SR-LAB STARTLE RESPONSE

SYSTEM COMPONENTS

Control Unit

ABS Test Cabinet

Animal enclosure

Power Supply

Input and Output Cables

Software and User Manual

PART NUMBERS

- 2325-0400
  SR-LAB System

- 2325-0401
  SR-LAB System
  Additional

- 2325-0078
  Standardization Unit

PRODUCT OVERVIEW

The SR-Lab Startle Response System is recognized globally as the standard in startle reflex measurement and is extensively utilized for fear potentiated startle and pre-pulse inhibition studies. Offering a comprehensive hardware and software platform, SR-Lab accommodates a diverse array of startle research protocols and supports configuration of up to 16 independent testing stations to facilitate high throughput experiments. Its interface is designed to meet the needs of both experience behavioral researchers and users new to startle testing, ensuring efficient, flexible data acquisition and management within the Windows operating environment.

SR-Lab Software seamlessly controls a wide range of stimulus modalities-including tones, noise bursts, lights, air puffs, and foot shock-enabling extensive customization for complex research designs. Robust data management tools allow rapid configuration and operation of multiple test stations. The software provides an “OFFICE MODE” feature allowing the software to be installed on any laptop to review data or set up trial definitions when not attached to equipment.

FEATURES & BENEFITS

Supports all startle paradigms including startle habituation, pre-pulse and cross-modal inhibition, fear potentiated startle, trace conditioning and gap detection

Configure up to 16 test stations for rapid testing of large subject groups

Plug-in kits for shock, puretone, airpuff and light stimuli

Results are reported in millivolts

5 standard animal enclosures with custom styles available

Analysis module to review scored data, raw data and export data

SR-LAB CONTROL UNIT

The SR-LAB Control Unit consists of a computer with USB port, connection chassis and software. The Control Unit manages stimuli and monitors responses for up to 16 test stations simultaneously. All Control Unit operations are available from intuitive, menu-driven choices. The control unit has connections for the SR-Lab potentiated startle kit as well as two Digital Outputs for connections to other equipment.


SR-LAB Control Unit Front & Back

Power. Flexibility. Ease of Use.

SR-LAB SPECIFICATIONS

TEST CABINET

The SR-LAB test cabinet is uniquely designed to permit accurate results in startle reflex testing by limiting inter-subject ultrasonic vocalizations and fear-related pheromones. Each sturdy cabinet permits full and unobtrusive observation of test animals and includes a ventilation fan, light, and viewing lenses. In addition, each cabinet contains a complete sound generation system for white noise production and accessory connections for optional stimuli. Electronic circuitry is enclosed in a separate section of the cabinet.

STANDARDIZATION OF SR-LAB

The SR-LAB Standardization Unit confirms the reliability of all startle animal enclosures; both among enclosures and over time, by transmitting a precise series of pulses to the sensor located on each enclosure. Using the SR-LAB Standardization Unit, you can adjust each animal enclosure to the same base line value, thus standardizing the responses. This unit is required for any SR-LAB multi-station system.

SR-LAB Standarization Unit

ANIMAL ENCLOSURES

Animal enclosures are designed to locate the subject without using restraint, so the animals do not suffer from restraint stress and confound the results of the startle testing. The animal is free to turn around and make other movements. The SR-LAB enclosures are configured to focus the source of stimuli on the animal's center line assuring the level of the stimuli is consistent. The SR-LAB cylindrical animal enclosure monitors animal movements with a closely coupled accelerometer sensor. The tubular design of the animal enclosure ensures that the animal remains centered over the sensor for consistently reliable results. The enclosures are made of transparent acrylic for easy cleaning and convenient observation. All enclosures are adjustable in length and come in five different sizes to accommodate adult and juvenile rats and mice. Also available are slotted enclosures for tethered animals in the same size.

SR-LAB Animal Enclosures

COMPUTER REQUREMENTS

SDI offers high performance Configure Computers that are pre-installed with the Windows operating system, USB Drivers and applicable SDI software. Windows 10 compatible computer systems with one USB port.

ONSITE TRAINING

SDI offers onsite training to ensure understanding of how to operate the SR-LAB System

For more information on any of our products or services please visit us on the Web at:
www.sandiegoinstruments.com
Or contact us via email at
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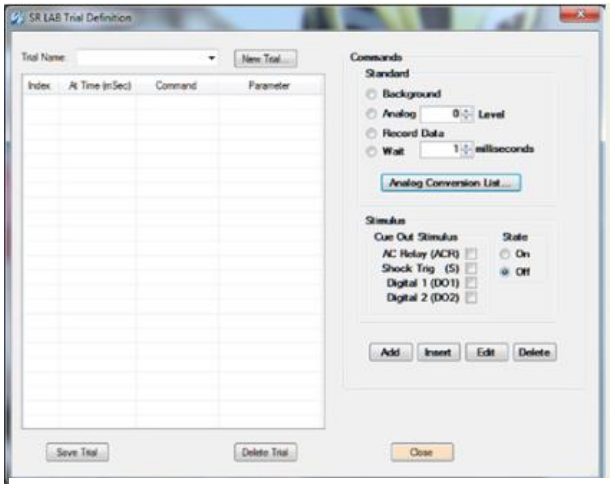
SR-LAB Software Features

TEST PREPARATION

Trial Definitions: You can define a trial to meet your specific needs. Each command in a trial is selectable by checking a button and entering any parameter values. Choose Add, Insert, Edit or Delete to complete the entry of a command. You can control the start time and the duration of each command in the trial. All Trial Definitions can be saved and reused.



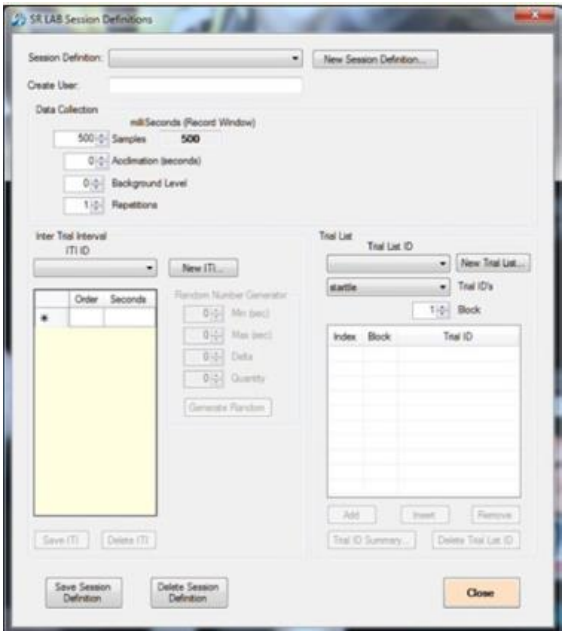
Session Definitions: The Session Definition assembles the following items to provide a cohesive run definition:

✧Data Collection Parameters- Acclimation Time, Number of Samples to be recorded and Repetitions.

✧Trial List-constructed using the Add, Insert, and Remove buttons or loading a Saved Trial List.

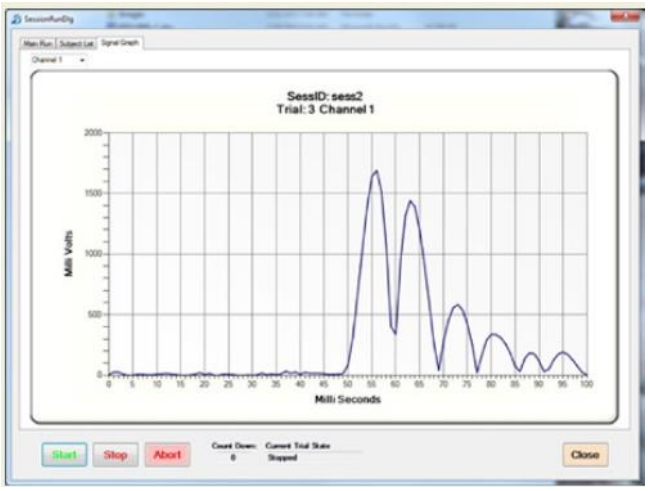
✧Inter-trial Interval (ITI) List-constructed using the Random Number Generator or manually entering time values in the list or loading a saved ITI List listed in the ITI ID list box. ITI list can be saved for reuse in other Session Definitions.

The Session Definition is saved for use in Test Execution.



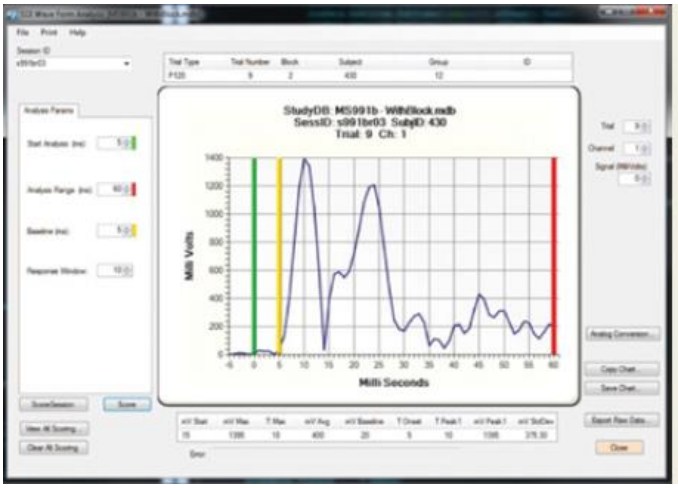
TEST EXECUTION

Diagnostics/Audio Calibration: You can observe response channel integrity and calibrate acoustic stimulus amplitudes directly from the Oscilloscope mode reducing the preparation time needed to establish stimulus levels in startle sessions.



Running a Test: Assign a Session ID and select the Session Definition. Enter Subject information.

ANALYSIS: This is a separate module that can be installed on multiple computers to analyze and/or export results. All data collected by the SR-LAB software is stored in a database file in table format. This eliminates the need to concatenate individual files prior to export. With the Analysis module simply select the session you wish to view or export. There are also parameters to re-score a portion of the collected data.



SR-LAB Plug-In Kits and Accessories

POTENTIATED STARTLE RESPONSE

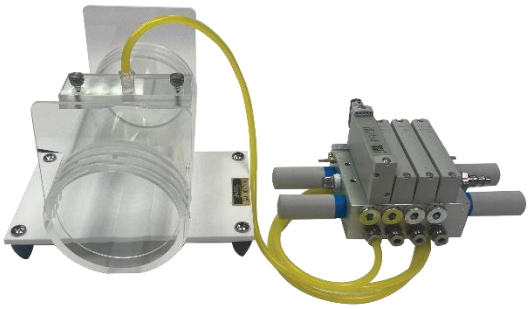
The SR-LAB Potentiated Startle Response Kit pairs foot shock with a conditioning stimulus for potentiated startle studies. The conditioning stimulus can be acoustic, light tactile or user supplied. The shocker's display shows the actual amplitude delivered. Range of shock is 0.5mA and is a solid state, constant current feedback controlled. The stainless-steel shock grid floor slides easily into the enclosure and is removable for cleaning. Two points of contact must be made to deliver shock. The shock scrambles the current so the animal will not know the pattern. The Potentiated Startle Response kit is available for all enclosure sizes and includes Animal Shocker, Shock Grid, Cue Light, and all cables and connectors.

SR-LAB LIGHT BAR

The SR-LAB light bar can be used to induce anxiety or serve as a pre-pulse stimulus. The light bar consists of 5 rows with 6 LEDS per row and attaches to the side or top of the SR-LAB cabinet. The light bar does not generate heat or electrical noise that could influence an animal's reaction. This light can be connected to either the Cue Out connector on each test station or a Light control box if the Cue Out connector is

AIR PUFF KIT

The Air Puff Kit is used as an alternative stimulus to the built in acoustic stimulus. Air Puff kit also comes in a LOW PSI set up. Each Air Puff Kit consists of a manifold unit to turn the air on and off and a delivery nozzle which mounts on the top of the animal enclosure. An opening in the back of the SR-LAB cabinet is used to feed the tubing to the delivery nozzle. (User must provide the input air)



PURE TONE KIT

The pure tone kit allows the user a full range of frequencies driven by an external function generator and audio amplifier to deliver tones. You control the frequency and duration of sounds via the SR-LAB software. This approach eliminates any sound clicks present in other systems. The external isodynamic tweeter speaker that can be mounted in the top of the SR-LAB cabinet can handle up to 40kHz. The tone is generated by applying an analog voltage level to the function generator which outputs the corresponding sine wave frequency to the audio amplifier for output. This kit is extremely useful for gap detection startle reflex testing.

SR-LAB SPECIFICATIONS

SR-LAB Control Box	
Outside Dimensions	10.25” (W) x 9.875” (D) x 4.5” (H)
Weight	3 lbs
Maximum Stations	16
Out Put Connectors	2 Digital BNC Connector
SR-LAB ABS Cabinet	
Dimensions Outside	15” (W) x 14” (D) x 18” (H)
Weight	24 lbs
Material Composition	ABS plastic
SR-LAB Animal Enclosure	
Material	Acrylic
Ultra-Sensitive Small	3.5” (L) x 1.25” (I.D)
Ultra-Sensitive Small/Medium	5” (L) x 1.5” (I.D)
Medium	6” (L) x 2.25” I.D)
Large	8” (L) x 3.5” (I.D)
X-Large	10” (L) x 5” (I.D)
POTENTIATED STARTLE RESPONSE	
Animal Shocker Dimensions	8” W x 9” D x 3.5” H
# of Rods	7 Stainless Steel
Shocker Output	0-5mA
	0-2mA
Indicator Lights	Power, Shock, Adjust
Switches	Program/Manual
	5mA/2mA
	Initiate/External/Adjust
Shock Trigger IN/OUT	5-12VDC
Shock Level IN/OUT	0-0.125VDC
Power Source	12VDC (500mA)
Shock Out	8 unique scramble shock output cable
Cue Light	See SR-Lab Light Bar
AIR PUFF KIT	
Solenoid Manifold	1 per 4 test stations
Tygon tubing length	6’
Tygon tubing circumference	¼”
Max PSI	60 PSI
Min PSI	30 PSI
Suggested Air Sources	Regulated Non-Flammable
AIR PUFF KIT LOW PSI	
Manometer included	
Down line Regulator Max PSI	60 PSI
Down line Regulator Min PSI	0.9 PSI
SR-LAB LIGHT BAR	
Dimensions	9” L x 3” D
Total LED	30
Lux (Mounted center ceiling)	0 to 3.7 Klux

SR-LAB SPECIFICATIONS

SHOCK LEVEL TESTER	
Dimensions	7” (L) x 6” (W) x 2” (H)
Weight	3lbs
Indicator Lights	USB Status
	Power
Connection	USB
Power	9 Volt DC
PURE TONE KIT	
Minimum kHz	20kHz
Maximum kHz	40kHz
Maximum Speaker dB	99 dB

COMPUTER REQUIREMENTS

SDI offers high performance Configure Computers that are pre-installed with the Windows operating system, USB Drivers and applicable SDI software. Windows 10 compatible computer systems with one USB port.

ONSITE TRAINING

SDI offers onsite training to ensure understanding of how to operate the SR-LAB System

For more information on any of our products or services please visit us on the Web at:
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SHOCK LEVEL TESTER

The SR-LAB Shock Level Tester displays whether or not the shock grid is working properly. Just clip the Shock Level Tester to a shock grid and set the appropriate shock level on the shocker. The shock level detected will be displayed on the Software. You will know that the shock grid is working properly when the shock level enter matches the value displayed on the software for the Shock Level Tester.

SERVICES AVAILABLE

Technical Support
Installation and Setup
Maintenance
Application Support
Hardware Support
Guaranteed Warranty