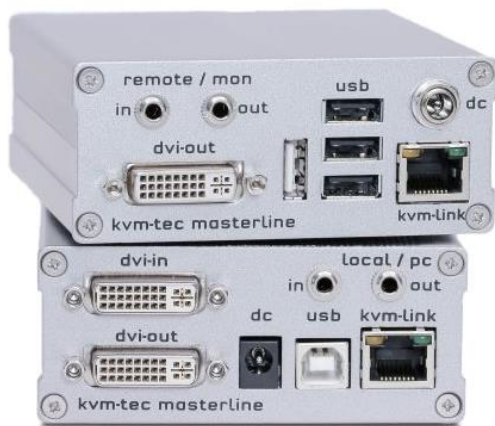


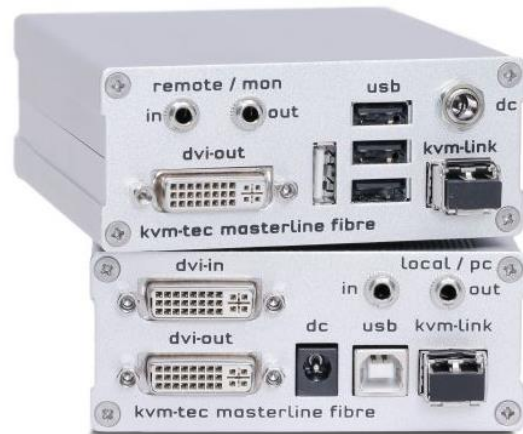


Manual

Masterline MVX/MVX-F KVM Extender SWITCHING OPTION



Art.Nr: 6701
Masterline MVX1



Art.Nr: 6801
Masterline MVX1-F

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1 Package contents

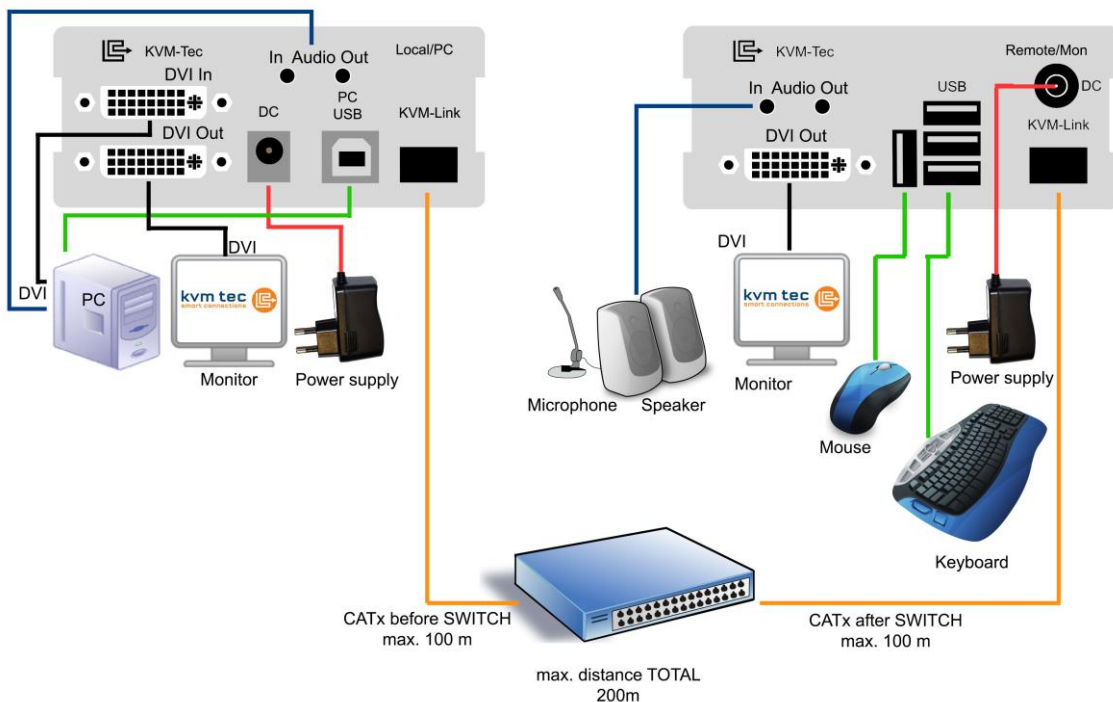
- 1x MVX1 / PC
- 1x MVX1 / Monitor
- 2x Power supply 12V 1A
- 1x DVI-cable
- 1x USB cable
- 1x Quick Start Guide
- 4x Mounting Pads
- 4x Rubber Feet

2 Specifications

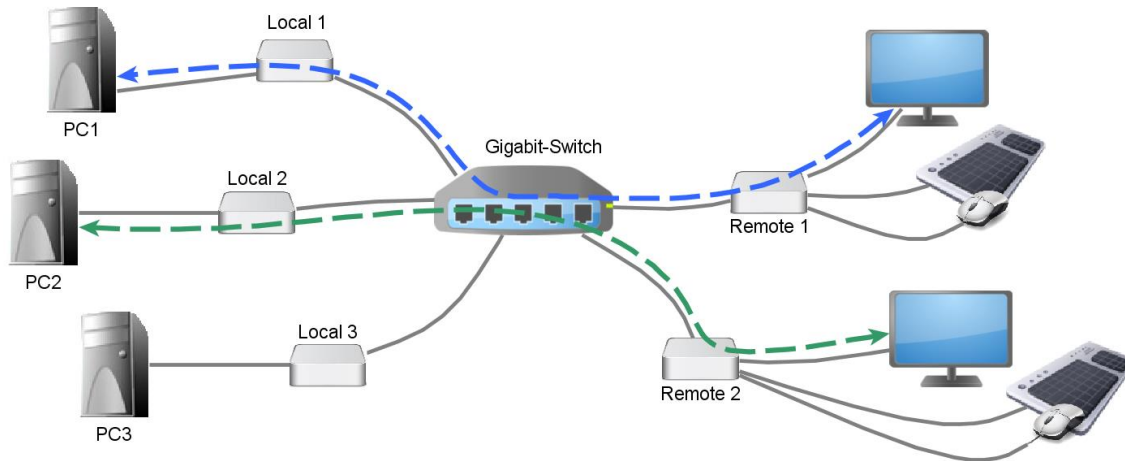
- Max. ambient temperature: 45° Celsius
- Dimensions: 98 x 41 x 106mm
- Weight: 540g per Set
- Power input: 5 W per device
- Material: anodized aluminium
- Power supply: 12V 1A external power supply

3 Installation

Connect all the cables from your PC as shown in the following diagram:



Connect the respective work stations (Remote Extenders) and computers (Local Extenders) with the network switch.



Note the following:

The entire switching network system requires its own dedicated network. For security reasons it cannot be integrated into an existing company network.

The network switch must fulfil the following specifications: 1 Gigabit Switch, with true port to port transfer rates of 1 Gigabit/second

List of recommended network switches that have been tested with kvm-tec extenders

- TP-LINK TL-SG3216, 16port
- TP-LINK TL-SG1016D, 16port
- TP-LINK TL-SG1048, 48port
- DIGITUS DN80100, 16port
- LogiLink NS0050A, 5port

4 Start up

Switch on all devices. Both Extender units will start an automated initialisation process, signified by a blinking red status light, this may take a few seconds. When the status light turns green, all signals will be transmitted.

status	link	video
red	x	x
orange	✓	x
green	✓	✓

5 Menu / Settings

To enter the menu, use a keyboard connected to the remote Extender and press the “<Scroll Lock>” key five times in quick succession.

The menu will be displayed (Fig. 1). Sub-menus are accessed by pressing the appropriate key. The currently installed firmware version is displayed below the menu.

```
Menu
T = Status Overview
U = Update Flash FW
M = Option Overview
O = DDC Option (remote monitor)
W = Network Settings
G = Extender Settings
L = Switching List
Q = Exit

Remote (Con) FW Ver = 4245
Local (PC) FW Ver = 4245
```

Fig. 1

5.1 Menu Item “U” - Update Flash FW

Used to perform a firmware update. The latest version of the firmware can be downloaded from www.kvm-tec.com. Each update file is accompanied by a detailed description of the update process.

5.2 Menu Item “M” - Option Overview

Displays the extender’s activated options. The status is indicated by the colours green (activated), and red (not activated).

If the memory option on the extender is activated this can be enable or disabled at any point in this menu.

In order to active options complete the following steps:

The menu displays the ID number of the device (see Fig. 2). Please contact your distributor and advise him of the ID number of your device. They can then send you the activation code for the desired option. You can enter this activation code by pressing the "M" key. This will not alter other options that have already been activated. Return to the main menu with "esc".

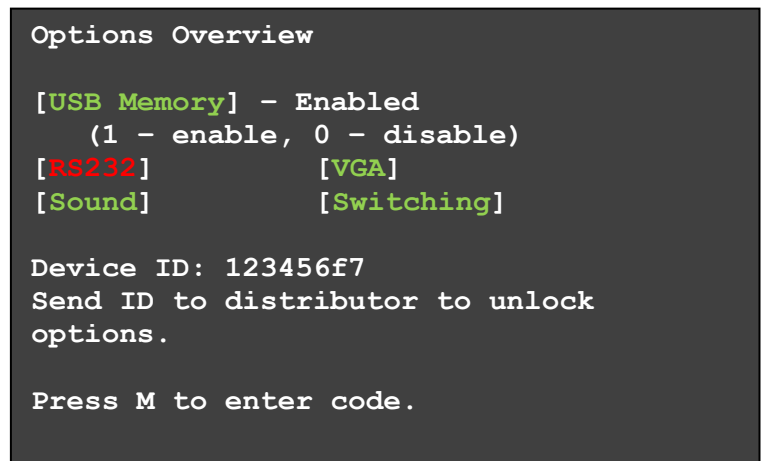


Fig. 2

5.3 Menu Item "O" - DDC Option

In this menu you can define DDC information is used by the PC .Pressing "0" specifies that the DDC information from the monitor attached to the remote Extender should be used. Pressing "1" specifies that the DDC information from the monitor attached to the local Extender should be used.

Pressing "2" saves the current DDC information allowing the system to continue on the same after the Extender has been restarted.

Using the keys "4" through "8" sets the system to use a predefined resolution which is saved (Fig. 3).

To return to the main menu press "ESC".

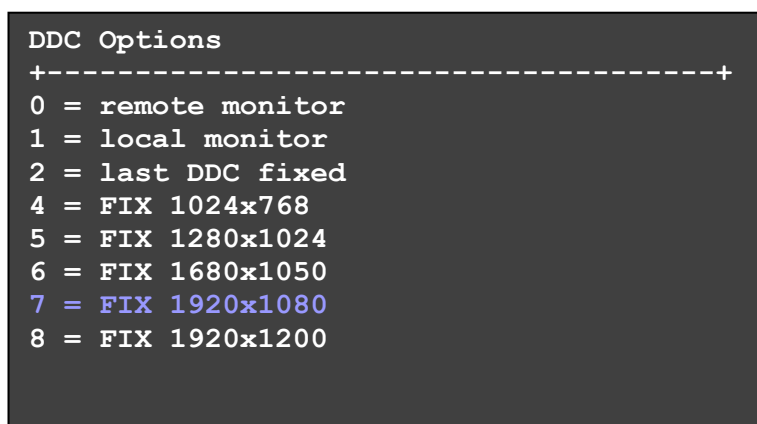


Fig. 3

5.4 Menu Item “W” - Network Settings

The menu includes the preferences and settings for the switching option.
See [item 7](#).

5.5 Menu Item “G” - Extender Settings

This menu presents a range of further preferences. Three of the selections (VGA, Audio and RS232) will take you to further menus, while the other four can be toggled on and off by pressing the marked key.

```

Extender Settings
+-----+
V = VGA parameters
A = Audio Input Gain (5)
R = RS232 Baudrate (up to 9600)
S = Show Last Image (disabled)
I = Monitor Sync (disabled)
L = Lock Menu (disabled)
P = Power Save (enabled)
K = Keyboard Locale (EN)

Q = Return to Main Menu

```

Fig. 4

5.5.1 Menu Item “V” - VGA parameters

This is where VGA preferences can be set and optimised.

By pressing the “F1” and “F4” keys the display area can be moved up and down.
“F2” and “F3” shift the display area left and right.

By using the “F5” and “F6” keys the display area can be reduced or enlarged to fit the display area of the monitor.

Press the “<space bar>” to change the rate of change of the above settings. By repeatedly pressing the “space bar” this is set back to 1.

Use the “M” button to switch the video mode between:

Auto – the mode is automatically detected and set by the Extender

DVI – only DVI input is detected

VGA – only VGA input is detected

For automatic adjustment and positioning of the image area, press “K”.

Press “I” to reset parameters to default values.

To save the settings and exit the menu press “S” – for an exit without saving press “Q”.

```
Shift      up F1  F4 down  0
Shift      <- F2  F3 ->   0
Zoom       out F5  F6 in    2200
Pixelfine  -  F7  F8 +     0

Space = 1/10 steps
M = Video Mode Auto
K = Automatic seek
I = Init VGA Table
S = Save - exit
Q = Quit - no save
```

Fig. 5

5.5.2 Menu Item “A” - Audio Input Gain

This menu sets the volume of the audio input on the remote extender (microphone). Default value is “5” and can be amplified up to “9” and reduced down to “0”. At “0” the audio input on the remote extender is disabled.

```
Audio Input Gain (5)

0      = Off
1 - 9 = Amplification Level
```

Fig. 6

5.5.3 Menu Item "R" - RS232

The following signals are transferred, the pin numbers refer to a 9-pin D-sub plug. The remote interfaces are DTE.

Pin	Funktion
3	Transmit Data
2	Recieve Data
4	DTR
8	CTS

The baudrate can be set in the menu. There is a universal setting for baudrates up to 9600 which transmits all different RS232 configurations transparently.

For higher baud rates the following settings are available via the menu:

Baudrate:	Parity:	Stopbits:
4800	No	1
9600	Odd	2
19200	Even	
38400	Mark	
57600	Space	
115200		
230400		

5.5.4 Menu Item "S" - Show Last Image

When this is enabled the console extender will not show a black screen when it is no longer connected to a PC extender. Instead it will keep the last image that it received. To indicate that this image is no longer current the edges of the screen will flash red.

5.5.5 Menu Item "I" - Monitor Sync

The monitor synchronization can be turned on and off. When enabled, the refresh rate of the graphics card of the PC and that of the remote monitor are

adjusted to match one another. The advantage of this is to ensure that transmission remains smooth when the screen content changes rapidly (e.g. when using multimedia applications).

Not all monitors support this method so by default this option is disabled. Should the monitor start to flicker then it does not support this feature and it should be disabled again.

5.5.6 Menu Item “L” - Lock Menu

Here the extender menu can be locked. When enabled, access to the menu will be locked 5 minutes after start up. This prevents unauthorized access to the extender menu. The extender must be restarted to enter the main menu again (turn the power supply off and on).

The menu is enabled or disabled from this screen by pressing “0” or “1” respectively (Fig. 7). To return to the main menu press “ESC”.

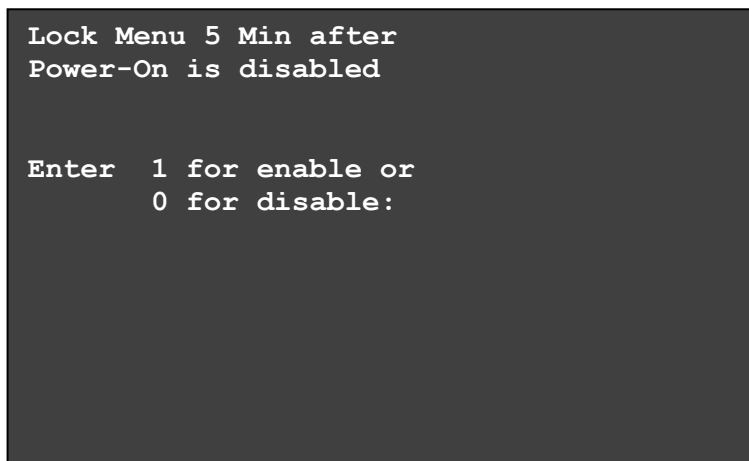


Fig. 7

5.5.7 Menu Item “P” - Power Save

When in power saving mode the remote extender will turn off its video out when it receives no video for more than a minute. This enables the monitor to enter sleep mode if supported. To wake press any key on keyboard.

5.5.8 Menu Item “K” - Keyboard Locale

Select between keyboard layouts for navigating the OSD. Choices are French (Azerty), English (Qwerty) and German (Qwertz).

5.6 Menu Item “L” - Switching List

Takes you to the switching list (see [section 7](#)).

5.7 Menu Item “Q”

To close the extender menu press the “Q” key.

6 SWITCHING Menu Guide / Settings

By pressing “W” in the main menu of the OSD you can access the settings of the Switching Option and configure your network.

Please note that this menu item is only active when the Switching Option has been unlocked on the Remote Extender.

To unlock an Option see [item 5.2](#).

In order to prevent unauthorised access to to the Network Settings this item is protected by a user/password. Access is only allowed for users with administrator rights.

The factory settings provide an administrator user with User: admin and Password: admin.

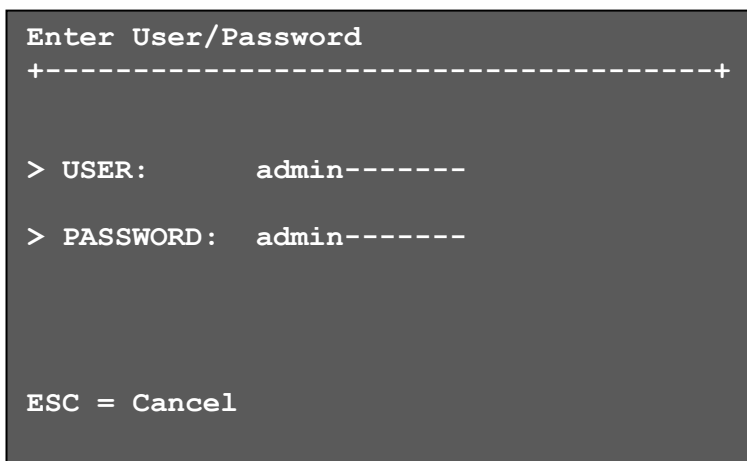


Fig. 8

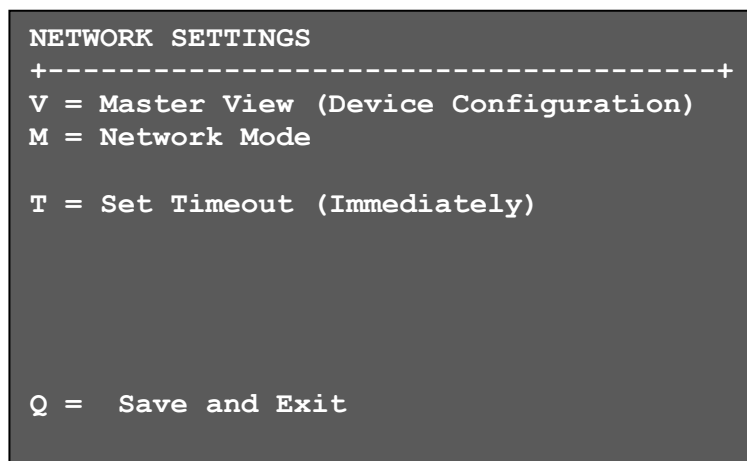


Fig. 9

6.1 Network Settings Item "V" - Master View (Device Configuration)

The master view menu provides the administrator with the ability to view, add, edit or remove user, console and computer information.

```

MASTER VIEW menu
+-----+
O = Connections Overview
U = User List
C = Console Extender List
P = PC Extender List
M = Multi-Head Configuration

R = Restart All Extenders

Q = Exit

```

Fig. 10

6.1.1 Master View Item "O" - Connections Overview

Provides an overview of the current connections as well as the free PCs and consoles on the network.

You may break a connection remotely, or assign a PC a new console or vice versa.

```

MASTER VIEW connections overview
+-----+
> SERVER 1      <-->  CONSOLE 1
  SERVER 2      <-->  CONSOLE 2
  SERVER 3      <-->  CONSOLE 3
                                     CONSOLE 4

I = Show Details
Q = Exit

```

Fig. 11

```

MASTER VIEW connections detail
+-----+
> Computer:      SERVER 1
  Workstation:   CONSOLE 1
  User:          <None>

D = Force Disconnect
E = Select PC for workstation
Q = Exit
    
```

Fig. 12

6.1.2 Master View Item “U” - User List

With this menu item you may manage user details, rights and groups.

Press the “A” key to add a new user. Delete a user by pressing the “R” key. Pressing “I” displays details about the user which may be edited.

```

MASTER VIEW user list
--USER-----+---GROUPS---+---RIGHTS---+
> admin      | 1,2,3,4,5.. | admin
  master     | 1,2          | master
  user       | 1            | user
  |          |             |
  |          |             |
  |          |             |
  |          |             |

A = Add          R = Remove
I = Info        Q = Exit
    
```

Fig. 13

group. This system makes it possible to allow or deny different users access to a computer. The user's group access is set by pressing the buttons 1 – 8.

Bound PC: When in User-PC Binding mode (see 6.2.5) each user must have a PC bound to them. That user will only be able to connect to that PC. When selected the User Detail menu, press "RETURN" a list of PCs on the network will be displayed to select from.

```

MASTER VIEW user detail
+-----+
> USER:      admin
  FULL NAME:  Administrator
  PASSWORD:   admin
  RIGHTS:     *** (admin)
  GROUPS:     1,2,3,4,5,6,7,8
  Bound PC:   SERVER 1

A = Add           R = Remove
I = Info          Q = Exit
    
```

Fig. 15

6.1.3 Master View Item "C" - Console Extender List

In the console list you may view all console extenders (remote extenders) in the switching network and their current status.

```

MASTER VIEW console extender list
--NAME-----+--STATUS--+
> Workstation1 | this
  Workstation2 | in use
  Workstation3 | free
              |
              |
              |

R = Remove (Disconnected Only)
I = Info           Q = Exit
    
```

Fig. 16

"this" defines the extender which you are currently using.
 "in use" indicates that the extender is in use.
 "free" indicates that this extender is not busy.

Each console extender (remote extender) can be assigned a name. Press the "I" key to bring up the submenu.


```

MASTER VIEW multi-head configuration
--MULTI-HEAD SET-----+---TYPE---+--SIZE--+
> MULTIHEAD_SERVER      |      PC      |   3
  DUALHEAD_CONSOLE      |   Console    |   2
  DUALHEAD_SERVER       |      PC      |   2
  MULTIHEAD_CONSOLE     |   Console    |   3
  |
  |
  |
  |
  |
  |

A = Add          R = Remove
I = Info        Q = Exit

```

Fig. 18

Bring up the Multi-Head menu and create a new Multi-Head set by pressing <A>. The Detail menu will open in which you can give the Multi-Head Set a name.

In this menu you can add individual extenders to the set by pressing <A>. The extender type is automatically determined once the first extender has been selected. By pressing <R> you can remove an extender from the Multi-Head set. Leave this menu and save by pressing <Q>.

Highly recommended:

In order to ensure that USB is always available, ensure that the first extender in every multi-head set is the one with USB connectivity.

```

MASTER VIEW multi-head detail
+-----+
> Name:      mhs1
  Type:      Undefined
  Heads:     0
--Module List-----
  SERVER 1/1      | conn'd
  SERVER 1/2      | in use
  SERVER 1/3      | in use

A = Add Module   E = Edit
Q = Exit and Save

```

Fig. 19

When you select a Multi-Head set in the main Multi-Head menu you can bring up the details again to read or edit by pressing the <I> key.

You may remove a dismantled or altered Multi-Head set from the system by selecting it in the menu and pressing <R>.

6.2 Network Settings Menu Item “M” - Network Mode

The network modes allow you define just how you want the network system to operate. Each of the modes available may individually be activated or deactivated by pressing the appropriate key. You may have more than one selected depending on their function. Some modes require others, and others are incompatible with each other, but the system will automatically recognise this for you.

```

NETWORK MODES
+-----+
R = Reset Modes to Factory Default
P = Passwords ..... [Enabled ]
C = Auto Connect ..... [Disabled]
V = Private Connections .... [Disabled]
B = User-PC Binding ..... [Disabled]
D = Discon on PC Power Down . [Disabled]
S = Video Sharing ..... [Disabled]

Q = Exit

```

Fig. 20

6.2.1 Network Settings Mode Item “R” - Reset Modes to Factory Default

This will reset the extenders to factory settings.

ATTENTION: All user/console/computer tables will be deleted.

6.2.2 Network Settings Mode Item “P” - Passwords Disabled

By turning on the password system - user groups and rights and login access will be activated.

For more information about user groups and rights see [item 6.1.2](#).

Access to the network settings is always protected by a login and password, even when the password system is disabled.

6.2.3 Network Settings Mode Item “C” - Auto Connect

If your connection is interrupted by another user the switching system will automatically connect you with a free computer when the Auto Connect setting is active.

This function is unavailable while using the Password System.

6.2.4 Network Settings Mode Item “V” - Private Connections

By activating the private connection function, users can set up a private connection with a computer, which can't be interrupted by other users.

To establish a private connection hold down “<Shift>” while you select a new connection (either in the switching menu or by pressing the hotkey combination).

See [item 7 Switching](#).

6.2.5 Network Settings Mode Item “B” - User-PC Binding

When in the User-PC Binding mode the switching system behaves quite differently. Each console start unconnected and displaying the log in screen (Fig. 8). The switching menu and switching hot keys are not available. The admin must configure each user to have a specific PC bound to them ([see 6.1.2](#)). When a user logs on they will be automatically connected to their bound PC. If another user wishes to use the console the first user must disconnect and logout with the key combination Ctrl-Alt-F11.

Users with Master or Admin rights are able to access the switching menu as normal once they've entered their login details.

6.2.6 Network Settings Mode Item "D" - Disconnect on PC Power Down

When enabled any local extender that is connected to a PC that is powered down will automatically break its connection allowing the remote extender to find a different local extender to connect to.

6.2.7 Network Setting Mode Item „S“ - Video Sharing

For further information, please see [item 8.1](#)

6.3 Network Settings Item "T" - Set Timeout

When the password system is activated you can define under what circumstances the user will required to enter their login details when switching.

- I – Immediately: User and password must be entered for each switch.
- N – Never: User and password are not required until the current user logs out. See [item 7](#).
- T – Time in min: You define the number of minutes since the last switch before the user and password details are required again to switches.

```
Password Timeout

See product manual
For explanation

> I - Immediately
  N - Never
  T - Time in mins

Press ESC to exit
```

Fig. 21

7 Switching between different computers

The menu for the switching option is accessed via a USB keyboard on the Remote Extender. Press “Ctrl+Alt+F12” to display the switching menu (see Fig. 22).

The switching menu will list all the computers (Local Extenders) connected to the switching network.

Blue indicates the computer with which you are currently connected. The status is listed as “conn’d”.

White indicates a computer which is currently connected to by another work station (Remote Extender). The status is listed as “in use”.

Green indicates a computer in the switching network that isn’t connected to any work station (Remote Extender). The status is listed as “free”.

Red indicates a computer which was once in the switching network but isn’t currently available. This usually indicates that the Extender has been disconnected from the network. If this is the case the computer can be removed from the switching menu with the “delete” key.

The list can be navigated by the “arrow up” and “arrow down” keys. The currently selected computer is indicated by the greater than symbol on the left edge of the OSD (On Screen Display). By pressing the “Return” key **you will switch to the selected computer.**

The left column defines the **favourites menu**, and provides each computer with a favourite number. Each favourite number corresponds to a hotkey combination that can be used to quickly connect to the desired computer without having to access the switching menu. For example favourite “1” has **the hotkey combination “Ctrl+Alt+F1”**, for favourite “2” it’s “Ctrl+Alt+F2” and so on up to favourite “8” with “+Alt+F8”. All other computers can still be accessed via the switching menu.

If the password system is active, the user in currently logged in is displayed at the bottom. You can manually logout by pressing the "x" key or disconnect from the current PC by pressing the „d" key.

```
> 1 | PC1 | conn'd
  2 | PC2 | in use
  3 | PC3 | free
  4 | PC4 | discon
   |
   |
   |
User: admin      X - Logout
D - Disconnect
 [Link]  [Conn]  [Video]  [USB]
```

Fig. 22

8 Multicast

8.1 Video Sharing

When the Video Sharing Mode is enabled, users can share their screen with other users on the network.

What happens with the control over the local extender depends on the initial state.

There are two main use-cases which can both be controlled in the "MASTER VIEW connections overview" menu - which can be reached with the key combination Ctrl-Alt-F10.

1. A user needs his/her screen to be mirrored to other consoles:

This can be done by opening "MASTER VIEW connections overview" and pressing "P" over the console that should display the user's screen.

In this case "P" stands for "push to screen". Such a command is only valid if the console which initiates the mirroring is currently connected to a local extender and has video.

2. A user needs to see the screen of other consoles on the network:

This is done by opening "MASTER VIEW connections overview" and pressing "G" over the console that should display the user's screen.

The key "G" stands for "get screen". If the console extender from which this command is executed currently has a partner, a disconnect is executed before the video of the other local extender is displayed.

If the selected local extender currently isn't connected, a connection including USB, etc. is established.

"D" disconnect

For help press "Strg+H"

9 Mounting Options

9.1 Mounting Pads

Included. These can be used to hold the Extenders in place by preventing them from sliding and falling.

9.2 Rack Mounting Kit

Our rack mounting kits are optional extras, available in three varieties and make installation convenient.

Now available with a redundant power supply.

RMK-F Part No. 6130; RMK-FN Part No. 6131; RMK-FRN Part No. 6132

9.3 Under desk Mounting Kit

Optional (Part No. 6937)

9.4 Din Rail Mounting Kit

Optional (Part No. 6136)

9.5 Dual Mounting Kit

Optional (Part No. 6937)

10 Requirements

Requirements for Cat 5/6/7 cables:

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 can not 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.

Applicable standards: Class D ISO/IEC 11801:2002 or EN 50173-1:2002.

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

Shielded installation cable with min. cross section of 24AWG throughout the length, shield is contiguous and connected to both ends.

Shielded patch cable is allowed for connection to the device.

Requirements fibre

Multi-Mode (standard)

Included with the MVX1-F is a LWL Multimode – SFP Module which allows a transmission distance of up to 500m.

Requires dedicated fibre connection, cable type Duplex Multimode 50/125µ (OM2), LC connector

Single-Mode (optional)

LWL Singlemode – SFP Module up to 20km transmission distance

Requires dedicated fibre connection, cable type Duplex Singlemode, LC connector

LWL Singlemode – SFP Modul BiDi up to 20km transmission distance

Requires dedicated fibre connection, cable type Singlemode, LC connector

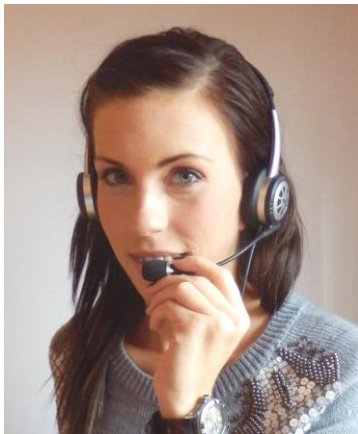
Wavelength (λ) 850nm in multimode

1310nm TX – 1550nm RX in singlemode



11 Support

If you have any questions about our products, please contact your dealer.



kvm tec
smart connections



Kulturstraße 1
2522 Oberwaltersdorf, Austria

Tel / Fax: 0043 (0) 2253 81912
Email: office@kvm-tec.com
Web: www.kvm-tec.com

Find our latest updates and FAQs on our homepage: <http://www.kvm-tec.com/support>

12 Guidelines

KVM-TEC Electronic GmbH

Kulturstrasse 1, 2522 Oberwaltersdorf, Austria

Commercial register number: FN 272328h LG Wr. Neustadt

DOCUMENT OF CONFORMITY

CE KONFORMITÄTSERKLÄRUNG

I hereby declare that the device:

KVM-Extender Type/Model:

MX Digital KVM Extender/PC and Digital KVM Extender/Mon

when used with a shielded CATx cable fulfils the requirements of EU Directive 2004/108/EC (EMV / EMC) "Electromagnetic Compatibility"

and the harmonized European standards listed within.

In particular, the limits of the following standards are observed:

Safety

EN 60950-1:2006+A2:2013, IEC 60950: 2005

LASER CLASS 1: EN 60825-1:2007 compatible with IEEE 803.3z

EMC / EMV

EN 55022: 2010 Class A

EN 55024: 2010

EN 61000-3-2 2014

EN 61000-3-3 2013

EU Directive

2006/95/EC low voltage directive

EMC directive 2004/108/EC EMV guideline

EU directive 2011/65/EU (RoHS II)

The device was tested in a typical application with a PC.

Oberwaltersdorf, November 2015



Dietmar Pfurtscheller

Geschäftsführer / CEO

Warning !

This is a Class A product. This product may cause radio interference in residential areas. In this case adequate counter measures may be requested from the operator.

