### Enclosures

#### WAAS GUS-Type 1 Signal Generator™

**High Performance L1 and L5 Signal Generator for Satellite-Based Augmentation Systems**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Independent Signal Generators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designed specifically for use in SBAS ground uplink systems</td>
<td>The 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), the signal generator provides two modulated 70 MHz intermediate frequency (IF) signals. In addition, it generates up converted replicas of the L1 and L5 signals, which can be used for signal quality monitoring. The GUS Signal Generator also features a factory configurable bandwidth on the L1 IF signal.</td>
</tr>
<tr>
<td>Increased flexibility with independent control of L1 and L5 signals</td>
<td></td>
</tr>
<tr>
<td>Easy integration and secure installation</td>
<td></td>
</tr>
</tbody>
</table>

#### Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Easy Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separate L1 and L5 signal generators</td>
<td>Requiring minimal integration effort, the 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 GUS-Type 1 Receiver™, the GUS Signal Generator includes 1PPS and external frequency reference inputs. The front panel includes LEDs to provide the status of the external reference and the signal output and the results of the automatic self-testing.</td>
</tr>
<tr>
<td>Parallel RF signal output</td>
<td></td>
</tr>
<tr>
<td>Standard 19 inch rack mount enclosure and connectors</td>
<td></td>
</tr>
</tbody>
</table>

If you require more information about our enclosures, visit novatel.com/products/gnss-receivers/enclosures

---

**novatel.com**

sales@novatel.com

1-800-NOVATEL (U.S. and Canada)
or 403-295-4900

China 0086-21-54452990-8011

Europe 44-1993-848-736

SE Asia and Australia 61-400-833-601
### L1 Signal Output
- Coarse/Acquisition (C/A) codes with selectable PRN values from 120 to 138
- 70 MHz Binary-Phase Shift Keying (BPSK) modulated IF output signal generation using the SBAS message with the selected 1023 bit PRN code
- In-phase (I) channel only or I channel with dataless quadrature (Q) channel
- 1227.6 MHz BPSK modulated RF output signal generation using the SBAS message with the selected 1023 bit PRN code

### L5 Signal Output
- L5 codes with selectable PRN values from 120 to 138
- 70 MHz BPSK modulated IF output signal generation using the SBAS message with the selected 10230 bit PRN code
- In-phase (I) channel only or I channel with dataless quadrature (Q) channel
- 1176.45 MHz BPSK modulated RF output signal generation using the SBAS message with the selected 10230 bit PRN code

### Physical and Electrical
- **Dimensions**: 13.3 x 44.9 x 42.8 cm (without mounting brackets)
- **Weight**: 8.0 kg
- **Power**
  - Input Voltage: +100 to +240 VDC
  - Input Frequency: 50 to 60 Hz
  - Power Consumption: 42 W (typical)
- **L1 RF Output**
  - Frequency: 1227.6 MHz
  - Bandwidth: 22 MHz
  - Signal Level: -100 dBm ± 1.5 dB
  - Impedance: 50 Ω
- **L5 RF Output**
  - Frequency: 1176.45 MHz
  - Bandwidth: 22 MHz
  - Signal Level: -100 dBm ± 1.5 dB
  - Impedance: 50 Ω
- **External Oscillator Input**
  - Input Frequency: 10 MHz ± 5 ppm
  - Signal Level: 0 to +6 dBm

### Environmental
- **Temperature**
  - Operating: 0°C to +50°C
  - Storage: -40°C to +85°C
- **Humidity**: 90% non-condensing
- **MTBF**: 44,400 hr

### 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 BNC female
- IF Output: 2 x BNC female
- RF Output: 2 x Type N female
- 10 MHz Input: BNC female
- 10 MHz Output: BNC female
- 1PPS Input: BNC female

### L1 Signal Generator
- WAAS Message Processor (WMP) Control Interface
- Comparator Message Processor (CMP) Interface
- Standard 19” 3U Rack Mount Enclosure
- 10 MHz Output
- L1 Code Output
- L1 RF Output
- L1 IF Output
- 1PPS Input

### L5 Signal Generator
- WAAS Message Processor (WMP) Control Interface
- Comparator Message Processor (CMP) Interface
- RS-232 Serial Port (L5 WMP)
- RS-485 Serial Port (L5 CMP)
- L5 IF Output
- AC Power

### Status LEDs
- Processor (CMP) Interface
- WAAS Message Processor (WMP) Control Interface
- Comparator Message
- Processor (CMP) Interface

1. For legacy reasons, the RF output from the L1 section is actually at the L2 frequency.
2. L1 signal bandwidth is factory configurable at 2, 4 or 22 MHz.
3. Per MIL-HDBK-217F Notice 2 at +35°C external ambient temperature.