### Features
- Concurrent reception of up to 3 GNSS (GPS, Galileo, GLONASS, BeiDou)
- Supports all satellite augmentation systems and Assisted GNSS (A-GNSS)
- 30 nanosecond time accuracy (RMS)
- < 2.5 m position accuracy GPS
- < 1 seconds re-acquisition
  - 5 seconds warm acquisition
  - 45 seconds cold acquisition
- RS232 or optionally RS485 communication
- Built in antenna or external antenna
- Rugged, water resistant housing

### Outline
The GMS-GPS is a state of the art GPS receiver module which employs U-BLOX NEO-M8N that is a complete GPS receiver and embedded antenna designed for a broad spectrum of system application.

The NEO-M8 module is concurrent GNSS receiver which can receive and track multiple GNSS systems: GPS, Galileo, GLONASS and BeiDou. Its far-reaching capability meets the sensitivity requirements of seismic applications and low power consumption.

The NEO-M8N design utilizes the latest technology and high level circuit integration to achieve superior performance while minimizing space and power requirements.

The GMS-GPS is housed in a water-resistant case and designed to withstand rugged operating conditions. The host system may communicate with the GMS-GPS via a dedicated, compatible, bidirectional communication channel. Internal memory backup allows the GMS-GPS to retain critical data such as satellite orbital parameters, last position, date, and time.

### Specifications

#### General Characteristics

**Receiver**
- Differential-ready 12 parallel channel receiver tracks and uses up to twelve satellites to compute and update.
- Supported GNSS: GPS, Galileo, GLONASS and BeiDou
- Cable: 20 m standard, up to 70 m possible with RS232. Or up to 300 m with RS485 option
- Antenna: Built in (or optionally external)

**Cable Specifications**
- Conductor: 5 x 0.25 for RS232, or 4 x 2 x 0.25 for RS485
- Conductor marking: DIN 47100
- Outer jacket: PVC UL Style, grey
- Temperature range: -30°C to +80°C
- Min. bending radius: 10 x cable
- Diameter: 5.1 mm

**Acquisition Times**
- Update Rate: 1 sec, continuous
- Acquisition: < 1 sec; re-acquisition
  - 2 sec; warm (all data known)
  - 45 sec; cold (position, time and almanac known)

**Interfaces**
- RS-232 or RS485 compatible
- Protocol: NMEA 0183, version 4.0

#### Accuracy
- **Time**: 30 nanosecond RMS, (60ns within 99% pulses)
- **Position**
  - Differential GPS (DGPS): < 3 m
  - Non-differential GPS: < 15 m
- **Power**
  - Input Voltage: 4.5 - 15 VDC, typically 65 mA @ 12 VDC.
  - All signals have overvoltage and overcurrent protections.

#### Environment/Housing
- **Size**: 82 mm x 162 mm x 55 mm
- **Weight**: 200 g, not including cable
- **Operating Temperature**: -30°C to +80°C (internal temperature)
- **Storage Temperature**: -40°C to +80°C
- **Index of Protection**: IP 65