

CEL-5X3 SERIES 100dB EXTENDED DUAL DYNAMIC RANGE SOUND ANALYSER

Introduction

A new preamplifier design provides an extended 100 dB measurement range in broadband data capture mode.

Now you can specify any version of the CEL-5x3 real time analyser series with a 100 dB dynamic range logging application.

This marks the latest development in the CEL-5x3 range of instruments and provides a variety of options for medium to long term monitoring applications.

Description

A new LOG mode of operation enables overall run data to be gathered together with regular periodic sets of data for further detail. Additional information may be obtained by the use of short duration profiles to enable "quasi level recorder" operation to show time history variations.

Simultaneous frequency weightings and time weightings give practical flexibility in the setup of the instrument, where specific configurations can be saved in non-volatile Setup memories for repeated use.

Comprehensive measurement timers allow the data to be gathered under user control and a wide range of interval times provide flexibility in data acquisition.

Once measurements have been completed, the run data can be retrieved over standard phone lines using dialup modems or suitable GSM cell phones. Data can also be transferred from the meter to an attached computer for a live system with a remote display in real-time plus data storage.

These real time sound level analysers meet the following electro-acoustic standards.

ANSI S1.4-1983, ANSI S1.43-1997, ANSI S1.11-1986, BS EN 60651: 1994, BS EN 60804: 1994, IEC 1260: 1995. when fitted with CEL-192 or 250 1/2" microphone capsules.

They include the following time weightings:

Slow, Fast and Impulse for RMS measurements plus true peak,

Main Features

- ❑ 100 dB dynamic range broadband measurement
- ❑ Ideal for long-term monitoring applications
- ❑ Remote real time display
- ❑ 2 Mbyte memory to provide up to 1 million data storage points
- ❑ Saves octave and third octave measurements on PC
- ❑ Communication links include modem or suitable GSM cell phone
- ❑ Suitable for weatherproof installation and DAT-trigger system applications

And frequency weightings:

A, C and Lin (un-weighted) for RMS measurements plus C and Lin for the peak channel,

And Amplitude weightings (Q):

4, 5 and 6 for the measurement of LAVG,

The display has a 128 by 192 dot LCD matrix that can show results in graphical or tabular format with backlighting.

Measurement Ranges

Broad band measurements are available over a 100 dB dynamic range that can be operated from both the instrument and PC in 4 overlapping ranges: 10 -- 110, 20 -- 120, 30 -- 130 and 40 -- 140 dB.

Narrow band measurements can be made over 75 dB dynamic range only from the PC in either octave or third octave bands: 5 -- 80, 15 -- 90, 25 -- 100, 35 -- 110, 45 -- 120, 55 -- 130 and 65 -- 140 dB.

Parameters Measured

Broadband measurements can be made of the following noise parameters: L, Lpk, Leq, LLeq, Lmx, Lmn, LAE, LAVG, LDN, CNEL, Lep,d, LTm3, LTm5, 5 x LN%,

Using the PC, narrow band measurements can be made of the following noise parameters in either octave or third octave bands: L, Leq, at up to 2 spectra per second.



Memory Capability

Two types of memory are available in the CEL-5x3/100: the Setup area and the Data area.

In Setup memory, 1 factory default and up to 6 customer-configured Setups are saved for each mode and bandwidth available in the instrument for repeated use with the minimum of time to start a run. Setups can be changed via the serial interface from a remote computer.

Data memory consists of 2 Mbyte as standard enabling the meter to store up to 999 separate runs, each run with up to 9999 records. Additionally, up to two short duration profiles may be stored with run data with a tenfold increase in storage resolution above a user selectable threshold level in broadband mode.

Maximum storage is equivalent to 400,000 record results or 1 million time history profile results.

An overall or cumulative set of results is always saved for every run, divided into days every 24 hours. These may be augmented by regular period records with or without the addition of time history profiles.

Logging Timers

The real time calendar clock, fully year 2000 compliant, has resolution to 0.01 seconds for data storage annotation. The date and time in the instrument may be synchronised from an external pc via the CEL-502 serial RS232 interface for long logging measurements.

Runs may be controlled by up to 24 sets of start and stop timers with synchronisation to the real time clock if required. A repeat of up to 999 times may be selected for extended measurements.

Records may be timed from 1 min to 1 day in the following steps: 1, 2, 5, 10, 15, 20, 30 and 60 minutes, 2, 4, 6, 8, 12, and 24 hours. Profiles may be selected in interval from 1/100 of a second to 1 minute in the following steps: 0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 15, 20, 30 and 60 seconds.

Event Recording

Significant noise events above a user selectable level may be programmed into the meter to capture data of specific noisy occurrences.

The level may be set in 1 dB steps over the top 90 dB range of the system together with an onset time from 0.1 to 30 seconds to eliminate spurious events.

Event profiles may be selected at 1-second intervals to store the time history of the exceedance. This may be increased to 0.1-second samples for broadband mode when extra definition is required for rapidly varying signals.

An output trigger signal is available to control the start and stop of a suitable tape recorder to verify the cause of the noise event.

Communications

Real time data transfer is available at up to 20 broadband samples of Leq and L per second at the primary frequency and time weighting. In narrow band mode the output rate is 2 complete octave (13 bands) or third octave spectra (35 bands) per second.

This allows remote display of the levels for external data logging purposes if required in addition to the storage of results in the meter. Connection to the remote computer may be made through a hard wire link, through a stand-alone Hayes compatible modem or through a suitable GSM cell phone.

Linking to Other Equipment

A continuous output of the microphone signal is available as standard via the CEL-500 analog interface module.

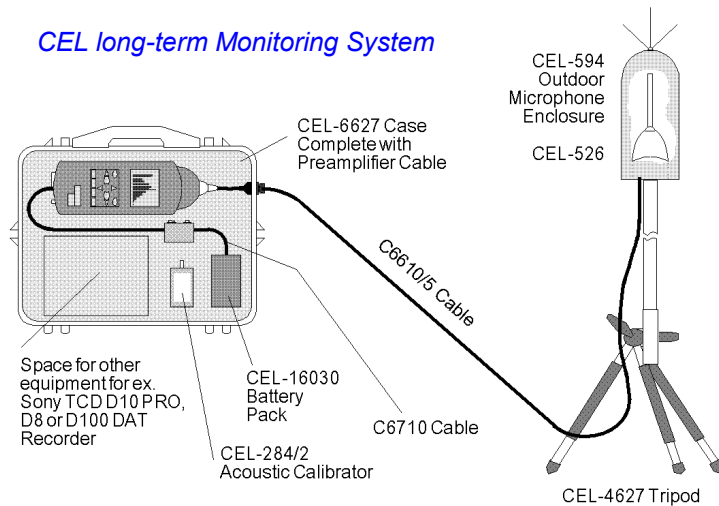
The CEL-5x3/100 may be connected to a printer via the standard CEL-501 parallel interface module to print screen dumps of single or multiple screens of results. Pre-formatted printouts are also available.

Connection to digital equipment is made possible via the CEL-502 RS232 interface module, which is provided as standard for remote computer interrogation.

The CEL-5x3/100 may be connected to a suitable DAT tape recorder via the CEL-503 trigger interface module for the automatic recording of threshold exceedance above the user selected sound level.

The CEL-5x3/100 (including microphone heater) may be powered from an external 12 V DC supply for extended measurement runs.

CEL long-term Monitoring System



TECHNICAL SPECIFICATIONS

CEL-553, CEL-573 & CEL-593 - 100 dB Type 1 Special Features

<p>Microphone</p> <p>Either: CEL-250 (or MK 250) Electret 0.5" Precision Type - preferred for long term monitoring.</p> <p>Must be used with instrument 200 V polarising voltage OFF.</p> <p>Or: CEL-192/2F Air Condenser 0.5" Precision Type.</p> <p>Must be used with instrument 200 V polarising voltage ON.</p> <p>Both microphones may be used with or without CEL microphone extension cables.</p>	<p>100 dB Preamplifier</p> <p>Operating Modes</p> <p>Bandwidths available</p>	<p>CEL-526: can measure from 10 dB to 140 dB RMS (143 dB Peak) in four overlapping ranges: 10 – 110, 20 – 120, 30 – 130, 40 – 140 dB.</p> <p>Pulse range is at least 73 dB on all ranges.</p> <p>Sound Level Analyser, Wide range 100 dB Logging.</p> <p>Broadband: 100 dB dynamic range, Octave band: 75 dB dynamic range, Third Octaves: 75 dB dynamic range.</p>
--	---	---

ORDERING INFORMATION

SOUND LEVEL METERS

- CEL-553.C1 Real Time Analyzer
- CEL-573.A1/B1/C1 Real Time Logging Analyzer
- CEL-593.A1/B1/C1 Real Time Logging and Event Analyzer

Where all sound level meters are Type 1 instruments, A is broadband, B has octave bands and C has third octaves

Each instrument includes CEL-250 as standard, CEL-526 100 dB Preamplifier, CEL-502 Serial (RS 232) Interface, C6621 Interface Cable for connection with a PC and CEL-6701 dB5 Application Software for control, download, remote data display in real-time and reporting.

Optional Accessories

See information for standard instruments.