

“Challenger for your future needs”

Low frequency sound pressure level meter

Precision sound level meter **TYPE 6238L**



In accordance with growing environment conservation, the evaluation of environmental noise such as traffic noise or industrial equipment noise, or better understanding of the labor health environment at offices, factories, etc. are getting more important than ever before. On-site measurement of environmental noise is strongly expected to have high resolution and real-time analyzing function on the spot.

Low frequency sound pressure level meter, Precision sound level meter TYPE 6238L displays its greatest force in these cases.

In Low frequency sound pressure level meter TYPE 6238L, replacing the card with G-card enables to measure G-weighted sound pressure level and 1/3-octave real-time analysis. This equipment is symbolizing the next-generation sound level meter with extremely high resolution and reliability.

In Precision sound level meter TYPE 6238L, the function can be extended quite easily to those such as measurement of various parameters, only by inserting option FFT Analysis Card into the card slot.

Fold-down type windscreen for wind power system measurement



This dedicated windscreen is used for wind power system noise measurement, provided with all the required performance; wind noise reduction, waterproof property and acoustic transparency.*

This outstanding performance was realized by the specified sheet device developed through the business-academia collaboration of ACO Co., Ltd., Shizuoka University and Tomoegawa Co., Ltd, which offers exceptional and non-conventional capability of water-proof and almost 100% acoustic transparency.

*This dedicated windscreen has been developed through the business-academia collaboration of Shizuoka University, Tomoegawa Co., Ltd. and Aco Co., Ltd.

All-weather low-frequency windscreen($\phi 175$)



Newly developed material and special waterproofing technology dedicated for the windscreen guarantee easy handling, only coating the microphone.

Moreover, when fixing the microphone to a tripod, conventional microphone holder can be used without introducing special adapter as before.

Raindrops slip down along the surface without soaking into the windscreen. It took much longer on the traditional windscreen for the raindrops to dry themselves up.

Our new windscreen bounces off the water drops, which assures high precision measurement without influence of the water soaking into the windscreen.

Function Enhancement -Program card (SD card)-



Replacing the card with SD card enables to add the specified analyzing function to TYPE 6238L.

- 1/1 and 1/3-octave Real-time analysis card
- FFT analysis Card *option
- RSR card (Real Sound Recording Card) *option

G-weighted sound pressure level (TYPE 6238L)



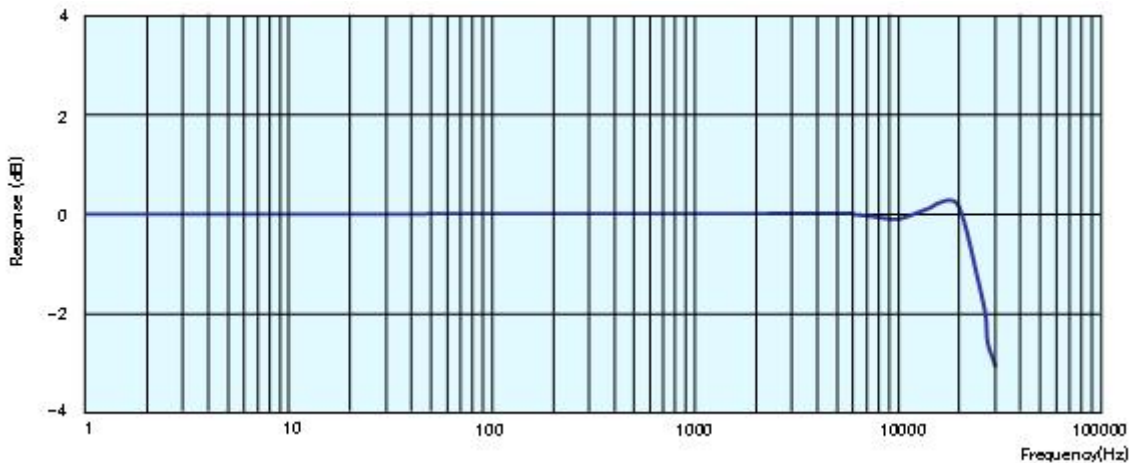
Replacing the card with G-card enables to measure G-weighted sound pressure level and 1/3-octave real-time analysis.

Frequency characteristics of microphone

TYPE 7146NL is the field type electret condenser microphone which complies with IEC651 TYPE1.

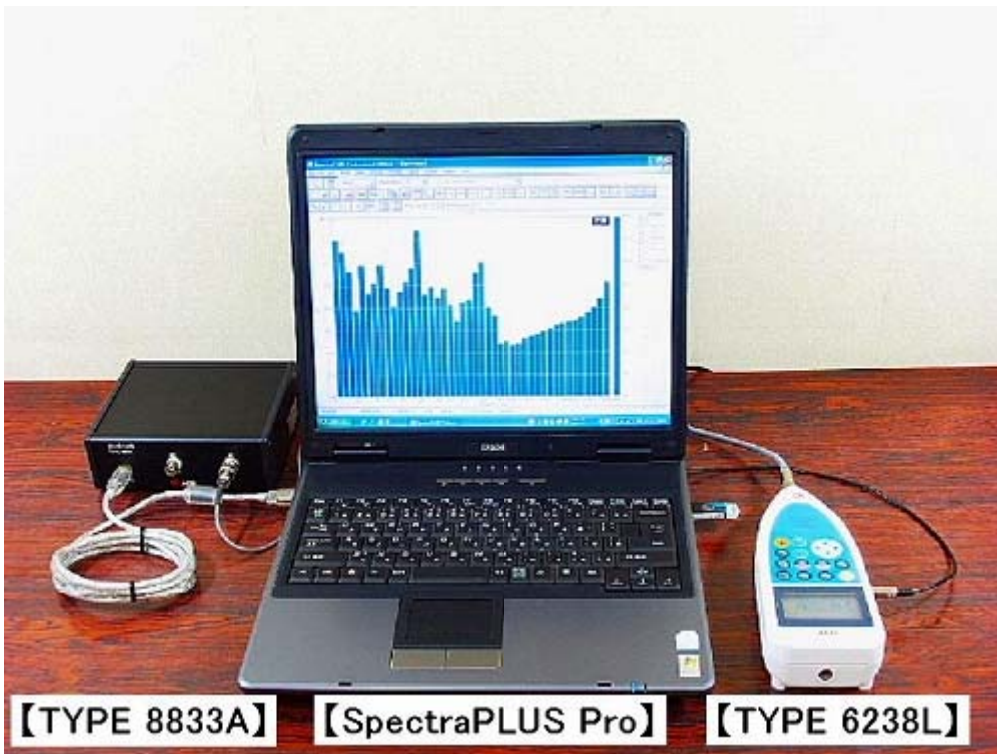
It has also wide dynamic range and frequency range, as well as high sensitivity.

It is easy to operate, free from need of supplying DC bias voltage.

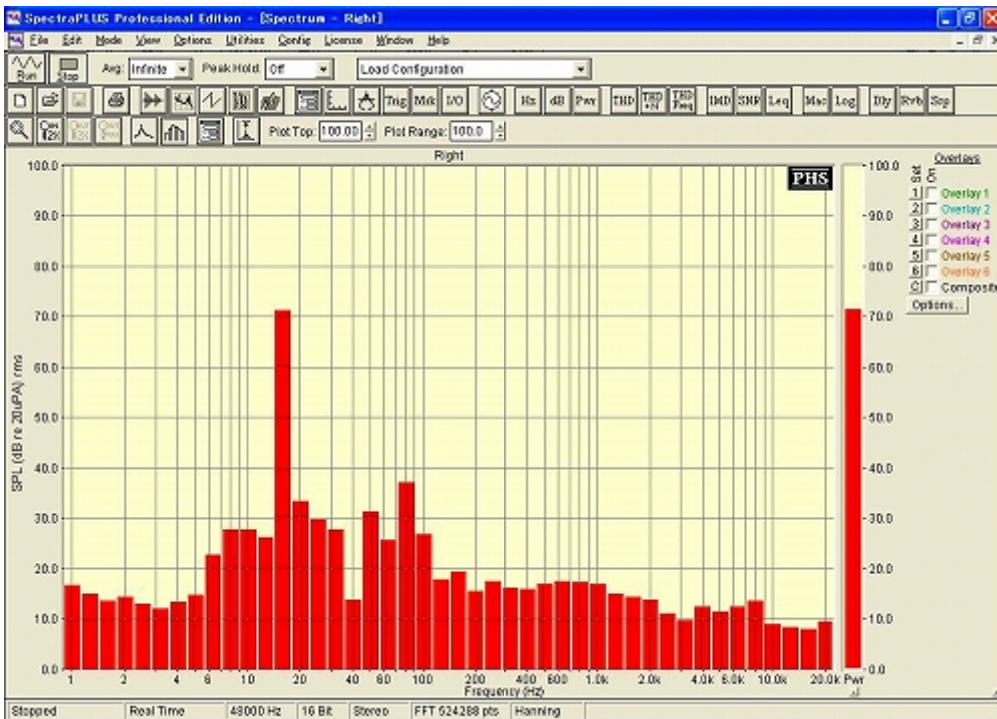


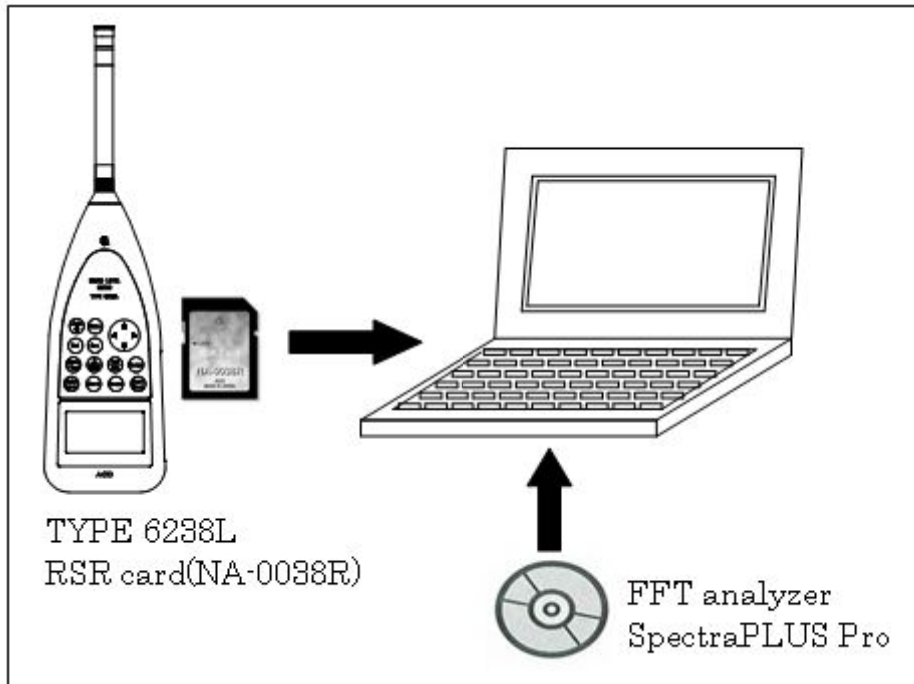
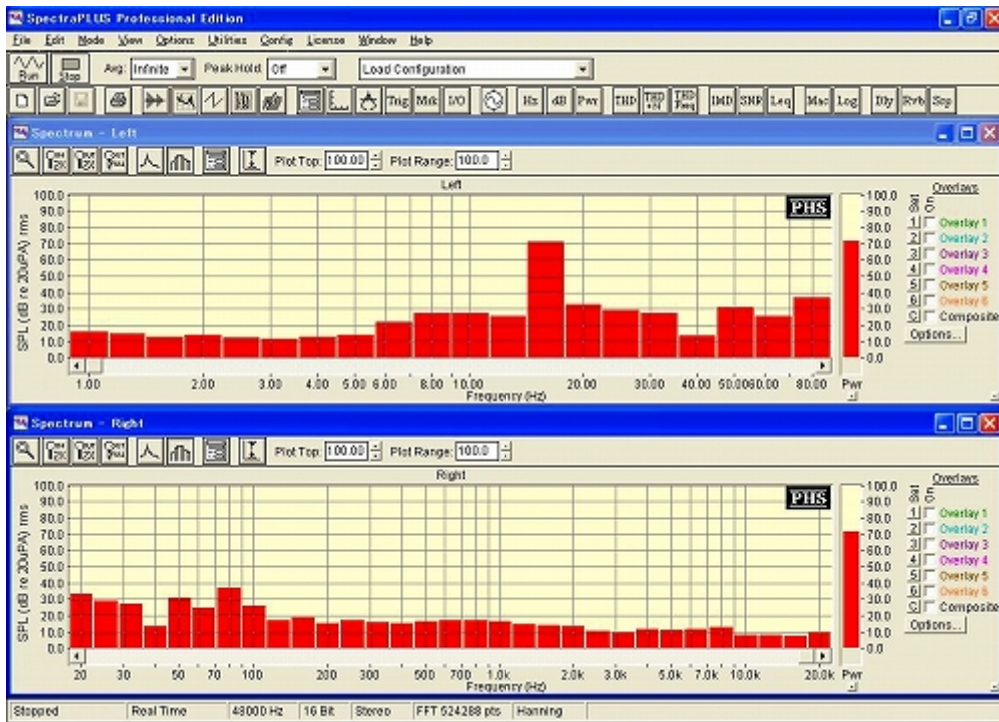
Ultralow-frequency sound level analysis

Ultralow-frequency sound level (1Hz~) can be analyzed by using **Low frequency sound pressure level meter TYPE 6238L**, Sound card TYPE 8833A, and FFT analyzer 'SpectraPLUS Pro'.



Simultaneous display and analysis for different frequencies are available by using the optional function (scaling/calibration extension) of **NA-0038L(SpectraPLUS pro)**.





Analysis of acquired real-time wave data is possible by using RSR card.

Function Enhancement: Program card (SD card)

Real-time 1/1 and 1/3-octave Analysis Card

Embedded octave filter conformed with JIS C 1514 (IEC61260) Class1. This card enables real time analysis in 1/1 or 1/3-octave.

FFT Analysis Card *option

This card enables frequency analysis based on FFT. Time window is selected from rectangular and hanning window.

RSR card (Real Sound Recording Card) *option

This card enables automatic recording with specified level and time, namely adding the function of recording real wave data. The data is recorded in WAVE file format (48kHz 16bit Mono), easily corresponding to most common application software of acoustic analysis, as well as displaying its greatest force in all kinds of acoustic analysis.

Other features

- Data recording function for memory card(SD card)
- AC signal output function
- DC signal output function
- Print-out data output
- Timer function
- Calendar function
- Real-Time communication function with PC (USB)

Measurement Items

A-weighted sound pressure level(L_A)

A-weighted sound pressure level is measured when time weighting is [Fast] or [Slow], and Frequency weighting [A]. The instantaneous A-weighted sound pressure level is displayed on the liquid crystal screen. Displayed digital data is updated in each second, as well as bar graph in each 0.1 second.

Sound Pressure Level(L_C/L_p)

Sound pressure level is measured when time weighting is [Fast] or [Slow], and Frequency weighting [C] or [Z]. The instantaneous Sound pressure level is displayed on the liquid crystal screen. Displayed digital data is updated in each second, as well as bar graph in each 0.1 second.

Equivalent continuous A-weighted sound pressure level (L_{Aeq})

Set the Time weighting to 「Fast or Slow」, and the frequency weighting to [A]. Measurement time is selected from 1sec/3sec/5sec/10sec//1min/5min/10min/15min/30min/1h/8h/12h/24h. Moreover the manual measurement is available. Data in past 3 sec or 5 sec could be deleted when [Pause] key is pressed during the measurement. The process of L_{Aeq} calculation is displayed on the liquid crystal screen.

Percentile level(L_x)

By pressing 「Start」Key, the percentile level ($L_{max}, L_{05}, L_{10}, L_{50}, L_{90}, L_{95}, L_{min}$), the Sound exposure level(L_{Ae}), A-weighted Sound pressure level(L_A) and Equivalent continuous A-weighted sound pressure level(L_{Aeq}) can simultaneously be measured.

Additional index

- Peak sound pressure level(L_{peak})
- Power average of maximum sound level in a given interval(L_{atm5})

Specification

Type	TYPE 6238L	
Type approval number	-	SLF111
Name	Low frequency sound pressure level meter	Precision sound level meter
Applicable Standards	JIS C 1514:2002 ClassI ISO 7196:1995	JIS C1509-1:2005 classI IEC 61672-1:2002 ClassI
Frequency Range	FLAT(FLAT:1 ~ 100Hz) G-weighted sound pressure level:LG(G ISO 7196 Reference) 1/3-octave(FLAT:1 ~ 80Hz)	20Hz-12.5kHz (Conforms with measurement law) 1Hz ~ 20kHz(Z) 20Hz ~ 20kHz(A,C)
Microphone Type (Sensitivity)	TYPE 7146NL(-28dB, Stand-alone -26dB)	
Level Range Control	10dB step 6step 20 ~ 80dB, 20 ~ 90dB 30 ~ 100dB, 40 ~ 110dB 50 ~ 120dB, 60 ~ 130dB	
Frequency analysis band	1/3-octave 1Hz,1.25Hz,1.6Hz,2Hz 2.5Hz,3.15Hz,4Hz,5Hz 6.3Hz,8Hz,10Hz,12.5Hz 16Hz,20Hz,25Hz,31.5Hz 40Hz,50Hz,63Hz,80Hz OA,AP,G	-
Measurement Level	G:40dB ~ 130dB FLAT:50dB ~ 130dB 1/3-octave:30dB ~ 130dB	A:28 ~ 130dB C:37 ~ 130dB Z:39 ~ 130dB
Overload characteristic	+3dB from upper limited scale	
Self-noise level	The lower limit of the measurement range in dB lies 8dB higher than self-noise level.	
Linearity Range	-	75dB
Time weighting	Fast,Slow,10sec	Fast,Slow
Frequency weighting	G(Digital),FLAT	A,C,Z
Measurement items	Low frequency sound pressure level(L_p) G-weighted sound pressure level(L_G) Equivalent continuous sound pressure level(L_{eq}) Maximum sound pressure level(L_{max})	Sound pressure level(L_p) A-weighted sound pressure level(L_A) C-weighted sound pressure level(L_C) Equivalent continuous A-weighted sound pressure level(L_{Aeq}) Sound Exposure level(L_{AE}) Maximum sound pressure level(L_{Amax})

		Minimum sound pressure level(L_{Amin}) Percentile sound pressure level(5 freely selectable values L_{AN}) Peak Sound Pressure level(L_{peak}) Power average of maximum sound pressure level in a given interval(L_{Atm5})
Measurement time	1s,3s,5s,10s,1min,5min,10min,15min,30min,1h,8h,12h,24h Manual(Max. 199h59m59s)	
Sampling Time	20.8 μ s($L_{eq}, L_{max}, L_{min}, L_{peq}, L_{pmax}$) 666 μ s(L_{Geq}, L_{Gmax}),64ms(L_N)	
Data clear Function	Pause, and a function that deletes preceding 3 or 5 sec. Memory start ; Selectable Auto or Manual	
Timer function	A marker can be set to start and stop the measurement at any specified moments.	
Display	Liquid crystal and Backlight(128 \times 64 points) Display range:4digit display Display cycle : display Period : 1s Bar display : Display Period:0.1s Warning : Over : +3dB from upper limited scale Under : -0.6dB from lower limited scale Battery : 5 steps display Date : year/month/day/hour : minute : second	
Calibration signal	Electric calibration with internal oscillator. (1kHz,20Hz sine wave)	
Output	AC Output: ϕ 2.5Jack Output : 1Vrms(FS) Output impedance : 600 Ω Load impedance : more than 10k Ω DC Output ϕ 2.5Jack Output : 2.5V(FS),0.25V/10dB Output impedance : 50 Ω Load impedance : more than 10k Ω	
RMS detection circuit	True RMS detection circuit(digital computing type)	
Processing	Digital	
Pause	Normal temporary pause function, as well as the function of canceling the data before pausing the measurement, are available.	
Data Storage Functions	Sound pressure level or Processed values stored in built-in Memory or Memory card. Manual Storage:Sound level, Calculation value, Memory time,Store the Sampling to Built-in memory or on Memory card. Auto Storage : Sampling interval 100ms, 200ms, sound level,Leq etc. Processing Card : Storage of calculation results.	

I/O	Direct output to printer, control and output data to computer Digital output of real-time noise waveform with USB interface	
Comparator Output	Comparator Function with threshold level	
Battery	Four 1.5V Alkaline cells IEC type LR6, Optional AC adapter Battery life(continuous time):Alkaline dry cell ; Approx.9hours when Switch on a back light ;Approx.1/3 Consumption ampere:150mA (6V input) when processing function is OFF When AC adaptor is used ; Approx.2.7VA	
Operating temperature	Temperature : -10- ~ 50°C Humidity : 30% ~ 90%RH(no condensation)	
Size	85(W) x 328(H) x 48(D)	
Weight	Less than Approx.450g(including Batteries)	
[1/1 and 1/3-octave Real-time Analysis Card]		
Item		
Applicable Standards	JIS C 1514 (IEC61260):classI	
Measurement mode	Sound pressure level(L_p) Equivalent continuous sound pressure level(L_{eq}) Sound exposure level(L_E) Maximum sound pressure level(L_{max}) (One of the measurement modes selected as above is displayed.)	
Frequency band analysis	1/1-octave filter: 16Hz,31.5Hz,63Hz,125Hz,250 Hz,500Hz,1kHz,2kHz,4kHz,8kHz,AP,OA 1/3-octave filter: 12.5Hz,16Hz,20Hz,25Hz,31.5Hz,40Hz,50Hz,63Hz,80Hz,100Hz,125Hz,160Hz,200Hz,250Hz,315Hz,400Hz,500Hz,630Hz,800Hz,1kHz,1.25kHz,1.6kHz,2kHz,2.5kHz,3.15kHz,4kHz,5kHz,6.3kHz,8kHz,10kHz,12.5kHz,16kHz,AP,OA	
Level Range Control	10dB 6step 10 ~ 80dB、 20 ~ 90dB、 30 ~ 100dB 40 ~ 110dB、 50 ~ 120dB、 60 ~ 130dB	