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New BSWA 308/BSWA 309 Octave Sound Level Meter



Features:

- Class 1 (**BSWA 308**) and Class 2 (**BSWA 309**) sound level meter
- Comply with IEC 61672-1:2013, ANSI S1.4-1983 and ANSI S1.43-1997
- Real-time 1/1 and 1/3 Octave in accordance with IEC 61260-1:2014 and ANSI S1.11-2004
- Linearity range: 22dBA~136dBA (**BSWA 308**), 25dBA~136dBA (**BSWA 309**)
- Single range to cover 123dB (**BSWA 308**) / 122dB (**BSWA 309**) dynamic range
- Frequency weighting: A/B/C/Z. Time weighting: Fast/Slow/Impulse
- 3 profile and 14 custom define measurement are calculate in parallel with different frequency/time weighting
- Calculate SPL, LEQ, Max, Min, Peak, SD, SEL, E
- LN statistical and time history curve display
- User define integral period measurement, integral period up to 24h
- High speed ARM core with FPU (Float Point Unit) to achieve wide frequency response, large dynamic range and low noise floor
- 4G MicroSD card (TF card) mass storage
- RS-232 remote control port
- Mini thermal printer for measurement data print
- Internal GPS module (option), support GPS timing

Application:

- Basic noise measurement
- Environmental noise assessment
- Product quality check
- Evaluation of noise reduction engineering

Introduction

New **BSWA 308/BSWA 309** are new generation octave sound level meter upgrade from base BSWA 308/309. The new types update the dual-core (DSP+ARM) architecture to single chip ARM with float

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point unit, and update all fix-point calculation to float-point which significantly improves the accuracy and stability. Re-design analog front end circuit also lower the noise floor and linear range of product. **BSWA 308** is Class 1 and **BSWA 309** is Class 2. Both instruments have certificated by the China CPA (Certification of Pattern Approval) and CMC (China Metrology Certification).

The improvement of new **BSWA 308/BSWA 309**:

➢ Single chip high speed ARM with FPU	➢ USB port function implemented
➢ White backlight LCD	➢ Update firmware via USB (also power supply)
➢ Integral period from 1s~24h	➢ Timer feature support auto measurement
➢ 0.1s, 0.2s, 0.5s logger step added	➢ Internal GPS (option) with GPS timing
➢ 5 templates to save user setting	➢ Single range to cover 123dB dynamic range
➢ B-weighting added to meet ANSI standard	➢ Reduce the noise floor (only for Class 1)
➢ Automatic power on with external supply, ease of integration	➢ Upper limit of measurement: 136dBrms/139dBpeak (40mV/Pa)

Specifications

Type	BSWA 308	BSWA 309
Accuracy	Class 1 (Group X)	Class 2 (Group X)
Standard	GB/T 3785.1-2010, IEC 60651:1979, IEC 60804:2000, IEC 61672-1:2013, ANSI S1.4-1983, ANSI S1.43-1997	
Octave[1]	Real-time 1/1 Octave: 8Hz~16kHz Real-time 1/3 Octave (Option): 6.3Hz~20kHz GB/T 3241-2010, IEC 61260-1:2014 ANSI S1.11-2004. Base 10 system.	Real-time 1/1 Octave: 20Hz~8kHz Real-time 1/3 Octave (Option): 20Hz~12.5kHz GB/T 3241-2010, IEC 61260-1:2014 ANSI S1.11-2004. Base 10 system.
Supplied Microphone	MPA231T: 1/2" prepolarized measurement microphone, Class 1. Sensitivity: 40mV/Pa. Frequency Range: 3Hz~20kHz.	MPA309T: 1/2" prepolarized measurement microphone, Class 2. Sensitivity: 40mV/Pa. Frequency Range: 20Hz~12.5kHz.
Mic Interface	TNC connecter with ICCP power supply (4mA)	
Detector / Filter	Fully float-point digital signal processing (digital detector and filter)	
Integral Period	Infinite or 1s~24h user define integral period. Repeat time: Infinite or 1~9999	
Logger Step	0.1s, 0.2s, 0.5s, 1s~24h	
Measurement Functions	$L_{XY(SPL)}$, L_{Xeq}, L_{XYSD}, L_{XSEL}, L_{XE}, L_{XYmax}, L_{XYmin}, L_{XPeak}, L_{XN}. Where X is the frequency weighting: A, B, C, Z; Y is time weighting: F, S, I; N is the statistical percentage: 1~99. 3 profile and 14 custom define measurement are calculate in parallel with different frequency/time weighting	
24h Measurement	Automatic measurement based on user define date/time and save the history data	
Frequency Weighting	Parallel A, B, C, Z (It can also be applied to 1/1 and 1/3 Octave)	
Time Weighting	Parallel F, S, I and Peak detection	
Self-Noise[2]	Sound: 19dB(A), 25dB(C), 31dB(Z) Electrical: 13dB(A), 17dB(C), 24dB(Z)	Sound: 20dB(A), 26dB(C), 31dB(Z) Electrical: 14dB(A), 19dB(C), 24dB(Z)
Upper Limit[2]	136dB(A) Increase to 154dB(A) with 5mV/Pa Microphone	136dB(A) Increase to 154dB(A) with 5mV/Pa Microphone
Frequency Response[1]	10Hz~20kHz	20Hz~12.5kHz
Level Linearity Range[2, 3, 4]	22dB(A)~136dB(A) Octave: 30dB~136dB	25dB(A)~136dB(A) Octave: 33dB~136dB

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Dynamic Range[2]	123dB (13dB(A)~136dB(A))	122dB (14dB(A)~136dB(A))
Peak C Range[2, 3]	47dB~139dB	50dB~139dB
Electrical Input	Maximum input voltage: 5Vrms (7.07Vpeak). Input impedance of preamplifier: >6GΩ	
Range Setting	Single range to cover whole dynamic range	
Resolution	24Bits	
Sampling Rate	48kHz	
Time History	Time domain noise curve display. Duration time: 1min, 2min, 10min	
LCD Display	160x160 LCD with white backlight, 14 step contrast level, 1s display update rate	
Mass Storage	4G MicroSD card (TF card)	
Post-Processing	Post-processing software VA-SLM can read, analyze and generate reports of store data.	
Export Data	Directly connect to the computer to read the memory card (USB disk)	
Output	AC Output (max $5V_{RMS}$, ±15mA), DC Output (10mV/dB, max 15mA), RS-232 serial interface and USB (USB disk mode or modem mode)	
Alarm	User define alarm threshold. LED indicate the alarm status	
Setup Template	5 templates to save user setup for different application, template can be save in MicroSD card	
Auto Power On	Automatic power on and start measurement when power supply available, ease of integration	
Power Supply	4x1.5V alkaline batteries (LR6/AA/AM3), sustainable use of approx.10 hours (depends on battery). It also can be supply by external DC power (7V~14V 500mA) and USB power (5V 1A)	
RTC	Built-in backup battery has been calibrated at factory to the error <26s in 30days (<10ppm, (25±16) ºC). It can keep RTC running when replacing the main batteries. GPS timing function available (option with GPS module)	
Language	English, Chinese, Portuguese, Spanish, German, French	
Firmware Update	Update firmware via USB port	
Conditions	Temperature: -10ºC~50ºC. Humidity: 20%~90%RH	
RT Temperature	Real-time temperature display on the main screen	
Size (mm)	W70 x H300 x D36	
Weight	Approx. 620g, including 4 alkaline batteries	
Option		
GPS	Receiver Type: 50 Channels; Time-To-First-Fix: Cold Start 27s, Warm Start 27s, Hot Start 1s; Sensitivity: Tracking -161dBm, Reacquisition -160dBm, Cold Start -147dBm, Hot Start -156dBm; Horizontal position accuracy: 2.5m, Timing accuracy: 30ns, Velocity accuracy: 0.1m/s; Update Rate: 1Hz, Operation Limits: Dynamic≤4g, Altitude<50000m, Velocity<500m/s	
Calibrator	CA111, Class 1, 94dB/114dB, 1kHz	
Printer	Mini thermal or dot-matrix printer, RS-232 port	

Note 1: Ignore the result outside 20Hz~12.5kHz for type BSWA 309 alone due to microphone frequency response of Class 2.

Note 2: The data was measured with 40mV/Pa microphone for BSWA 308 and BSWA 309.

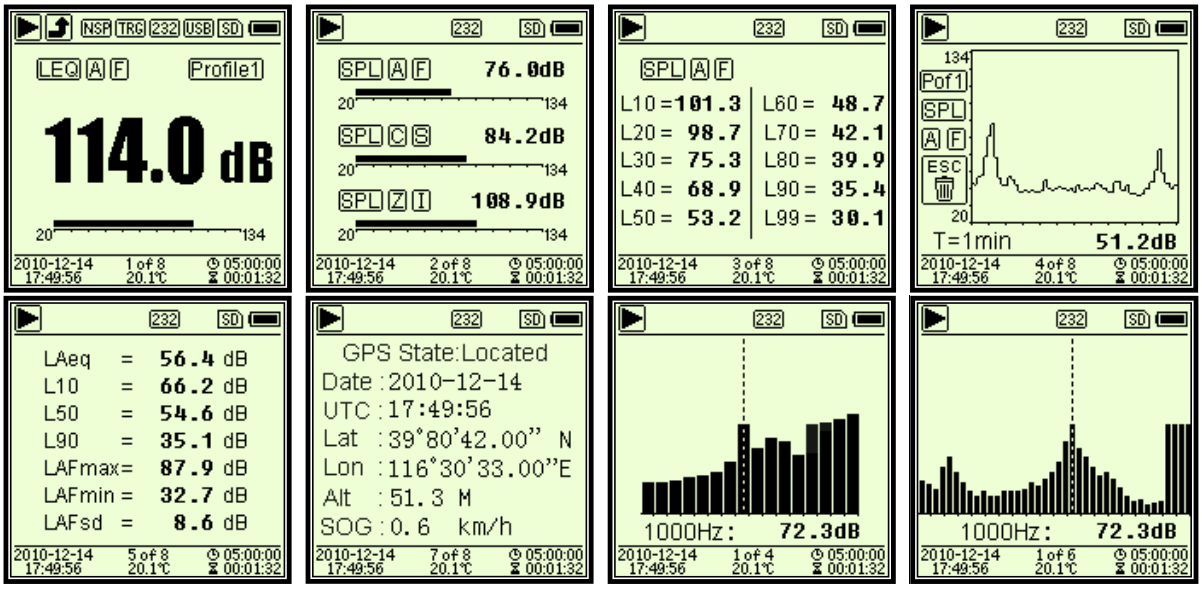
Note 3: Measurement according to GB/T 3785 and IEC 61672.

Note 4: Measurement according to GB/T 3241 and IEC 61260.

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BSWA 308 CPA	BSWA 308 CMC
2014S226-11	京制 01020122 号
BSWA 309 CPA	**BSWA 309 CMC**
2012S233-11	京制 01020122 号

Measurement Screen



BSWA Technology Co., Ltd.

Room 1003, North Ring Center, No.18 Yumin Road,
Xicheng District, Beijing 100029, China
Tel: 86-10-5128 5118
Fax: 86-10-8225 1626
E-mail: info@bswa-tech.com
URL: www.bswa-tech.com