

3RU half rack, Waveform, Vector and Audio Monitor and Generator with internal hi resolution screen and video output rasterizer*.



The MonitorScope MS9000 is a compact, low power On Screen Display (OSD) device with a built in XVGA display. Rack mountable, the low power device with HD, DVI and XVGA optional outputs for use on external displays, is an ideal alternative to, and/or replacement for broadcast measuring devices in production, post production or front line maintenance environments. Especially where repetitive monitoring or measurements need to be made. Areas such as, camera trolley's, editing, master control, pre or post production, remote sites, uplink vans and OB vehicles. Indeed anywhere serial digital signals or multiformat measurement is required.

The MS9000 is a modular instrument so it is easy for the user to upgrade at any time. **AbsoluteCare**, a four year back to base warranty is included upon registration. (Conditions apply). The MS9000 unit is capable of error analysis, measurement and monitoring with EYE pattern 3G, HD, SD and composite video signals and audio in its embedded, or AES/EBU formats and generating HD and SD video and audio signals dependant on the installed modules. Waveform, Vector, Audio and Picture can be monitored and measured. Coloured traces, Line Select, stuck bit detect (no activity on one data line). There is a headphone socket on the front so the decoded audio can be monitored.

There are two versions the MS9000 "A" and MS9000 "B" to choose from. The "A" variant is full specification with full absolute care warranty available; the "B" variant has a reduced functionality set which comes in at a lower price than the "A". The "B" version has no quad/tiled display, no cursors, no downloads, no gamut, a 1 year warranty as standard, extendable to 2 years upon registration. *This product contains proprietary patented designs.*

Features and Functions

Main Unit

- The first modular 3U half rack 3G, HD, SD, Composite measuring, monitoring and generation instrument*
- High resolution quality 6.5" XVGA TFT display
- Data and gamut analysis, time code logging of assigned errors
- Easy access to full waveform and vector functionality: Parade (YCrCb), 2H, H, Hmag, 2V, V, Vmag, Full field line select, Bow tie, Ext - ref,
- HFT™ - (Hands Free Timing™) and Filtering
- V, H and Phase cursors for accurate measurement & reporting
- Coloured displays of waveforms, vectors, audio bar graphs and phase display
- Select audio source, bar graph type, peak hold, deemphasis
- Split tile layout, picture display in 4:3 or 16:9
- Audio output jack
- Two input module slots
- Operator and factory store and recall presets
- Computer remote IP control via, up/downloads data via USB/RJ45*
- 12 VDC powered, battery pack, mains adapter included

FlexiScope Module Options Available Description

- HD, SD Video and Audio input module
- SD, Composite Video and Audio input module
- HD, SD Video and Audio input module with Test Signal Generation
- HD, SD Video and Audio input module with EYE pattern included
- 3G, HD, SD Video and Audio input module
- 3G, HD, SD Video and Audio input module with EYE pattern included

Other Options:

- HD, SD, DVI/XVGA output
- Soft carry case to hold the unit and its option modules.

*** Depending on installed Module see separate module datasheets for more information**

See our website for applications

www.hamlet.co.uk

TECHNICAL SPECIFICATION

INPUTS WITH HD-SD MODULE option 01

HD/SD digital input. BNC connector. Input impedance 75 ohms.

Max d.c. +/- 10V. SMPTE 259M serial digital at 800mV p/p. SMPTE 292M high definition serial digital at 800mV p/p. Auto equalised up to 350 metres of cable at 270mb/s. Auto equalised up to 140 metres of cable at 1.485Gb/s.

HD/SD digital output. BNC connector. Output impedance 75 ohms. Equalised version of the serial digital input.

Ext-ref / AES input. BNC connector. Input impedance 75 ohms. Max dc +/- 3 volts. Video 0.5 to 2.0V p/p. Digital Audio min 150mV p/p, max 3V p/p conforming to S/PDIF, AES3, IEC60958 or EIAJ CP1201.

INPUTS WITH SD-CST MODULE option 02

INPUT

BNC connector. Input impedance 75 ohms. Max d.c. +/- 10V. SMPTE 259M serial digital at 800mV p/p. Auto equalised up to 350 metres of cable at 270mb/s. PAL or NTSC composite video 0.5 to 2.0V p/p.

SDI output. BNC connector. Output impedance 75 ohms. Equalised version of the serial digital input.

Ext-ref / AES input. BNC connector. Input impedance 75 ohms. Max dc +/- 3 volts. Video 0.5 to 2.0V p/p. Digital Audio min 150mV p/p, max 3V p/p conforming to S/PDIF, AES3, IEC60958 or EIAJ CP1201.

INPUTS WITH HD-SD MODULE option 03

HD/SD digital input. BNC connector. Input impedance 75 ohms.

Max d.c. +/- 10V. SMPTE 259M serial digital at 800mV p/p. SMPTE 292M high definition serial digital at 800mV p/p. Auto equalised up to 350 metres of cable at 270mb/s. Auto equalised up to 140 metres of cable at 1.485Gb/s.

HD/SD digital output. BNC connector. Output impedance 75 ohms. Equalised version of the serial digital input.

Ext-ref / AES input. BNC connector. Input impedance 75 ohms. Max dc +/- 3 volts. Video 0.5 to 2.0V p/p. Digital Audio min 150mV p/p, max 3V p/p conforming to S/PDIF, AES3, IEC60958 or EIAJ CP1201.

OUTPUTS

SDI Output Serial digital BNC connector. Output impedance 75 ohms. SMPTE 292, serial component. 800mV pp. Full 10 bit pattern generation. Embedded audio tone is a 1KHz asynchronous sine wave at a level of -18dBFS. SD Output Serial digital BNC connector. Output impedance 75 ohms. SMPTE 259M, ITU-R BT.601/656 serial component. 800mV pp Full 10 bit pattern generation. Addition of CRC checksum word.

Addition of embedded tone at -18db

WAVEFORM MONITOR

Response Flat is +/- 0.5% 50Hz to 5.5MHz.

Low Pass is -3db @ 1.5MHz, -60db @ 6.75MHz.

Timebase H, 2H and Hmag (x5). V, 2V and Vmag.

Line select is any line from the frame.

Parade is a 3H display of input or filter parade.

VECTOR MONITOR

Video Traditional component or composite display.

Component accuracy 0.2%. Bandwidth 3.375MHz.

Composite accuracy 1%. Bandwidth 1.3MHz.

AUDIO MONITOR

Audio Stereo phase display of left or right audio pair.

Phase accuracy 2 deg.

Accuracy Better than 0.1db over full scale range.

Characteristics BBC, EBU, Digital, DIN, Nordic and VU.

AUDIO MONITORING OUTPUT

3.5mm stereo jack.

OUTPUTS

Optional Output to DVI or XVGA monitor, (1024 x 768 @ 60Hz digital or

analogue monitor, via a DVI-I socket.) Audio output jack,

USB's and RJ45

ENVIRONMENT

Indoor and Out door use, 5 to 45 deg.C. Ambient to 2,000m.

Max humidity 80% to 31 deg.C decreasing to 50% at 40 deg.C.

Overvoltage category 2. Pollution degree 1.

POWER

10 to 14V d.c. to 4 pin XLR. Pin 1 = ground, pin 4 = +12V @ 0.5A max. Can

also be powered by the optional internal battery pack.

PHYSICAL

DIMENSIONS: - 215mm x 133mm x 185 mm.

WEIGHT: - 3Kg.

WARRANTY: - Upon registration - 4 years from purchase date.

By using the AbsoluteCare registration area of our web site, otherwise 1 year.

<http://www.hamlet.co.uk/support/warranty/>

ORDERING INFORMATION

MS9000 MonitorScope

For operational areas where engineering features are required.

On screen SDI

analyser, waveform, vectorscope

At least one input module required

* Features available as options (see options list below)

OPTIONS

MS -HD/SD

HD and SD input module

MS -SD/CST

SD and Composite input module

MS -WFM/GEN

HD and SD input module with video and audio test signal generator

MS -HD/SD+EYE

HD and SD input with EYE display for front line maintenance

MS -3G/HD/SD

3G, HD and SD input module

MS -3G/HD/SD/EYE

3G, HD and SD input module with EYE pattern display for front line maintenance

MS -HD/DVI

HD, SD and DVI /XVGA output

MS-SRM

Single Rack Mount kit

MS-SCC

HD, SD and DVI /XVGA output

Soft carry case

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10/04/2012

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