



# USB Physical Layer Switches

Automatically and remotely configure paths between  
multiple USB devices

Quarch  
Data Sheet





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Automatically and remotely configure paths between multiple USB devices



## Highlights

- ▀ Supports USB connections at USB 1.x, 2.x and 3.0 speeds
- ▀ Physical layer switching, very low latency
- ▀ Switch between multiple hosts/devices
- ▀ Completely transparent at the protocol layer
- ▀ Simulate full hot-swap, including pin bounce
- ▀ Performs basic fault injection and glitching
- ▀ Simple control via LAN, USB or Serial

## Use Cases

### Device Testing

Automatically switch multiple devices into a host

### System Configuration

Re-route test kit without physically re-cabling

### Fault testing

Test conditions such as broken cables and intermittent faults





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## Switching

USB data is routed using passive switches. A USB compliant re-driver is used to ensure that the signalling levels are maintained.

Host/Device connections will appear as if they are directly cabled. This will allow you to remove the vast majority of manual cable changes, allowing longer and more complex automated tests to run, without human intervention. This allows 24/7 testing and more predictable test timings.

Removal of manual intervention also removes the chance of a test being inconsistently or incorrectly performed.

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## Hot-Plug and Fault Injection

In addition to the basic switching function, this product also contains the full functionality of our 'USB Cable Modules', for full hot-swap control.

This is based on the same feature set as our other 'HS' Hot-Swap modules. In addition to hot-swap, the modules can perform fault injection by controlling the connection state of individual signals.

Individual control over each pin allows us to create almost any possible hot-swap scenario. This includes fast and slow plugs, corner cases and pin-bounce during connection. Precise timing ensures that every test scenario can be exactly re-created.

A glitch feature allows signals to be disconnected for as little as 50nS. The Modules switch all signals in the cable and can also perform pin-bounce.

You can also simulate damaged cables, intermittent faults and more.

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## Supplied Parts

- Switch Module** - The main unit
- Torridon Cable** - 40cm Torridon Double Ended Interface Cable. Connects the module to an optional controller
- Power Supply** - External Power supply with multi-region plug
- USB Cable** - 2 meter USB cable

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## Also Required

- Downloads** - Our website contains many useful downloads to help you get started: [www.quarch.com](http://www.quarch.com)
  - USB Drivers
  - Technical Manuals
  - Quick Start Guides
  - Example Scripts
  - TestMonkey GUI





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## Support

Quarch provides direct support to all customers, regardless of the sales channel you use to purchase our equipment. We are available over email, or by phone during UK office hours. Our regional partners are also trained to handle many of the most common questions you might have.

Our support is normally free, though there may be charges if you require on-site training or significant development work. Please contact us if there is anything we can do to help.

Please see our website for access to drivers, technical manuals, quick-start guides, example scripts and more

**Email**

support@quarch.com

**Phone**

+44 1343 508 140

**Web**

[www.quarch.com/support](http://www.quarch.com/support)

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## Ordering

Quarch have a network of specialist partners around the world. Please contact our partner in your region if you require a quote.

We recommend evaluating our products before purchase, so our partners will be happy to arrange a free evaluation unit.

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## Regional Contact Details

**China, Hong Kong, Taiwan**

Saniffer

Hong Kong



Email [sales@saniffer.com](mailto:sales@saniffer.com)

Web [www.saniffer.com](http://www.saniffer.com)





## Products Versions

| Product Code | Product Options |
|--------------|-----------------|
|--------------|-----------------|

**QTLXXXX/KIT\_YY**

Product code, made up from options below



USB Switch - Main Unit





## Additional Controllers - Adds serial control option

| Product Code   | Description  |   |
|----------------|--|---|
| <b>QTL1260</b> | <b>Torridon Interface Kit</b><br>Simple USB and Serial control options for bench testing         |    |
| <b>QTL1461</b> | <b>4 Port Torridon Controller</b><br>Control up to 4 modules via Serial/LAN/USB connection       |    |
| <b>QTL1079</b> | <b>28 Port Torridon Controller</b><br>Control up to 28 modules via Serial, LAN or USB connection |  |

## Accessories

| Product Code   | Description  |
|----------------|--|
| <b>QTL1558</b> | <b>40cm Torridon Double Ended Interface Cable (Female to Female)</b><br>Replacement cable, connects Cable Module to Controller |
| <b>QTL1381</b> | <b>100cm Torridon Extension Cable (Male to Female)</b><br>Extends an existing Double Ended Torridon cable                      |





## Technical Information

|                               |                  |
|-------------------------------|------------------|
| Port Count                    | 1 Host, 8 Device |
| Port Connector                | USB 3.0          |
| Max Speed Supported           | SuperSpeed       |
| Protocols Supported           | USB              |
| Supports Optical Cables       | X                |
| Visible Connection Indicators | RGB LEDs         |

|               |                       |
|---------------|-----------------------|
| Power Supply  | Supplied external PSU |
| Control Ports | USB-B, LAN, Torridon  |

|               |         |
|---------------|---------|
| Length        | 164.5mm |
| Width         | 165.9mm |
| Height        | 43.65mm |
| 1U Compatible | √       |

|                       |  |
|-----------------------|--|
| Hot swap Cable        | √                                      |
| LED Status Indicators | √                                      |
| Pin Bounce Simulation | Simple/Custom. 10uS minimum period     |
| Signal Glitch         | Single/Cycle/PRBS. 50nS minimum length |

|                |                              |
|----------------|------------------------------|
| Serial Control | Supported on all Controllers |
| USB Control    | √                            |
| REST Control   | √                            |
| Telnet Control | √                            |



