New BSWA 308/BSWA 309 Octave Sound Level Meter

Features:

- Class 1 (New **BSWA 308**) and Class 2 (New **BSWA 309**) sound level meter
- Comply with IEC 61672-1:2013, ANSI S1.4-1983 and ANSI S1.43-1997
- 1/1 Octave in accordance with IEC61260-1:2014 and ANSI S1.11-2004
- Linearity range: 20dBA~134dBA (**BSWA 308**), 25dBA~136dBA (**BSWA 309**)
- Single range to cover 123dB/122dB dynamic range
- Frequency weighting: A/B/C/Z. Time weighting: Fast/Slow/Impulse
- 3 profile calculation in parallel with different frequency/time weighting. 14 custom define measurement
- Calculate SPL, LEQ, Max, Min, Peak, SD, SEL, E
- LN statistics 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** is 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 FPU, 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: 134dBrms/137dBpeak (50mV/Pa)

Specifications		
Type	BSWA 308	BSWA 309
Accuracy	Class 1 / Type 1	Class 2 / Type 2
Standard	GB/T3785.1-2010, GB/T3785.2-2010, IEC60651:1979, IEC60804:2000, IEC61672-1:2013, ANSI S1.4-1983, ANSI S1.43-1997	
Octave[1]	1/1 Octave, Centre Frequencies: 31.5Hz to 16kHz GB/T3241-2010 Class 1, IEC61260-1:2014 Class 1 ANSI S1.11-2004 Class 1	1/1 Octave, Centre Frequencies: 31.5Hz to 8kHz GB/T3241-2010 Class 2, IEC61260-1:2014 Class 2 ANSI S1.11-2004 Class 2
Supplied Microphone	MPA231T: 1/2 inch pre-polarized measurement microphone, Class 1. Sensitivity: 50mV/Pa. Frequency Range: 10Hz~20kHz.	MPA309T: 1/2 inch pre-polarized measurement microphone, Class 2. Sensitivity: 40mV/Pa. Frequency Range: 20Hz~12.5kHz.
Mic Interface	TNC connecter with ICCP power supply (4mA/24V)	
Detector / Filter	All float-point digital signal processing (digital detector and filter)	
Integral Period	1s-24h user define integral period. Repeat time: infinite, 1~9999	
Measurement Functions	$L_{XY(SPL)}$, L_{Xrms}, 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.	
24h Measurement	Automatic measurement and log the history data	
Frequency Weighting	Parallel A, B, C, Z	
Time Weighting	Parallel F, S, I and Peak detection	
Self-noise[2]	Sound: 18dB(A), 23dB(C), 31dB(Z) Electrical: 11dB(A), 16dB(C), 21dB(Z)	Sound: 20dB(A), 26dB(C), 31dB(Z) Electrical: 14dB(A), 19dB(C), 24dB(Z)
Upper Limit[2]	134dB(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
Linearity Range[2, 3]	20dB(A)~134dB(A)	25dB(A)~136dB(A)
Dynamic Range[2]	123dB (11dB(A)~134dB(A))	122dB (14dB(A)~136dB(A))
Peak C Range[2, 3]	45dB(A)~137dB(A)	47dB(A)~139dB(A)
Range Setting	Single range	
Resolution	24Bits	
Sampling Rate	48kHz	
Noise Curve	Time domain noise curve display. Duration time: 1min, 2min, 10min	
LCD Display	160x160 LCD with white backlight, 14 step contrast level	
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 (max $5V_{RMS}$ output), DC (10mV/dB), RS-232 serial interface and USB virtual serial port	

Alarm	User define alarm threshold. LED indicate the alarm status
Power Supply	4x1.5V alkaline batteries (LR6/AA/AM3), sustainable use of more than 16 hours. It also can be supply by external 7-14V DC power and USB power
RTC	Built-in backup battery and keep RTC running when replacing the main batteries. GPS timing function available (option with GPS module)
Firmware Update	Update firmware via USB port
Conditions	Temperature: -10℃~ 50℃. 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 printer, RS-232 port

Note:

1. Ignore the measurement result above 12.5kHz due to microphone frequency response of BSWA 309.
2. The data was measured with 50mV/Pa microphone for BSWA 308 and 40mV/Pa microphone for BSWA 309.
3. Measurement according to GB/T3785 and IEC61672.

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

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