



Programmable Power Module

Automated solution for power ramping, interruption,
margining and measurement

Quarch
Data Sheet





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Automated solution for power ramping, interruption, margining and measurement



Highlights

- ▀ Dual output programmable power supply
- ▀ Simple to use via GUI or automated test script
- ▀ Complex voltage profiles can be easily generated
- ▀ Oscilloscope function allows accurate power recording
- ▀ Low current measurement system, accurate at uA range
- ▀ Powers HDD, SSD, PCIe SFF, PCIe x16 Slot, SAS, SATA and more
- ▀ NEW: 'HD' units will allow 6 output ports in a 1U rack configuration, for multi-device testing

Use Cases

Power Margining	Hot-swap ramping, brownout, over/under voltage tolerance
Characterisation	Power consumption during read/write/device sleep
Noisy Power Rails	Simulate the effect of noisy PSU on device performance
Power Loss	Data retention on power loss
Automation	Simple scripted control for complex unsupervised testing
External Triggering	Link to an analyser to measure or interrupt power at precise points within a data transfer





Measurement

Voltage and Current are simultaneously sampled, to give the most accurate possible power measurement. Measurement recording can be started from a number of sources: Manual, external trigger, pattern trigger or power/current threshold trigger. The pre-trigger option allows you to assign a percentage of the memory to capture the power trace in advance of the trigger point.

Measurement data can be easily viewed in our free TestMonkey GUI, or exported to Excel or similar for further study

A single Quarch Power Module can replace a dual output power supply, oscilloscope and 2 current probes. It is also far easier to setup and use than the separate components.

New 'HD' modules support intelligent fixtures which will soon allow mixed signal measurement and advanced triggering

Output & Control

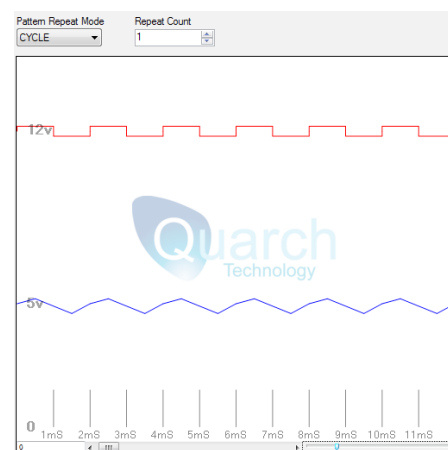
Basic power margining tests can be run in seconds. Complex output patterns, such as ramps, curves and repeating square waves can also be quickly created and injected into your device.

As with measurement recording, power patterns can be started manually or from an external trigger event.

Threshold current/power levels can be used to constantly monitor your device and trigger a recording or external trigger if the level is exceeded.

While our free TestMonkey app is great for manual testing. The Power Module can also be fully automated.

The QTL1260 'Interface Kit' provides simple DB-9 and USB Virtual COM port control options. This allows any standard scripting language such as Perl or Python to control the module with a few simple commands. Example scripts can be provided to get you started.



Supplied Parts

- Power Module** - The main unit
- Power Supply** - External 15v power supply, with country specific plug (HD modules have an internal PSU)
- USB Cable** - 2 meter USB cable
- Output Cable** - 60cm output cable to connect Power module to an external device. A choice of cables is available

Also Required

- 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

support@quarch.com

Phone

+44 1343 508 140

Web

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



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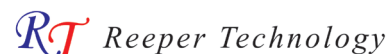
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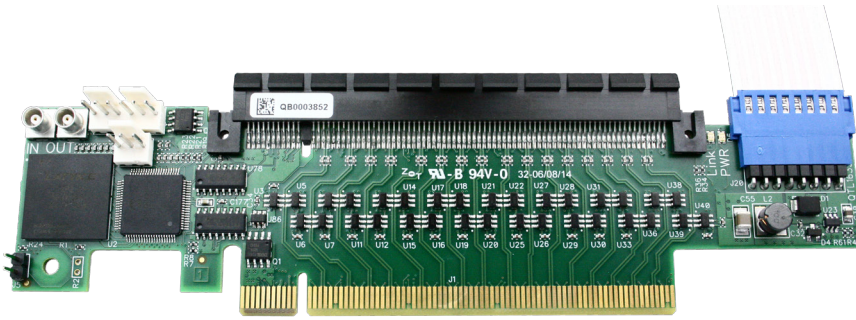
Products Versions

Product Code	Product Options
QTLXXXX/KIT_YY/ZZZ	Product code, made up from options below
QTLXXXX	QTL1999 HD Programmable Power Module + Triggering QTL1995 HD Programmable Power Module - 6 Port, 1U QTL1824 XLC Programmable Power Module + Triggering QTL1847 XLC Programmable Power Module QTL1658 Programmable Power Module + Triggering QTL1455 Programmable Power Module
/KIT_YY	/KIT_US US Power Cable Option /KIT_EU EU Power Cable Option /KIT_UK UK Power Cable Option
/ZZZ	/ATX ATX Output Cable /PCI PCIe Module Output Cable /INJ Injection Fixture Output Cable

Related Products

Product Code	Description
QTL1260	Torridon Interface Kit Adds DB-9 Serial and USB Virtual COM port control for easy scripting
QTL1789	PCIe x16 Card Power Injection Fixture Inject power into a PCIe slot device
QTL1809	SAS/SATA/PCIe Drive Power Injection Fixture Inject power into a SAS, SATA or PCIe SFF disk drive
QTL1965	PCIe Slot M.2 Lite Power Injection Fixture Inject power into M.2 devices (via x4 PCIe slot)
QTL1688	GEN3 PCIe x16 HS Card Module + Power Injection + Triggering Inject power into a PCIe slot device with hot-plug, slot width and triggering control
QTL1697	Programmable Power Module to 6 pin 2.54mm Power Injection Cable Cable to QTL1688/QTL1630 PCIe Card Modules - 60cm (Optionally supplied with module)
QTL1617	Programmable Power Module to 4 pin ATX Power Injection Cable Cable to standard 4-pin molex connectors - 60cm (Optionally supplied with module)
QTL1771	Programmable Power Module to 6 pin Mini-Fit Jnr Power Injection Cable Cable to Quarch Power Injection Fixtures - 60cm (Optionally supplied with module)





QTL1688 Card Module



QTL1809 SFF Injection Fixture



QTL1260 Torridon Interface Kit



QTL1617 Output Cable to ATX



Technical Information

Output Characteristics	QTL1999	QTL1824	QTL1847	QTL1658	QTL1455
Output Voltage	0 - 14.4V on 12V Output , 0 - 6V on 5V Output				
Voltage Output Resolution	3.54 mV				
Voltage Output Accuracy	1% ^{*1}				
Output Current	4A Continuous ^{*2}				
Output Pull Down	Switchable			None ^{*3}	
Output Capacitance	None	Switchable (22uF or None)		Fixed 22 uF	

^{*1} At nominal output

^{*2} At nominal output. Unlimited when < 1 mS

^{*3} No active pull down, floats to ground depending on output device capacitance

Measurement	QTL1999	QTL1824	QTL1847	QTL1658	QTL1455
Sampling Rate	250 KHz				
Sample Averaging	1 to 32K Samples				
Typical Voltage Accuracy	± 1%				
Current Accuracy ^{*1}	± (2 mA + 1%) @ 1 - 4000mA			± (2 mA + 3%) @ 30 - 4000mA	
Low Range Accuracy	± (2 uA + 2%) @ 100uA - 1mA			N/A	
Measurement Resolution	3.36 mA, 3.54 mV			2.44 mA, 3.54mV	
Low Range Resolution	24.89 uA, 3.54 mV			N/A	
Memory Depth	64 Mbit	8 Mbit		1 Mbit	

^{*1} At 32K measurement accuracy

Pattern Generation	QTL1999	QTL1824	QTL1847	QTL1658	QTL1455
Pattern Resolution	1 uS				
Pattern Points	1024				
Slew Rate	1 Volt / uS (No Load, rising voltage)			0.5 Volt / uS (No Load, rising voltage)	
Pattern Repeats	1 - 65534 or Continuous				

External Connections	QTL1999	QTL1824	QTL1847	QTL1658	QTL1455
Power Supply	Mains IEC	15V External PSU			
Power Output	10 Pin Mini Tek	6 Pin Mini Fit Jnr			
Control Ports	USB-B, LAN	USB-B, Torridon			
Triggering	MCX IN/OUT	SMA IN/OUT	None	SMA IN/OUT	None



