WAAS GUS Signal Generator™

HIGH PERFORMANCE L1 AND L5 SIGNAL GENERATOR FOR SATELLITE-BASED AUGMENTATION SYSTEMS

INDEPENDENT SIGNAL GENERATORS
The WAAS GUS Signal Generator is built with two independent L1 and L5 signal generators that precisely control the frequency and phase of L1 and L5 code and carrier. Using Binary-Phase Shift Keying (BPSK) or Quadrature-Phase Shifting Keying (QPSK), the signal generator provides two modulated 70 MHz intermediate frequency (IF) signals. In addition, it generates up converted signals at L1 and L5 frequencies, which can be used for signal quality monitoring. The WAAS GUS Signal Generator also features a factory configurable bandwidth on the L1 IF signal.

EASY INSTALLATION
Requiring minimal integration effort, the WAAS GUS Signal Generator is available in a 19 inch 3U rack-mount enclosure. Standard connectors also ensure quick and secure installation. Modulation of the output carrier signals is easily disabled with switches on the back panel. Designed to operate with NovAtel's WAAS G-III Receiver, the WAAS GUS Signal Generator includes 1PPS and external frequency reference inputs. The front panel includes LEDs to provide the status of the external frequency, the signal output and the results of the automatic self-testing.

QUICK CONFIGURATION AND OPERATION
Once connected to a data source, control computer, 10 MHz reference and 1PPS reference, the signal generator is ready to operate. The L1 and L5 RS-232 serial ports provide a command and status interface for each signal generator. The WAAS GUS Signal Generator allows for the input of independent SBAS symbols (FEC encoded data bits) for the L1 and L5 data streams using the RS-485 ports.

FEATURES
+ Separate L1 and L5 signal generators
+ Parallel RF signal output
+ Standard 19 inch rack mount enclosure and connectors

BENEFITS
+ Designed specifically for use in SBAS ground uplink systems
+ Increased flexibility with independent control of L1 and L5 signals
+ Easy integration and secure installation
+ I Channel only or I+Q Channel Operation

If you require more information about our ground reference and uplink receivers, visit www.novatel.com/products/gnss-receivers/ground-reference-and-uplink-receivers/
**L1 SIGNAL OUTPUT**
- Coarse/Acquisition (C/A) codes with selectable PRN values from 120 to 158
- In-phase (I) channel only, I channel with dataless quadrature (Q) channel, or I channel with independent data on the Q channel

**L1 RF Output**
- Using the SBAS message with the selected 1023 bit PRN code
  - Frequency:
    - Default: 1227.6 MHz (L1@L2) BPSK or QPSK
    - Alternate: 1575.42 MHz (L1) BPSK or QPSK
  - Bandwidth: 22 MHz
  - Signal Level: -50 dBm ± 3 dB
  - Impedance: 50 Ω

**L1 IF Output**
- Using the SBAS message with the selected 1023 bit PRN code
  - Frequency: 70 MHz BPSK or QPSK
  - Bandwidth: 22 MHz
  - Signal Level: -20 dBm ± 1 dB
  - Impedance: 50 ohms

**L5 SIGNAL OUTPUT**
- L5 codes with selectable PRN values from 120 to 158
- In-phase (I) channel only, I channel with dataless quadrature (Q) channel, or I channel with independent data on the Q channel

**L5 RF Output**
- Using the SBAS message with the selected 10230 bit PRN code
  - Frequency:
    - Default: 1176.45 MHz (L5) BPSK or QPSK
    - Alternate: 1227.6 MHz (L5@L2) BPSK or QPSK
  - Bandwidth: 22 MHz
  - Signal Level: -50 dBm ± 3 dB
  - Impedance: 50 Ω

**L5 IF Output**
- Using the SBAS message with the selected 10230 bit PRN code
  - Frequency: 70 MHz BPSK or QPSK
  - Bandwidth: 22 MHz
  - Signal Level: -20 dBm ± 1 dB
  - Impedance: 50 ohms

**PHYSICAL AND ELECTRICAL**
- **Dimensions**: 13.3 x 43.2 x 46.8 cm (without mounting brackets)
- **Weight**: 9.8 kg
- **Power Consumption**
  - @120 V: 26 W (typical)
  - @240 V: 38 W (typical)
- **External Oscillator Input**
  - Input Frequency: 10 MHz ± 1 Hz
  - Signal Level: +13 dBm ± 1 dBm
- **Communication Ports**
  - 2 RS-232 bi-directional serial ports capable of up to 57,600 bps (WMP ports)
  - 2 RS-485 serial data ports at 1,000,000 bps (CMP ports)
- **Connectors**
  - Power Input: Standard AC plug
  - WMP Port: 2 x DB9 female
  - CMP Port: 2 x DB25 female
  - Code 1PPS Output: 2 x TNC female
  - RF Output: 2 x Type N female
  - IF Output: 2 x TNC female
  - 10 MHz Input: TNC female
  - 10 MHz Output: TNC female
  - 1PPS Input: TNC female

**ENVIRONMENTAL**
- **Temperature**
  - Operating: 0°C to +50°C
  - Storage: -40°C to +85°C
- **Humidity**
  - Operating: 10%-80% non-condensing
  - Storage: 0%-95% non-condensing
- **MTBF**: >35,000 hr

For the most recent details of this product:

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1. L1 signal bandwidth is factory configurable at 2, 4 or 22 MHz.
2. Per MIL-HDBK-217F Notice 2 at +35°C external ambient temperature.