

CEL-593 Real time logging and event analyzer

Introduction

The CEL-593 models are the top of the range of CEL real time analyzers. These instruments are available with both full octave and third octave band filters that operate simultaneously across the whole audio spectrum. Manually controlled measurements allow the operator to use the analyzer for "Snapshot" recording. A versatile logging mode is included to store results at regular timed intervals. The CEL-593 also includes an event based data capture mode above a threshold.

Applications

Primary uses of this instrument include;

- Environmental noise surveys
- Workplace noise surveys
- Noise nuisance measurements
- Medium term monitoring
- Significant event recording

Operation

The CEL-593 Real time analyzer uses the concept of "Runs" and "Records" to make noise measurements. In this mode the instrument uses the built in calendar clock to control the capture of noise data. Up to 999 separate Runs can be stored in the instrument memory and each run can save up to 9999 regular period measurements. A run can then represent a measurement position with the records representing the regular period data sets. The run concept groups the individual period measurements together for easy analysis when recalled from memory or downloaded to a personal computer. Results can be viewed on screen in row and column format.

In addition to the regular collection of period data the CEL-593 range is also able to store even shorter profiles when used in the broadband mode. The profiles can be either the Leq or the maximum noise level saved at 1-second intervals. This operates as an effective digital level recorder and allows the operator to see the changing noise levels when exported to a PC.

A versatile event recognition system is available in all CEL-593 models that can be triggered from a level exceedance above a user-selected threshold or by the operator using the keypad. This can be made to switch on a tape recorder to record the audio

signal when measurements are made in an un-attended situation. The event system can also be used to activate warning signs or other devices to daisy chain multiple instruments together. The Fastore option is included as standard with all CEL-593's. This provides data capture rates up to 200 times per second.

All the CEL-593 models are provided with the CEL-502 RS232 serial interface and a copy of dB1 software. This allows the instrument to be controlled from the computer and to download run information at the end of a measurement for viewing, printing and export to standard spreadsheet programs.



CEL-593 Measurement parameters		
Acoustic standards	-	ANSI S1.4 Type 1 & 2, ANSI S1.43 Type 1 & 2, ANSI S1.11 IEC-651, IEC-804, IEC-225
Frequency weightings	-	A, C & Linear (unweighted 10 Hz to 25 kHz +0/-0.5dB) (choose 2 simultaneously from 3)
Time weightings	-	Slow, Fast, Impulse & Peak (choose 2 simultaneously from 3)
Amplitude weightings	-	Exchange rate Q = 3, 4, 5 & 6 (choose 2 simultaneously from 3)
Total measurement range (dB)	-	5 to 140 dB in 7 x 10 dB step intervals
Alternative measurement range (with 1/4in microphone)	-	30 to 165 dB (with CEL-302 ¼ in microphone)
Dynamic range (dB)	-	75 dB
Calculated results		
Broadband mode	-	SPL, Max, Min, Leq, lLeq, SEL, Lavg, TWA, LEP,d, Peak, 5 x LN%
Octave mode	-	2 selectable broadband results plus 11 simultaneous octave bands from 16 Hz to 16 kHz
Third octave mode	-	2 selectable broadband results plus 33 simultaneous octave bands from 12.5 Hz to 20 kHz
Storage method		
Manual mode	-	User control via tactile keypad, Start, Stop, Pause, variable measurement time
Regular timed interval mode	-	Preselectable fixed record times from 0.5, 1, 5, 10, 15, 30, 60 seconds 5, 10, 15, 20, 30 & 60 minutes
Storage capability	-	400,000 data results in broadband mode, or 22,800 third octave band spectra
Maximum number of Runs	-	999 Runs
Maximum number of Records	-	9999 Periods per Run
Maximum number of events	-	9999 Events per Run with separate 1 second time history profiles
Maximum number of time history profiles	-	1,000,000 regular 1 second values
Memory size	-	2 Mbytes
Measurement setups	-	1 factory default plus 6 user selectable configuration setups for each mode
Standard accessories included with instrument	-	CEL-250 1/2in Precision free field microphone capsule, CEL-500 Analog interface module, CEL-502 RS232 interface module, C6621 serial download cable to computer, CEL-510 Tripod shoe adapter, Operator Manuals, Getting Started Guide, 8 x AA batteries
Standard items included in kits	-	CEL-593.A/B/C1/K1 includes CEL-593.A/B/C1 RTA, CEL-284 Class 1 Acoustic calibrator, CEL-2962 Foam windscreen, CEL-6629 Attache kit case CEL-593.A/B/C2/K1 includes CEL-593.A/B/C2 RTA, CEL-282 Class 2 Acoustic calibrator, CEL-2962 Foam windscreen, CEL-6629 Attache kit case
Localization	-	Instrument firmware available in 5 languages, English, French, German, Italian & Spanish, specify at time of order

Instrument upgrades provided as standard		
Fastest recording	-	Rapid data capture of transient events such as impacts or gunfire etc.
Parameters recorded	-	Leq, SEL, duration, event start time
Sample rates for broadband	-	5, 10, 20, 50, 100, 125, 250, 500, 1000 millisecc Leq samples
Sample rates for narrow band	-	10, 20, 50, 100, 250, 500, 1000 millisecc Leq samples
Maximum number of events	-	9999 per run with optional time history recording

Instrument upgrades available		
CEL-5X3/UPTR	-	Adds the BUILDING ACOUSTICS option to the standard instrument (provides the building acoustics recording)
CEL-5X3/UPTL	-	Adds the LOUDNESS option to the standard instrument (provides the sound quality loudness recording)