

User Manual

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Draco U-Switch

Model:
K476-4U
K476-8U
K476-4U2



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1 About This Manual

1.1 Scope

This manual describes how to install your U-Switch, how to operate it and how to perform trouble shooting.

1.2 Validity

This manual is valid for all devices listed on the front page. The product code is printed on the base of the devices.

1.3 Cautions and Notes

The following symbols are used in this manual:



This symbol indicates an important operating instruction that should be followed to avoid any potential damage to hardware or property, loss of data, or personal injury.



This symbol indicates important information to help you make the best use of this product.



This symbol indicates best practice information to show recommended and optimal ways to use this product in an efficient way.

2 Safety Instructions

To ensure reliable and safe long-term operation of your U-Switch please note the following guidelines:

Installation

- Only use in dry, indoor environments.
- The U-Switch and the power supply units can get warm. Do not situate them in an enclosed space without any airflow.
- Do not place the power supply directly on top of the device.
- Do not obscure ventilation holes.
- Only use power supplies originally supplied with the product or manufacturer-approved replacements. Do not use a power supply if it appears to be defective or has a damaged chassis.
- Connect all power supplies to grounded outlets. In each case, ensure that the ground connection is maintained from the outlet socket through to the power supply's AC power input.
- Do not connect the link interface to any other equipment, particularly network or telecommunications equipment.
- Take any required ESD precautions.



In order to disconnect the device completely from the electric circuit, all power cables have to be removed.

Repair

- Do not attempt to open or repair a power supply unit.
- Do not attempt to open or repair the U-Switch. There are no user serviceable parts inside.
- Please contact your dealer or manufacturer if there is a fault.

3 Description

3.1 Application

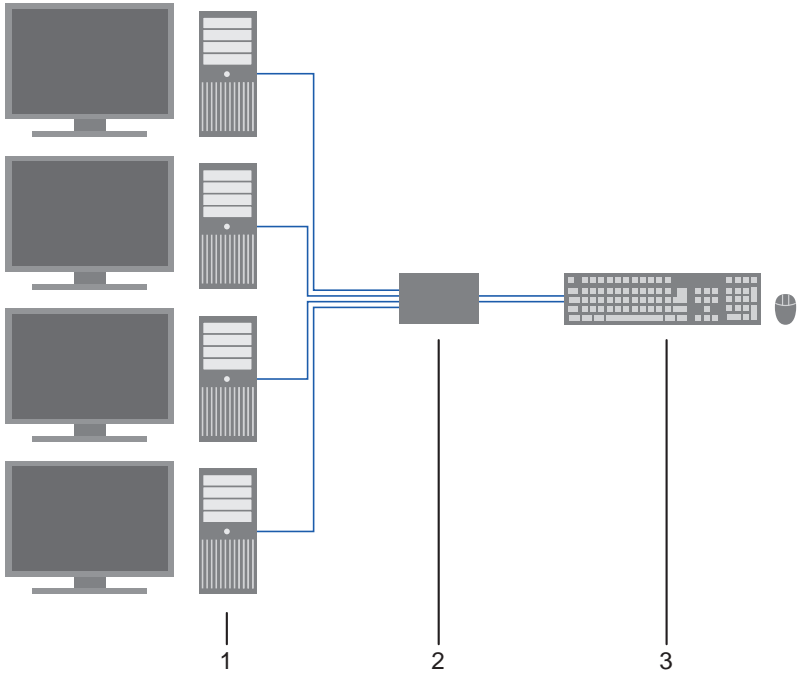
The U-Switch is used to handle several sources (computer, CPU, KVM Extender CON Units) and several monitors with one keyboard and mouse set only.

The U-Switch is especially suitable for use with KVM switches and KVM extenders of the Draco family.

3.2 System Overview

The U-Switch is connected to the sources (computer, CPU, KVM extender CON Units) by using the included cables.

Keyboard and mouse are also connected to the device.



- 1 Sources (computer, CPU, KVM Extender CON Units)
- 2 U-Switch
- 3 Keyboard, mouse



See Chapter 4.3, Page 17 for installation examples.

3.3 Product Range

| Model | Description |
|----------|--|
| K476-4U | U-Switch 4 Port |
| K476-8U | U-Switch 8 Port |
| K476-4U2 | U-Switch for parallel switching of 2x4 ports |

3.4 Upgrade Kits

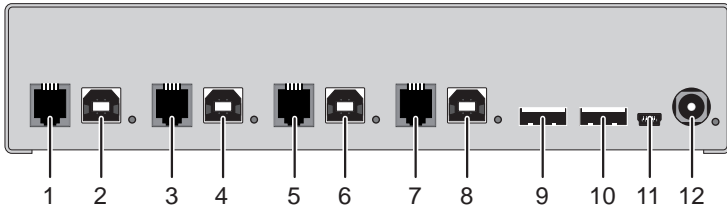
| Model | Description |
|--------|--|
| 455-8G | 19"/1U rack mount kit to mount up to 2 devices |
| 455-1K | Mounting plate to mount by screws |
| 455-2K | Mounting plate to mount by snap on |

3.5 Accessories

| Model | Description |
|--------|---|
| 260-5U | International power supply unit 100...240VAC / 5VDC / 4 A |

3.6 Device Views

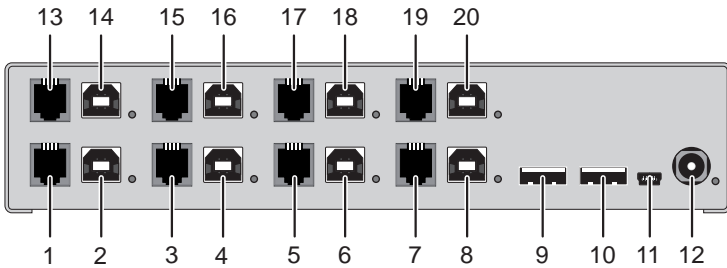
3.6.1 Model K476-4U



Rear View

- 1 Connect to RJ10 / 4P4C (Port 1)
- 2 To CPU 1: USB-HID
- 3 Connect to RJ10 / 4P4C (Port 2)
- 4 To CPU 2: USB-HID
- 5 Connect to RJ10 / 4P4C (Port 3)
- 6 To CPU 3: USB-HID
- 7 Connect to RJ10 / 4P4C (Port 4)
- 8 To CPU 4: USB-HID
- 9 Connect to USB-HID devices 1
- 10 Connect to USB-HID devices 2
- 11 Service port
- 12 Connect to 5VDC power supply

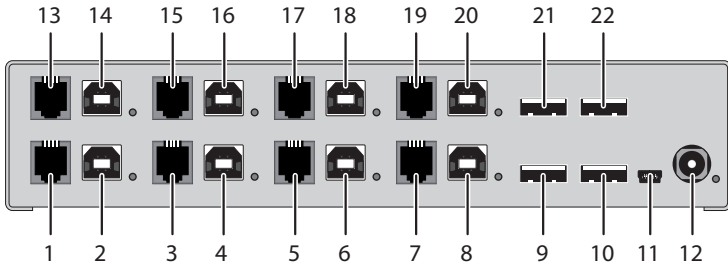
3.6.2 Model K476-8U



Rear View

- 1 Connect to RJ10 / 4P4C (Port 1)
- 2 To CPU 1: USB-HID
- 3 Connect to RJ10 / 4P4C (Port 2)
- 4 To CPU 2: USB-HID
- 5 Connect to RJ10 / 4P4C (Port 3)
- 6 To CPU 3: USB-HID
- 7 Connect to RJ10 / 4P4C (Port 4)
- 8 To CPU 4: USB-HID
- 9 Connect to USB-HID devices 1
- 10 Connect to USB-HID devices 2
- 11 Service port
- 12 Connect to 5VDC power supply
- 13 Connect to RJ10 / 4P4C (Port 5)
- 14 To CPU 5: USB-HID
- 15 Connect to RJ10 / 4P4C (Port 6)
- 16 To CPU 6: USB-HID
- 17 Connect to RJ10 / 4P4C (Port 7)
- 18 To CPU 7: USB-HID
- 19 Connect to RJ10 / 4P4C (Port 8)
- 20 To CPU 8: USB-HID

3.6.3 Model K476-4U2



Rear View

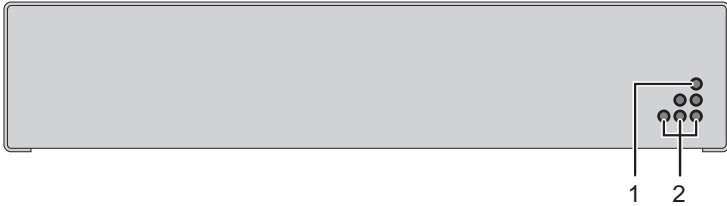
- 1 Connect to RJ10 / 4P4C (Port 1)
- 2 To CPU 1.1: USB-HID
- 3 Connect to RJ10 / 4P4C (Port 2)
- 4 To CPU 2.1: USB-HID
- 5 Connect to RJ10 / 4P4C (Port 3)
- 6 To CPU 3.1: USB-HID
- 7 Connect to RJ10 / 4P4C (Port 4)
- 8 To CPU 4.1: USB-HID
- 9 Connect to USB-HID devices 1
- 10 Connect to USB-HID devices 2
- 11 Service port
- 12 Connect to 5VDC power supply
- 13 Connect to RJ10 / 4P4C (Port 5)
- 14 To CPU 1.2: USB-HID
- 15 Connect to RJ10 / 4P4C (Port 6)
- 16 To CPU 2.2: USB-HID
- 17 Connect to RJ10 / 4P4C (Port 7)
- 18 To CPU 3.2: USB-HID
- 19 Connect to RJ10 / 4P4C (Port 8)
- 20 To CPU 4.2: USB-HID
- 21 Connect to USB-HID devices 3
- 22 Connect to USB-HID devices 4



The USB-B connectors 1.2–4.2 have to be connected to additional USB-HID modules on extender site in order to allow parallel switching with USB-B connectors 1.1–4.1.

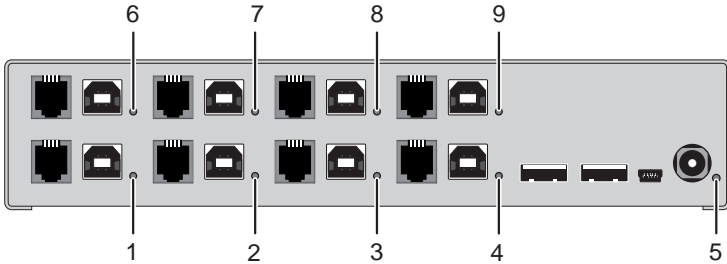
3.7 Status LEDs

The U-Switch is fitted with a multi color LED on both sides for indication of connection status:



Front View

| Pos. | LED | Status | Description |
|------|--------------------------|--------|----------------------------|
| 1 | Status (green) | Off | Device not ready |
| | | On | Device ready |
| 2 | Power (red) | Off | Power supply not available |
| | | On | Power supply available |



Rear View

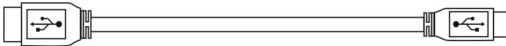
| Pos. | LED | Status | Description |
|------|------------------------------------|--------|------------------------|
| 1 | USB Status CPU 1 (green) | Off | No connection to CPU 1 |
| | | On | Connection to CPU 1 |
| 2 | USB Status CPU 2 (green) | Off | No connection to CPU 2 |
| | | On | Connection to CPU 2 |
| 3 | USB Status CPU 3 (green) | Off | No connection to CPU 3 |
| | | On | Connection to CPU 3 |
| 4 | USB Status CPU 4 (green) | Off | No connection to CPU 4 |
| | | On | Connection CPU 4 |
| 5 | Power (red) | Off | Device not ready |
| | | On | Device ready |
| 6 | USB Status CPU 5 (green) | Off | No connection to CPU 5 |
| | | On | Connection to CPU 5 |
| 7 | USB Status CPU 6 (green) | Off | No connection to CPU 6 |
| | | On | Connection to CPU 6 |
| 8 | USB Status CPU 7 (green) | Off | No connection to CPU 7 |
| | | On | Connection to CPU 7 |
| 9 | USB Status CPU 8 (green) | Off | No connection to CPU 8 |
| | | On | Connection to CPU 8 |

4 Installation

4.1 Package Contents

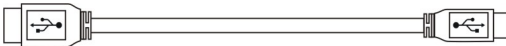
Your extender package contains the following items:

- U-Switch
- 5VDC international power supply unit
- German power cord
- Quick Setup
- 4x USB cable (1.8 m, type A to type B)



Additional content for K476-8U / K476-4U2:

- 8x USB cable (1.8 m, type A to type B)



If anything is missing, contact your dealer.

4.2 System Setup

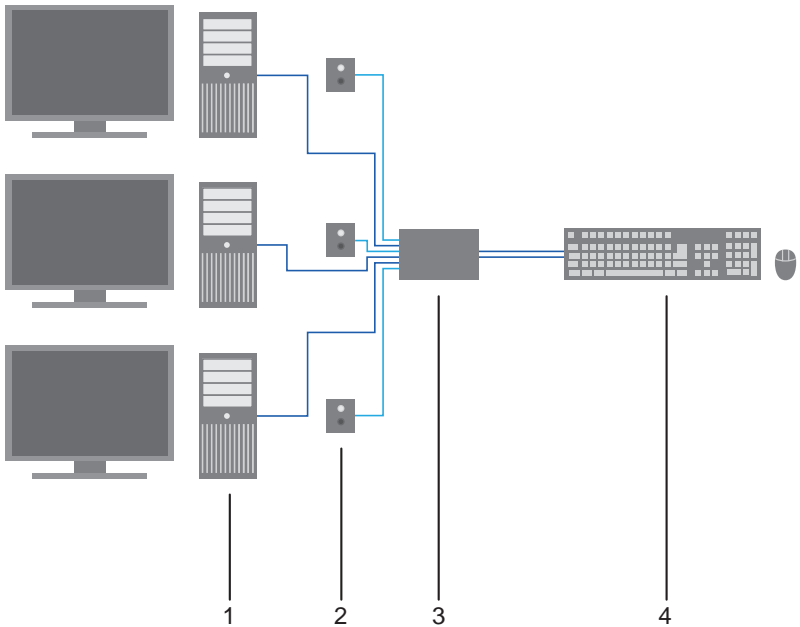


First time users are recommended to setup the system with the CPU Unit and the CON Unit in the same room as a test setup. This will allow you to identify and solve any cabling problems, and experiment with your system more conveniently.

1. Switch off all devices.
2. Connect the USB cables to the CPUs (CON Units) and to the U-Switch.
3. Connect mouse and keyboard to the U-Switch.
4. Connect the 5VDC power supply with the U-Switch.
5. Power up the system.

4.3 Example Applications

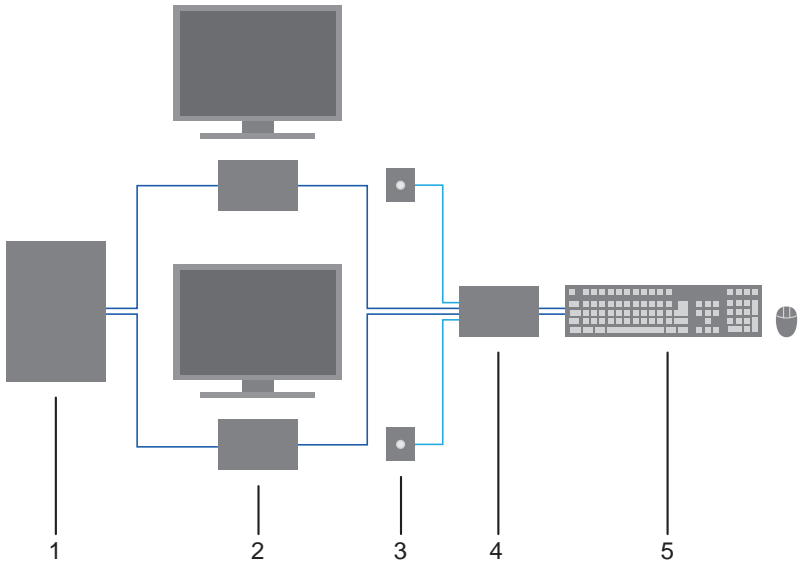
This section illustrates typical installations of the U-Switch:



U-Switch (Direct CPU connection)

- 1 Source (computer, CPU)
- 2 Switch button (see Chapter 5.3, Page 21)
- 3 U-Switch
- 4 Keyboard, mouse

Draco U-Switch



U-Switch (In combination with Draco KVM switch)

- 1 Draco KVM Switch
- 2 CON Units
- 3 Monitor LEDs (see Chapter 5.2, Page 21)
- 4 U-Switch
- 5 Keyboard, mouse

5 Configuration

5.1 Command Mode

The U-Switch has a Command Mode that allows several functions via keyboard command during normal use.

To enter Command Mode use a 'Hot Key' sequence and to exit Command Mode, press <Esc>. While in Command Mode, the LEDs **Shift** and **Scroll** on the console keyboard will flash.



In Command Mode normal keyboard and mouse operation will cease. Only selected keyboard commands are available.

If there is no keyboard command executed within 10 s after activating Command Mode, it will be automatically deactivated.

The following table lists the keyboard commands to enter and to exit Command Mode and to change the 'Hot Key' sequence:

| Function | Keyboard Command |
|------------------------------|---|
| Enter Command Mode (default) | 2x <Right Shift> (or 'Hot Key') |
| Exit Command Mode | <Esc> |
| Change 'Hot Key' sequence | <current 'Hot Key'>, <c>, <new 'Hot Key' code>, <Enter> Until 2011-30-09: <Left Ctrl> + <Left Shift> + <c>, <'Hot Key' Code>, <Enter> |



- <Key> + <Key> Press keys simultaneously
- <Key>, <Key> Press keys successively
- 2x <Key> Press key quickly, twice in a row (similar to a mouse double-click)

The 'Hot Key' sequence to enter Command Mode can be changed. The following table lists the 'Hot Key' Codes for the available key sequences:

| 'Hot Key' Code | 'Hot Key' |
|----------------|--------------------------------|
| 0 | Freely selectable (2012-01-12) |
| 2 | 2x <Scroll> |
| 3 | 2x <Left Shift> |
| 4 | 2x <Left Ctrl> |
| 5 | 2x <Left Alt> |
| 6 | 2x <Right Shift> |
| 7 | 2x <Right Ctrl> |
| 8 | 2x <Right Alt> |



In a KVM switch configuration, choose different 'Hot Keys' for the KVM Extender and the Draco U-Switch.

Set freely selectable 'Hot Key' (exemplary)

In order to set a freely selectable 'Hot Key' (e.g. 2x <Space>), use the following keyboard sequence:

<current 'Hot Key'>, <c>, <0>, <Space>, <Enter>

Reset 'Hot Key'

In order to set a 'Hot Key' back to default settings of the extender, press the key combination <Right Shift> + within 5 s after switching on the CON unit or plugging in a keyboard.

5.2 External Display (optional)

The U-Switch has a RJ10 interface at each USB-HID port for CPUs (see Chapter 7.1.2, Page 25). It provides the current status of the port, e.g. for control of a status LED.

5.3 External Control (optional)

The U-Switch has a RJ10 interface at each USB-HID port for CPUs (see Chapter 7.1.2, Page 25). The current switching status can be changed by a potential-free contact, e.g. by a button.

6 Operation

6.1 Switching a Source

6.1.1 Switching via Keyboard

From your console, you can switch via keyboard sequence between different monitors.

1. Open Command Mode with the 'Hot Key' (see Chapter 5.1, Page 19).
2. Enter the number of the specific source or monitor and confirm with <Enter>.

At the same time Command Mode is closed and the keyboard LEDs return to previous status.

Keyboard and mouse are connected to the specified source or monitor.



When using the numeric keypad for switching, a confirmation of the switching operation by using the key <Enter> is not necessary.

6.1.2 Switching via Mouse (Panning)

When panning the mouse cursor beyond the border of the monitor, you can switch from your console between different monitors that are in vertical or horizontal position to each other.

Monitors that are only arranged horizontally (e. g. 4x1, 8x1) has to be operated with the one-dimensional Multi-Screen mode. Monitors that are arranged vertically and horizontally (e. g. 2x2, 4x2) has to be operated with the two-dimensional Multi-Screen mode.

1. Activate the switching via mouse by executing the following keyboard sequences:
 - One-dimensional mode: 'Hot Key', <x>, <1>, <Enter>
 - Two-dimensional mode: 'Hot Key', <x>, <2>, <Enter>
2. Move the mouse pointer beyond the border of the monitor to the vertically or horizontally located monitor.

The switching operation will be immediately executed to the connected source (computer, CPU) by passing over the mouse pointer.

3. Deactivate the switching via mouse by executing the following keyboard sequence:
'Hot Key', <x>, <0>, <Enter>



An additional software for calibration and positioning of the mouse pointer is not necessary.

6.1.3 External Switching (optional)

Optionally, you can connect a button with a RJ10 interface to switch to the respective source or monitor.

The RJ10 interface is separately available for each USB-HID port with CPU connection.

7 Specifications

7.1 Interfaces

7.1.1 USB-HID

Our devices with USB-HID interface support a maximum of two devices with USB-HID protocol. Each USB-HID port provides a maximum current of 100 mA.

Keyboard

Compatible with most USB keyboards. Certain keyboards with additional functions may require custom firmware to operate. Keyboards with an integral USB Hub (Mac keyboards e.g.) are also supported.

Mouse

Compatible with most 2-button, 3-button and scroll mice.

Other USB-HID devices

The proprietary USB emulation also supports certain other USB-HID devices, such as specific touch screens, graphic tablets, barcode scanners or special keyboards. Support cannot be guaranteed, however, for every USB-HID device.



Only two USB-HID devices are supported concurrently, such as keyboard and mouse or keyboard and touch screen. A hub is allowed, but it does not increase the number of HID devices allowed.

To support other USB 'non-HID' devices, such as scanners, web cams or memory devices, choose our devices with transparent USB support.

7.1.2 RJ10 / 4P4C

This interface is used to establish a customer specific communication with the U-Switch.

External Status LED

For control of an external Status LED to show the status of the respective port, please proceed as follows:

Connect the anode of your LED with pin 1 and the cathode with pin 2. Use a suitable series resistor that you connect in series. The interface supplies 3.3 V output voltage with 15 mA max.

External Button

To control a port by an external button, please proceed as follows:

Use an NC (normally closed) contact as a switch. This contact has to short-circuit pin 3 and pin 4 for switching.

7.2 Supported Peripherals

7.2.1 USB-HID Devices

The U-Switch will support most USB-HID devices, including the vast majority of keyboards and mice currently on the market. Many other kinds of HID devices such as bar-code scanners and touch screens may also be compatible

It is not possible to guarantee support for all available USB-HID devices. In certain cases, custom firmware may be required.


USB-HID (and other) devices that are not supported as standard will normally operate with our devices featuring transparent USB support.



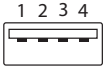
Please note that concurrent operation of more than two USB-HID devices is not possible even if you use a USB hub.

7.3 Connector Pinouts


Connector USB Type B

| Picture | Pin | Signal | Color |
|---|-----|-------------|-------|
|  | 1 | VCC (+5VDC) | Red |
| | 2 | Data – | White |
| | 3 | Data + | Green |
| | 4 | GND | Black |

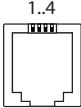
Connector USB Type A

| Picture | Pin | Signal | Color |
|---|-----|-------------|-------|
|  | 1 | VCC (+5VDC) | Red |
| | 2 | Data – | White |
| | 3 | Data + | Green |
| | 4 | GND | Black |

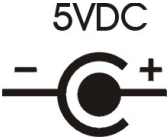
Connector Mini USB Type B

| Picture | Pin | Signal | Color |
|---|-----|-------------|-------|
|  | 1 | VCC (+5VDC) | Red |
| | 2 | Data – | White |
| | 3 | Data + | Green |
| | 4 | n.c. | – |
| | 5 | GND | Black |

RJ10 / 4P4C

| Picture | Pin | Signal |
|---|-----|-------------|
|  | 1 | LED + |
| | 2 | LED – |
| | 3 | Dry Contact |
| | 4 | GND |

Power Supply

| Picture | Pin | Signal |
|---|---------|-------------|
|  | Inside | VCC (+5VDC) |
| | Outside | GND |

7.4 Power Supply

| | |
|--------------------------|---|
| Voltage | 5 VDC |
| Power Requirement | <ul style="list-style-type: none"> • K476-4U: max. 500 mA • K476-8U: max. 700 mA • K476-4U2: max. 700 mA |

7.5 Environmental Conditions

| | |
|------------------------------|----------------------------|
| Operating Temperature | 41 to 113°F (5 to 45°C) |
| Storage Temperature | -13 to 140°F (-25 to 60°C) |
| Relative Humidity | Max. 80% non-condensing |

7.6 Size

| | |
|---------------------|--|
| U-Switch | 209 x 143 x 42 mm (8.2" x 5.6" x 1.7") |
| Shipping Box | 280 x 180 x 130 mm (11.0" x 7.1" x 5.1") |

7.7 Shipping Weight

| | |
|---------------------|-----------------|
| U-Switch | 0.6 kg (1.3 lb) |
| Shipping Box | 1.1 kg (2.4 lb) |

7.8 MTBF

The following table contains the mean time between failure (MTBF) in power-on hours (POH). The estimate is based on the FIT rates of the parts included. FIT rates are based on normalized environmental conditions of $T = 60^{\circ}\text{C}$ and activation energy (E_a) of 0.7 eV. Calculations are based on 90% confidence limit.

We estimate that inside the housing, temperature will be 15°C higher than the ambient temperature. Therefore, the MTBF calculation refers to an ambient temperature of 45°C . The humidity is limited to 60%.

| | |
|---------------------------|-------------|
| 4-Port U-Switch | 487,000 POH |
| 8-Port U-Switch | 361,000 POH |
| 2x 4-Port U-Switch | 357,000 POH |

8 Troubleshooting

8.1 USB-HID

| Diagnosis | Possible Reason | Measure |
|---|---------------------------------|--|
| Keyboard LEDs Shift and Scroll are flashing | Keyboard in Command Mode | ➔ Press <Esc> to leave Command Mode. |
| USB device without function | No USB-HID device | ➔ Connect USB-HID device. |
| | USB-HID device is not supported | ➔ Check compatibility. ➔ Contact dealer if necessary. |

9 Technical Support

Prior to contacting support please ensure you have read this manual, and then installed and set-up your U-Switch as recommended.

9.1 Support Checklist

To efficiently handle your request it is necessary to complete our checklist for support and problem cases ([Download](#)). Keep the following information available before you call:

- Company, name, phone number and email
- Type and serial number of the device (see bottom of device)
- Date and number of sales receipt, name of dealer if necessary
- Issue date of the existing manual
- Nature, circumstances and duration of the problem
- Involved components (such as graphic source/CPU, OS, graphic card, monitor, USB-HID/USB 2.0 devices, interconnect cable) including manufacturer and model number
- Results from any testing you have done

9.2 Shipping Checklist

1. To return your device, contact your dealer to obtain a RMA number (Return-Material-Authorization).
2. Package your devices carefully, preferably using the original box. Add all pieces which you received originally.
3. Note your RMA number visibly on your shipment.



Devices that are sent in without a RMA number cannot be accepted. The shipment will be sent back without being opened, postage unpaid.

10 Certificates

10.1 CE Declaration Of Conformity

The products listed below in the form as delivered comply with the provisions of the following European Directives:

2004/108/EG Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility



CE Marking 2009

Product list:

K476-4U, K476-8U K476-4U2

The products comply with the following harmonized standards for Information Technology Equipment:

- EN 55022:2006 + A1:2007 (Class A)
- EN 55024:1998 + A1:2001 + A2:2003

This declaration certifies the conformity to the specified directives but contains no assurance of properties. The safety instructions and installation guidelines noted in this manual shall be considered in detail. Compliance with the specifications for cable lengths and types is mandatory.

Manufacturer:

IHSE GmbH
Maybachstrasse 11
88094 Oberteuringen
Deutschland

Oberteuringen, 26 January 2010

The Management



Use in a Domestic Environment

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

10.2 North American Regulatory Compliance

This equipment has been found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Shielded cables must be used with this equipment to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

All power supplies are certified to the relevant major international safety standards.

10.3 WEEE

The manufacturer complies with the EU Directive 2012/19/EU on the prevention of waste electrical and electronic equipment (WEEE).

The device labels carry a respective marking.

10.4 RoHS/RoHS 2

This device complies with the Directive 2011/65/EU of the European Parliament and of the council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2, RoHS II).

The device labels carry a respective marking.

11 Glossary

The following terms are commonly used in this guide or in video and KVM technology:

| Term | Explanation |
|-----------------|---|
| AES/EBU | Digital audio standard that is officially known as AES3 and that is used for carrying digital audio signals between devices. |
| Cat X | Any Cat 5e (Cat 6, Cat 7) cable |
| CGA | The Color Graphics Adapter (CGA) is an old analog graphic standard with up to 16 displayable colors and a maximum resolution of 640x400 pixels. |
| Component Video | The Component Video (YPbPr) is a high-quality video standard that consists of three independently and separately transmittable video signals, the luminance signal and two color difference signals. |
| Composite Video | The Composite Video is also called CVBS and it is part of the PAL TV standard. |
| CON Unit | Component of a U-Switch or Media Extender to connect to the console (monitor(s), keyboard and mouse; optionally also with USB 2.0 devices) |
| Console | Keyboard, mouse and monitor |
| CPU Unit | Component of a U-Switch or Media Extender to connect to a source (computer, CPU) |
| CVBS | The analog color video baseband signal (CVBS) is also called Composite Video and it is part of the PAL TV standard. |
| DDC | The Display Data Channel (DDC) is a serial communication interface between monitor and source (computer, CPU). It allows a data exchange via monitor cable and an automatic installation and configuration of a monitor driver by the operating system. |
| Dual Access | A system to operate a source (computer, CPU) from two consoles |
| Dual Link | A DVI-D interface for resolutions up to 2560x2048 by signal transmission of up to 330 MPixel/s (24-bit) |
| Dual-Head | A system with two video connections |

| Term | Explanation |
|-------------|---|
| DVI | Digital video standard, introduced by the Digital Display Working Group (http://www.ddwg.org). Single Link and Dual Link standard are distinguished. The signals have TMDS level. |
| DVI-I | A combined signal (digital and analog) that allows running a VGA monitor at a DVI-I port – in contrast to DVI-D (see DVI). |
| EGA | The Enhanced Graphics Adapter (EGA) is an old analog graphic standard, introduced by IBM in 1984. A D-Sub 9 connector is used for connection. |
| Fiber | Single-mode or multi-mode fiber cables |
| HDMI | An interface for an all-digital transmission of audio and video data. It is differentiated between the HDMI standards 1.0 to 1.4a. The signals have TMDS level. |
| KVM | Keyboard, video and mouse |
| Mini-XLR | Industrial standard for electrical plug connections (3 pole) for the transmission of digital audio and control signals |
| Multi-mode | 62.5 μ multi-mode fiber cable or 50 μ multi-mode fiber cable |
| OSD | The On-Screen-Display is used to display information or to operate a device. |
| Quad-Head | A system with four video connections |
| RCA (Cinch) | A not standardized plug connection for transmission of electrical audio and video signals, especially with coaxial cables |
| S/PDIF | A digital audio interconnect that is used in consumer audio equipment over relatively short distances. |
| SFP | SFPs (Small Form Factor Pluggable) are pluggable interface modules for Gigabit connections. SFP modules are available for Cat X and fiber interconnect cables. |
| Single Link | A DVI-D interface for resolutions up to 1920x1200 by signal transmission of up to 165 MPixel/s (24-bit). Alternative frequencies are Full HD (1080p), 2K HD (2048x1080) and 2048x1152. |
| Single-Head | A system with one video connection |
| Single-mode | 9 μ single-mode fiber cable |

| Term | Explanation |
|---------------|---|
| S-Video (Y/C) | The S-Video (Y/C) is a video format transmitting luminance and chrominance signals separately. Thereby it has a higher quality standard than CVBS. |
| TOSLINK | Standardized fiber connection system for digital transmission of audio signals (F05 plug connection) |
| Triple-Head | A system with three video connections |
| USB-HID | USB-HID devices (Human Interface Device) allow for data input. There is no need for a special driver during installation; "New USB-HID device found" is reported. Typical HID devices include keyboards, mice, graphics tablets and touch screens. Storage, video and audio devices are not HID. |
| VGA | Video Graphics Array (VGA) is a computer graphics standard with a typical resolution of 640x480 pixels and up to 262,144 colors. It can be seen as a follower of the graphics standards MDA, CGA and EGA. |