



6G SAS/SATA Drive Modules

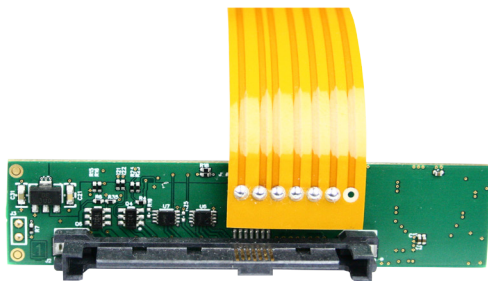
Automate hot-plug, dual redundancy and fault injection testing for 6G SAS and SATA drives.

Quarch
Data Sheet



6G SAS/SATA Drive Modules

Automate hot-plug, dual redundancy and fault injection testing for 6G SAS and SATA drives



Highlights

- Supports SAS and SATA: SSDs and HDDs
- Removes manual intervention, for fully automated testing
- Precise and consistent timing control over hot-swap scenarios
- Completely transparent at the protocol layer
- Create and test many different fault conditions
- Simple to control with your existing test automation system

Use Cases

| | |
|-----------------------------|---|
| System Qualification | Run repeated test cycles with bounds testing of all possible hot-swap scenarios |
| Regression Testing | Automated regression tests spot issues earlier during development |
| RAID Testing | Force drive rebuilds, single/double RAID faults |
| Failover Testing | Test dual redundancy, fault monitoring and performance during a failure |





Hot Swap

SAS/SATA data is switched with high speed RF switches, ensuring that our modules are almost totally transparent to the storage system. Host/Device connections will appear as if they are directly cabled.

Individual control over each pin allows us to create almost any possible hot-swap scenario. Precise timing ensures that every test can be exactly re-created.

Single modules allow for simple bench testing, while larger test systems can scale to 100+ drive modules with a single point of control. Serial, LAN and USB control options ensure that our products can work seamlessly with existing automated tests.

Module Range

Drive Modules come in 3 main ranges:

Lite modules switch only the power pins and mated signals. These are for ideal for basic on/off hot-swap.

HS Lite modules switch all signals, including the high speed SAS data lines.

HS modules switch all signals and can also perform pin-bounce and high speed glitch.

These modules support data rates up to 6Gb/s. A second range is available to support 12G SAS and PCIe SFF drives.

Modules normally come with a dual port SAS plug, but a keyed SATA connector is also available for systems that cannot take a standard SAS drive.

A thin, flexible cable allows the module to fit inside almost any enclosure.

Interface options depend on the controller you chose, but include simple Serial, USB and LAN options. These can be accessed from almost any scripting language. You will need to purchase a separate controller to use this module.

Drive modules can be combined with other Torridon modules as part of a full test-automation system.

Supplied Parts

Drive Module - The main unit, includes a fixed 40cm Interface Cable

Also Required

Controller - You will require one slot on a Torridon Controller for each Cable Module

Downloads - Our website contains many useful downloads to help you get started: www.quarch.com

USB Drivers
Technical Manuals
Quick Start Guides
Example Scripts
TestMonkey GUI





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 | Phone | Web |
|--------------------|------------------|------------------------|
| support@quarch.com | +44 1343 508 140 | www.quarch.com/support |

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.

Regional Contact Details

North America

SerialCables LLC
Colorado, California



Email sales@serialcables.com
Web www.serialcables.com
Phone +1 303-495-2320

China, Hong Kong, Taiwan

Saniffer
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Products Versions

| Product Code | Product Options |
|----------------|--|
| QTLXXXX | Product code, made up from options below |
| QTL1215 | 6G SAS LITE Drive Module |
| QTL1301 | 6G SAS HS LITE Drive Module |
| QTL1177 | 6G SAS HS Drive Module |
| QTL1490 | 6G Keyed SATA HS Drive Module |



Drive Module - Attached to a drive carrier



Required Controllers - One port on a controller is required for each module

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

Accessories

| Product Code | Description |
|----------------|---|
| QTL1381 | 100cm Torridon Extension Cable (Male to Female) Extends the fixed cable on the drive module |
| QTL1382 | 200cm Torridon Extension Cable (Male to Female) Extends the fixed cable on the drive module |
| QTL1581 | 300cm Torridon Extension Cable (Male to Female) Extends the fixed cable on the drive module |





Technical Information

| Connections | QTL1215 | QTL1301 | QTL1177 | QTL1490 |
|----------------------|--------------------------|------------------|-----------------|------------------|
| Host Side Connector | SFF8482 | | SFF8482 (Keyed) | |
| Drive Side Connector | SFF8482 | | | |
| Max Speed | 6Gb/s | | | |
| Protocols | SAS/SATA | | | |
| Signals Switched | Power,Mated ¹ | All ² | | All ³ |

¹ Mated controls a set of vendor specific drive present circuits that work with all major storage systems

² All power,high speed data, mated and side band pins are switched. GND pins are directly routed through the module.

³ As ¹ but secondary SAS port is not present due to the keyed SATA connector

| External Connections | QTL1215 | QTL1301 | QTL1177 | QTL1490 |
|----------------------|-------------------------|---------|---------|---------|
| Power Supply | Via Torridon Controller | | | |
| Control Ports | Torridon Connector | | | |

| Physical Dimensions | QTL1215 | QTL1301 | QTL1177 | QTL1490 |
|---------------------|--------------------------|---------|---------|---------|
| Offsets Drive By | 14mm | | 32mm | |
| Width | 69.1mm | | 69.1mm | |
| Height | 15.4mm | | 15mm | |
| Compatible Drives | 2.5", 3.5" SSDs and HDDs | | | |

| Features | QTL1215 | QTL1301 | QTL1177 | QTL1490 |
|-----------------------------|-------------------------------|--|---------|---------|
| Basic (power only) hot/swap | √ | √ | √ | √ |
| Full hot-swap | X | √ | √ | √ |
| Pin Bounce Simulation | X | Simple/Custom. 10uS minimum period | | |
| Signal Glitch | X | Single/Cycle/PRBS. 50nS minimum length | | |
| Voltage Monitoring | 3v3/5v/12v on Host and Device | | | |

| Controllers | QTL1215 | QTL1301 | QTL1177 | QTL1490 |
|----------------|----------------------------------|------------------------------|---------|---------|
| Serial Control | Supported on all Controllers | | | |
| USB Control | √ ¹ | Supported on all Controllers | | |
| REST Control | Supported on QTL1079 and QTL1461 | | | |
| Telnet Control | Supported on QTL1079 and QTL1461 | | | |

¹ No 'Direct' USB control. QTL1260 provides USB virtual COM port option, and QTL1079/QTL1461 allow USB control of the full system.



