

Prism Sound dScope M1 Advanced I/O family for dScope software

Overview:

dScope M1 is a new addition to the range of hardware interfaces for the Prism Sound dScope audio test and measurement family.



Introduction:

The dScope M1 interface family is compatible with the well-established dScope Series III software platform. As well as some hardware variants, the M1 hardware is complemented by a number of software variants based on license files that may be purchased to enable feature options.

Software feature sets are summarized in this table:

Option	dScope III	dScope III M1HP	dScope III MID	dScope III E	dScope M1	dScope M1E	dScope III A+	dScope III A
Analogue I/O (48kHz/96kHz/192kHz)	✓	✓ Anal: mx 768kHz; Gen: Up to 384kHz	✓ Up to 192kHz	✓	✓ Up to 384kHz	✓ Up to 96kHz	✓	48kHz/96kHz only
Sound Card I/O	✓	✓	✓	✓	✓	✓	✓	✓
Signal Analyzer (Ampl/Freq/Phase)	✓	✓	✓	✓	✓	✓	✓	✓
Continuous Time Analyzer (Ampl/THD+N/IMD etc)	✓	✓	✓	✓	✓	✓	✓	✓
FFT Analysis	✓	✓	✓	✓	✓	✓	✓	✓
Impulse Response Tests	✓	✓	✓	✓	✓	✓	✓	✓
Scripting	✓	✓	✓	✓	✓	✓	✓	✓
Multi-tone Gen/Analysis	✓	✓	✗	✓	✓	✗	✓	✗
FFT Detectors	40	40	2	2	40	2	40	2
Scripted FFT Detectors	✓	✓	✗	✗	✓	✗	✓	✗
Nest/Sense sweep, script on sweep step, plot I/P on X axis	✓	✓	✗	✗	✓	✗	✓	✗
Regulation	✓	✓	✗	✓	✓	✗	✓	✗
Integrated GPIO switchable up to 4 lines	✗	✓	✗	✗	✓ upgrade	✗	✗	✗
Integrated VSIO for I2S (single wire each way + clocks)	✗	✗	✗	✗	✓ upgrade	✗	✗	✗
dS-NET I/O Switcher	✓	✗	✗	✓	✓ upgrade	✗	✓	✗
dS-NET VSIO Control	✓	✗	✗	✗	✗	✗	✗	✗
Port Access from scripts	✓	✓	✗	✗	✓	✗	✓	✗
Event Manager	✓	✓	✗	✗	✓	✗	✓	✗
Digital I/O (max 192kHz)	✓	✓	✓	✓	✓	✓ make as Anal	✗	✗
D0 Sync IN/OUT	✓	✓ WCK/uVSIO only	✓	✗	✓ WCK/uVSIO only	✗	✗	✗
Digital Carrier analysis	✓	✓	✗	✗	✗ partial more later	✗	✗	✗
Digital Channel Status	✓	✓ Full Detail	✓ Simple	✓ Simple	✓	✓ Simple (chg)	✗	✗
Digital Carrier/sync monitor BNCs	✓	✗	✗	✗	✗	✗	✗	✗
Monitor Outputs (BNC, Headphone & Speaker)	✓	✓ Host PC audio. No BNC outputs.	✓ Host PC audio. No BNC outputs.	✓ Host PC audio. No BNC outputs.	✗ Host PC later	✗	✓	✓
Signal Generator Functions	All Fns	All Fns	As dScope III A	All Fns	All Fns	As dScope III A	All Fns	Sine/LSS/twintone/white/pink noise

Key features of dScope IIIM1HP

- Support for Analogue Generator output levels up to +26dBu
- Support for Analogue Inputs sampling rate up to 768kHz and bandwidth > 300kHz
- Two low-residual, high-bandwidth analogue IO channels, with balanced and unbalanced operation;
- Two-channel digital IO, with some basic carrier degradation and analysis, AES3 and S/PDIF modes;
- Familiar dScope UI and scripting API;
- Streaming architecture allows increased generation and analysis versatility, also higher speed;
- Minimal electro-mechanical components for long service life;
- Low power, <12W, via Sealed 12V AC-DC power converter;
- Small size; 36x230x180mm, rack-mount ears available.

Mechanical

dScope M1HP is contained in a rugged metal case, small enough to be carried in a laptop bag, but which can also be rack-mounted in 1U with the optional racking ears if required. Dimensions are 36mm high by 230mm wide, by 180mm deep (including captive connections). Unit weight is 1.3kg (excluding separate 230VAC-12VDC adaptor).

Physical

	dScope M1HP
Dimensions:	230 x 180 x 36mm (1U mounting kit available)
Weight:	1.3kg
Supply voltage:	dScope IIIM1HP interface :12V DC, 1.0A dScope IIIM1HP interface + AC adaptor: 110/230V +/- 10%; 45Hz to 65Hz <16W (Note: AC Adaptor included)
Power consumption:	dScope IIIM1HP plus AC adaptor: <16W
Operating temperature:	5°C to 45°C
Relative Humidity:	80% non condensing
Max Altitude	2000 metres HAMSL

These specifications are provisional and may be changed without notice.

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Connectors

dScope M1HP has the following connectors and indicators:

Front (left-to-right)	Rear (left-to-right)
DO XLR, TOSLINK	Chassis ground (screw and 4mm)
DI TOSLINK, XLR	BNC Wordclock I/O (NOTE: Only used with AES digital I/O)
Bicolour power LED	dS-NET/GPIO/12S DB9-M
AO XLR A, B	RJ45 Ethernet (future option, may be omitted from initial production)
AI XLR A, B	USB 2.0 B host interface
	2.5mm DC-IN (12V, 1A nominal)

The AI and AO XLRs will accept RCAM-XLRm and RCAM-XLRf adapters which will connect the cold-leg to signal ground for unbalanced operation.

The DI and DO XLRs will accept RCAF-XLRm and BNCf-XLRf adapters for S/PDIF and AES-3id operation. The impedance of the interfaces will automatically be switched from 110R to 75R by their insertion, and the DO amplitude range available is selected in software according to fitment.

The DB9-M connector contains five IO connections which can be used either for GPIO purposes OR uVSIO (I2S) depending on settings in the dScope software. The functions of the 5 connections are detailed in the following table:

GPIO mode	uVSIO mode
Input	Audio data Input
Output	Audio data Output
Programmable Input or Output	MCK
2x Programmable Input or Output (both will have same function).	SCK
	LRCK

Additionally, the DB9 connector provides a connection for the Prism Sound dS-NET IO Switchers, enabling switching control of over 1000 audio channels.

NOTE: The dSNet-VSIO peripheral is NOT supported with the dScope M1HP unit.