



Sound/Noise Measuring Systems

Sound Level Systems

Simpson Type 2 sound level systems come in a variety of configurations to meet any of your noise measurement requirements. A complete sound level measuring system with calibration and output capabilities gives you the information necessary to comply with OSHA noise safety regulation, as well as local noise ordinances. Each system is composed of several components designed to work together as one integrated test instrument. A rugged, padded carrying case protects your investment.

Every Simpson Sound Level Meter is equipped with output jacks that will supply either an AC RMS or DC volt signal. This allows the instrument to be attached to a Simpson Model 606 Multicorder, other chart recorders, or other data acquisition devices.

- *Meets IEC 651 and ANSI S1.4-1983 Meters*
- *Helps You Meet OSHA and Walsh-Healy Noise Control Specifications*
- *Quickly, Accurately Measures Sound Levels in Factories, Offices, Etc.*
- *Simple, Easy to Operate*
- *Full Coverage 40-140 dB with Special 85-115 dB OSHA Range*
- *Impact-Resistant Case Contoured to Minimize Sound Energy Field Reflections*
- *Operates 40 Hours on a 9V Battery*
- *AC and DC Voltage Jacks for Recorder, Analyzer and Tester Interface*
- *External Filter Output Jack for Simpson Model 898 Octave Band Filter for Noise Frequency Analysis*
- *Built-In Tripod Mount*

The American National Standards Institute (ANSI) provides for three weighting curves: "A", "B", and "C".

The "A" weighted curve more closely corresponds to the response of the ear and is specified by OSHA. The "C" curve is essentially a "flat" frequency response and can be used in conjunction with a "fast response" for an approximate indication of impulse noise levels. Low frequency noises are better monitored by the "C" curve than the "A" curve. Low frequency sounds need to be louder to be heard. To the right is a chart that shows the relationship between frequency and relative response.

884-2 Sound Level Meter

A basic sound level instrument for portable sound and noise measurements covering a wide range of frequency power.

- *Rugged solid-state reliability, battery operated*
- *"A" weighting*



**Model 884-2
Sound Level
Meter**

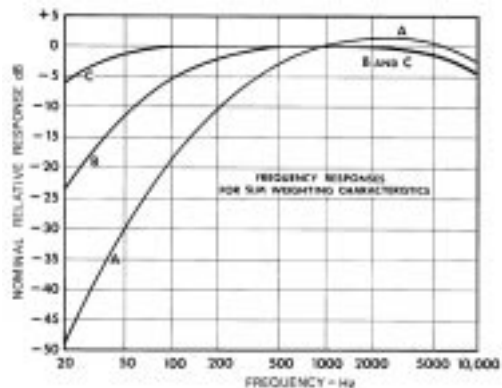
886-2 Multi Weight Sound Level Meter

Full function, general purpose sound level meter that meets OSHA and Walsh-Healy noise control specifications. Quickly and accurately measures sound levels in factories offices, stores, studios, etc. Useful for laboratory and OSHA state and local noise regulatory measurements.

- *Rugged solid-state reliability, battery operated*
- *"A", "B", and "C" weighting*
- *Detachable microphone*
- *Fast and Slow response*



**Model 886-2
Multi-weight
Sound Level
Meter**





Sound/Noise Measuring Systems

For measurement and analysis of sound over a wide range of frequency and power

899 Impulse Sound Level Meter

For laboratory and OSHA state and local noise regulatory measurements where the special capabilities of an impulse instrument are required.

- Meets ANSI S1.4-1983
- 40 to 140 dB range
- "A", "B", and "C" weighting
- Fast, Slow and Impulse response
- Outputs to interface with recorders, spectrum analyzers, octave band filters, etc.
- Detachable microphone

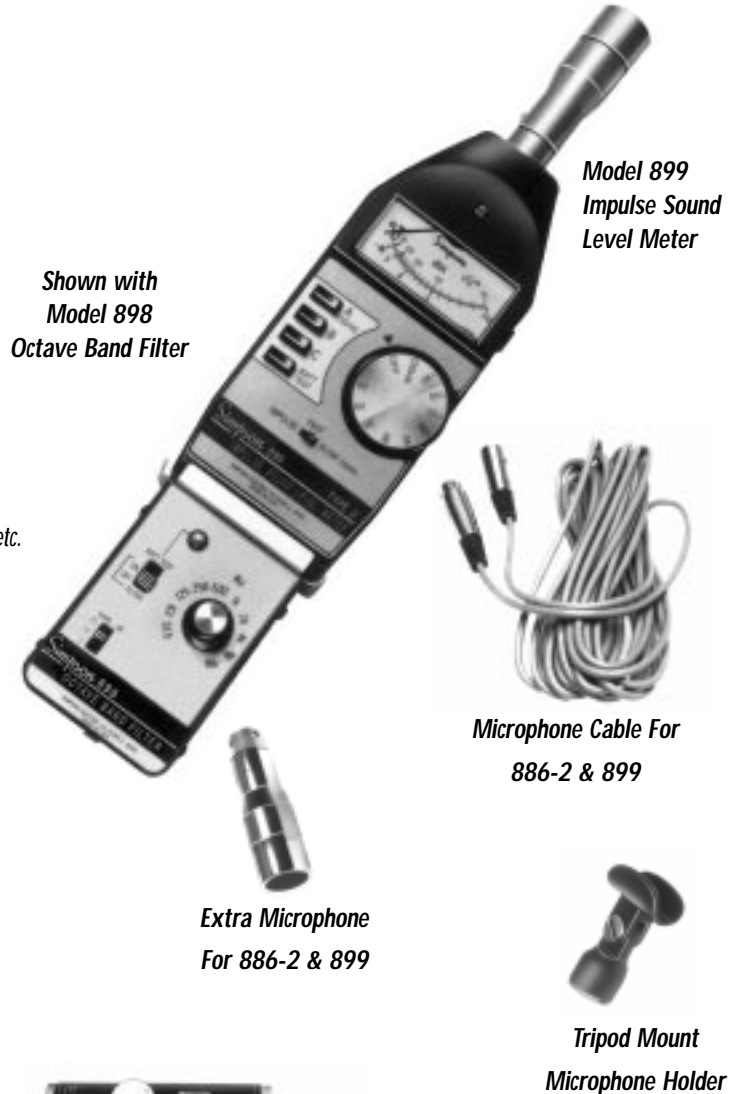
898 Octave Band Filter

The octave band filter accessory enables the sound level meter to measure narrow frequency bands for isolation and analysis of specific noise sources.

- Provides active filtration over 10 selectable ranges from 31.5 Hz to 16KHz
- Gain settings of 0dB, +10dB, or 20dB
- Type E, class II filter set requirements
- Attaches directly to meter - use hand-held or tripod mounted

890-2 and 896 Calibrators

Sound pressure level calibrators are essential accessories to be used before or after taking measurements with sound level meters and noise dosimeters. The 890-2 and 896 can be used to adjust Simpson models 886-2, 884-2, 899 and other sound level meters with a 1" diameter Microphone. The 890-2 provides a constant 94 dB or 114 dB sound pressure level at 1 KHz (0 dB = 0.0002 Mbar). The model 896 offers the versatility of multiple output frequencies (125 Hz, 250 Hz, 500 Hz, 1 KHz, and 2 KHz) along with an output level choice of 94 dB or 114 dB, making it well suited for calibrating meters with multiple frequency weighting ranges (A, B, and C). All Simpson Calibrators are immune to a wide range of temperature and humidity conditions while maintaining tight output level tolerances.



890-2 and 896 Calibrators

Each sound level meter comes with microphone, microphone wind screen, calibration screwdriver, manual, 9V battery, and carrying case.

Ordering Information

SOUND LEVEL METERS*	Catalog No.	Catalog No.	Catalog No.	ACCESSORIES	Catalog No.
	w/case	w/890-2 calibrator	w/896 calib, 898 oct. band filt.	25' microphone cable for 886-2 & 889	00198
Model 884-2	40003	40006	40013	898 Octave Band Filter	02231
Model 886-2	40004	40007	40014	Microphone for 886-2 & 899	00183
Model 899	40005	40008	40015	Tripod mount microphone holder for 00183 microphone	00184
SOUND LEVEL CALIBRATORS		Catalog No.		6' Multicorder to Sound Level meter interconnect cable	45015
Model 890-2		12890		Case, Molded Plastic	45021
Model 896		12709			

*Model 606 Chart recorder see page (20-21)



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Specifications

SOUND LEVEL METERS

	884-2 TYPE S2A	886-2 TYPE 2	899 TYPE 2 IMPULSE
General			
Physical:	3.0" x 8.2" x 1.9" (77 x 208 x 47mm)		
Weight:	1.25 lbs (.57kg)		
Construction:	Molded ABS Plastic Housing		
Power requirements:			
Battery type:	(1) 9V NEDA 1604A		
Battery life:	40 hrs. (approx)		
Temperature range:			
Operating:	-10° to 50°C		
Storage:	-40° to 60°C		
Temp. influence:	+/-0.015 dB/°C @ 1KHz		
Operating humidity:	+/-0.5dB 0 to 90%		
Sound Level:			
Ranges:	40 to 140 dB		
Reference:	0dB = 20m Pascals		
Accuracy:	meets ANSI S1.4-1983		
Weighting:	"A" (external filter for flat response)	A,B,C, (external filter for flat response)	
Microphone:			
Type:	condenser type L size per ANSI S1.12-1967		
Impedance:	350Ω +/-20% @23° C		
Characteristics	omnidirectional, angle of incidence approximates random response equal to 70°		
Signal Output:			
External filter:	120mV RMS at meter reading of +10dB		
RMS Output:	1.00V RMS at meter reading of + 10dB		
dB Output:	1.5 VDC at meter reading of + 10dB		
Calibration:	frequency=1000Hz@94dB on the 90 dB range, 114 dB on the 110 dB range. Screwdriver adjustable (from side of case)		
Meter Movement:			
Type:	Pivot and Jewel, 2 1/2" dial;		
Scale:	-10 to +10 dB w/(15) 1dB markings		
Accuracy:	2%		
Response time:	Slow = 2.5 dB to a 500ms tone burst of 1000Hz Fast = 2.0 dB to a 200ms tone burst of 1000Hz	Impulse = 5.5dB to a 20ms tone burst of 1000Hz	
Output Jack:			
Type:	Switchcraft # 750(0.141"dia.) f/external filter, # 850(0.097" dia.) f/dB and RMS output		
External Filter:	Simpson Model 898 Octave Band Filter		

Model 890-2 and 896 Calibrators

Acoustic Output	Model 890-2	Model 896
Frequency	1000Hz ±1%	125Hz,250Hz, 500Hz, 1000Hz, 2000Hz
Sound Pressure Level	94dB, 114dB	
Accuracy		
Frequency:	±1%	±2%
Sound Level:	±0.5dB at reference condition	
Distortion	<2%	<5%
Reference	0dB = 0.0002m bar	
Power Requirements		
Battery Type	(1) 9V NEDA 1604	
Battery Life	35 hrs approx.	
Environmental		
Operating Temperature	0° to 50°C	
Output Temperature Coefficient	<-0.05dB/°C	<-0.2dB/°C
Relative Humidity	0-90%	
Relative Conditions	23°C, 760mmHg, 30-50% relative humidity	23°C, 760mmHg, 30-60% relative humidity
Physical		
Construction	aluminum housing	
Dimensions	5.25" long x 2" diameter, (13 x 5cm)	5.9" long x 2" diameter,(15 x 5cm)
Weight	14oz (400g)	15oz (425g)

Model 898 Octave Band Filter

Center Frequencies	31.5Hz, 63Hz, 125 Hz, 250Hz, 500Hz, 1KHz, 2KHz, 4KHz, 8KHz, 16KHz
Roll off	-3dB at 0.707 fm and 1.414 fm points, -20dB down per octave from center freq.(fm)
Ripple	1dB max, peak to valley
Insertion Loss	±0.5dB
Calibration	externally adjustable
Gain	0dB, +10dB, +20dB (selectable)
Input Signal Level	240mVrms max.
Battery Type	(2) 9V NEDA 1604
Battery Life	40 hrs (approx)