

Feature Comparison: LISST-200X vs. LISST-100X

The LISST-200X marks a major advance in the technology of submersible particle size and concentrations measurements. Smaller, lighter, smarter, for starters, this model combines the size ranges of the original LISST-100XB and -100XC. It stores all instrument files on-board; no more searching. It guides the user on the quality of a newly acquired background file and whether to accept or reject. It has a greater depth rating, making it suitable for integrating into coastal profiling packages such as CTD's. It incorporates better daylight rejection, a faster temperature sensor, and a more rugged optics design that gives it a greater tolerance to abuse.

Many of the earlier popular features of the LISST-100X are retained in the LISST-200X. These include the Start and Stop options based on a switch on the endcap, or based on time or depth. A key new feature is the output of Mean Size and Total Concentration as analog voltages. This allow the size and concentration to be monitored in real time, such as through a CTD, while the detailed size distribution data is recorded internally for later downloading. The LISST-200X is simply a more advanced third generation laser diffraction instrument. [See the contrast in sizes of the larger LISST-100X and the compact LISST-200X below.]



Additional information about the LISST-200X can be found on our website:

<http://www.sequoiasci.com/product/lisst-200x/>

Feature	LISST-200X	LISST-100X
Particle Size Range	1.0 to 500 microns in 36 size ranges. [A single instrument, instead of two!]	Type B: 1.25 to 250 microns, 32 sizes Type C: 2.5 to 500 microns , 32 sizes
Automatic Clean Water Background QC	Automatic Clean water background evaluation and recommendations including Pass/Fail notification. Background is stored on the instrument and saved with every data file.	No evaluation of background. User must evaluate the quality of background and appropriate steps to improve it. Background only saved on the PC connected to the instrument.
Optical Path	25mm standard [Allows measurement of twice the maximum concentration of standard LISST-100X]	50mm standard
Analog Outputs	Analog output of Mean Size and Concentration. [Output is updated with each recorded sample. Concentration output is logarithmic to allow wide dynamic range.]	No Analog output
Ambient light Rejection (ALR)	ALR is achieved by a combination of red laser filter, and electronic chopping.	No rejection.
Instrument Files	All files are on board the instrument – backgrounds, ring area, matrices. No need for searching.	Files stored on user’s computer; necessitates searches.
Maximum number of datafiles	No limit on the number of data files that can be stored. Limited only by memory capacity	Limited to 512 files regardless of space available in memory.
Saved Data file format	Extended File format. Each file has an extended header that includes all information necessary to process the data file including date and time in standard format, Ring Area files, Factory and Current Backgrounds, Instrument Specific Calibrations and Serial numbers, and future expansion space	Simple file format requiring multiple files. Users must keep track of information about the files and which files to use during processing.
Depth Rating and Resolution	600 meters with 0.01m resolution.	300 meters with 0.01m resolution

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Rugged Optical Alignment	New rugged mechanical design makes instrument more tolerant to shock and vibration.	Less tolerant to shock and handling.
Temperature Sensor	Newly designed faster temperature sensor with response time constant ~1.5 sec 0.001 deg C resolution.	Temperature Sensor embedded into Connector Endcap. Very slow response. 0.01 deg C resolution
Harder window material	Quartz windows with internal anti-reflection coating. Quartz provides much more resistance to scratching than standard BK-7 glass	BK-7 glass [Quartz has been used on most recent LISST-100X instruments]
Physical Size	3.95" dia x 25.2" long (100mm dia x 640 mm long) [40% of the volume of the LISST-100X]	5.25" dia x 34.25" long (133 mm dia x 870 mm long)
Weight	11.8 lbs (5.4 kg) in air 3.8 lbs (1.7 kg) in water [LISST-200X only, does not include External Battery packs.]	25 lbs (11 kg) in air 8 lbs (3.6 kg) in water [LISST-100X includes internal battery pack]
Ship Case Dimensions	31" x 21" x 11" 58 lbs. (79 cm x 53 cm x 28 cm 26 kg.)	45" x 16"x 14" 72 lbs. (114 cm x 41 cm x 36cm 33 kg)
Power Source	External Power only [No need to open instrument; protection from moisture and handling.]	Internal Battery pack or External power [Instrument needs to be opened to change batteries]
Battery Options	1) Small External Battery Pack using two standard NiMH rechargeable D cells 2) Large External Battery Pack using 16 individual alkaline or rechargeable batteries.	Custom made alkaline battery packs. No rechargeable option.
Communications Cable	USB cable with power to instrument coming from the computer USB port. Optional AC power jack available.	RS232 Cable with separate USB-to-Serial adapter. AC power supply or other +12V source required to power instrument.

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Auxiliary Input Connector	Configuration of Auxiliary Input/Output connector (6-pin) is easily changed via a jumper on the circuit board	Configuration of the Auxiliary Input connector is hard wired at the factory for a specific configuration.
Auxiliary Input/Output Configurations	<ol style="list-style-type: none"> 1) Standard, 1 analog input, 2 digital inputs, +12V power out 2) 2 analog inputs, +12V power out 3) Analog output of Mean Size and Concentration, Power Input (Pin-to-Pin compatible with SBE 9Plus CTD Aux Input) 4) Settling Column Option configuration All of the above settings are selectable with jumpers on the main circuit board.	<ol style="list-style-type: none"> 1) Standard, 1 analog and 1 digital input, no power out 2) 2 analog, Battery Power out 3) MicroCat CT Sensor serial interface 4) Settling Column (on LISST-STX only) All the above configuration require hard wiring changes of the connector endcap.
Analog input Resolution	16-bit resolution on Analog inputs (0 to 65536 counts over 5V)	12-bit resolution on Analog inputs (0 to 4095 counts over 5V)
Endcap LED indicator while waiting for Start Condition	LED on Connector Endcap double blinks every 5 seconds while instrument is waiting for Start Condition. Single longer blink occurs during sampling while an average is being recorded.	No LED indicators while waiting for Start Condition. Only blinks during sampling.
Background Test Chamber installation	Newly designed one-piece Background test chamber is very easy to install	LISST-100X Background test chamber had multiple moving parts that was sometimes difficult to install.
External Power input voltage	8 to 24VDC, 1.2 watts	10 to 24VDC, 1.5 watts
Voltage Drop out protection	Automatic voltage dropout protection against short term drops, and automatic shut down for longer drops.	No dropout protection on external power but has internal battery pack
Settling Column as optional accessory	A Settling Column as a bolt-on options if planned for the LISST-200X that will allow the measurement of settling velocity	Settling column is only available as the separate LISST-STX instrument.