USB Input module

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Introduction

The "USB Input module" allows a general purpose switch to be connected to a workstation or PC via a USB cable.

The module is recognized by the PC as a "USB keyboard" (HID), with only a single key. Microsoft Windows and other modern operating systems have intrinsic support for USB keyboards, therefore no drivers are necessary.

The key that the interface transmits to the PC is configurable; see "Configuring the USB Interface". In the factory setting, the interface transmits the key "1".

Multiple USB Input modules may be attached to a PC at the same time, with each module (typically) configured to transmit a different key code .

Mounting the USB module

The interface has mounting holes in the upper left and the lower right corners. These holes have a diameter of 2.2 mm.

Alternatively, the circuit board can be attached to a flat surface by means of double-sided foam tape. There are no components on the bottom side of the circuit board. However, due to the pins of the screw terminals going through the circuit board, the bottom side is not entirely flat. So thin double-sided tape is unsuitable.

Connecting the USB module

The USB Input module has a "mini-B" style USB connector, by which it is connected to a desktop PC, a laptop or a tablet. The USB module supports long cables (up to 5 metres is not a problem).
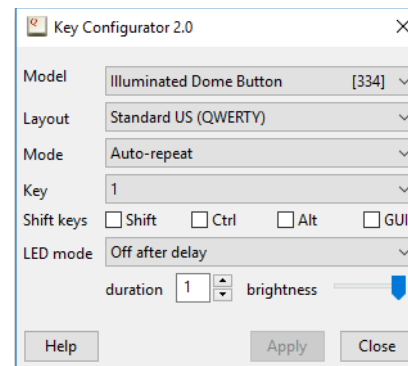
The USB Input module has two screw terminals at the other side. A standard switch should be connected to the lower terminal. A standard low power red or yellow LED can be connected to the upper terminal. See the image for the polarity of the LED.
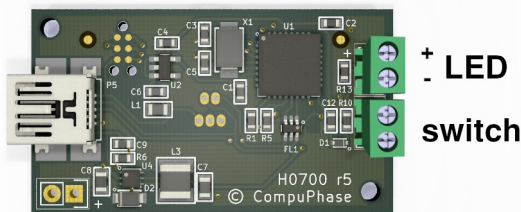
Configuring the USB module

The configuration utility is available from https://www.compuphase.com/usbkey/.

The utility configures only a single module at a time. The serial number, at the right of the model name, shows which interface is being configured. Note that the module is recognized as a "push-button".

After changing the configuration, you must click on Apply to store the settings in the USB module.

If not using a US keyboard layout, please select the appropriate layout of the keyboard (QWERTY/AZERTY).

When the mode is set to In *auto-repeat* mode, the USB module sends a key-down message on a press and a key-up message on a release. When holding the button pressed, the key-down is repeated (just like a key repeats when you hold it down). In *pulse* mode, the USB module sends a key-up message shortly after the key-down. The button therefore does not repeat.

Toggle key and *Tap or Hold* modes allow you to set two key codes instead of just a single one. For *Toggle key* mode these two codes are transmitted alternately. For *Tap or Hold* mode, a short press ("tap") transmits the first key, and the second key is transmitted when the button is held down.

Starting programs or commands

When the mode is set to *macro* mode, you can specify a sequence of keys to be transmitted. For the syntax of macro mode, please see the help file in the application.

In Microsoft Windows, the ⊞ + R key combination shows the "Run" dialog. In "macro" mode, you can pop up this dialog with the key sequence "#R". You can follow this by a command and then "{ENTER}" at the end to execute it. Other operating systems support similar functions, but may require a different key combination to pop up a "Run" dialog.

In addition, the USB Input module supports several consumer control functions, like play, pause and others. These require standard or pulse modes.

LED indicator software control

To control a LED that is connected to the USB module from your software, please install the ButtonLights utility. It is available on https://www.compuphase.com/usbkey/.
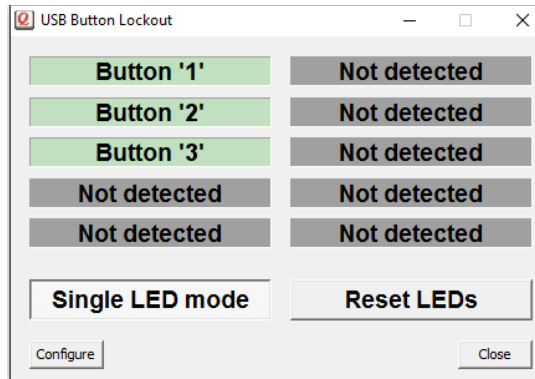
The ButtonLights utility can control up to 10 USB modules. The application window shows the detected interfaces and their status.

In contrast to the Key Configuration utility, the ButtonLights utility must remain running to operate the LEDs. It can be run from the task tray, and it can also be configured to start automatically on system start-up.

In order to control the LEDs from your own application, your application sends a command to the ButtonLights utility. Complete documentation is provided with the ButtonLights utility.

Alternatively, an SDK for controlling the LED is available, for various programming languages and for 32-bit and 64-bit Windows applications. See https://www.compuphase.com/usbkey/ for downloads.

Specifications

Mechanical

Dimensions.....................42 × 23.5 mm;
maximum height: 10.5 mm.
Mounting.......................Two mounting holes Ø 2 mm.

Operating conditions

Operating temperature..-25 °C to +70 °C.
Humidity.......................5% to 95% non-condensing.

Electronic interface

Operating voltage..........5.0 V nominal (5.5 V maximum), powered through USB.
Current..........................15 mA nominal (no LED output).
Switch input..................For potential free contacts; ESD protected.
Debounce criterion........20 ms stable period.
Switch latency...............30 ms maximum, 15 ms average.

LED output.....................3.3V, integrated 75 Ω resistor.
USB connector...............mini-B.
USB protocol..................low-speed, USB 1.1 compatible.

Compatibility

Compatible with Microsoft Windows® XP and later, MacOS®, Linux and Android. No client-side software is needed. (Free configuration software requires Windows®, MacOS®, or Linux).

Conformity

EMC..............................Compliant with EU Directive 2004/108/EC: EN 55022 and EN 55024 + A1 (2001) + A2 (2003).
Electrical safety.............Compliant with EU Directive 2006/95/EC: EN 60950-21
RoHS.............................Compliant with EU Directive 2002/95/EC.

Legal disclaimer

CompuPhase shall not be liable for the incidental or consequential losses or damage to tangible property, injury or death of a person in connection with the use of this device.

This device is intended to be connected to USB host devices or USB hubs. Connecting the device to equipment that does not adhere to the USB standard may damage the device.