Dongguan Hust Tony Instruments Co.,Ltd
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Multifunction Sound Level Meter AWA6228+

AWA6228+ multifunctional sound level meter is a new generation noise measuring instrument using digital signal processing technology, and it is an upgraded product of AWA6228 series. Three parallel (simultaneous) frequency weightings of A, CZ and three parallel (simultaneous) time weightings of F, S, I can simultaneously perform integral measurement, statistical analysis, 1/1 OCT analysis, and 1/3 OCT analysis , FFT analysis, personal sound exposure, measurement of reverberation time. The instrument has the advantages of large dynamic range and low power consumption. Modular design Users can purchase corresponding modules according to their needs.

It can be widely used in environmental protection, occupational health, safety supervision, product inspection, scientific research and teaching, hall sound quality and other fields.

Product Uses:

■Comprehensive noise measurements
■Environment noise certification
■Noise profile measurement of industrial noise
■Peak C sound level measurements
■Impulse noise measurements
■Workplace noise assessments
■Industry boundary assessments

Key Features:

■ A handhold noise measuring instrument
■ Multifunction and user- friendly sound level meter(integrating SLM, 1/1 OCT, 1/3 OCT analyzer, Noise dosimeter)
■ 240×320 color screen
■ Measurement range 20~142dB
■ Synchronously do statistical, real-time 1/1 OCT, 1/3 OCT, and noise dosimeter measure
■ Comply with IEC 61672 Class 1 and IEC61260 Class 1 and IEC 61252
■ CE Mark
■ 32G SD card function for precise audio recording, GPS positioning

Technical Specifications

Model	AWA6228+ Multifunction Sound Level Meter
Fulfills Standards	IEC 61672 Class 1, IEC 61260 Class 1, IEC61252:2002, IEC 60651:2001 Type 1, IEC 60804: 2000 Type 1, ANSI S1.4: 1983 Type 1, ANSI S1.4A:1985 Type 1, ANSI S1.43:1997 Type 1, ANSI S1.25:1991
Microphone + Preamplifier	1/2" prepolarized condenser microphone+ Preamplifier (Sensitivity Level: -28dB)
Correction Function	Diffusion field correction in order to comply with standards ANSI S1.4
Preamplifier	AWA14601 removable preamplifier
Frequency Range	10 Hz ~ 20 kHz ± 1 dB (not including microphone)
Total Measurement Range	Low range: (20～132)dBA, (25-132)dBC, (30-132)dBZ High range: (16～142)dBA, (35-142)dBC, (40-142)dBZ
Self-generated Noise	<12 dB(A), 17 dB(C), 22 dB(Z)
Frequency Weighting	Parallel (simultaneous) A, C, Z, B, D and user1&2-defined weighting
Time Weighting	Parallel (simultaneous) F, S, I, Peak
A/D Bits	24 bits
Sampling Frequency	48 kHz
Calibration	Using Sound Calibrator Class 1 model AWA6221A
Correction Function	Diffusion field correction in order to comply with standards ANSI S1.4
Delay Time	The meter can delay 0~99s after pressing start measuring button
Back Erase Function	Elimination of undesired noise; example barking dogs, cars, doors
Display	240×320 color screen, adjustable brightness, backlight can be closed
Display Resolution	0.1 dB

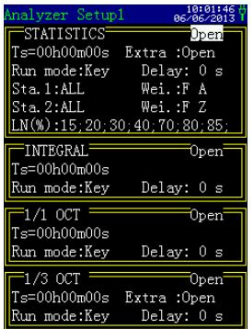
Low battery indication	Symbol indicate low battery
Data Storage (32 Mb FLASH RAM. SD card is optional)	◆ 3328 groups of integrating measuring results only.
	◆ 3328 groups of statistical results only (‘statistical 1’ and ‘statistical 2’ an alysis index are same.)
	◆ 2663 groups of statistical results only (‘statistical 1’ and ‘statistical 2’ an alysis index are different.)
Print	Mini-printer
Internal Clock	Error less than 1 min/month
Output Interface	AC Output (full scale): 1.0V AC RMS; Output Impedance: 1k Ω; Connector: φ3.5 mm stereo plug
	DC Output: 20mV/dB; Output Impedance: 1k Ω; Connector: DB-9 plug
	RS232 Interface: To computer for output some measurement results instantaneous values, also to mini-printer for printing Transmission speed: 4800, 9600,115200 bps
	USB Interface: available and no need device drive. Allow USB to be controlled via communication commands
Power Supply	4×LR6 alkaline battery or rechargeable batteries
	5 V external power supply
Battery Life	Longest time of 30 hours continuously with 4×LR6 alkaline battery
Dimensions	260 (H) x 80 (W) x 30 (D), mm.
Weight	0.35 kg. (include batteries)
EMC	Type X
Environment	Working Temperature: -10 ~ 50 °C, Storing Temperature: -20 ~ 70 °C, Relative Humidity: 25 ~ 90 %
Accessories	AC adaptor, USB cable, RS232 transmission cable, windscreen, hand strap, windscreen fall prevention rubber, carrying case, U-disk, user’s manual
Bluetooth Module	Wireless printing

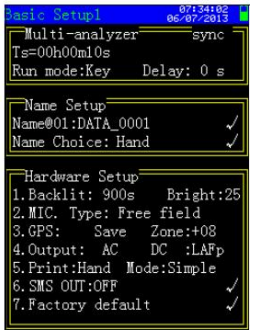
Can choose to install list

Embedded Software Optional	**Corresponding Functions**
S6228+ -10100 Integral software	The noise integral measuring
S6228+ -10101 Statistics analytical software	The statistical analysis, 24 hours noise monitors automatically
S6228+ -10202 The OCT analysis software	Noise real-time OCT spectral analysis
S6228+ -10303 The 1/3 OCT analysis software	Noise real-time 1/3 OCT spectral analysis
S6228+ -10404 The FFT analysis software	Noise real-time FFT spectral analysis
S6228+ -00013 The Noise Dosimeter software	Noise dosimeter measuring
S6228+ -00509 The Data Logging software	Do data logging
S6228+ -00508 The Reverberation Time Measurement softwar e	Reverberation Time Measurement

Other function		
32G SD memory card & wave record	Bluetooth function	GPS positioning modular

Menu Interface





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Integrating Function

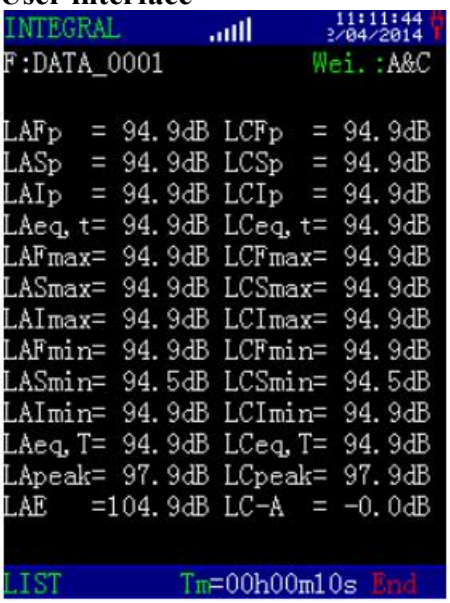
1) Measuring Interface: Lxyi, Lxyp, Lxeq,t, Lxeq,T, Lxmax, Lxmin, Lxpeak、LAE, LC-A, SEL

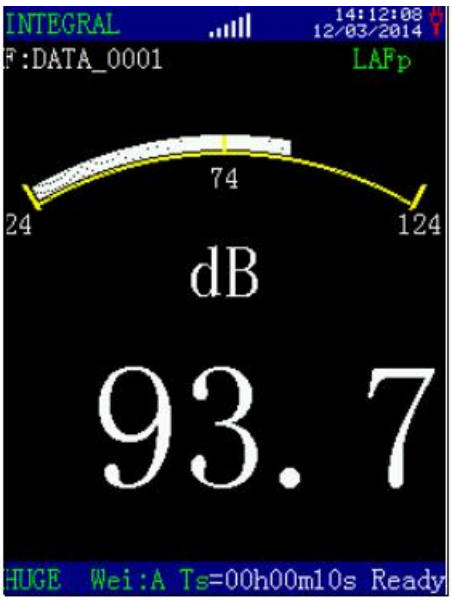
Note: x is A,C,Z, y is F,S,I

2) Integrating time: 1s~99h59m59s, set in random

3) Measuring Interface: Simple, List, Huge, Big interface

User interface





2. Statistical

Analysis Function

1) Main Function: The statistical analysis, 24 hours noise monitor automatically.

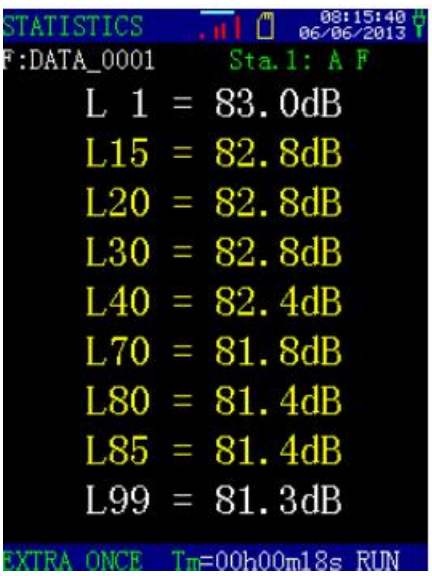
2) Mainly Measure Index: Lxyp, Lxeq,0.5s, Lxeq,T, Lxymax, Lxymin, LxyeqT , SEL, Ln as minimum: 1, 5, 10, 50, 90 with 0.1 dB resolution, SD

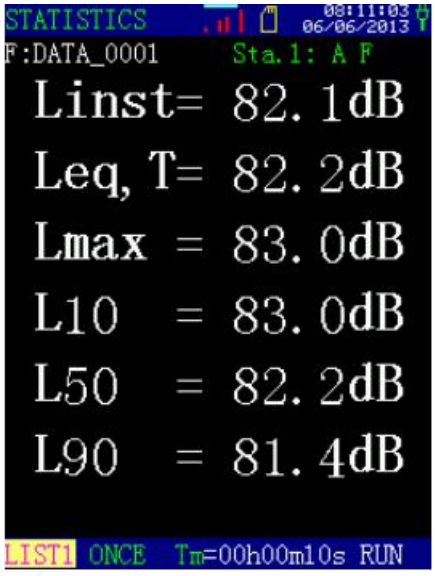
Note: x is A,C,Z y is F,S,I n is 1~99

24h measures index: Ld, Ln, Ldn.

3) Up to 28 statistical Ln % values, two statistical analyzers each has 7 preset to L1, L5, L10, L50, L90, L95 & L99 and 7 user defined Ln values. Two statistical analyzers with independent time and frequency weight.

User Interface

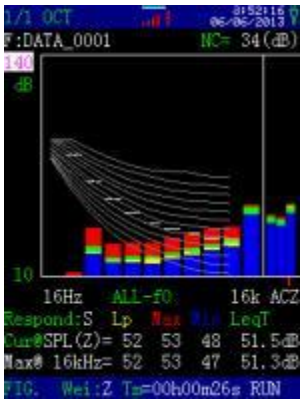




3. Real-time 1/1 Oct Spectrum Function

1) Filter type: Parallel octave band filter, G10=103/10
2) Fulfills standards: IEC 61260: 1995 Class 1
3) Frequency bands: 11 Octave bands 16Hz-16kHz
4) Frequency Weighting: A, C, Z can be chosen
5) Center Frequency: 16 Hz, 31.5 Hz, 63 Hz,125 Hz,
250 Hz, 500 Hz, 1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz
6) Measuring Interface: List i and graph interface
7) Measuring Parameters: Lxyp, Lxeq,0.5s, Lxeq,T, , Lxymax,
Lxymin, Tm, NR *Note: x is A,C, Z,F0i y is F,S*
8) Display content: Real-time display NR & NC values
and curves in the process of measuring
NR according to ISO 1996:1971
NC according to ANSI S2.12-2008
9) Real-time Analysis Speed: 50 times/s
10) Level linear range: above 110dB

User Interface



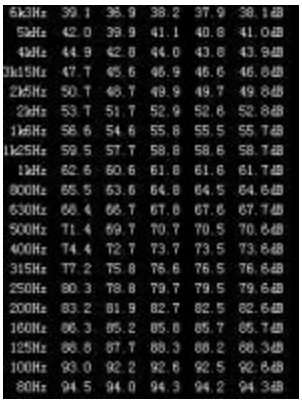
4. Real-time 1/3 OCT Spectrum Function

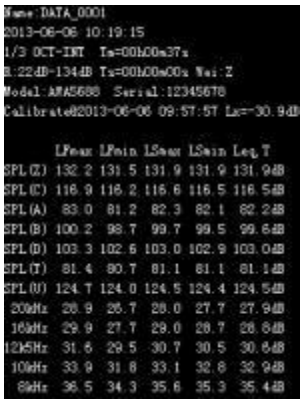
1) Filter type: Parallel (simultaneous) 1/3 octave band filter, $G_{10}=10^{3/10}$
2) Fulfills standards: IEC 61260: 1995 Class 1
3) Frequency bands: 33 Octave bands 12.5Hz-20kHz
4) Real-time Analysis Speed: 50 times/s
5) Measuring Interface: List interface and graph interface
6) Measuring Parameters: L_{xyp} , $L_{xeq,0.5s}$, $L_{xeq,T}$, , L_{xymax} , L_{xymin} , Tm *Note: x is A,C,Z,B,D, F_{0i} y is F,S*

7) Frequency Weighting: A, C, Z can be chosen

8) Level linear range: above 110dB

User Interface





5. Real-time FFT Analysis Function

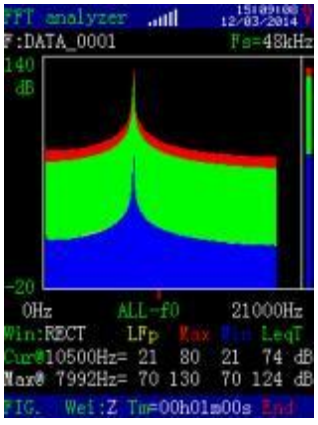
1) Line Number: 2048lines

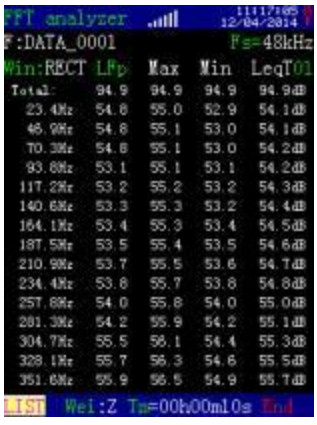
2) Sampling Freq: 48 kHz, 24 kHz, 12 kHz, 6 kHz, 3 kHz

3) Measuring Parameters: MAX, MIN, LeqT

4) Window Functions: hanning, brinell, flat, rectangular

User Interface





6. Dosimeter Function

1) Exchange rates: Q3, Q 4,Q 5,Q 6

2) Fulfills standard: IEC 61252: 2002

3) Selectable Thresholds: 40-90dB

4) Selectable Criterion: 70-90dB

5) Lock and with limited access

6) Noise dose: 0.01%-999.99%

7) Measuring Parameters: L_{Asp}, L_{ASMAX}, L_{ASMIN}, TWA, $L_{EX.\ 8h}$, L_{Cpeak}, L_{Zpeak}, $L_{Aeq,T}$, L_{AVG}, DOSE

8) Logging interval: 1min

9) Logging content: L_{AVG1m}. L_{Aeq1m}. L_{Cpeak}. L_{Zpeak}. L_{ASmax}. L_{ASmin}

8. SD Card & Sound Recording Function

1) The SD card can be used as a memory card after installing the program. Saved files can be opened in the EXCEL directly

2) When connected to the computer via USB interface, it changes SD card into U disk

3) Record Format: 8000 samples/s@8bit,

48000 samples/s@32bit

4) File Format: 'WAV' including calibration information

5) Record Time: fs=48k, record time less than 1h per file fs=8k, record time less than 12h per file

6) Replay: by the meter or computer

Data is captured to the SD memory card inserted in the sound level meter

9. GPS Positioning Function

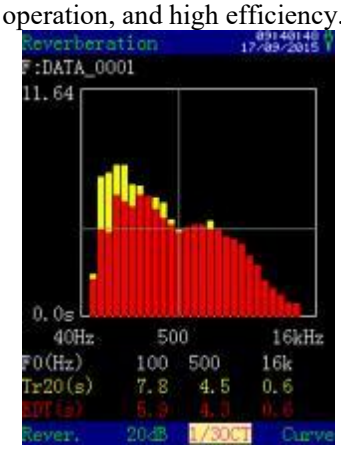
Measure longitude, latitude, altitude, movement speed which can be recorded together with the noise measurement result.

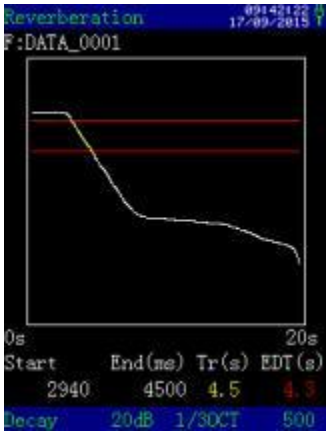
10. Reverberation time measurement

If AWA6228+ sound level meter can measure the indoor reverberation time in the integrated impulse response method specified by ISO3382 after installed with reverberation time measurement software.

The integrated impulse response method means the method in which the decay curve of the indoor sound pressure level is obtained by backward integration of the squared value of the impulse response. The integrated impulse response method utilizes the modern digital processing technology that features easy and convenient operation. More important, the integrated impulse response method has higher reliability and repeatability than the interrupted noise method in principle. Particularly in the low frequency band (<250Hz) measurement, it has more advantages. Therefore, it is preferred that the integrated impulse response method is selected for the measurement. ISO 3382:1997 standard thinks that the precision of one

value measured in integrated impulse response method is equivalent to the averaged value of ten values measured in interrupted noise method. It only needs tobe furnished with impulse sound source, such as balloon, firecracker and starting gun etc. The sound source features compact size, light weight, easy operation, and high efficiency.





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ACCESSORIES BASIC SUPPLIED

L

Φ80mm windshield AWA8734

Power adaptor AWA8522 (5V, 2A)

USB cable with connector mini-USB AWA 8730

U-disk (Transfer Software inside)

Update & RS232 cable AWA8760

Carrying case AWA8780

ACCESSORIES OPTIONAL

AH40 mini-printer

Tripod (1.46m height)

5

32G memory SD card

Note: The SD card can be used as a memory card after installing the program.

GPS module

Class 1 Sound calibrator AWA6221A

Extension cable AWA8732 (5m, 10m, 20m)

Extension Rod