



SAVER™ 9X30



The SAVER™ 9X30 is a self-powered field data recorder with an internal tri-axial accelerometer, and six externally configurable channels. The 9X30 is provided with temperature, humidity and atmospheric pressure sensors and can be optionally configured with onboard GPS logging capability. Powered with 9V lithium batteries, the instrument and will operate continuously for up to 30 days.

Measure



Test



Monitor



Field-to-Lab™

Measure
Measure transport hazards in the field.

Test
Use the results to construct laboratory testing.

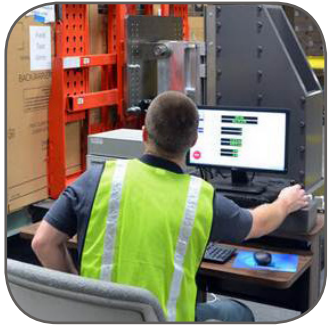
Monitor
Continue monitoring the field to see if anything changes.



SAVER™ 9X30



FEATURES



Field-to-Lab®

Use SaverXware™ software to analyze data captured with SAVER™ instruments, and seamlessly create random vibration test profiles that can be easily imported into Lansmont TouchTest Vibration Controllers for immediate use. Only Lansmont offers this cross-platform integration.



30 Day Battery Life:

SAVER 9X30 is powered by two 9V batteries located on the side of the unit. The unit will run for 30 days on lithium batteries (15 days on

alkaline batteries). Step- by- step instructions are provided in SaverXware™ for replacing the batteries.



Nine Dynamic Measurement Channels:

The 9X30 incorporates a dedicated internal tri-axial with 6 external accelerometer inputs, along with temperature,

humidity, atmospheric pressure sensors. Sampling rates up to 10KHz per channel provide unparalleled portable measurement capability. The 9X30 includes built in signal conditioning for all of the dynamic channels along with selectable recording ranges and filters.

OPTIONS



9X-GPS Configuration:

Optionally configured as the SAVER™ 9X-GPS, the internal GPS hardware adds valuable location and speed detail to your measurement data. This detail is directly part of the SaverXware™ data stream, requiring an intermediate import and synchronization.



External Battery Pack:

Lansmont offers External Battery Pack options that can extend the continuous operation from one to multiple months of run time.



Mounting Kits:

Mounting kits can make it easier to fix SAVER™ 9X30's to vehicles or structures. Kits include mounting plates and attachment hardware. If you are attaching to a ferrous

surface, magnetic mounting kits are available.



Data Analysis Center:

Trust Lansmont data specialists to interpret your data and provide you with even greater confidence. Lansmont data specialists are experts at acquiring, analyzing and summarizing data; if you need help defining parameters or protocols, we can help.



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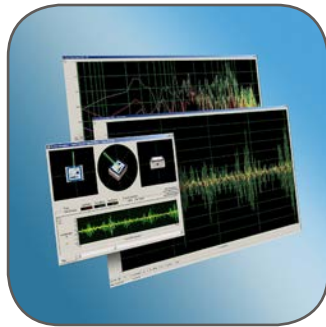
SaverXware™

Each SAVER™ purchase includes Lansmont's SaverXware™, the easy-to-use software that communicates with the SAVER™9X30 for setup prior to recording — as well as data analysis once you've collected some data. Data analysis features include drop heights, impacts, vehicle motion, vibration, as well as temperature and humidity cycles.



Measurement Setup

Users are provided with simple, standard setup gateways for common measurement applications. Advanced setup options provide complete control over all setup parameters, providing unparalleled capability for instrument users.



Data Analysis

Powerful individual and multi-event summary analyses providing time-history, frequency domain, and vector visualizer playback and review.



Summary Reporting and Export

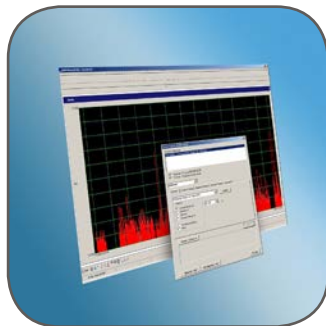
Generate user-defined project summary reports and print to document measurement results. Additionally, export the project data itself to ASCII files for analysis and reporting using universally available software applications.



Event Table and History

Multi-data files can be viewed in single, common project databases. The data file's measured events are chronologically presented in event tables, which are positioned underneath measurement Quick Histories. The Quick Histories display the captured data from the project

beginning to end in one view. Corresponding event thumbnails are updated as different events are highlighted in the table.



Summary Event Selection

Extremely useful event selection options based upon acceleration and Grms levels, time occurrence, type of event and even impact type and orientation. A quick history zoom-to-summary option with user-defined range cursors is provided as an alternative summary selector.



GPS Integration

Externally captured GPS data can be imported and automatically synchronized with 9X30 events. Optionally configured as a 9X-GPS, position and speed data will automatically be directly embedded into captured data files. This adds further value and definition to your measurement results.



SAVER™ 9X30



MEASUREMENT APPLICATIONS

Do you know what kinds of hazards your products must endure within their transport or in-use environments? The SAVER™ 9X30 Field Instrument is the right tool for thoroughly measuring dynamic and climatic conditions in manufacturing, transport, and in-use environments.



Manufacturing



Vehicles



Structural Measurements



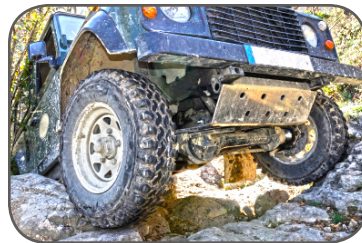
Asset Transport



Oil Platforms



Amusement Rides



Off Road Measurements



Packages



Aerospace

Effective integration of measurement and monitoring programs provide customers the ability to:

- Characterize the dynamic and climatic hazards within a given environment
- Establish product design criteria
- Develop laboratory testing and simulation criteria
- Audit distribution channels and carriers
- Establish liability in transport damage situations
- Determine normal vs. abnormal handling and transport of your goods
- Create climatic histograms of environmental conditions (Temp/RH)



SAVER™ 9X30



SPECIFICATIONS

PHYSICAL

Size:	5.0 x 4.9 x 1.7 in. (127 x 124 x 43 mm)
Volume:	41.2 in. ³ (675 cm ³)
Chassis Material:	6061-T6 anodized aluminum
Weight:	35.0 oz. (1 kg)
Environmental:	Weather Resistant
Mounting:	4 thru holes for #8 screws

DATA ACQUISITION

Sampling Rates:	50, 100, 200, 250, 500, 1000, 2500, 5000 and 10,000 samples per second
A/D Conversion:	16-bit

INTERNAL CHANNELS

Accelerometer Type:	Tri-axial piezoelectric
Acceleration Ranges:	5, 10, 20, 50, 100 and 200 g (full-scale)
Anti-Alias Filter:	4-pole, low-pass Butterworth filter 10, 20, 25, 50, 100, 200, 250 and 500 Hz. (cut-off frequency)
Software Filters:	1 or 2-pole, low-pass RC post-process filters 0 to 10 kHz (cut-off frequency)
3-dB Frequency Response:	0.4 Hz to filter setting
Instrument Noise Floor:	0.02 Grms typical at 500 Hz bandwidth
Dynamic Range:	80 dB typical
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

DATA RECORDING

Signal Trigger:	User programmable acceleration (g) threshold
Timer Trigger:	User programmable "wake-up" interval
Pre-Trigger:	User-programmable signal event pre-trigger
Data Retention Modes:	Max. Overwrite, Fill / Stop, Wrap / Overwrite
Temperature / Humidity / Atmospheric Pressure:	Temperature, RH and Atmospheric Pressure readings recorded for each event

MEMORY

Memory Size:	128 MB
Memory Type:	Non-volatile FLASH
Memory Retention:	Retains data even when batteries are exhausted or removed

EXTERNAL CHANNELS

Number of Channels:	6
Input Modes:	Charge and Voltage
Anti-Alias Filter:	4-pole, low-pass Butterworth filter 10, 20, 25, 50, 100, 200, 250 and 500, 1,000, 2,000, and 2,500 Hz. (cut-off frequency)

Charge Mode:

Accelerometer Type:	Piezoelectric
Input Sensitivity:	0.3 to 30.0 pC/g
Acceleration Ranges:	5, 10, 20, 50, 100, and 200 g (full scale)
3-dB Frequency Response:	0.4 Hz to filter setting
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

Voltage Mode:

Input Range:	+5 volts AC or DC
Input Sensitivity:	0.3 to 5000mV/g
AC Response:	0.4 Hz to filter setting
3-dB Frequency DC Response:	DC to filter setting
Measurement Accuracy:	±5% with nominal variations in temperature and frequency

ENVIRONMENTAL

Operating Temperature:	-40° to +60°C (-40° to +140°F) using lithium batteries -20° to +54°C (-4° to +130°F) using alkaline batteries
Temperature Measurement / Accuracy:	-40° to +60°C (-40° to +140°F) ±1.0°C from +5° to +40°C; ±1.5°C from -40° to +60°C
Communication Temperature:	0° to +60°C (32° to +140°F)
Humidity Measurement / Accuracy:	5% to 95% RH, non-condensing ± 4% from 5% to 95% RH at 25°C
Atmospheric Pressure Measurement Range:	10 to 1100 mbar.
Measurement Accuracy:	±4 mbar from 750 to 1100 mbar at 25°C.

POWER

Internal:	2 lithium or alkaline 9V batteries
External:	Extended run time options available
Continuous Run Times:	30 days using lithium batteries 15 days using alkaline batteries, extended run-time options available

SOFTWARE / COMMUNICATIONS

User Interface:	SaverXware™ software
Compatibility:	Microsoft Windows® XP (SP3), Vista, 7
COM Interface:	USB 1.1 or 2.0 compatible
Data Rate:	400 kB/s (typical)

CONTROLS AND INDICATORS

Controls:	Run / Stop button
LED Indicators:	Green: Run Red: Alarm, Yellow: Stop, Green: USB cable connected

Optional Embedded GPS (9X-GPS):

Antenna:	External with SMA connector and magnetic mount
Data Acquisition:	GPS position recorded with every event
Run Time:	100 hours of vehicle movement on lithium batteries 50 hours of vehicle movement on alkaline batteries GPS turns off when instrument is not moving

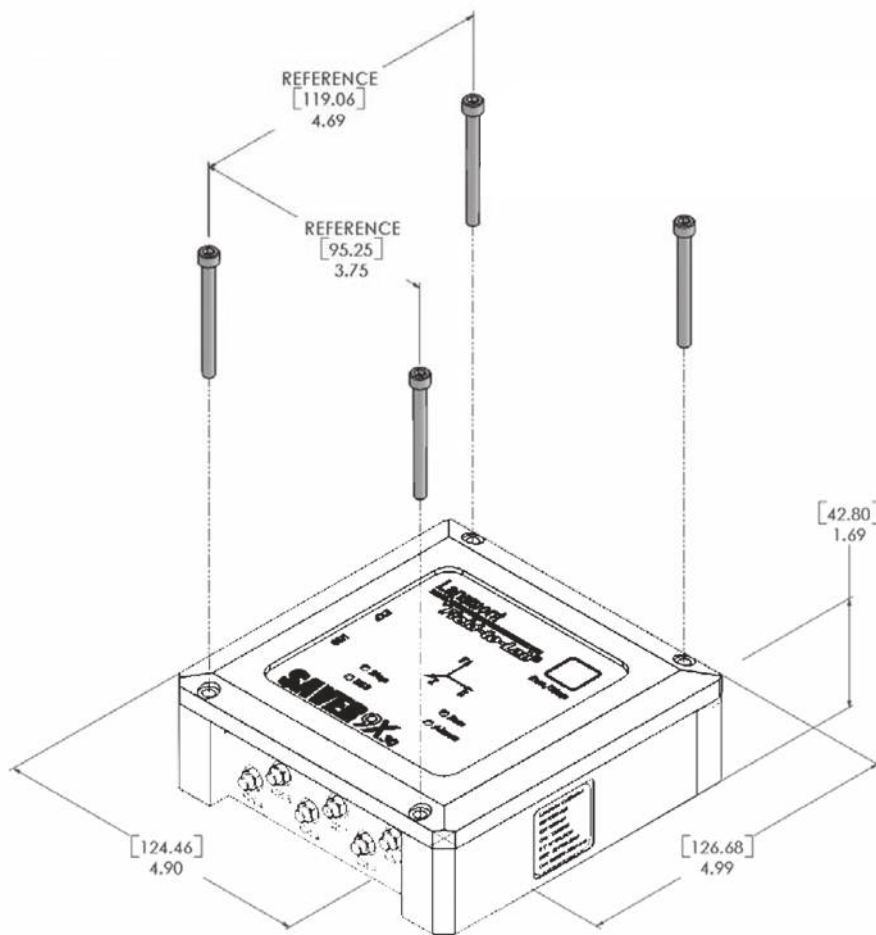


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SYSTEM DRAWINGS – MOUNTING DIMENSIONS

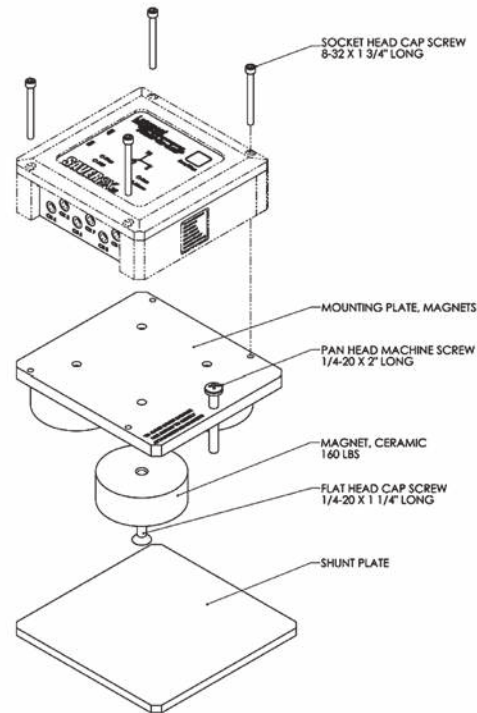
ISOMETRIC VIEW



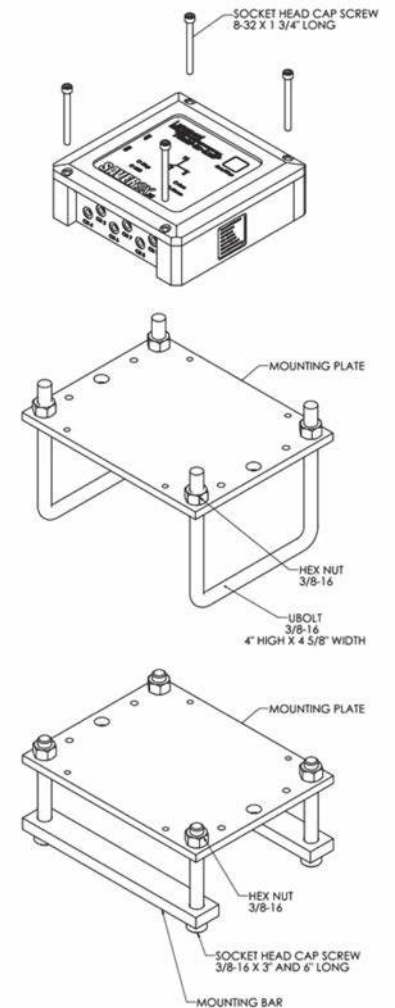
Note: Dimensions in inches [millimeters]

MOUNTING OPTIONS

MAGNET MOUNT



STANDARD MOUNT



Note: Dimensions in inches [millimeters]