

# Manual

## USB hub 2.0 6-Port, Switchable



GET IN **touch**  
WITH SENSITIVE TESTING

Softline \_\_\_\_\_

Modline \_\_\_\_\_

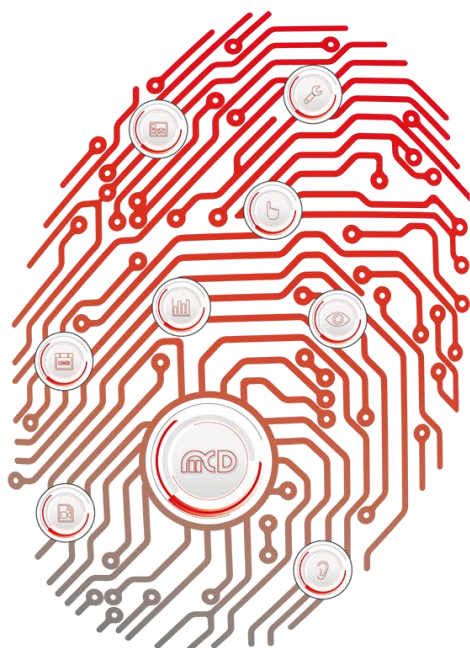
**Online** \_\_\_\_\_

Boardline \_\_\_\_\_

Avidline \_\_\_\_\_

Pixline \_\_\_\_\_

Application \_\_\_\_\_



### MCD Elektronik GmbH

Hoheneichstr. 52

75217 Birkenfeld

Tel. +49 (0) 72 31/78 405-0

Fax +49 (0) 72 31/78 405-10

info@mcd-elektronik.de

www.mcd-elektronik.com

HQ: Birkenfeld

Managing CEO: Bruno Hörter

Register Court Mannheim

HRB 505692

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## 1. General

The USB hub has six downstream ports, which can be switched on and off individually via USB. When switching it off, the supply voltage (+ 5 V) and the data lines on the semiconductor switches are separated.

Control is carried out via the toolmonitor USB hub (PC software).

The ports one to four are turned off after a reset, while the ports five and six are switched on (for keyboard, mouse, etc.).

The hub can operate solely on the USB host (bus - powered), or in addition with a 5 VDC power supply with at least 17 W output power or output current of 3.3 A (self - powered). Connecting or disconnecting the external power supply resets the hub and the ports switch to their default state.

The connector for the external power supply is a DC connector for either 2.1 mm or 2.5 mm barrel connector. The polarity is optional (but no AC voltage!). An assembly variant of the board allows the somewhat "more robust" connection of the 5 V power supply via screw terminal e.g. in the adapter or a needle bed.

For third - party software, the Toolmonitor USB hub can be completely remote controlled. COM / DCOM or a .Net - Assembly is used as an interface. This allows the Toolmonitor USB hub to be integrated in a large number of applications (MCD TestManager CE, LabView<sup>®</sup>, Microsoft Visual Studio<sup>®</sup> (C#, C++, Visual Basic), Microsoft Office<sup>®</sup> (e.g. Excel<sup>®</sup>), OpenOffice<sup>®</sup>).

**Order number:** # 119102

### 1.1. Application

- Remote on and off switching of USB devices (Caution with data files!)
- Resetting of "stuck" USB devices
- Decoupling of USB devices that have difficulties during the PC booting process
- Energy savings when turning off unnecessary USB devices

## 1.2. Product Characteristics

- Switching ports on and off via USB. Control via PC software for Windows®.

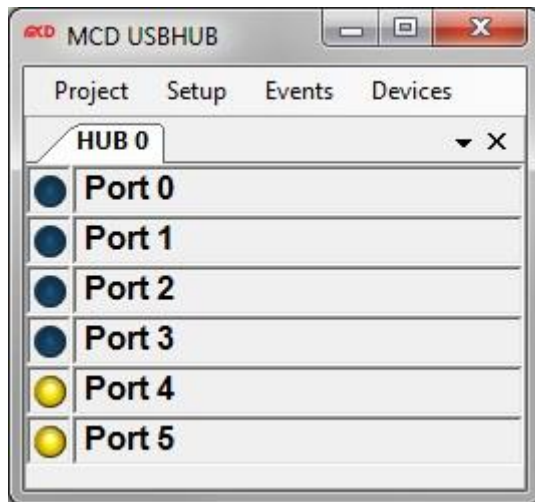


Figure 1: View of the PC Software Controlling the MCD USB hub

- Separation of power supply and data lines on a switched off port
- LED's to display switched on ports
- Automatic detection and switching between bus - and self - powered
- USB - compliant numbering of hub and connected devices when connecting or disconnecting the AC adapter
- Automatic polarity correction of the connected power supply (no polarity reversal)
- Back feed from the power supply to the USB host
- Automatic shut - off of overloaded USB ports with notification from the USB host
- Robust metal housing

## 2. Brief Introduction

### 2.1. Use of the USB hub without Software

1. Please connect your MCD USB hub with a USB cable type AB to your PC, where applicable you can connect an external power supply (5 V  $\pm$  5% / max. 3.3 A)

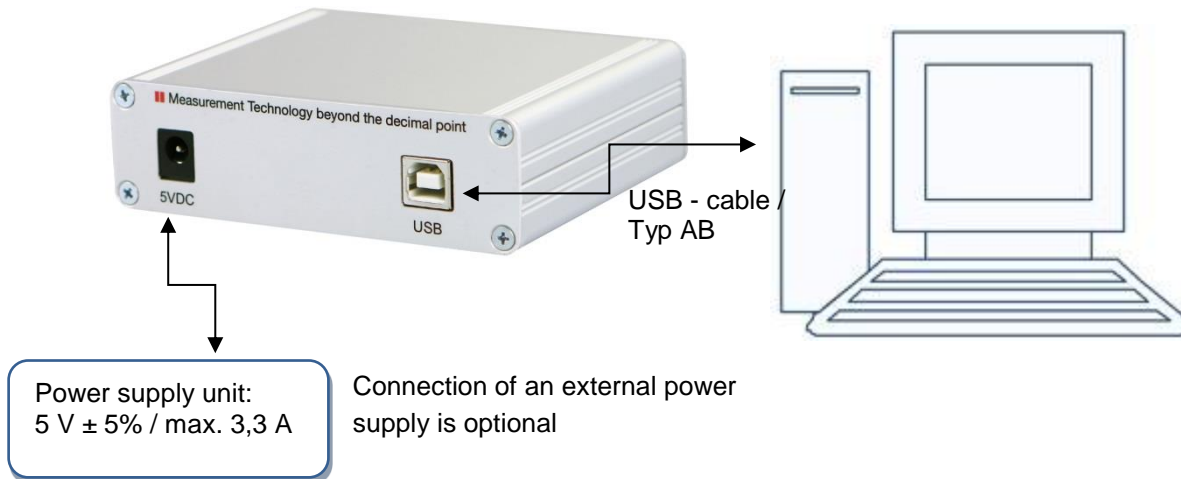


Figure 2: Connection with the USB hub

2. You can now use the permanently switched ports (5+6 or all, depending on model version).

### 2.2. Use of the USB hub with Software

#### 2.2.1. MCD USBHubMonitor

1. Install software and driver
2. Please connect your MCD USB hub with a USB cable type AB to your PC, where applicable you can connect an external power supply (5 V  $\pm$  5% / max. 3.3 A)

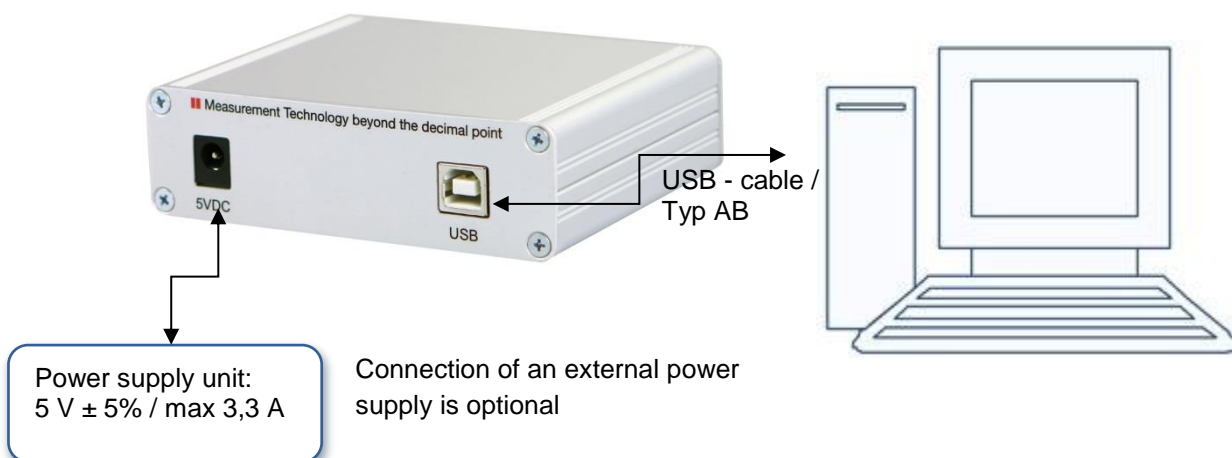


Figure 3: Connection with the USB hub

3. In order to switch the ports 1 to 4, you must restart the software. Please go to the MCD USBHubMonitor from the start menu:

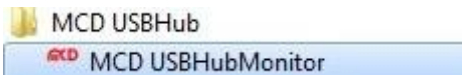


Figure 4: Start Menu

4. In the menu Setup → Options, you can adjust the settings for your USB hub, please open it.
5. As several MCD USB hubs can be used simultaneously please select a device under HUB Setup. If desired, you can enter a name for the USB hub in the first text box. In the text field "Serial number and / or description" please select the desired USB hub and enable it with the checkbox "Active". You can give names to each port and specify the default with "on / off". Please confirm the settings by pressing the OK button.

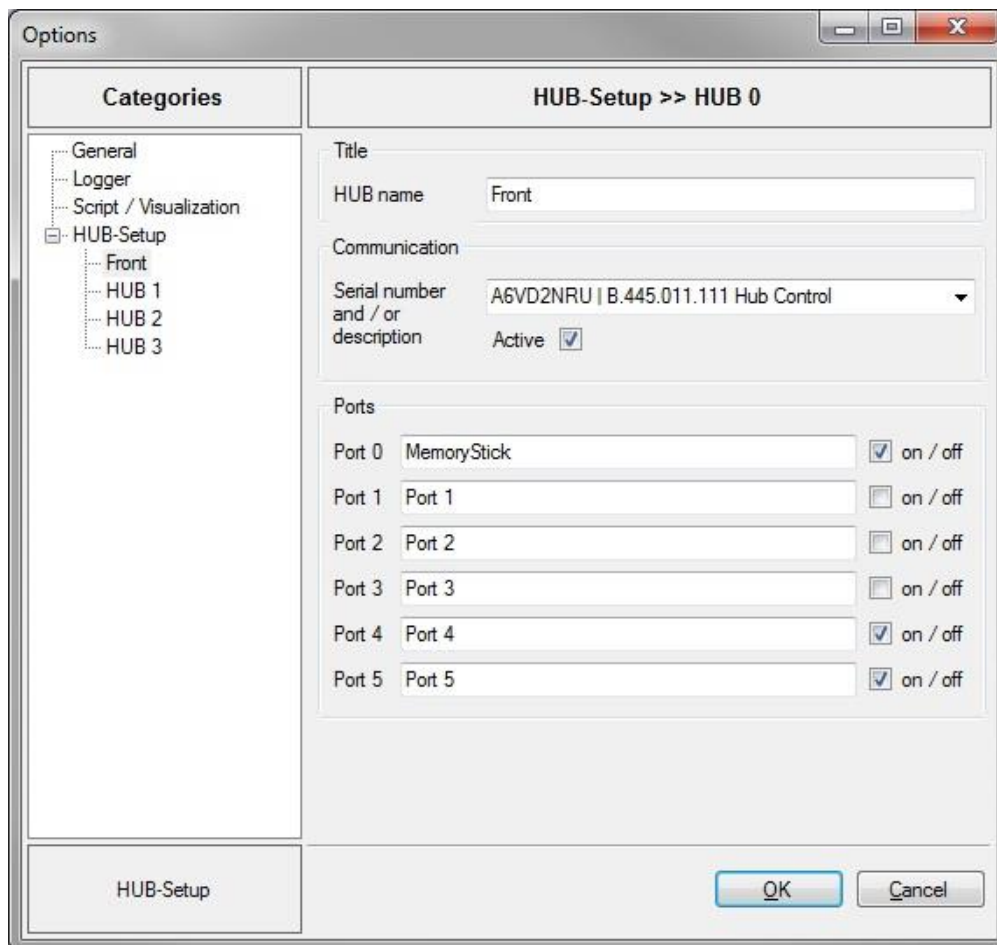


Figure 5: Options Menu

6. In the menu devices now appear all created USB hubs. Please select a device to control from there.

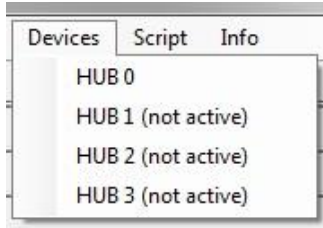


Figure 6: Devices Menu

7. After you select a device, the following window opens. With a click on the individual port switches (round symbols), you can now turn the ports on and off. A switched on port is yellow, a switched off is dark blue.

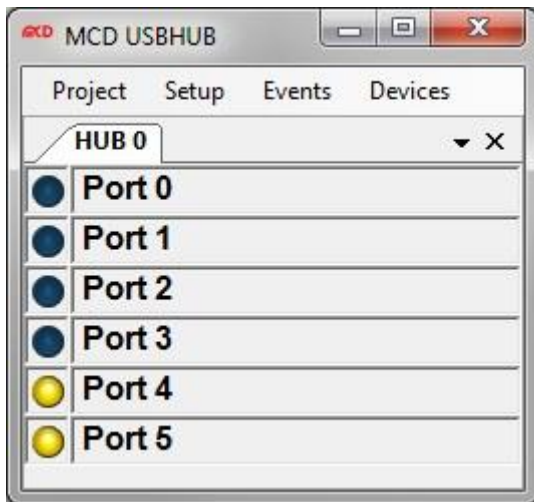


Figure 7: Overview to Turn Ports On / Off

### 2.2.2. Command Line

With the program USBHubControl.exe the USB hub can be controlled via command line. It is located in the installation folder (Tools \ commandline).

The program is called up with the following parameters:

USBHubControl.exe [Serialnumber] portstatus

The Serialnumber is optional and is only required when multiple USB hubs are connected to a PC. The portstatus determines the state of each port and is binary encoded.

Example:

USBHubControl 0	→ Turn off all ports
USBHubControl 111111	→ Turn on all ports
USBHubControl 101010	→ Turn on ports 2, 4 and 6; turn off all others

With the help of the call *USBHubControl.exe [Serialnumber]?* the current status of the individual ports can be queried.

### 2.2.3. Windows® DLL (.Net - Assembly)

The USB hub can also be remotely controlled by a DLL (.Net assembly). A corresponding example in C# is located in the installation folder (Tools \ DLL).

### 2.2.4. LabView®

The USB hub can also be integrated and controlled via LabView®. A corresponding example is located in the installation folder (Tools \ LabView®).

### 2.2.5. MCD TestManager CE

The MCD Toolmonitor USBHub can also be remotely controlled by the MCD TestManager CE.

From the Windows® start menu (MCD → USB hub → TestManager CE) you can open a sample application. After TestManager CE has started please push the Start (Up) button. Then an example sequence is executed which drives the USB hub.

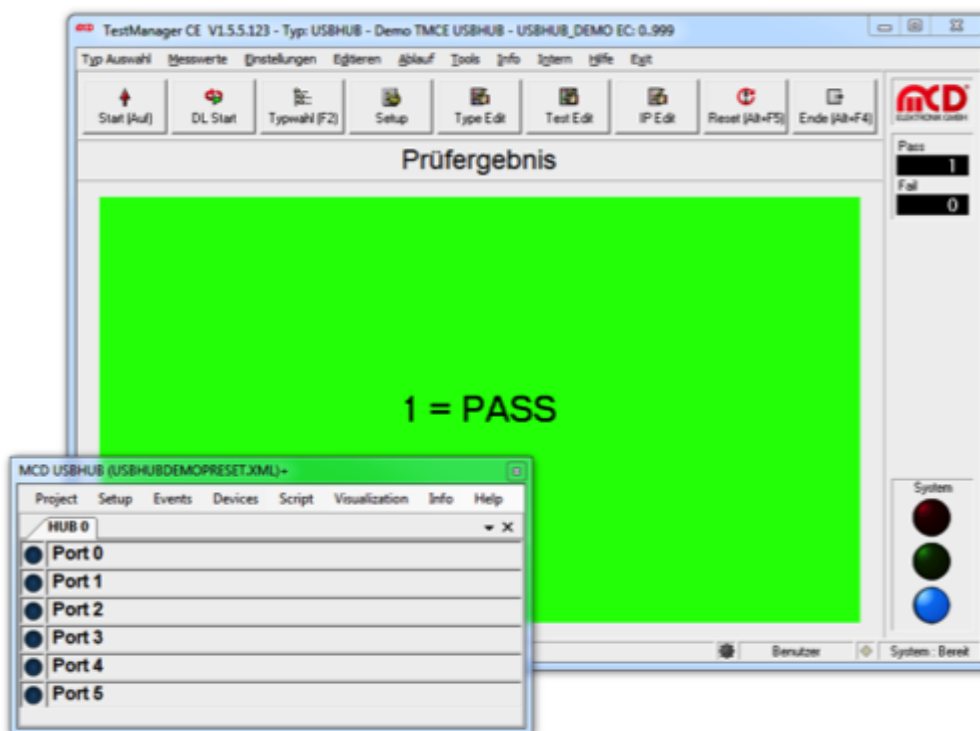


Figure 8: View of the TestManager CE Using the Toolmonitor USBHub

For more help, see the software documentation under Help → Help F1



### 3. Installation Manual

#### 3.1. System Requirements

- Operation system: Windows® 7 or higher
- Architecture: 32bit or 64bit
- .Net Framework: starting at Version 3.5

#### 3.2. Software and Driver Installation

To install the software for the MCD USB hub, the installer USBHubInstall.msi must be called up.

Open Windows® Explorer and run the installer USBHubInstall.msi.

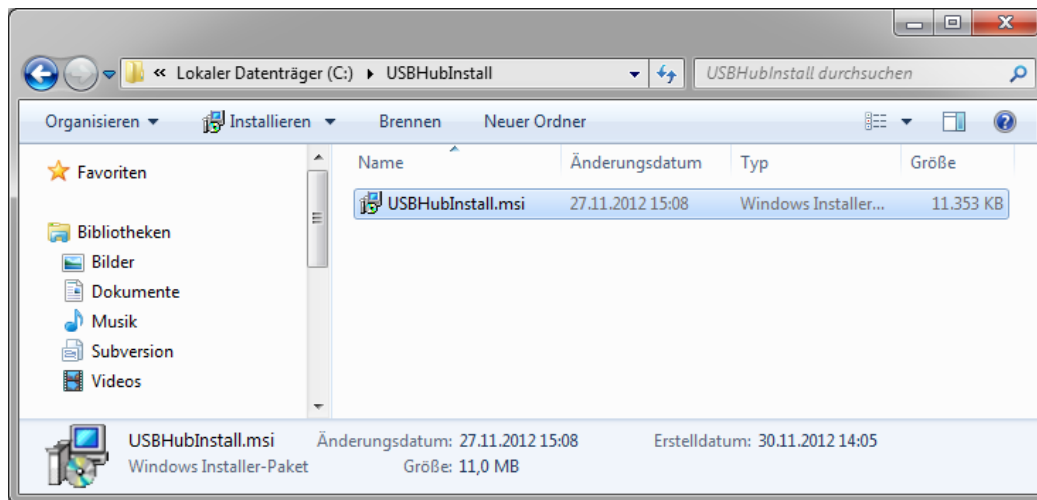


Figure 9: Call Up Installer USBHubInstall.msi

You will then be guided through the installation of the software. Confirm the individual dialogues and adjust, if necessary the installation path.

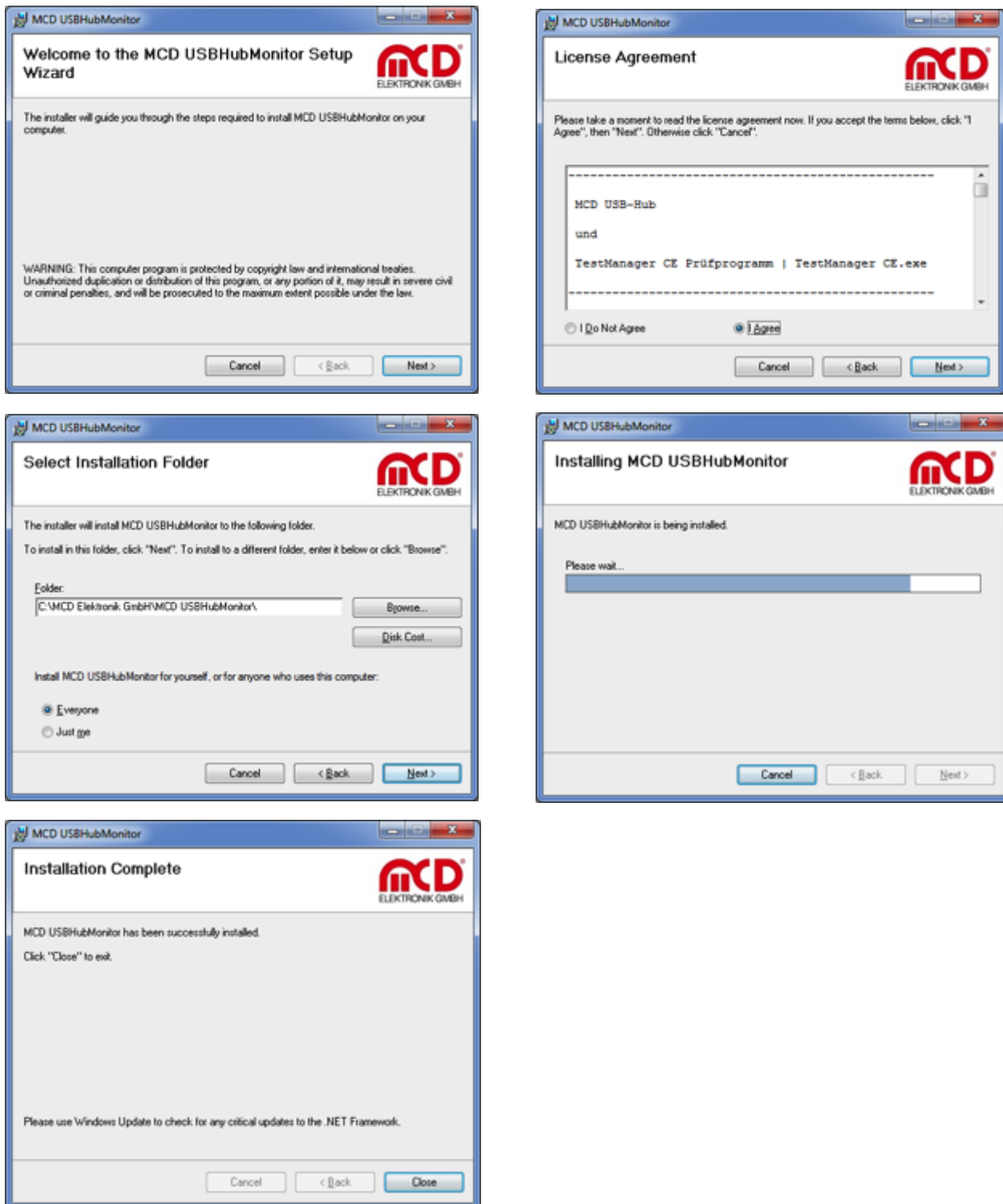


Figure 10: Explanation for the Software Installation

After finishing the installation, close the installer and proceed with the installation of the driver.

### 3.3. Connecting Hardware

Now connect the USB hub to a free USB port. The hub can operate solely on the USB host (bus - powered), or in addition with a 5 VDC power supply with at least 17 W output power or output current of 3.3 A (self - powered). Connecting or disconnecting the external power supply resets the hub and the ports switch to their default state.

The connector for the external power supply is a DC connector for either 2.1 mm or 2.5 mm barrel connector. The polarity is optional (but no AC voltage!). An assembly variant of the board allows the somewhat "more robust" connection of the 5 V power supply via screw terminal e.g. in the adapter or a needle bed.



Figure 11: Frontal View of USB hub

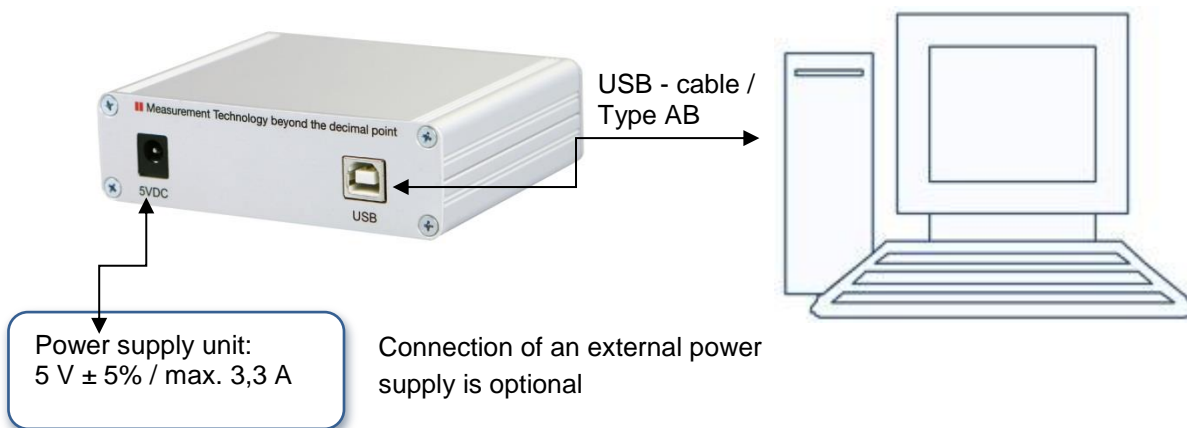


Figure 12: Connection of USB hub to the PC

### 3.4. Install / Update Driver

Please connect the USB hub to a free USB port. The driver to be installed is located in the application folder:

<installation path>\USBHubMonitor\USB Driver

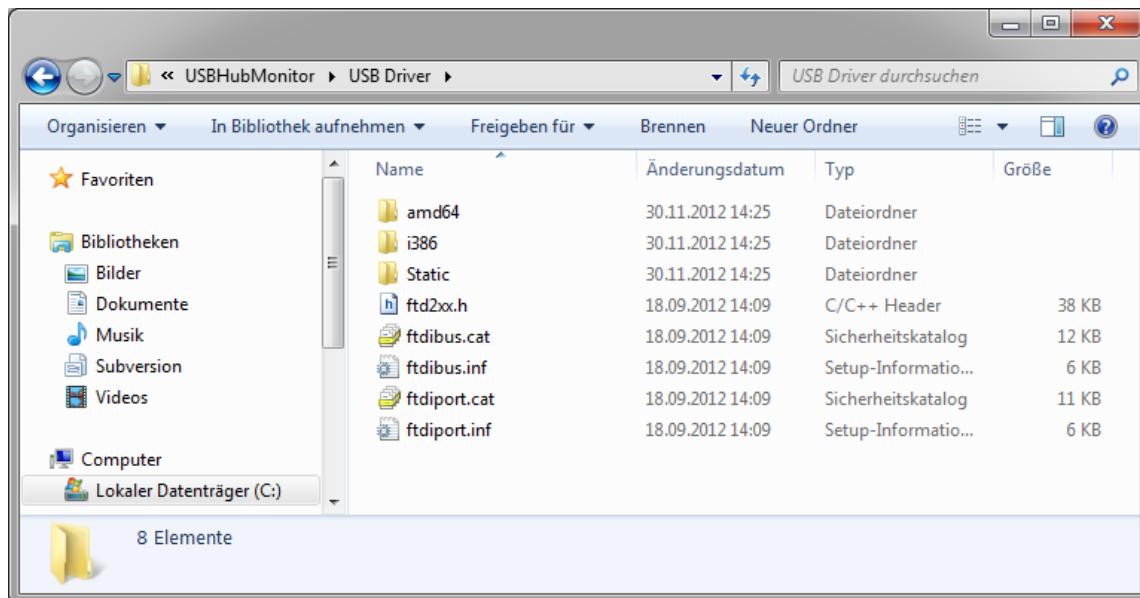


Figure 13: Driver Location

To install the latest driver, you can use the Windows® Device Manager to update the driver for the USB hub. Please select the **USB Serial Converter** and choose the driver from the folder shown above.

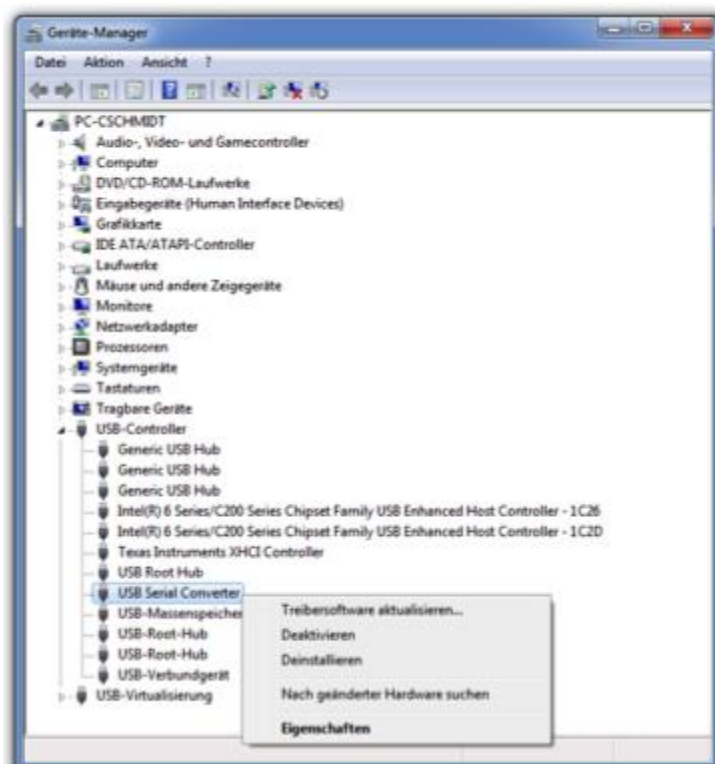


Figure 14: Driver Selection at Windows® Devices Manager

### 3.5. Launching the Installed Software

The ports one to four are turned off after a reset, while the ports five and six are switched on (for keyboard, mouse, etc.). To enable the ports, launch the previously installed software from the Windows<sup>®</sup> start menu. Through the software, you can then access the USB hub.

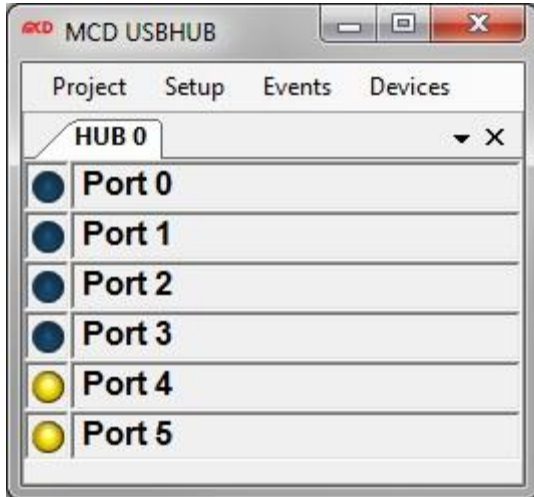


Figure 15: Start Menu

For more help, see the software documentation under Help → Help F1