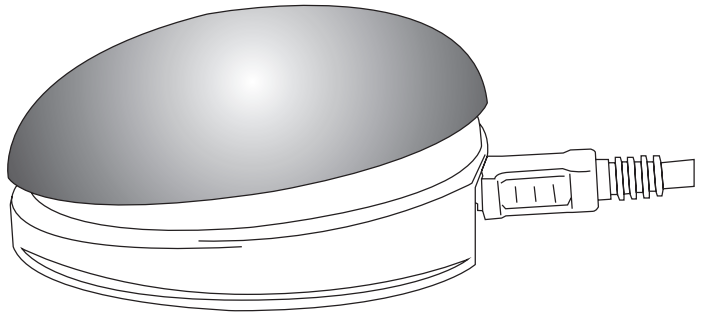


# INSTRUCTIONS

## USB Switch



### Pack Contents

Carefully check the contents of the box, which are:

**USB Switch unit**

**USB cable**

**These instructions**

### Product Description

**USB Switch** is a highly versatile switch access device designed to give you switch access to a wide variety of software on PC, Mac, Android<sup>®</sup> or Chromebook platforms. The function of the integral 75mm diameter switch may be selected using a simple user interface and can be one of many mouse, keyboard and gamepad functions.

Two sockets at the rear of the unit allow up to two additional wired switches to be attached.

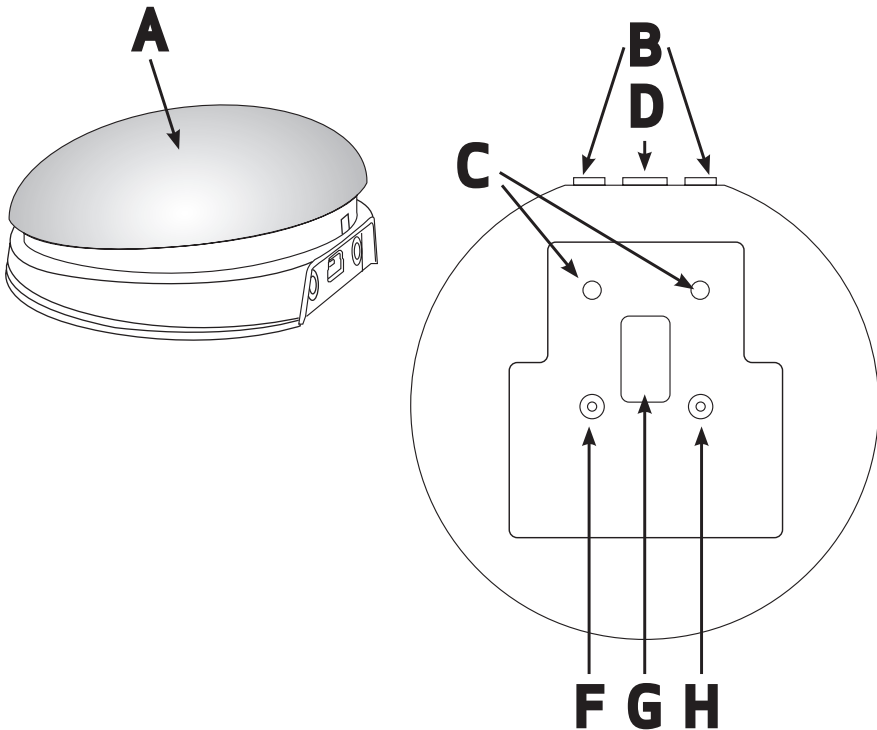
All three switches may be set to different functions.

Uniquely, **USB Switch** also allows adaptation for tremors, ataxia, chorea and other neuromuscular conditions resulting in motor deficits through its programmable Acceptance Delay, Ignore Repeat Time, Maximum Press Time and Auto-Repeat feature.

# Features

- **75mm Switch with built in USB interface.**
- **No drivers need to be loaded onto host computer.**
- **Switch function programmable via integral LED display.**
- **Advanced settings to allow adaptation for tremors, ataxia, chorea and other motor deficits.**
- **Two additional 3.5mm switch sockets, each separately programmable for function.**
- **Works with PC, Mac, Chromebook and Android Tablets\***
- **Low profile and low operating force**

*\*Android Tablet requires alternative cable.*



# Compatibility

Your **USB Switch** is compatible with the following computer platforms:

- All types of PC, including laptops
- All types of Apple Mac
- All types of Chromebook
- Some Android tablet computers and phones.

Android tablets vary enormously in specification so compatibility with these products is dependent upon the specific host device. Please contact Pretorian Technologies or your local distributor for guidance. If the Android device has a micro-USB sync/charging port, you will also need an alternative cable to the one provided. These are widely available from good hardware stores.

Throughout these instructions, all references to 'computer' should be taken as meaning any of the above devices.

Note that **USB Switch** is not compatible with Apple iPhone or iPad since these do not support a USB connection. Please consider Pretorian Technologies' iSwitch instead.

## Connecting your USB Switch

Plug the provided cable into the USB socket [D] on the rear of the unit and then plug the other end of the cable into the host computer. It does not matter whether the computer is on or off. The first time the **USB Switch** is plugged in, the host computer will build a suitable driver. It will never ask you to load a disk or search the internet for a suitable driver. The process of

building a driver may take up to thirty seconds to complete. The host computer will usually tell you when the device is ready to use.

Some Android computers may reboot after the drivers have been built in order to make them effective. This will only occur the first time the unit is plugged in.

## Mode Settings

The default modes for the integral switch [A] and sockets [B] are given in Table 1:

<b>SWITCH (A)</b>	<b>Space</b>
<b>SOCKET 1 (B)</b>	<b>Enter</b>
<b>SOCKET 2 (B)</b>	<b>Tab</b>

Table 1: Default Switch/Socket Modes

To change the integral switch [A] mode setting, press the Channel button [F] once. The current mode setting is then shown on the display [G]. To change, press the Mode button [H] repeatedly until the desired setting from Table 2 appears on the display.

After a few seconds the display is extinguished and the settings are saved. Note that all settings are retained even with the power off and are automatically recalled at power-up.

Note that neither of the LEDs [C] are illuminated when setting the internal switch mode.

To change the setting of either socket [B], first select the socket that you would like to change by repeatedly pressing the Channel button [F] until the LED [C] adjacent to that socket is illuminated.

The current mode setting is then shown on the display [G]. To change it, press the Mode button [H] repeatedly until the desired setting from Table 2 appears on the display. After a few seconds the display is extinguished and the settings are saved.

Any combination of settings can be programmed, including duplicates, should you wish to use **USB Switch** for turn-taking and co-operative learning.

Mode Setting	Class	Function	Explanation
0	Gamepad	Switch 1	<b>Gamepad functions- used with various software including Inclusive Technology and Crick<sup>†</sup></b>
1	Gamepad	Switch 2	
2	Gamepad	Switch 3	
3	Gamepad	Switch 4	
4	Mouse	Left Click	<b>Mouse Switch Functions</b>
5	Mouse	Right Click	
6	Mouse	Drag Lock	
7	Keyboard	Space	<b>General purpose keyboard functions used widely for computer access</b>
8	Keyboard	Enter	
9	Keyboard	Tab	
A	Keyboard	~1	<b>Tilde functions used on some tablet apps</b>
B	Keyboard	~3	
C	Keyboard	F7	<b>Used on Clicker<sup>†</sup> software, for example</b>
D	Keyboard	F8	
E	Keyboard	Numeral 2	<b>Used with Intellitools<sup>†</sup> and other US software</b>
F	Keyboard	Numeral 3	
G	Keyboard	Up Arrow	<b>General purpose keyboard functions frequently used for navigation</b>
H	Keyboard	Down Arrow	
J	Keyboard	Left Arrow	
L	Keyboard	Right Arrow	
P	Mouse	Cursor Up	<b>Mouse emulation</b>
R	Mouse	Cursor Down	
T	Mouse	Cursor Left	
U	Mouse	Cursor Right	

Table 2: Switch Mode Settings

<sup>†</sup>All trademarks are the property of their respective owners and are acknowledged.

## Switch Filtering Features

The **USB Switch** contains a number of features to allow users with ataxia, chorea, dystrophy, various forms of palsy and other coordination and motor deficits to successfully use a switch without frustration.

A number of important switch timings may be changed according to the user's precise requirements. As with all such features, a period of experimentation will yield the most suitable settings. Carers and, where appropriate, users are encouraged to read Pretorian Technologies' Switch Filtering white paper to gain a thorough understanding of the function of each setting and typical configurations for particular coordination and motor deficits. A copy of this white paper can be viewed on the **USB Switch** product page of the Pretorian Technologies website [www.pretorianuk.com](http://www.pretorianuk.com).

Specifically, there are four settings which may be changed:

- Acceptance Delay
- Ignore After Release Delay
- Maximum Press Time
- Auto-Repeat

When shipped from the factory, all settings are zero (or off), so if these facilities are not required, it is not necessary to go through any of the configuration described in the following sections. However, it should be noted that the settings are retained in the product's memory even with the power off, so once they have been made non-zero they will remain so until further changes are made.

The following sections give a brief overview of each setting and describe how to make changes to it. Once you elect to make changes (or even to view the current settings), you will be guided through from one menu to the next, dropping out once all have been set (or viewed). Note that there is no repetition of displayed characters from one menu to the next so it is always possible to tell precisely which menu you are currently in.

## Acceptance Delay

Acceptance Delay is defined as the time between first pressing the switch and it being accepted as pressed. If the switch is released within the chosen period, the switch press is ignored. Only a sustained press of at least the chosen time period will be recognised as a successful press.

Users with poor aim should keep this set to zero, whereas users with tremors but good aim may benefit from making this setting non-zero.

Beginning with the LED display [G] off, Press and Hold the Channel button for around two seconds until the LED display lights. Note that the display flashes off briefly once a second to confirm that the switch filtering menus are being viewed.

The current Acceptance Delay period is now shown on the LED display. The default setting is 0 (immediate). To make a change to the setting, repeatedly press the Mode button [H] until you see the required setting.

Setting	Delay
0	0 (Immediate)
1	0.25s
2	0.50s
3	0.75s
4	1.0s
5	1.5s
6	2.0s
7	4.0s

Table 3: Acceptance Delay Settings

Once you see the required setting on the display, pressing the Channel button [F] takes you to the Ignore After Release Time menu.

# Ignore After Release Time

Ignore After Repeat Time is defined as the time after releasing the switch for which any further switch presses are ignored. If the switch is re-pressed within this period, it will be ignored until the full period has elapsed. If the switch is still pressed at the end of this period, or is re-pressed after this period has elapsed, the switch press will be recognised from that point forward.

A non-zero setting allows a user with tremors to release the switch without fear of repeated switch activity. If the user has poor aim, it is usually preferable to have a non-zero Ignore After Release time than a non-zero Acceptance Delay.

The default setting is A (no delay). To make a change to the setting, repeatedly press the Mode button [H] until you see the required setting.

Setting	Time
A	0 (No Delay)
B	0.25s
C	0.50s
D	0.75s
E	1.0s
F	1.5s
G	2.0s
H	4.0s

Table 4: Ignore after Release Settings

Note that if both Acceptance and Ignore After Release Delays are non-zero, the minimum time from a switch being released until it can next be recognised as pressed is the SUM of the two settings. So, for example, if the settings are 3 and E respectively, the time from release to a second press being recognised is  $0.75 + 1.00 \text{ sec} = 1.75 \text{ sec}$ . It is unusual to require both of these settings to be non-zero.

Once you see the required setting on the display, pressing the Channel button [F] takes you to the Maximum Press Time menu.

# Maximum Press Time

Maximum Press Time is defined as the maximum switch closure time, irrespective of how long it is actually pressed i.e. normal operation. When set to 'P' (Continuous) the switch is closed for as long as it is pressed. When set to 'R', 'T' or 'U', the switch closure is for the appropriate period no matter how long the switch is pressed for.

This setting is very useful for users who have difficulty in removing their hand from the switch after a switch closure, which can often result in multiple occurrences of the chosen action.

The default setting is P (continuous). To make a change to the setting, repeatedly press the Mode button [H] until you see the required setting.

Setting	Time
P	0 (Continuous)
R	0.1s
T	0.2s
U	0.5s

Table 5: Maximum Press Time Settings

Once you see the required setting on the display, press the Channel button [F]. This will either take you out of the configuration menus, or to the Auto-Repeat setting if appropriate.

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# Auto-Repeat

The Auto-Repeat setting selects whether the unit auto-repeats a switch closure. It only appears as an option if the Maximum Press Time is non-zero and either the Acceptance Delay and/or Ignore After Release Time are also non-zero. It may be used to output periodic switch closures for as long as the switch is pressed which is often useful when scanning, for example.

Setting	Time
N	Off (gives single switch closure)
Y	On (auto-repeats)

Table 6: Auto-Repeat Settings

The duration of the switch closure will be the Maximum Press Time setting and the period between switch closures is the sum of the Acceptance Delay and Ignore After Release Time.

The default setting is N (off). To make a change to the setting, repeatedly press the Mode button [H] until you see the required setting.

This is an advanced setting and should not be turned on until all other features have been fully evaluated and the appropriate settings determined.

Once you see the required setting on the display, press the Channel button [F]. This will take you out of the configuration menus. All settings will be saved and the display will be extinguished.

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# Maintenance

Your **USB Switch** has no user serviceable parts. If repair is necessary the unit should be returned to Pretorian Technologies or an authorised Distributor.

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# Replacement Cables

Should you misplace the connecting cable or need to purchase a replacement, the following details will allow you to correctly specify your requirements to a technology retailer:

### USB Type A Plug to USB Mini Plug.

Note that such cables are frequently referred to as 'camera cables'.

Should you wish to use **USB Switch** with a tablet computer with a USB Micro charging/sync socket, please specify the following:

### USB Mini Plug to USB Micro Plug.

Note that Samsung devices have a non-standard socket and therefore an adaptor will be required to use **USB Switch** with Samsung tablet computers. These are widely available from technology retailers.

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# Warranty

Your **USB Switch** is warranted against defects in manufacture and component failure. The unit is designed for domestic and educational applications. Use outside these areas will invalidate the warranty. Unauthorised repair or modification, mechanical abuse, immersion in any liquid or connection to incompatible equipment will also invalidate the warranty.

# Troubleshooting

If your **USB Switch** does not operate correctly, please use the following guide to determine the cause. If, after following this guide, your unit still does not operate, please contact your supplier before returning it.

Symptom	Possible Cause/ Remedy
My <b>USB Switch</b> is not recognised when plugged into my computer	<ul style="list-style-type: none"><li>• Check that plug is fully inserted into socket [D].</li><li>• Check cable for integrity-try a replacement cable.</li><li>• Note that many of the switch modes are keyboard functions so it is often a good idea to select one of these and try pressing the switch in a word processing application. You should see characters appear in the document just like typing on a keyboard.</li></ul>
Nothing happens when I press the switch	<ul style="list-style-type: none"><li>• Check that you have selected the correct mode setting for the software you are using. Many use space and enter.</li><li>• Check that the switch filtering functions are set according to your needs. In particular, a non-zero setting for Acceptance Delay can lead the user to believe that the switch is not functioning as they tend not to press it for long enough to overcome the delay.</li></ul>
My <b>USB Switch</b> works on my PC but does not work on my Android tablet	<ul style="list-style-type: none"><li>• <b>USB Switch</b> gets its power from the host computer. Some Android tablets do not make power available on the sync/charging port. Please contact Pretorian for an up to date list of which tablet computers may be used.</li><li>• Note that Switch Access is only available on Android 5.0 (Lollipop) and later.</li></ul>

The Apple and Samsung brand names are used for identification purposes only, are the property of their respective owners and are acknowledged.

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