

LabSat 3



LabSat 3 is a standalone, triple constellation simulator for testing devices based on satellite navigation systems; it is capable of recording and replaying multiple raw satellite navigation RF signals including GPS, GLONASS, Galileo, BeiDou, QZSS and SBAS. The optional SatGen software package can be used to generate simulated satellite signals from a user defined trajectory, allowing tests to be carried out simulating any time, date or place around the world.



Features

- Available for GPS L1, GLONASS L1, Galileo E1, BeiDou B1, QZSS and SBAS
- Compact, lightweight and portable
- Fully standalone
- Single, dual or triple constellation files
- Battery life up to 2 hours
- Simple to use one touch recording
- Free library of pre-recorded and simulated files

The **LabSat 3** product range supports a number of powerful features for use in industries such as automotive, aerospace and performance sports analysis. It includes up to three RF channels for multiple constellation testing, Dual CAN Bus recording, digital event capture and inertial sensor logging.

Free library of scenarios

A free library of pre-recorded and simulated files from around the world is included with all **LabSat 3** systems to get you up and running as quickly as possible.

Custom test scenarios with SatGen

If you want to create your own custom test scenario using artificial signals, SatGen software allows you to quickly draw a route using Google maps, and then automatically creates an RF file which can then be transferred to an SD card and replayed on a **LabSat 3**.

A 30 day SatGen demo version, limited to 2 minutes scenarios, is available for download on the LabSat website. Please contact your local LabSat distributor for LabSat & SatGen packages.

Model Range

Part Number	Description	Constellations	GNSS Antenna
RLLS03-1P	Single constellation Replay Only	GPS L1/SBAS/Galileo E1/QZSS, GLONASS L1 or BDS B1	-
RLLS03-1RP	Single Constellation Record & Replay	GPS L1/SBAS/Galileo E1/QZSS, GLONASS L1 or BDS B1	RLACS198 Quad Constellation Antenna
RLLS03-2P	Dual Constellation Replay Only	GPS L1/SBAS/Galileo E1/QZSS, GLONASS L1 or BDS B1	-
RLLS03-2RP	Dual Constellation Record & Replay	GPS L1/SBAS/Galileo E1/QZSS, GLONASS L1 or BDS B1	RLACS198 Quad Constellation Antenna
RLLS03-3P	Triple Constellation Replay Only	GPS L1/SBAS/Galileo E1/QZSS, GLONASS L1 or BDS B1	-
RLLS03-3RP	Triple Constellation Record & Replay	GPS L1/SBAS/Galileo E1/QZSS, GLONASS L1 or BDS B1	RLACS198 Quad Constellation Antenna

All units types can be factory upgraded to any other version.



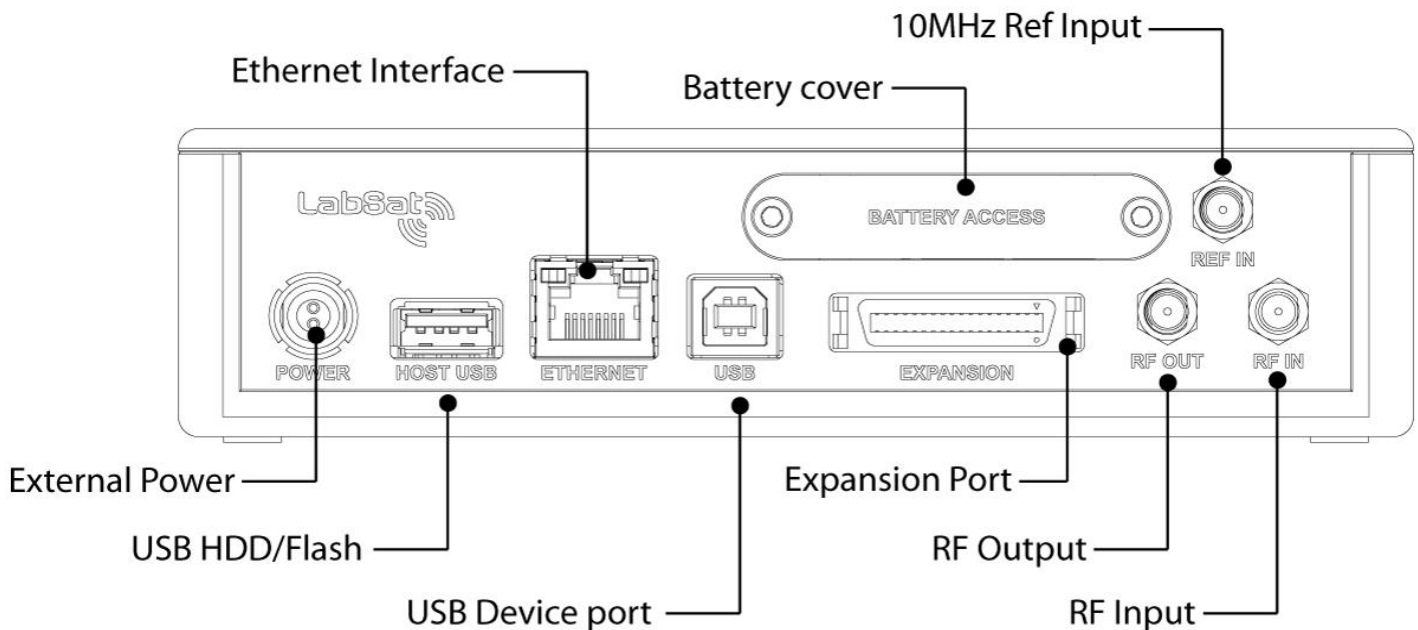
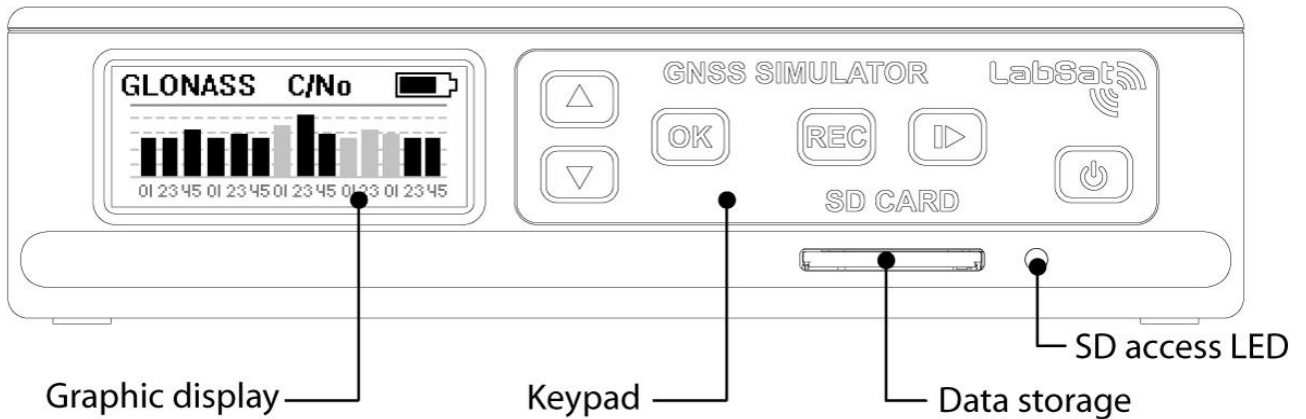
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Technical Specifications

	LabSat 3 Single constellation	LabSat 3 Dual constellation	LabSat 3 Triple constellation
Constellation	GPS, Galileo, SBAS, QZSS, GLONASS or BeiDou	GPS, Galileo, SBAS, QZSS, GLONASS or BeiDou	GPS, Galileo, SBAS, QZSS, GLONASS or BeiDou
Output Signal Level	Adjustable -83dBm to -115dBm	Adjustable -83dBm to -115dBm	Adjustable -83dBm to -115dBm
RF Constellations	1	2	3
RF Constellation Centre Frequency	1575.4/1602.00/1561.098/MHz GPS&GALILEO/GLONASS/Beidou		
Number of Satellites Observed	All in view		
Sampling frequency	16.368 MHz		
Bandwidth	9.66 MHz		
Quantisation	1xconstellation at 1 bit I&Q and 2 bit I&Q	2xconstellations at 1-bit I&Q or 1xconstellation at 2-bit I&Q	2/3xconstellations at 1-bit I&Q or 1xconstellation at 2-bit I&Q
Data Format	I & Q		
User Control	6 Button Membrane Keypad		
Display	Backlit LCD Dotmatrix		
Additional Logging	1 channel CAN, RS232 or Digital (firmware upgrade)	2 channels of CAN, RS232 or Digital	2 channels of CAN, RS232 or Digital
Removable Battery Pack	All versions	All versions	All versions
Battery Type	Varta Easypack Li_Polymer 2260mAh		
Media Storage Included	32 GB SD Card & 1TB USB HDD		
SD Card Media	Class 10 max size 128GB (FAT32)		
Active Antenna Voltage Supply	2.8 - 3 volt		
Reference Oscillator	16.368 MHz Temperature controlled +/- 2.5 ppm or OCXO option +/- 0.3 ppm		
Operating Voltage	8V to 30VDC		
Size	167mm x 128mm x 43mm		
Weight	960g with battery (910g without battery)		
Operating Temperature	-20°C to +60°C Note: Battery will not charge below 0°C or above +45°C (charger shuts down outside this range). Unit will shut down outside operating temperature range.		
Storage Temperature	-20°C to +60°C Note: Battery will discharge whilst in storage and discharge rate will increase at higher storage temperatures.		

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Connections

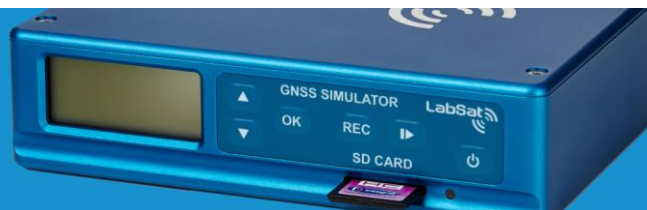
Name	Connection	Description
Power	2 pin LEMO	8 to 30VDC Power Supply input
HOST USB	USB	For connection of USB Storage devices
ETHERNET	RJ45	Remote access and control (Contact local distributor for details)
USB	USB	NMEA Output. (Requires PC drivers, see LabSat website)
RF Out	SMA	Output for RF signal replay for connection to receiver under test
RF IN	SMA	RF signal input from antenna (Record & Replay models only)
REF IN	SMA	10 MHz Reference Clock Input
Expansion	36 Way MDR	1-PPS, NMEA, Digital I/O*, CAN Bus*, RS232 *

*Model dependent – available as options



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DESCRIPTION	Part Number
LabSat 3 SINGLE CONSTELLATION REPLAY ONLY MODEL	RLLS03-1P
LabSat 3 DUAL CONSTELLATION REPLAY ONLY MODEL*	RLLS03-2P
LabSat 3 TRIPLE CONSTELLATION REPLAY ONLY MODEL*	RLLS03-3P
EACH SYSTEM INCLUDES:	-
LABSAT 3 UNIT	-
COUNTRY SPECIFIC MAINS CHARGER	RLVBACS020
32GB SDHC CARD	LS03SDCARD
SMA-SMA CABLE – RG174 - 1M	RLCAB071-1
SMA PLUG TO MCX PLUG CABLE – 1M	RLCAB082-1
SMA PLUG TO MMCX PLUG CABLE – 1M	RLCAB083-1
SMA PLUG TO TNC PLUG CABLE – 1M	RLCAB084-1
1 TB SCENARIO HARD DISK DRIVE	LS03HDD-1TB
BATTERY (All versions)	RLACS201
* INCLUDES: DUAL CAN REPLAY, RS232 REPLAY, DIO REPLAY FIRMWARE	

LABSAT 3 SINGLE CONSTELLATION FIRMWARE UPGRADES	
FIRMWARE UPGRADE TO CAN BUS	RLLSUP3-05
FIRMWARE UPGRADE TO RS232	RLLSUP3-06
FIRMWARE UPGRADE TO DIGITAL I/O	RLLSUP3-07

LabSat 3 SINGLE CONSTELLATION RECORD AND REPLAY MODEL	RLLS03-1RP
LabSat 3 DUAL CONSTELLATION RECORD AND REPLAY MODEL	RLLS03-2RP
LabSat 3 TRIPLE CONSTELLATION RECORD AND REPLAY MODEL	RLLS03-3RP
Same as RLLS03-1P, RLLS03-2P, RLLS03-3P plus:	
BLUE LABSAT CARRY CASE	RLACS197
LEMO 2 WAY TO 12V CIGAR LIGHTER POWER LEAD – 2M	RLCAB010L
FOUR CONSTELLATION MAGNETIC MOUNT ANTENNA	RLACS198
EXPANSION CONNECTOR ADAPTOR	RLACS202
INCLUDES: DUAL CAN RECORD & REPLAY, RS232 RECORD & REPLAY, DIO RECORD & REPLAY	

LabSat 3 OVEN CONTROLLED OSCILLATOR OPTION (OCXO)	
LabSat 3 OVEN CONTROLLED OSCILLATOR OPTION (OCXO) SINGLE & DUAL CONSTELLATION	RLLSUP04
LabSat 3 OVEN CONTROLLED OSCILLATOR OPTION (OCXO) TRIPLE CONSTELLATION	RLLSUP03

LabSat 3 ACCESSORIES	
SDHC EXTREME MEMORY CARD - 32GB	LS03SDCARD
SDHC EXTREME MEMORY CARD - 64GB	RLACS210
SDHC EXTREME MEMORY CARD - 128GB	RLACS211
ACTIVE GPS ANTENNA	RLACS205
PASSIVE GPS/GLONASS ANTENNA	RLACS206
USB 3.0 DUAL SLOT READER	RLACS204
1TB SCENARIO HARD DRIVE (HDD)	LS03HDD-1TB
BATTERY	RLACS201
BATTERY CHARGER	RLACS200
EXPANSION CONNECTOR ADAPTOR	RLACS202