DSLM6 1/3-OCTAVE DIGITAL SOUND LEVEL METER DSP ENGINE

GENERAL DESCRIPTION

DSLM6 DSP Engine is an advanced signal processing module for a modern, all-digital, low-power and very high precision sound level meter with real-time 1/1-octave and 1/3-octave filters.

A typical IEC651 Type 0, IEC804 Type 1 sound level meter consists of a precision electret microphone, a high dynamic range, low-noise pre-amplifier with possible overlapping 100/110 dB measurement ranges and the advanced DSLM6 DSP Engine module (Figure 1). The system has the dynamic range of 100/110 dB over full audio spectrum 10 Hz - 22 kHz.

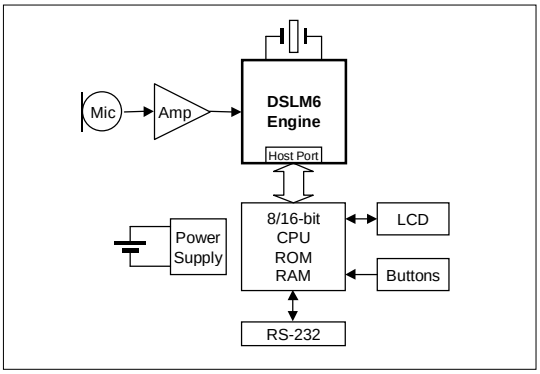


Figure 1. Modern IEC651 Type 0 / IEC804 Type 1 sound level meter application using the Xelentix's advanced DSLM6 DSP Engine

The 8/16-bit host microcontroller interfaces to the DSLM6 via an 8-bit host port interface. The user controls instrument operation by the push buttons, and the measurement data is displayed on the graphical or character-based liquid crystal display (LCD). The measurement data can also be stored into a battery backed-up non-volatile RAM or Flash data memory. The data memory contents may be downloaded into a laptop or desktop personal computer for further analysis using a standard RS-232 serial port interface.

PRODUCT HIGHLIGHTS

State-of-the-art, very high precision digital signal processing algorithms and technology:

- Meets IEC651 Type 0, IEC804 Type 1 and IEC1260 Type 0 requirements
- Measurement resolution 0.1 dB
- Full audio frequency range 10 Hz - 22 kHz
- Two audio input and two audio output channels
- Built-in programable white noise, pink noise and sine wave generators
- Interfaces easily to a high precision electret microphone preamplifier and a DAT recorder
- Wide dynamic range of 100/110 dB including the crest factor of 10 (20 dB)
- Easy to manufacture and use: No filter or time constant calibiration needed
- Low cost solution for a modern, very high precision, all-digital sound level meter

Many simultanous real-time measurements:

- A- and C-Weighted Peak, Integrating, Slow, Fast and Impulse time constants
- Linear Peak, Integrating, Slow, Fast and Impulse time constants
- X-Filter with D or some other frequency weighting characteristics
- Real-time 1/1-octave filter bank with Peak and selectable Fast / Slow time constant or
- Real-time 1/3-octave filter bank with Peak and selectable Fast / Slow time constant

Electrical characteristics:

- Maximum input signal level 2 Vp-p
- Low power CMOS design: typ. 100 mA/3.3 V and 50 mA/5 V

Other features:

- Very small footprint: 3.5 cm x 4 cm x 1 cm (1.4 in x 1.5 in x 0.4 in) W x D x H
- Interfaces easily to all popular 8/16-bit commercial microcontrollers
- Free portable ANSI C source code available for host interface communications

FUNCTIONAL BLOCK DIAGRAM

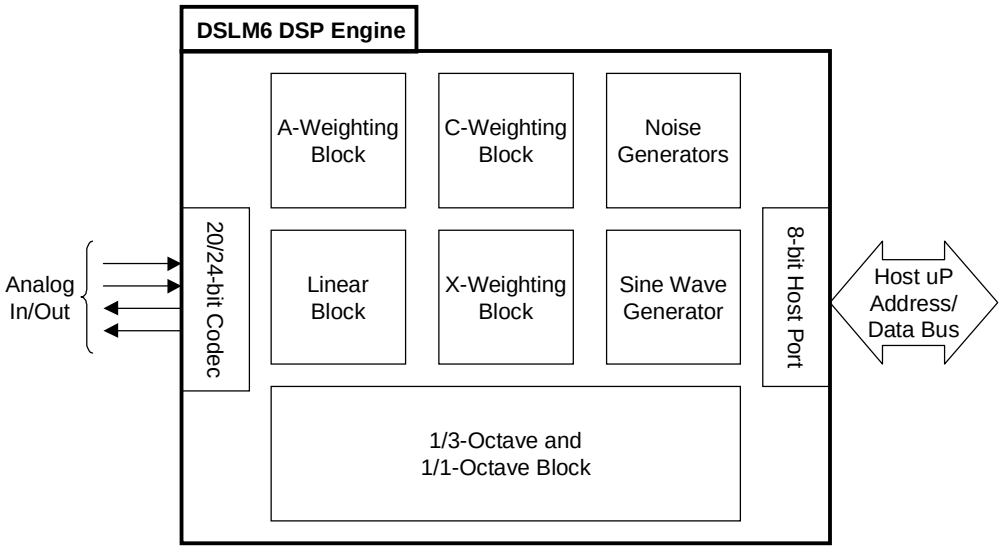
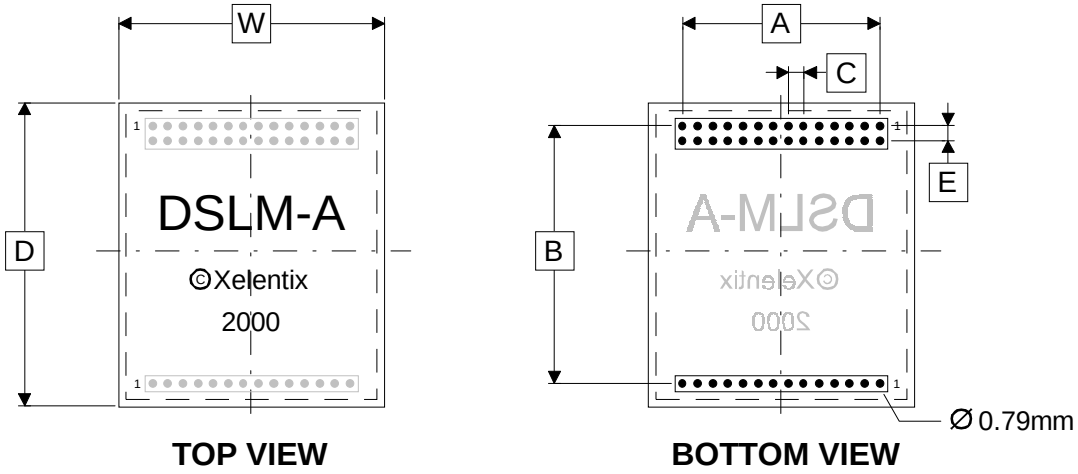
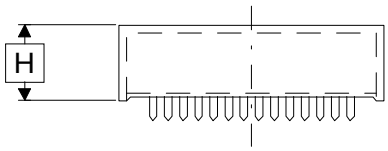


Figure 2. Functional block diagram of the Xelentix's advanced DSLM6 DSP Engine

MODULE DIMENSIONS





	MILLIMETERS		
DIM	NOM	MIN	MAX
W	35	34.8	35.2
D	40	39.8	40.2
H	10	9.9	10.1
A	26		
B	34	33.8	34.2
C	2		
E	2		

Figure 3. Module dimensions