGS

4.2 SWITCHING FEATURES MENU

Press the **F** key to enter the Features menu



Features Menu

P	Point to Point Mode	Enabled/Disabled (Point to Point excludes itself with Matrix mode)
M	Matrix Switching Mode	Disabled/Enabled
S	USB Save Feature	(mass storage usable) Disabled/Enabled
D	Freeze last Image	(Disabled)Disabled/Enabled
E	USB Emulation Mode	(Disabled) Disabled/Enabled
O	Power Redundance Alert	
L	Link Redundance Alert	
X	Easy Manager	
B	Easy Back Bridge	
U	Unlock Features	

4.2.1 POINT TO POINT

By pressing the “P” key you can switch the Point to Point mode on and off

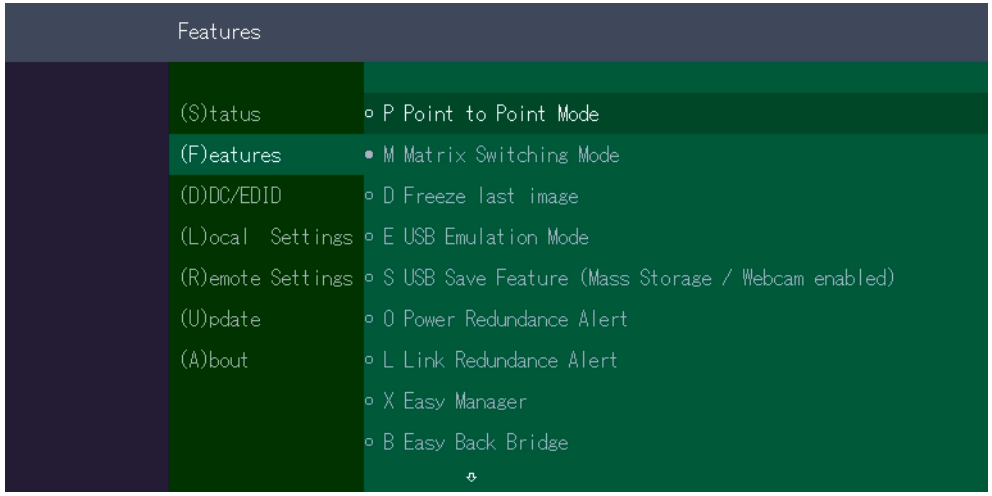
ATTENTION - if the Point to Point mode is activated, the Switching Mode cannot be activated.

4.2.2 MATRIX SWITCHING MODE

By pressing the key “M” you can switch the Matrix Switching Mode off - and on

4.2.3 DISPLAY THE LAST RECEIVED IMAGE „FREEZE LAST IMAGE“

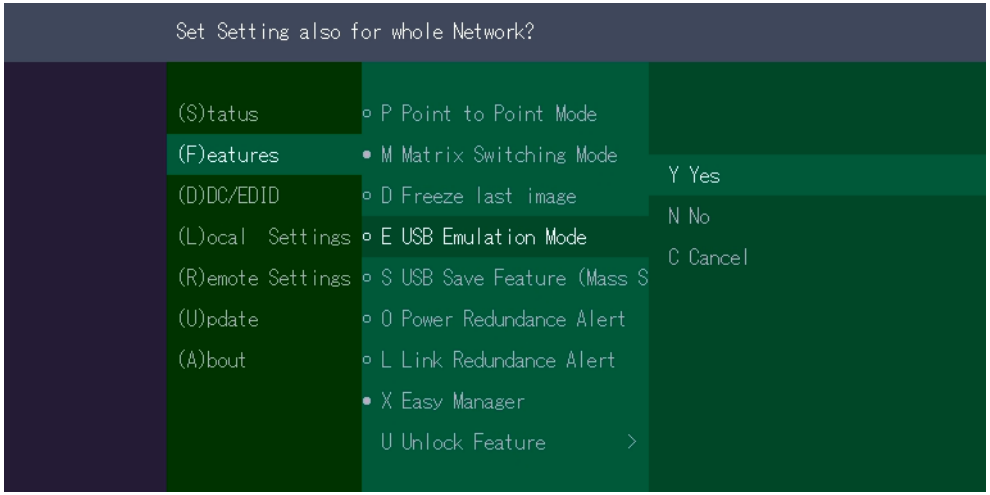
With the function „freeze last image“ the last received image can be displayed instead of a black screen if the remote Extender (CON) is separated from the local Extender (CPU). To indicate that this is the last received image, the frame of the image flashes red.
To enable or disable the „freeze last Image“ function:
1. from the main menu, press the **F** key. The **Features Settings menu** is displayed.
2.Press **D** to enable or disable the function.
3. Press **ESC** to return to the main menu.



4. NETWORK SETTINGS

4.2.4 USB EMULATION MODE

When this mode is set, the local extender emulates a keyboard and mouse that are always connected to the PC. The result is switching from one PC to another PC without any switching delay. The emulation mode is limited to mouse and keyboard only.
Press the **E** key to enter USB Emulation Mode.



4.2.5 USB SAVE FEATURE

The kvm-tec feature „USB save“ prevents the intrusion of viruses via the USB interface by deactivating mass storage devices.

By pressing the key „**S**“ you can switch the USB save feature on and off

4.2.6 TO SWITCH BETWEEN PC‘S

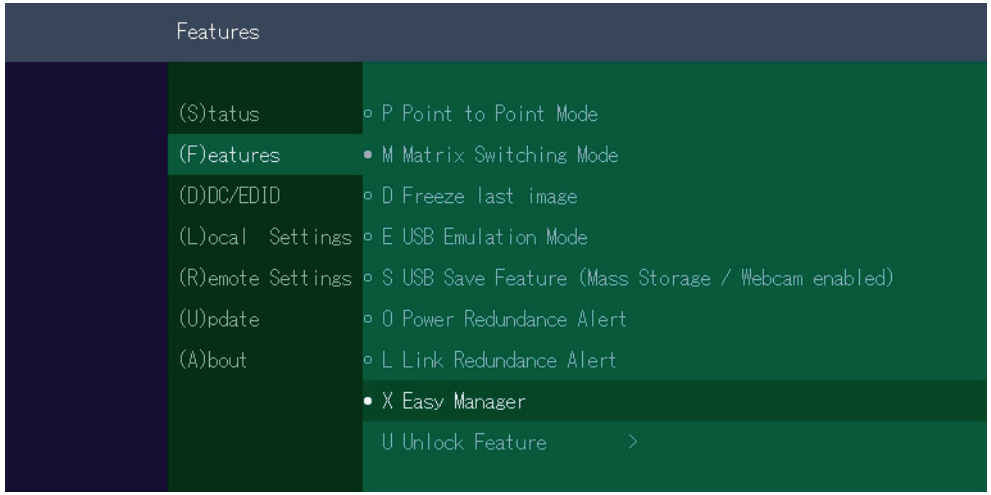
For switching, you just need to access the switching list, with the key combination „STRG+ALT+PRINT“, then you can select the device.

4.2.7 RENAME THE DEVICES

To change the device name, select the switching list on the receiver that is activated as “Easy Manager”. The entry can be made directly on the switching list.

4.2.8 EASY MANAGER ON/OFF

You can recognize whether the Easy Manager is activated or deactivated by the fact that the menu item “X” Easy Back Bridge is available in deactivated mode.



Easy Manager on/off

4.2.9 SETTING THE SAMPLING RATE

To avoid flooding the CPU, a sampling rate has been implemented. This rate determines the frequency with which the manager sends heartbeats and the slaves send their inform requests.

- For efficiency: The larger the network, the higher the rate must be.
- For stability: The larger the network, the lower the rate must be.
- As soon as every device in the network is detected, it is advisable to reduce the sampling rate.
- F5’ in the switch list (with Easyline Manager) sends a broadcast to request ALL devices at once.

4.2.10 ALL IN ONE - EASY MANAGER

EASYLINE EXTENDERS DO NOT REQUIRE A USER SYSTEM

The Remote unitin the switching system must have the „Easy Manager“ mode enabled to replace the role of the Switching Manager, the remote Extender then takes care of the communication of the Extenders in the network.

4.2.11 MORE FEATURES

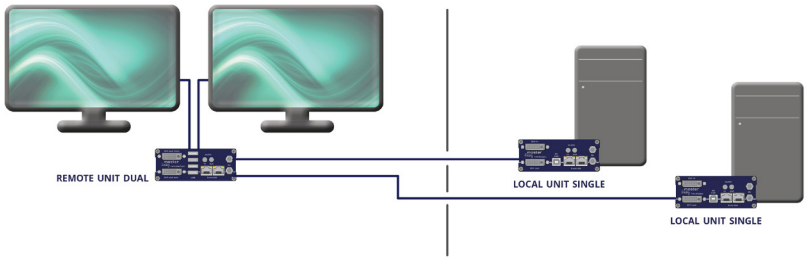
-Change the names of the devices
-Update the extender in the network
-USB Emulation Mode can be set via this device in the whole network

4.2.12 FRONTBRIDGING

SWITCHING WITHOUT SWITCH

A Remote Dual Extender can be connected to two Local Single Extenders via Point-To-Point using this function. If two screens are connected, one extender can be displayed on each screen. When moving over the edge of the screen, it is possible to switch between the Local Units in Emulation Mode. With only one screen, the key combination **5x Left Control** must be moved.

FRONTBRIDGING |

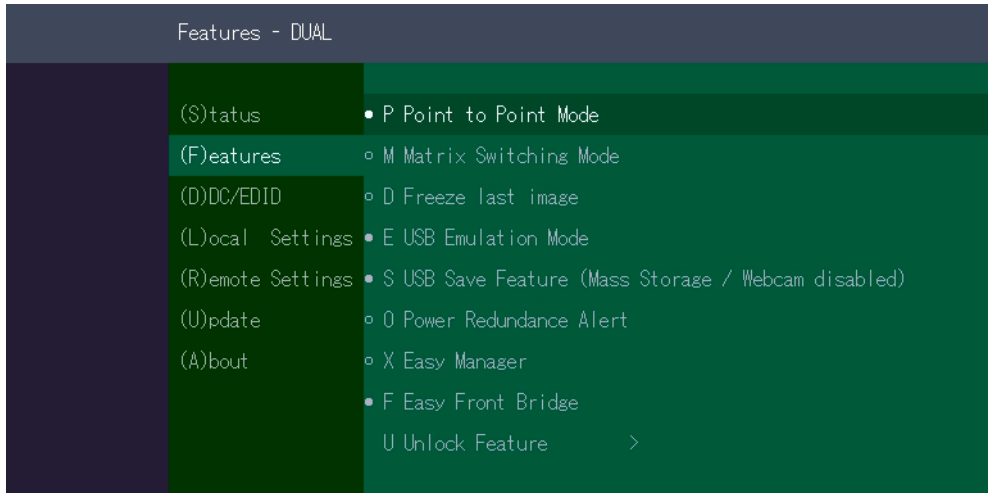


Frontbridging

In frontbridging, one or two monitors can simultaneously display the contents of the PCs with different images and can be operated either right or left.

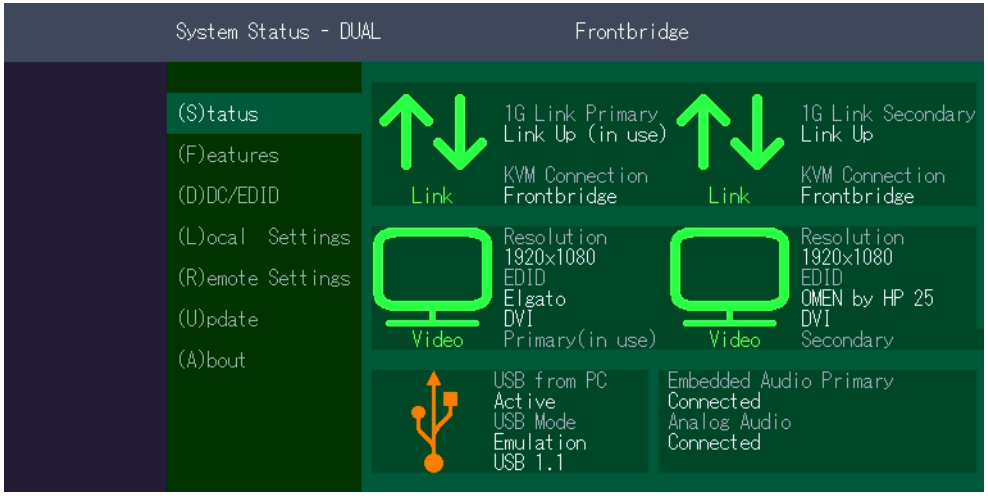
Frontbridging - setting in the features menu

Features Menu:
Make sure that you are in the main menu. Press the **F** key to enter the Features menu.



4.2.13 SYSTEM STATUS FRONTBRIDGING

The „Status Menu“ displays the current status of the Extender connection. The menu displays the information about the connection, the video channel resolution and the USB status.
The link status indicates whether a connection is possible. **Connected** shows if the kvm datas can be transferred currently.
Video and USB shows if data is currently being transferred

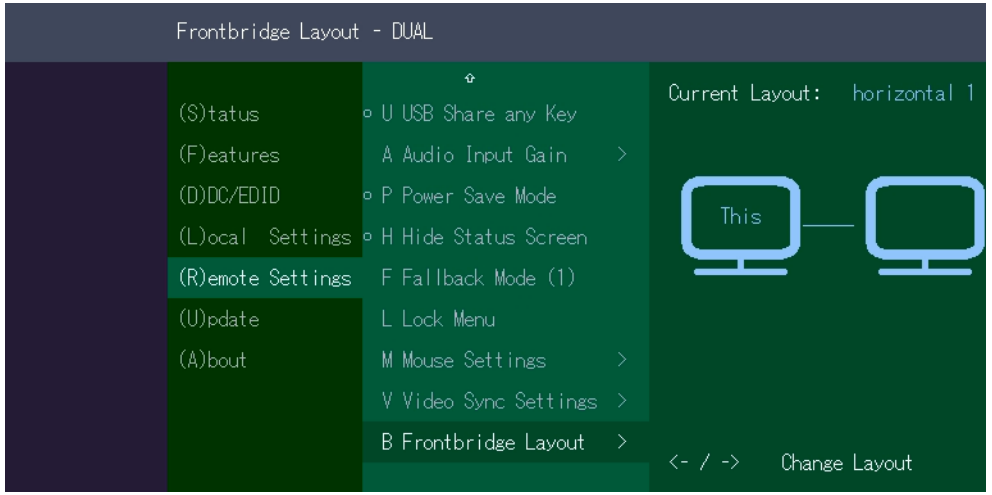


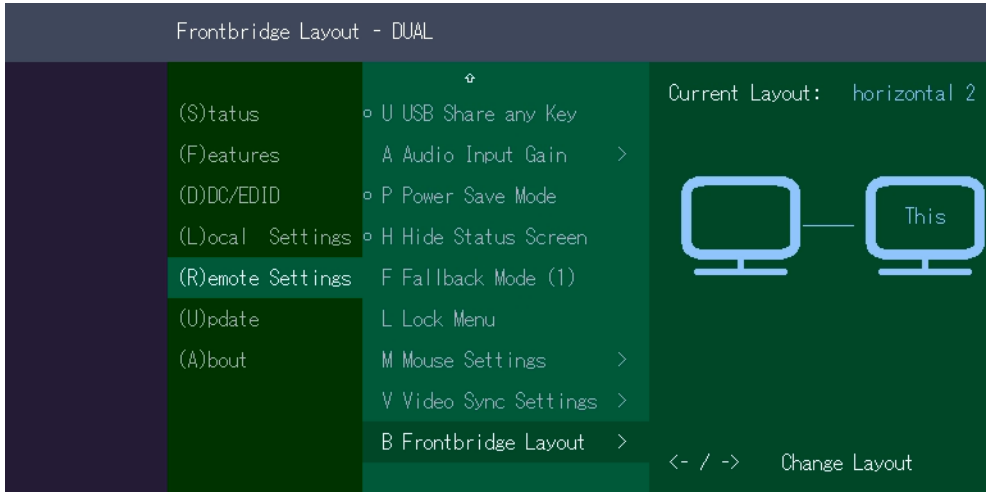
dual

4. NETWORK SETTINGS

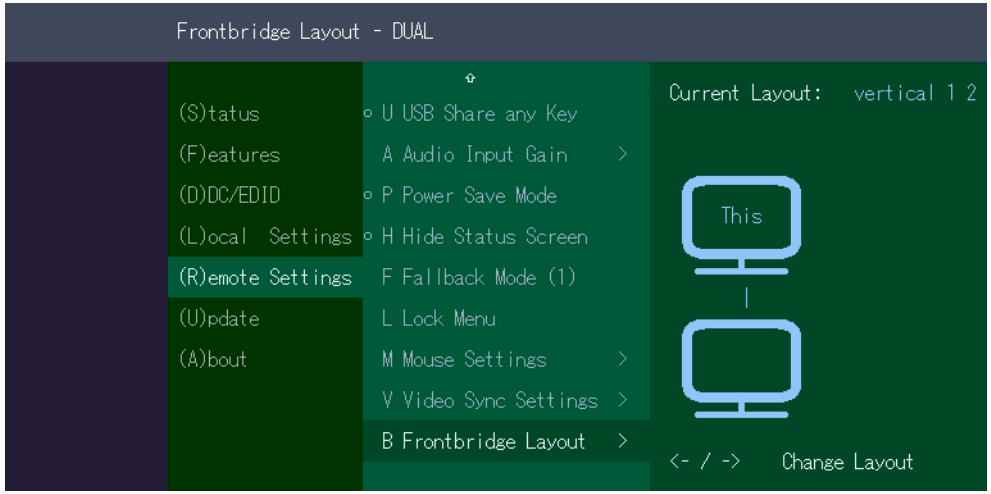
4.2.14 CHANGE THE FRONTBRIDGING LAYOUT

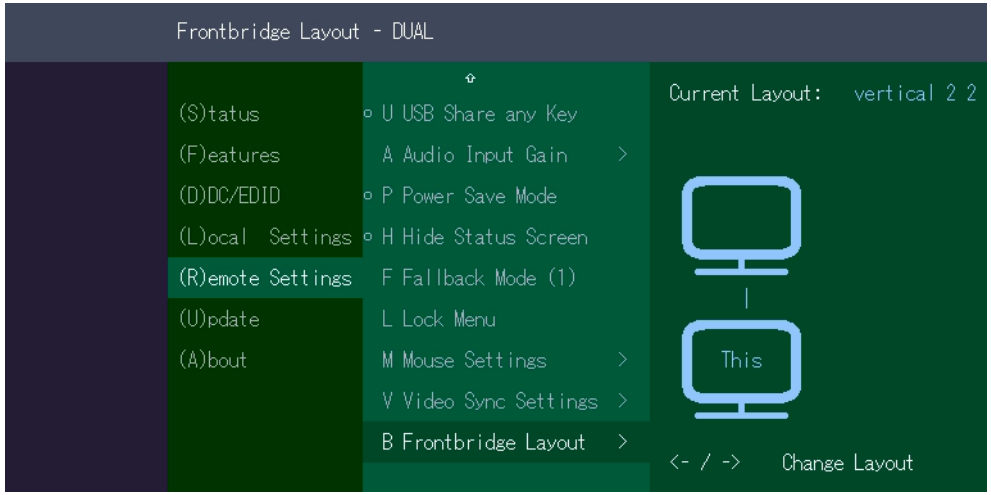
Features Menu:
Make sure that you are in the main menu. Pressing the **R** key will take you to the Remote Settings and then you can use the **B** “Frontbridge Layout” key to choose between horizontal or vertical.





4. NETWORK SETTINGS



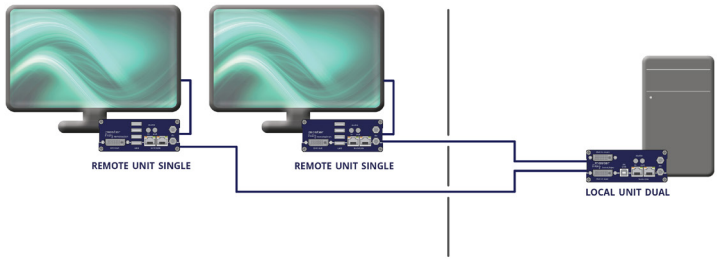


4.2.15 BACKBRIDGING

SWITCHING WITHOUT SWITCH

A Local Dual can be connected to two Remote Single Extenders via Point-To-Point using this function. Since there is only one USB socket on the Local device, only one remote can access the PC at a time.

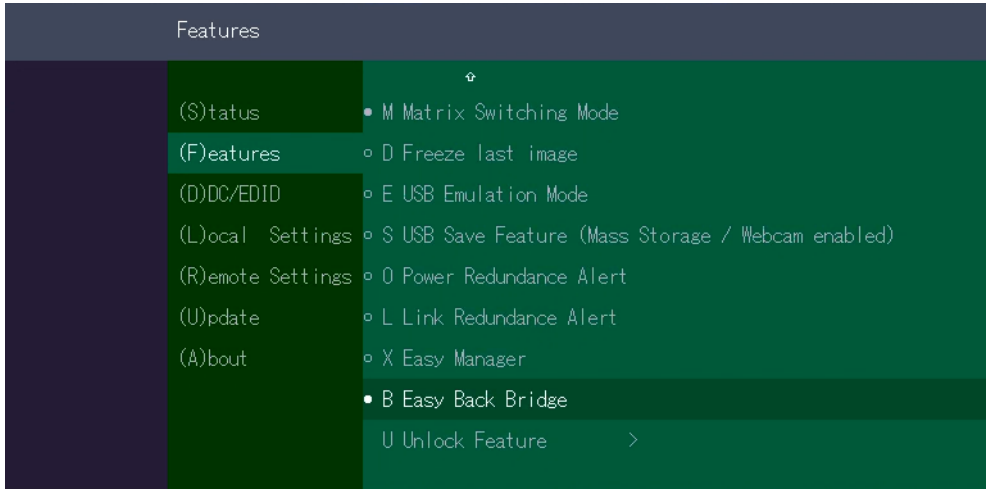
BACKBRIDGING |



In backbridging it is possible to share from one dual local extender to two single remote extender. For all applications that require monitoring at different locations

Easy Backbridging option in the Features menu

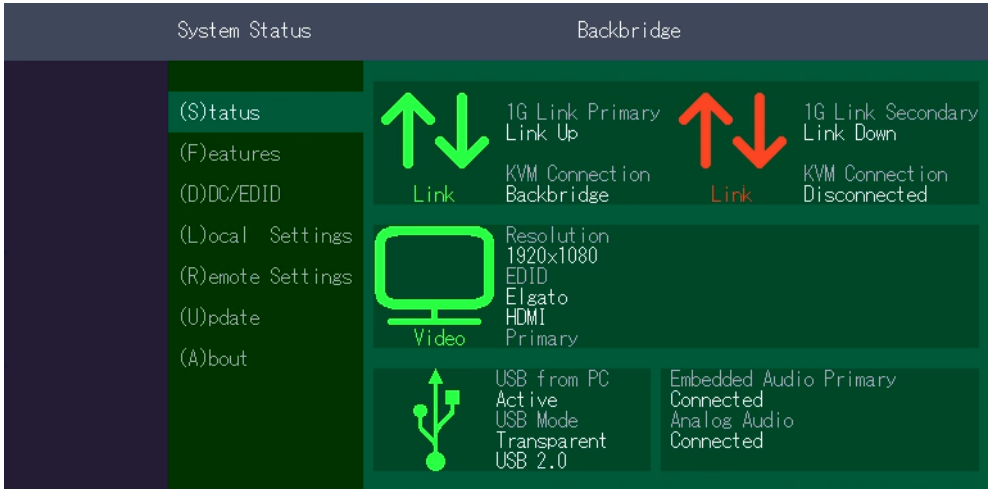
Features Menu:
Make sure that you are in the main menu. Press the **F** key to enter the Features menu.



4. NETWORK SETTINGS

4.2.16 SYSTEM STATUS BACKBRIDGING

The „Status Menu“ displays the current status of the Extender connection. The menu displays the information about the connection, the video channel resolution and the USB status.
The link status indicates whether a connection is possible. **Connected** shows if the kvm files can be transferred currently.
Video and USB shows if data is currently being transferred



single

4.2.17. EASY CROSS MOVE - SOFTWARE FEATURE

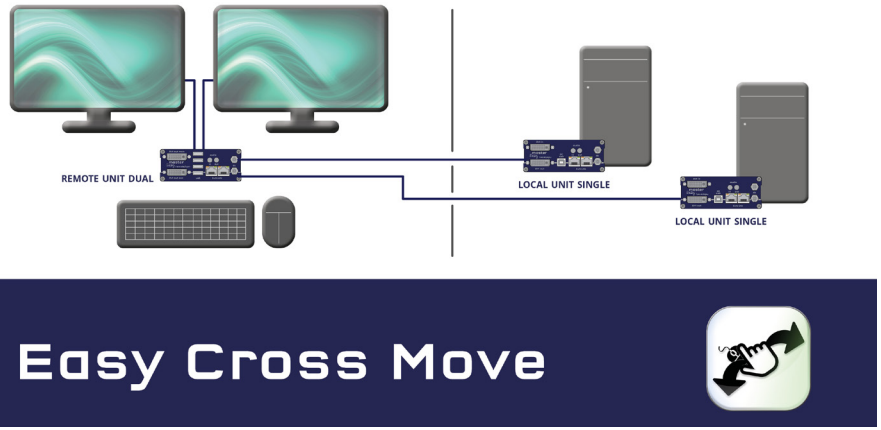
SOFTWARE FEATURE

Easy Cross Move is a software feature that is activated when frontbridging is used.

both PCs can be operated with one mouse and one keyboard

2 local Units + 1 dual remote Unit = Easy Cross Move with 1 keyboard & 1 mouse

EASY CROSS MOVE



both PCs can be operated with one mouse and one keyboard

2 local Units + 1 dual remote Unit = Easy Cross Move with 1 keyboard & 1 mouse

4. NETWORK SETTINGS

4.3 PUSH / GET LIST

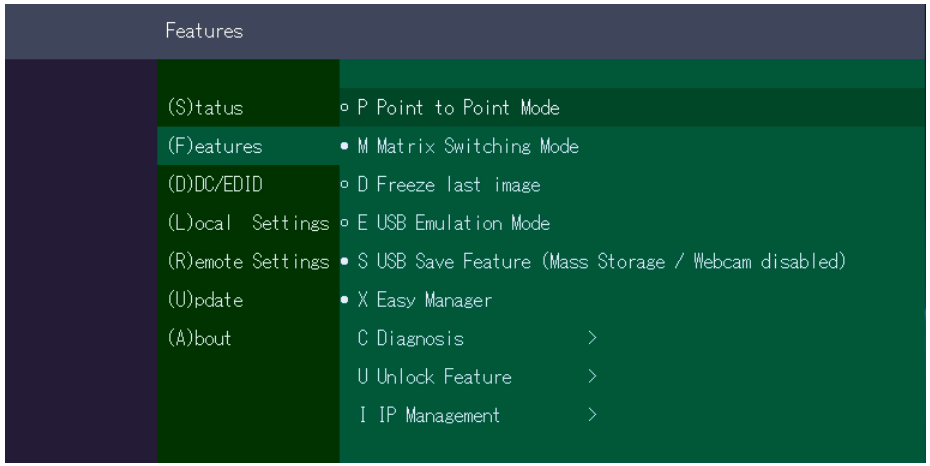
Display of all extenders that can be shared. The current image of the workstation can be shared with other remote units via this list

Push List

Get List

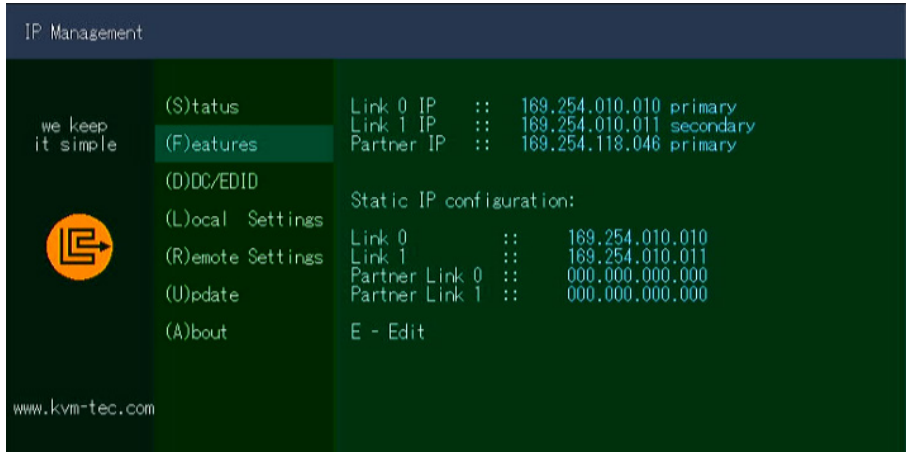
4.4 IP MANAGEMENT

The KVM extenders from kvm-tec support three different addressing methods. The IP Management menu is only accessible in the active “Matrix Switching Mode” under Features.



Default

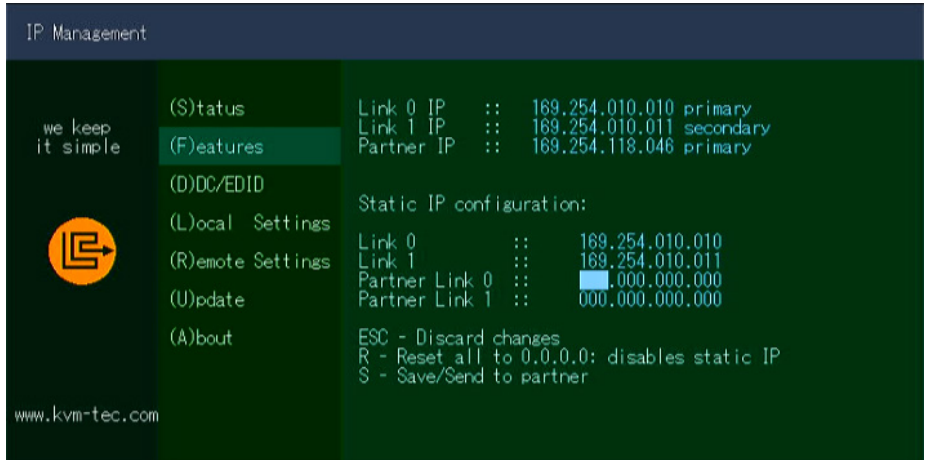
In the standard mode, each extender generates itself an IP address with the help of the ID number in order to exclude number collisions in the network.
To edit, press the **E** key



4. NETWORK SETTINGS

Static IP

In Static-IP mode, the IP addresses can be assigned via the OSD. It is necessary to be connected to a local partner to be able to transmit IP addresses.
The values displayed in blue show the currently assigned IP addresses. With the arrow keys up / down you can overwrite the respective IP address. By entering a valid 12-digit number, the addresses can be overwritten. E.g.: for the IP address 10.0.0.1, the 12-digit number 010.000.000.001 must be entered in the OSD. The separating points are added automatically.



ESC	Discard
R	Reset all to 0.0.0.0
S	Save

Static IP addresses can only be overwritten in Static IP mode.

MEANING OF THE LED DISPLAYS

Meaning LED displays

Color	Light display	Meaning
	fast flashing	no active connection
	shining	no video signal
	shining	everything works

5. TROUBLESHOOTING & FIRST AID

kvm-tec

First Aid

No Power (No LED)

- Check the powerplug
- Is the power supply ok? Try another Unit.
- Contact kvm-tec support

USB is not working

- Are the USB Devices plugged in correctly?
- Is the USB cable on the Local side plugged into the PC?
- Are the USB Devices working directly on the PC?
- Replace the USB cable from PC to the Local Extender
- Check if local and remote Unit have the same firmware
- Check if the local or the remote Unit is causing the problem by swaping first the local and than the remote Unit to another Unit
- Contact kvm-tec support

No Video

- Check if all cables are plugged in correctly
- Check if the PC is sending a Image by plugging in a monitor on the local out of the local Unit
- Check if the DDC is set correctly (in menu under point „O“)
- Check if both Units have the correct firmware
- Contact kvm-tec support

Video error (stripes in the picture)

- Check if all cables are plugged in correctly
- Check if the PC is sending a Image by plugging in a monitor on the local out of the local Unit
- Check if the DDC is set correctly (in the menu under point „o“)
- Check if local and remote Unit have the correct firmware
- Check if the network switch is setup correctly and has enough bandwidth
- Check if other units have the same behaviour
- Contact kvm-tec support

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
or
kvm-tec Installationchannel on our homepage
personally +43 2253 81912

6.MAINTANCE AND CARE

6.1 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.

6.2. 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.

7.1. STANDARD WARRANTY

The warranty is 24 months from the date of purchase. (A flexible warranty extension is optionally available) 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.

7.2 EXTENDED WARRANTY

2 years standard warranty

flexible warranty extension

8.1 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. CABLE REQUIREMENTS

8.2 REQUIREMENTS FIBER CABLES

8.2.1 MULTI-MODE (STANDARD)

A Multi-Mode fiber cable should meet the following requirements:

- Maximum length should be 500 m. The ME1-F includes a fiber Multimode – SFP Module which allows a transmission distance of up to 500 m.
- Dedicated fiber connection cable type Duplex Multimode 50/125µ (OM3), LC connector

8.2.2 SINGLE-MODE (OPTIONAL)

A fiber Single-Mode – SFP Module cable should meet the following requirements:

- Up to 20 km transmission distance.
- Requires dedicated fiber connection: cable type Duplex Singlemode with LC connector

A fiber Single-Mode – SFP Module BiDi cable should meet the following requirements:

- Up to 20 km transmission distance.
- Requires dedicated fiber connection: cable type Singlemode with LC connector Wavelength (λ) of 850 nm in multi-mode or 1310 nm TX -1550 nm RX in single-mode

9. 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 (Layer3).

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.

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, internal default address range and assignment of IP addresses via a DHCP server are possible. To meet all these requirements, we ask you to use a Layer3 switch.

10. ADDRESS & PHONE/EMAIL

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

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11. NOTES