

# SPIRENT GSS6425

## Multiple Constellation Record & Playback System

The GSS6425 Multiple Constellation Record Playback System (RPS) from Spirent is a simple and efficient way to capture real world GNSS signals and replay them in the laboratory. Spirent's GSS6425 represents the best value, most flexible, and easiest to use solution on the market. The GSS6425 is available in several variants from GPS L1 only to full constellation GPS/SBAS/QZSS L1/L2/L5, Galileo E1/E5a/E5b/E6, BeiDou B1/B2/B3, GLONASS L1/L2/L3 to suit your needs and budget.

### Key Features

- Multiple Constellations and Frequencies\*
  - GPS, GLONASS, Galileo, BeiDou, QZSS
  - L1, L2, L5
- Self contained portable unit
- No PC or external drives required
- Control from front panel over WiFi, webservice or scripts
- OCXO used on record and playback for frequency stability
- Internal 1TB hard drive
- Additional removable 1TB hard drive always supplied
- Synchronization of two units in master/slave configuration to support record & playback of 6 frequencies
- Record & playback of up to 4 video streams using webcams
- USB 3.0 supported : Record & playback more data to/from external hard drive.

### Recorder

- Record any 3\* signals simultaneously
- Internal battery (up to 1.5hr) and vehicle DC power adapter
- 2-bit quantisation
- Single touch record
- Synchronous and asynchronous storage of external data
- Event markers

### Playback

- Attenuation control per channel
- Browser control over network
- Multiple file playback
- Start at any point in a file
- Scripts allow inclusion in automatic test routines

\* See specification for full list. At 50MHz bandwidth only 2 signals can be recorded

**A Simple Way to Test GNSS:** Testing navigation and positioning systems under real world conditions can be complex and expensive - Not any more! With the Spirent GSS6425 RPS, it's simple and quick to record real GNSS signals in your specific test environment. The flexibility of the GSS6425 to record multiple constellations allows GNSS chipsets and devices to be tested in automotive, navigation, aerospace, defence and survey applications. Once RF data captured, the Record Playback System is used in the lab to replay the captured environment time and time again to the device or software under test. You save project, travel and engineering costs while improving product performance, quality and time to market.

**High Fidelity Record and Playback:** The GSS6425 is designed to capture complex environments with the fidelity to ensure that playback results in the laboratory are truly representative of captured real world conditions. 2-bit sampling is required in order to adequately capture the detail of the real signals.

**Unbeatable Value:** The self contained unit has everything you need to start testing. Many other systems require peripherals such as personal computers, hard drives, external power and cabling. With the GSS6425 it's simply a case of connecting the supplied antenna and pressing the one touch record button. When done, select the required file and press the play button and the captured data is replayed at RF. The GSS6425 comes complete with an internal 1TB hard drive and a removable 1TB hard drive, meaning that recording in the field can take place interrupted, and data can be shared easily.



### GSS6425 Record Playback System

Self contained unit is easy to use with one touch record & playback, internal and removable storage and battery

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## Multiple Constellation Record & Playback System

### Specification

|                              |  |
|------------------------------|--|
| Frequencies supported*       | GPS - L1,L2,L5<br>Galileo - E1, E5a/b<br>GLONASS - L1, L2, L3<br>BeiDou - B1, B2, B3<br>QZSS - L1, L2<br>SBAS (eg. OmniSTAR, StarFire) |
| ■ Quantisation               | 2 bit  |
| ■ Internal HDD               | 1 TB   |
| ■ Removable HDD              | 1 TB   |
| ■ Output attenuation         | 30 dB  |
| ■ Record capability (per TB) | 1 channel 10MHz - 50hrs<br>3 channel 30MHz - 5hrs<br>2 channel 50MHz - 4.5hrs  |
| ■ Bandwidth                  | 10 or 30 or 50 MHz   |
| ■ Power                      | Internal Li-Ion battery<br>Up to 1.5hr<br>(external)<br>12 – 18 V DC   |
| ■ External Power             | 90–260V AC adapter supplied  |
| ■ OCXO                       | For playback and record  |
| ■ Antenna                    | Antenna supplied   |
| ■ Size                       | 342x 250 x 102mm   |
| ■ Weight                     | 5 kg   |

\*GSS6425 L1 only variant supports record and playback for all constellations (GPS/SBAS, GLONASS, Galileo, BeiDou, QZSS) operating in L1 RF band only.

Contact Spirent with regards to recording Galileo E1a and/or Galileo E6a signals.

### Applications:

- Software and Hardware Testing
  - Repeatability tests
  - Manufacturing test
  - Performance analysis
- System trials
- Algorithm studies
  - Position
  - Multipath
  - Sensitivity

### Application Sectors:

- GNSS chip and board design
- Aerospace and Defence
- Survey
- Research
- Product Manufacturers

### SALES AND INFORMATION

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**Technical:** The GSS6425 can record any three frequencies at any one time with 30MHz bandwidth or two at 50MHz. Some frequencies can also be recorded with 10 MHz bandwidth to increase recording times. The GSS6425 uses 2-bit signal sampling to achieve signal dynamic range suitable for testing high sensitivity GNSS receivers. During playback the system up converts the sampled data to the original GNSS frequencies.

| Frequency MHz | Constellations supported                                  |
|---------------|---|
| 1176.45       | GPS L5, Galileo E5a, QZSS                                 |
| 1227.6        | GPS L2, P and M codes, QZSS                               |
| 1246          | GLONASS L2  |
| 1561.098      | BeiDou B1   |
| 1575.42       | GPS L1 C/A, P and M codes<br>Galileo E1, E1B, E1C<br>QZSS |
| 1602          | GLONASS L1  |
| 1207.4        | BeiDou B2, Galileo E5b, GLONASS L3                        |
| 1268.52       | BeiDou B3   |
| 1542          | Inmarsat based SBAS<br>e.g. OmniStar, TerraStar, StarFire |

At 50MHz bandwidth the center frequencies are set for L1 (GPS & GLONASS) and L2 (GPS & GLONASS). An OCXO is used to provide a stable carrier frequency and accurate data playback, so preserving the code/carrier relationships of the original recorded signal. The OCXO can be locked to an external 10 MHz source for increased accuracy.

**Record and Playback External Data:** The GSS6425 records and replays serial data from a wide range of external data sources. Inertial sensors, DR sensors, reference receivers, 1pps and even CAN bus data can be recorded coherently with the GNSS embedded within the data file to guarantee synchronization. Additionally, the GSS6425 can log serial data into separate files for subsequent analysis or post

processing. NMEA logs or Wi-Fi war-drive data are amongst the types of file that the GSS6425 can record. An external 8TB RAID drive is available as an optional extra.

**Control:** The unit is controlled directly from the front panel keypad or from a web browser to access the unit's built-in webserver. The webserver allows the unit to be controlled or monitored remotely over the Network. The GSS6425 can also be easily controlled from a laptop, PDA or tablet over Wi-Fi by connecting a USB Wi-Fi dongle.

Testing can be automated using simple HTTP commands with the GSS6425, or by executing test scripts on the on-board Linux platform.



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