



SoundPro[®] DLX

PRELIMINARY SPECIFICATIONS

STANDARDS & APPROVALS:

Acoustics Standards: EN/IEC61672, ANSI S1.4-1983, EN/IEC61260, ANSI S1.11-2004 & ANSI S1.43-1997. (Also fulfills all requirements of earlier standards IEC 60651 and IEC 60804)

European

CE: Certificate of Conformity according to the EMC directive, low-voltage directive, and applicable acoustic measurement standards.

EN61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use.

EMC Emissions & Immunity: Meets 61000 Series

CISPR 11(2003-03): Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement.

RFI Class B (Residential, commercial & light-industrial): 150 kHz - 30 MHz conducted, 30 MHz - 1 GHz radiated

GENERAL:

User Interface

Key Pad: 10 translucent pushbuttons with backlight

Display:

Type: Front lit, color reflective, TFT liquid-crystal display with touch panel

Dimensions: 3.9" diagonal

Pixel Resolution: 1/4 VGA resolution (240W x 320H)

Color: Yes, 65,536 Colors (16-bit)

Contrast: Yes, user adjustable

Backlighting: Yes, user adjustable

Charging Indicator: With NIMH batteries installed and the external power supply connected to an AC source, battery recharging is indicated by a blinking green light

Measurement Control: Touch screen or keypad

Setup & Display of Results: Touch screen or keypad

Security: Secure code allows locking to prevent tampering

Languages: English, French, Spanish, Italian, German & Portuguese

MEASUREMENTS:

Available Session/Study Summary Values: All measurements can be done broadband and/or across frequency bands

Dose	Pdose	Lavg	Lmin	Lmax
Lpk	Leq	Lepd	TWA	OLtime
OL%	CNEL	ULtime	Taktm	PKcnt
URtime	SEL	ExpSec	LDN	Ln10
UR%	Ln90	Custom Ln1	Custom Ln2	Custom Ln3
Custom Ln4	Mntime	Mxtime	PKtime	

Resolution: 0.1 dB

Ranges

Frequency

Class 1: 3 Hz - 22.4 kHz

Class 2: 20 Hz - 8 kHz

Filters: 1/1 (std.) 1/3 (opt.)

Amplitude

Broadband: 100 dB, ten selectable overlapping ranges from (-10) to 90 thru 80 to 180, in 10 dB steps

RTA: 80 dB twelve selectable overlapping ranges from (-10) to 70 thru 100 to 180, in 10 dB steps

Maximum PEAK Level: 3 dB above full-scale reading

Pulse Range: 75 dB C-Weighted (Crest Factor)

Electrical Range: -118 dBV to 24.6 dBV(Peak)

Parameters

Weighting: A, C, Z, Plus C-A (broadband only)

Response Time: Fast, Slow, Impulse. Independent Peak detector

Octave Band Filters: Class 1, ANSI S1.11-2004, EN/IEC61260

Class 1:

Center Frequencies: (1/3 Mode) 33 center frequencies from 12.5 Hz to 20 kHz. (1/1 Mode) 11 center frequencies from 16 Hz to 16 kHz

Class 2:

Center Frequencies: (1/3 Mode) 27 center frequencies from 25 Hz to 10 kHz. (1/1 Mode) 9 center frequencies from 31.5 Hz to 8 kHz

Threshold: Off or user selectable level 0 - 140 dB

Exchange Rate: 3, 4, 5, & 6

Run Modes: Level triggered Run/Pause & Clock/Calendar triggered power on and run for programmed run duration.

Signal Processing

Digital Signal Processing (DSP): 24-bit samples at 52.734 KHz

Level Linearity: In accordance with EN/IEC-61672

Attenuator Accuracy: Within 0.5 dB from 3 Hz to 22.4 kHz

References

SPL: 114 dB, 400 mV(RMS) electrical at 114 dB SPL.

Frequency: 1 kHz

Direction: 0 degrees using a Free Field Microphone. Sound is arriving from directly in front of the microphone diaphragm.

CALIBRATION:

- Calibration history is maintained.
- Post study verification logged with calibration history.

Calibrators: QC-10 (114 dB, 1 kHz), QC-20 (94 dB, 114 dB; 250 Hz, 1 kHz)

LOGGING

- Collected data is stored in a Sessions and Studies hierarchy. Sessions can consist of multiple Studies. Pressing Run opens a Session and the first Study in the Session. Pressing Pause closes the current Study. Pressing Run again opens a second Study. Pressing Stop closes the current Session. Each Session can have unique meter setups. Overall summary data values are stored for each Study and Session. Each Study may also store time history data values in user-selected time intervals. The number of Sessions and Studies possible is limited only by memory capacity.

Summary Data and Time History Data Logged:

Dose	Pdose	Lavg	Lmin	Lmax
Lpk	Leq	Lepd	TWA	OLtime
OL%	CNEL	ULtime	Taktm	PKcnt
URtime	SEL	ExpSec	LND	Ln10
UR%	Ln90	Custom Ln1	Custom Ln2	Custom Ln3
Custom Ln4	Mntime	Mxtime	PKtime	

SPL (Time History Data only)

Exceedence Level Data Logged: Ln values are calculated and stored, in 1% steps from 0% to 100%, for later transfer to QuestSuite Professional II. Up to four user-defined Ln values may be chosen for display by the instrument. User selects which of the three virtual meters in the SoundPro DLX are used for calculating Ln values. Ln tables are stored for each Session and Study for the selected meter.

Statistical Distribution Data Logged: Percentage of total noise samples is calculated and stored, in 0.1dB steps for the entire measurement range of the meter, for later transfer to QuestSuite Professional II. User selects which of the three virtual meters in the SoundPro DLX are used for calculating statistical distribution values. Statistical Distribution tables are stored for each Session and Study for the selected meter.

Memory Capacity: Standard 32MB, 1 sec. logging. Allows logging of up to 102 measurement values for 5-6 hours. At 0.1 sec. logging rate, you can store 12 values/interval for 4-5 hours. Standard memory allows you to store over 2 million logged data points, plus additional summary information for each study and overall session.

SPECIAL FUNCTIONS:

Back-Erase: Available in Class 1 Models only. Selectable 5 sec to 24 hrs of data can be erased.

Voice Notes: Available in Class 1 Models only. 10 sec sound recording can be attached to measurements so that verbal comments can be stored along with the measurement, using the microphone or headset microphone. Voice notes can be played back using an earphone/headset connected to the headset port or to the instrument's built-in speaker.

Drawing Pad: Available in Class 1 Models only. Drawings and text notes can be attached to measurements using the stylus.

Sound Curve Capture: Available in Class 1 Models only. Captures and stores a snapshot of the "spectral footprint" of a noise source. Allows you to build libraries of multiple sound curves and then recall them for on-screen comparison with future spectral measurements.

COMMUNICATIONS

USB: Conforms to USB 1.1. Used for sending & receiving data between the meter and a PC

Networking Option:

Wired Ethernet: Requires optional adapter for compact flash port

Wireless Ethernet: Requires optional adapter for compact flash port

Infrared: Pre-formatted configurable reports can be sent directly to some printers with infrared transmission ports such as the Hewlett-Packard® Photosmart, model 1215/1315.

PORTS AND CONNECTORS

Analog AC: Dynamic range is limited to 80 dB. The AC output is used with the optional AC/DC output cable. (4.0 V P-P maximum). The output impedance is 1000 ohms. Connected equipment should have an input impedance of >10K ohms. The output can be shorted without damaging the meter or changing the meter reading. If full scale is set at 140dB, range will be from about 60 dB to 140 dB.

Compact Flash: Compact flash external slot is currently used for optional networking cards and to facilitate software upgrades.

HeadSet Port: You can record and listen to voice notes through a standard microphone headset. Connector type is a 2.5 mm Mini-jack stereo socket

Power Jack: External power supply

ENVIRONMENTAL CHARACTERISTICS

Temperature

Operating: (<±0.5 dB effect) -10°C to +50°C (+14°F to +122°F)

Storage: -25°C to +70°C (-13°F to +158°F)

Humidity

(<±0.5 dB effect) 90% RH (non-condensing) at 40°C (104°F)

(<±0.5 dB effect) for 10% < RH <90% at 40°C (104°F) and 1 kHz

Shock & Vibration - See Note 1

External Fields

Magnetic: 80 A/m, 50/60 Hz, no effect

Electric: 10 V/m, 1 kHz modulated, 30 MHz - 1 GHz, <55 dBC

ELECTRICAL CHARACTERISTICS

Batteries: The SoundPro DLX uses two types of batteries in normal operation, a main battery set and a backup battery. The main batteries can be either rechargeable nickel metal hydride or alkaline batteries.

NiMH: Standard equipment. Rechargeable using a built-in charger that is activated by the external AC power supply supplied with SoundPro DLX. Cycle life >500 cycles.

Meter + Polarization: 4 hours

Meter + Backlight: 3 hours

Alkaline: You can insert six (6) AA alkaline batteries in the two tubes furnished with the SoundPro DLX. The built-in battery charger is not activated when alkaline batteries are installed and the external power supply is connected.

Meter + Polarization: 3.5 hours

Meter + Backlight: 2.5 hours

Backup Battery: Operates the internal clock and memory for a few minutes while the main batteries are being changed.

Charger: Internal battery charger for the NiMH batteries

External Power Supply: Switching type. Furnishes power to operate the instrument as well as to operate the internal charger when the NiMH batteries are installed.

Input: 100 - 240 VAC at 50/60 Hz and 0.8 A

Output: +12 VDC, 2.5 A

Meters Input: The input impedance is 100 Kohm in series with 11 uF with approximately 100pF loading to ground.

Preamplifier: Directly accepts 1/2 in. (0.52" or 13.2 mm) microphone. Other sizes require an adapter.

Assembly: Preamp is removable

Cable: Will drive up to 30 meters of cable with negligible signal loss

Input impedance: Greater than 1 Gohm with approximately 3 pF loading

Signal limit: 12 VAC rms (~21 dBV rms, ~24 dBV peak)

Internal Noise: After calibration at 400 mV @ 114 dB (-28dBV at 94 dB-SPL, 1kHz), with a nominal QE4936 microphone, typical noise levels with a 12pF input load will be:

- 10.6 µV-A (22.5 dBA)
- 50.1 µV-C (36.0 dBC)
- 202 µV-Z (48.1 dBZ, 3Hz to 22.5 kHz)

MECHANICAL CHARACTERISTICS

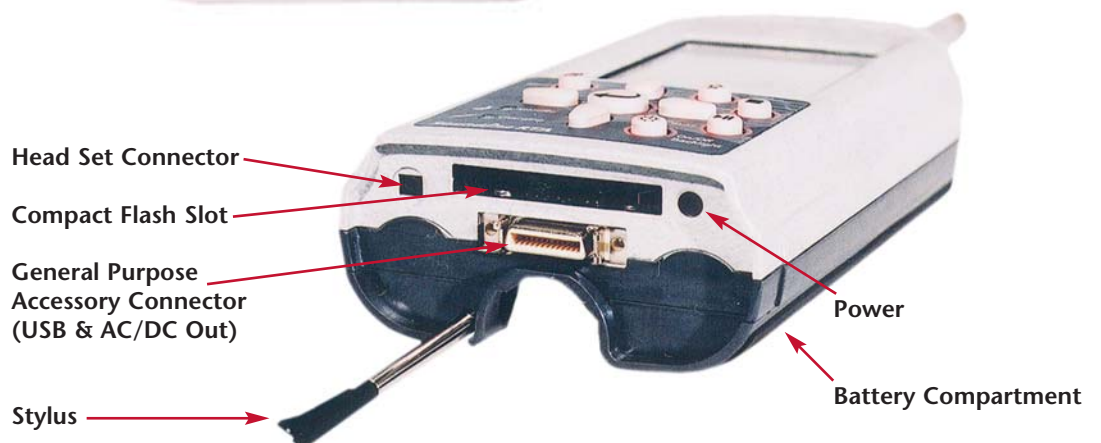
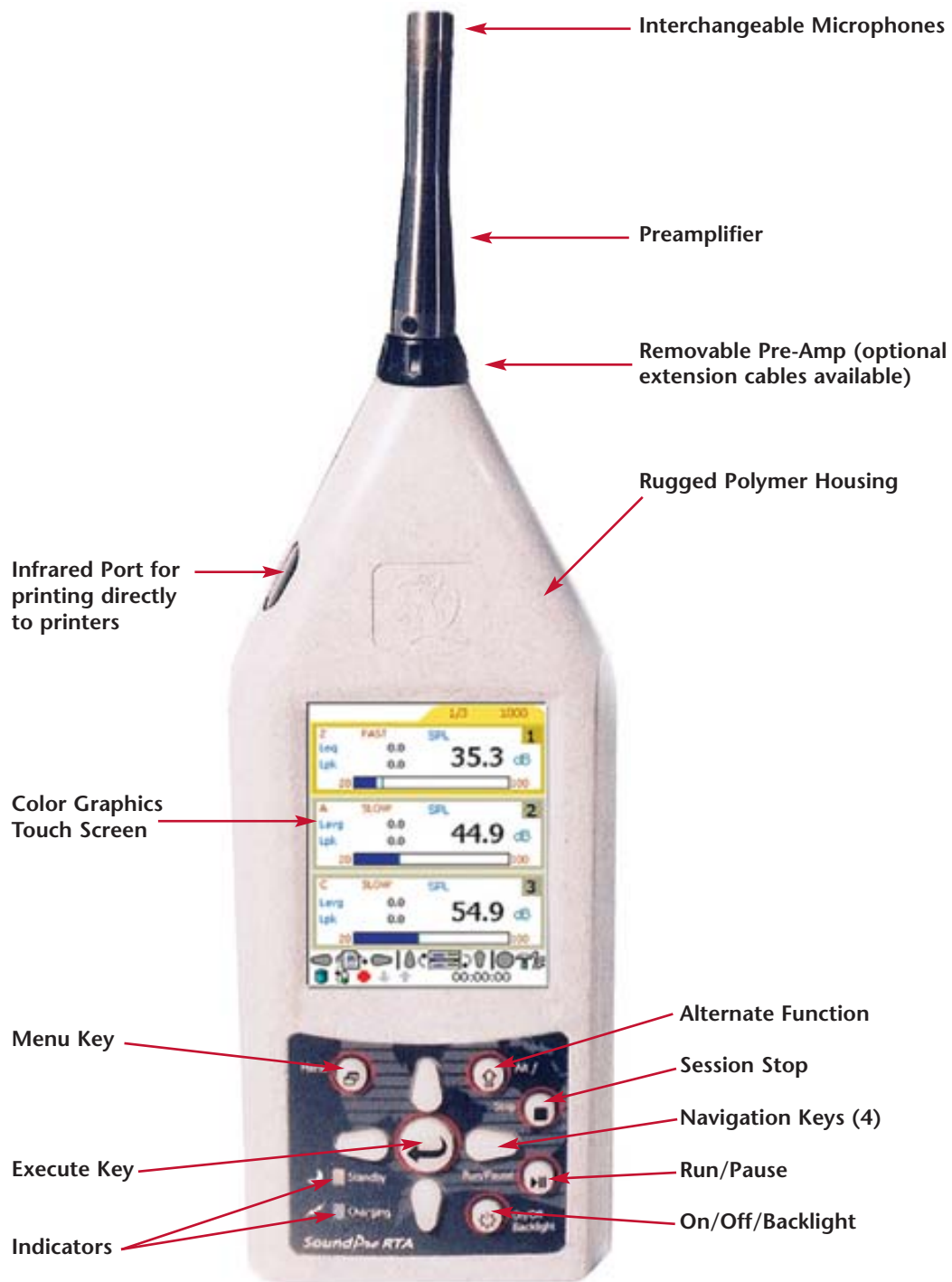
Tripod Mount: A threaded insert on back of the meter accepts a standard 1/4" -20 tripod mounting screw

Housing: Tough ABS/Polycarbonate with Internal EMC shielding and external ergonomic handgrips

Size: 13.0 cm W x 25.4 cm H x 5.0 cm Thick

Weight: Approximately 1 Kg (2.2 lbs)

Note 1: Information not available at time of printing. Please check web site for the latest information.



MICROPHONE CHARACTERISTICS

Microphones Available

BK4936: A 1/2" standard, electret-type microphone. Only for Class 1 models

QE7052: A 1/2" standard, electret-type microphone. Low cost and typically used for general purpose free-field measurements. Only for Class 2 models.

QE4110: A 1/4" free-field condenser microphone especially suited for very high levels (Recommended for measurements between 65 and 167 dB) or for more accurate high-frequency measurements. Only for Class 1 models.

QE4130: A 1/2" free-field condenser microphone for general purposes, loudspeaker, and microphone measurements. Flat response to 30 KHz. Only for Class 1 models.

QE4170: A 1" pressure style condenser microphone for use with closed couplers and for low level measurements. Only for Class 1 models.

Microphones Preamplifier

Part Number: 053-809

Connector Type: 6 pin Hirose (SR30 Series)

Polarization Voltage: Regulated (low-current) 200V DC (+/- 2%) available for unpolarized condenser microphones. The microphone polarization can be switched off by the user for pre polarized electret microphones.

Optional Extension Cables:

Part Number: 053-851, 1 meter

Part Number: 053-852, 3 meter

Part Number: 053-853, 15 meter

COMBINED METER & MICROPHONE CHARACTERISTICS

Property/Model	BK4936 ^a	QE7052 ^b	QE4110	QE4130	QE4170
Part Number	059-523	056-317	059-413	058-659	058-488
Nominal Diameter	1/2 inch	1/2 inch	1/4 inch	1/2 inch	1 inch
Bias Voltage	Electret	Electret	200 V	200 V	200 V
Response Characteristic	Free Field	Random	Free Field	Free Field	Pressure
Frequency Response^c	8 Hz to 20 kHz	20 Hz to 17 kHz	5 Hz to 24.5 kHz	3 Hz to 24.5 kHz	3 Hz to 10 kHz
Sensitivity (dBV)^d	-28	-29	-49	-36	-26
Sensitivity (mV)	40	35	3	15	50
db (1 kHz, 1/3) Noise	11.4	10.2	26.6	17.5	-0.8
dBA Noise	22.5	22.1	38.8	28.9	12.2
dBC Noise	36	32	51.7	42.7	23.6
dBZ Noise	48.1	48.8	67.2	57.0	42.1
Mic Range dB_{Amin} (Recommended)	29	28	45	35	18
Mic Range dB_{pk}	142	143	167	150	140
Nominal Capacitance (pF)	12	15	6.5	18	60
Accuracy	Class 1	Class 2	Class 1	Class 1	Class 1

a) Standard microphone for the Class 1 models
 b) Standard microphone for the Class 2 models
 c) See manual for detailed frequency plots
 d) Relative to 1 v/Pa (mV/Pa)

Specifications subject to change without notice.

For the most current specifications and additional information about Quest Technologies and the SoundPro DLX visit our web site at

www.Quest-Technologies.com



WORLDWIDE HEADQUARTERS

1060 Corporate Center Drive • Oconomowoc, Wisconsin 53066 USA
 262-567-9157 • 800-245-0779 • Fax: 262-567-4047

www.Quest-Technologies.com