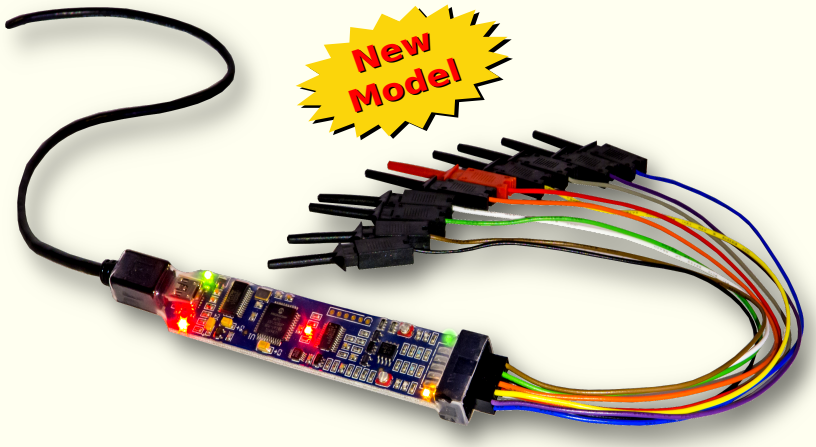
BitScope

Digital + Analog

Micro Analyzer & Scope



20 MHz Digital Oscilloscope

✓ **Dual Channel Digital Storage Oscilloscope with up to 12 bit analog sample resolution and high speed real-time waveform display.**

40 MSPS x 8 Channel Logic Analyzer

✓ **Captures eight logic/timing signals together with sophisticated cross-triggers for precise multi-channel mixed signal measurements.**

Serial Logic and Protocol Analyzer

✓ **Capture and analyze SPI, CAN, I2C, UART & logic timing concurrently with analog. Solve complex system control problems with ease.**

Real-Time Spectrum Analyzer

✓ **Display analog waveforms and their spectra simultaneously in real-time. Baseband or RF signals with variable bandwidth control.**

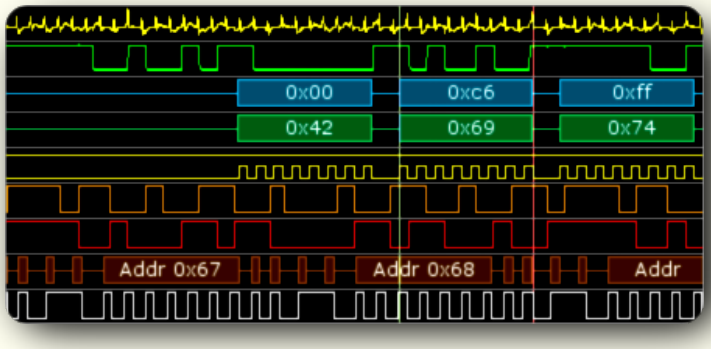
Waveform and Clock Generators

✓ **Generate an arbitrary waveform and capture analog & digital signals concurently or create programmable logic and/or protocol patterns.**

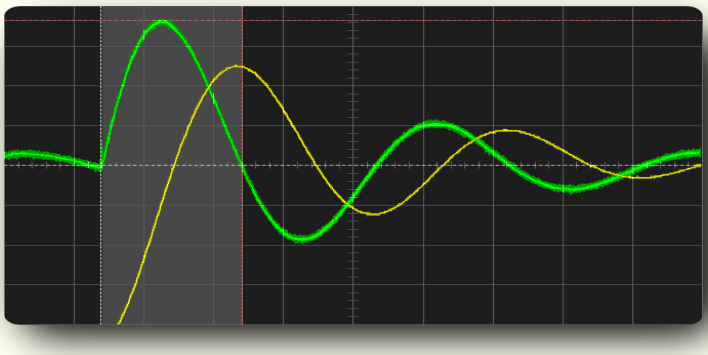
Multi-Channel Data Recorder

✓ **Record to disk anything BitScope can capture. Allows off-line replay and waveform analysis. Export captured waveforms and logic signals.**

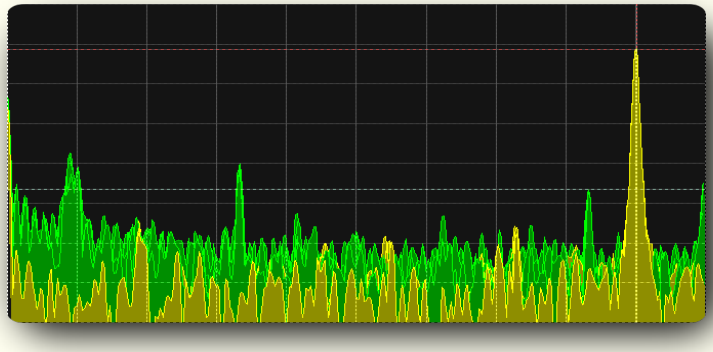
Protocol Analyzer



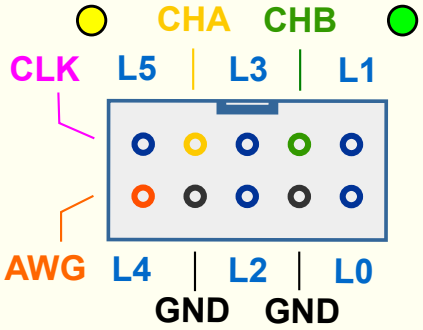
Digital Oscilloscope



Spectrum Analyzer



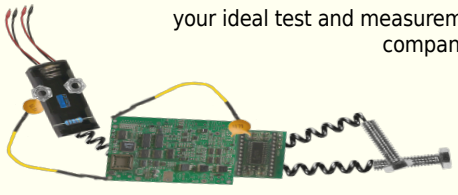
Mixed Signal Scope in a Probe!



BitScope "Micro" Model 5 is the world's first Mixed Signal Scope to include a powerful Logic Protocol Analyzer, Waveform & Pattern Generator, Spectrum Analyzer and Data Recorder in one tiny light weight water proof **USB powered package**.

It's fully user programmable, captures digital and analog signals simultaneously at high speed to 12k buffer and can stream continously direct to disk.

BitScope Micro is compatible with Raspberry Pi, Windows, Mac OS X and Linux on x86 and ARM. It's your ideal test and measurement companion.



bitscope.com/product/BS05

Inputs		BS05
Analog Bandwidth	1	20 MHz
Capture Channels	2	2 analog + 6 logic or 8 logic
Input Ranges	3	1.1 V ~ 11 V
Vertical Scaling		20 mV/Div ~ 2 V/Div
Vertical Accuracy		±4% (full scale)
Analog Sensitivity		20 mV (full bandwidth)
Maximum Sensitivity	4	5 mV (<1 MHz)
Input Filter	5	No
Probe Attenuation	6	No
Data Acquisition Inputs		No
Differential Probes		No
Differential Inputs		No
Protocol Capture		UART, SPI and I2C
Input Offsets	7	Yes (manual only)
Input Sensing		Yes
Adjustable Switching	8	Yes (D6 and D7)
Analog Input Impedance		1 MΩ±1%, 10 pF
Logic Input Impedance		100 kΩ ±1%, 10 pF (logic)
Logic Input Levels		3.3/5 V CMOS (TTL Compatible)
Acquisition		**BS05**
Real-Time Mixed Signal		Yes
Mixed Signal Streaming		Yes
Macro High Resolution		Yes
Sub-Sampled Analog		No
Protocol Streaming		No
Digital Sample Rate	MAX	40 MSps (per frame)
Analog Sample Rate	MAX	20 MSps (per frame)
Sub-Sample Rate	MAX	-
Streaming Rate	MAX	200 kSps (continous)
Native Resolution	9	8/12 Bits (switchable)
Effective Resolution	10	12 ENOB (< 1MHz)
Display Frame Rate	MAX	50 Hz (20 ms)
Capture Buffers		12 kS, 6 kS x 2, 6 kS x 9 or 3 kS x 2 + 6 kS x 8
Deep Capture Buffers		No
Timebase Range	11	1 us/Div ~ 100ms/Div
Timebase Accuracy		0.01 % (100 ppm)
Triggers	12	**BS05**
Analog Comparator	COMP	Yes
Combinatorial Logic	MASK	Yes
Sampled Analog	SALT	No
Logic Sequence	FUSE	No
Trigger Modes		Edge (Rise/Fall), Level/State & Logic
Hysteresis/Sensitivity		±2 %
Trigger Filter		Fast, Normal & Delay
Cross-Trigger Ops		Logic trigger analog & vice versa
Trigger Delay Timebase		100 us to 10 s (programmable)
Trigger Hold-Off		1 ms ~ 100 ms

Generators [12]	13	**BS05**
Waveform Generator	VSR	Yes
Voltage Generator	DCV	Yes
Logic Generator	LPG	no
Clock Generator	CLK	Yes
Clock Frequencies		1 kHz ~ 1 MHz
Wave-Functions	14	Sine, Ramp & Step
Frequency Range		2 Hz ~ 50 kHz
Frequency Resolution		3 decimal digits below 50 kHz
Frequency Accuracy	15	±50 ppm, 20 ° to 30 ° (typical)
Output Level Range		3 Vpp
Output Impedance		100 Ω
Voltage Tolerance		±9 V (max)
Waveform Resolution		7 Bits
Interfaces		**BS05**
Analog Interface	POD	2 x 1 MΩ
Analog Interface	BNC	-
Logic Interface		6 x 3.3/5 V 100 kΩ
Control Interface		1 x WavePort (shared on Logic 4)
PC Host Interface		USB 2.0 (USB 1.1 compatible)
Data Upload Speed	MAX	2 Mb/s
General		**BS05**
Included PC Software	16	BitScope DSO Virtual Instrument Software
Optional PC Software	17	Logic, Meter, Chart & Library
Power Requirement		5V USB powered
Operating Temperature		0 °C to 40 °C
Storage Requirements		-40 °C ~ +40 °C / 5 % ~ 95 % RH
Water Resistant		Yes
Dimensions (WxDxH)		20 x 110 x 8 mm
Weight	NET	12 g

1	Maximum bandwidth of analog channels captured using equivalent time sampling or used with the multi-band spectrum analyzer with waveform amplitude captured to 10% full-scale.
2	Maximum number of channels that can be captured simultaneously.
3	Analog input ranges scale the signal seen by the A/D convertor and extend the range of voltages that can be acquired at the full resolution of convertor.
4	Maximum sensitivity refers to the smallest measurable waveform voltages in the most sensitive range with enhanced data mode enabled at frequencies below 1 MHz. Using the spectrum analyzer signal levels below these limits can be measured.
5	Software switchable HF anti-alias filters for the analog inputs. Useful for high fidelity lower bandwidth waveform capture.
6	Probe attenuation allows the inputs of the analog channels to be rescaled when attenuating probes are used.
7	DC coupled inputs with manual offset and/or automatic offset control to compensate for input voltage bias similarly to AC coupling but with the advantage of algorithmic control.
8	Switching levels on indicated logic channels can be adjusted to allow the capture of arbitrary logic families.
9	Native resolution is the maximum resolution of the A/D converters used. Pocket Analyzer has both 8 and 12 bit converters, the latter used for low bandwidth high resolution (macro) capture.
10	Effective resolution is the maximum possible resolution of captured waveforms using DSP based filtered decimation applied to the highest resolution native capture data at sample rates below 200ksps
11	Timebase range includes the time scales available across all capture modes.
12	Types of trigger; COMP = analog comparator trigger, MASK = multi-channel logic state trigger, SALT = sampled analog level trigger, FUSE = state sequence logic trigger
13	Types of waveform generator; CLK = variable mark-space clock generator, DCV = digitally controlled voltage generator, VSR = variable sample rate waveform generator, LPG = Logic Pattern Generator, PRG = Pseudo Random Generator, LPG = Logic Protocol Generator
14	Wave-functions are the function prototypes used to synthesize analog waveforms. All except "Loadable" are built-in. Loadable is a user definable 512 or 1024 point wave-table which can accept an arbitrary waveform.