



Programmable Power Module

Automated solution for power ramping, interruption,
margining and measurement

Quarch
Data Sheet





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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 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

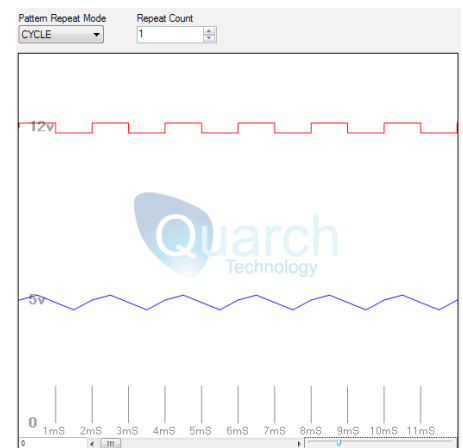
Basic power margining tests can be run in seconds. Complex output patterns, such as ramps, curves and repeating square waves can also be quickly created and injected into your device.

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





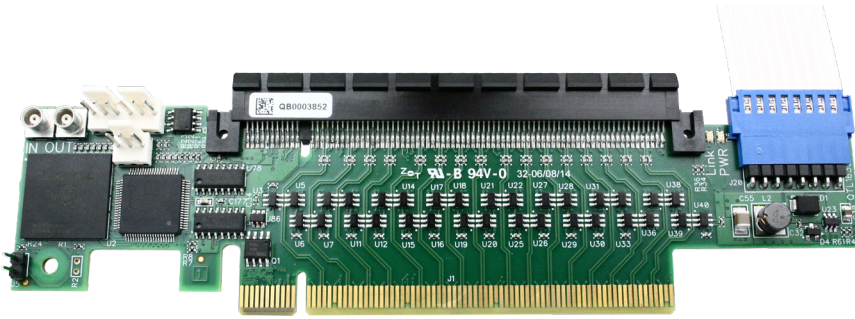
Products Versions

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) + Triggering
	QTL1824	XLC Programmable Power Module + Triggering
/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
QTL2868	Gen5 PCIe x16 Card Power Injection Fixture Inject power into a PCIe slot device
QTL2793	Gen5 SAS/SATA/PCIe Drive Power Injection Fixture Inject power into a SAS, SATA or PCIe SFF disk drive
QTL2883	Gen5 M.2 M-Key Horizontal Injection Fixture Inject power into M.2 devices
QTL2798	Gen5 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 (with power injection)



QTL1809 SFF Injection Fixture



QTL1960 PCIe to M.2 Power Injection Fixture



QTL2015 M.2 M-Key Injection Fixture



Technical Information

Output Characteristics	QTL1995	QTL1999	QTL1824
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	5A Continuous ^{*2}	4A Continuous ^{*3}	
Output Pull Down	Switchable		
Output Capacitance	None		Switchable (22uF or None)

^{*1} At nominal output

^{*2} At nominal output. Up to 9.2A for 10 seconds. Unlimited when < 1 mS

^{*3} At nominal output. Unlimited when < 1 mS

Measurement	QTL1995	QTL1999	QTL1824
Sampling Rate	250 KHz		
Sample Averaging	1 to 32K Samples		
Typical Voltage Accuracy	± 1%		
Current Accuracy ^{*1}	± (2 mA + 1%) @ 1 - 4000mA		
Low Range Accuracy	± (2 uA + 2%) @ 100uA - 1mA		
Measurement Resolution	3.36 mA, 3.54 mV		
Low Range Resolution	24.89 uA, 3.54 mV		
Memory Depth	64 Mbit	8 Mbit	

^{*1} At 32K measurement accuracy

Pattern Generation	QTL1995	QTL1999	QTL1824
Pattern Resolution	1 uS		
Pattern Points	1024		
Slew Rate	1 Volt / uS (No Load, rising voltage)		
Pattern Repeats	1 - 65534 or Continuous		

External Connections	QTL1995	QTL1999	QTL1824
Power Supply	Mains IEC		15V External PSU
Power Output	6x 10 Pin Mini Tek	10 Pin Mini Tek	6 Pin Mini Fit Jnr
Control Ports	6x LAN	USB-B, LAN	USB-B, Torridon
Triggering		MCX IN/OUT	SMA IN/OUT

