SMART-MR10™

L1/L2 GPS+GLONASS Receiver and Antenna Ideal for Harsh Environments

Benefits
Scalable dual-constellation, dual-frequency performance
Smooth, consistent positions for pass-to-pass accuracy
Rugged design for on-machine applications

Features
GPS and GLONASS satellite capability
GL1DE® and AdVance® RTK positioning
Robust power handling for 12 V to 24 V vehicle power

Integrated GNSS Design
NovAtel’s ergonomically designed SMART-MR10 provides an integrated L1/L2 GPS+GLONASS receiver and antenna in a single compact enclosure. Designed to meet or exceed stringent MIL-STD-810G specifications, the SMART-MR10’s rugged metal housing ensures high performance even in the most challenging work environments.

Precision Performance
The SMART-MR10 features 14 channels for each of L1 and L2 GPS and 12 channels for each of L1 and L2 GLONASS code and phase tracking. An additional two channels are dedicated for Satellite-Based Augmentation System (SBAS: WAAS, EGNOS and MSAS) signals as well as one channel for L-band.

Multiple Interfaces Deliver Maximum Flexibility
Three NMEA 0183 compatible RS-232 serial ports, one NMEA2000 compatible CAN port and built-in Bluetooth ensure the SMART-MR10 delivers maximum flexibility. An Emulated Radar ground speed output, a one pulse per second output (1 PPS) and an event mark input are also provided. Three daylight readable status LEDs simplify infield diagnoses.

Smooth, Pass-to-Pass Accuracy with GL1DE Technology
NovAtel’s exclusive GL1DE technology is integrated into every SMART-MR10 antenna. GL1DE uses the very accurate carrier phase calculations to provide ultra smooth positions and excellent pass-to-pass accuracy for agricultural applications. GL1DE functions autonomously and with most available corrections services. It will also bridge through short periods of poor satellite availability. GL1DE’s steady, smooth output is especially well suited for manual guidance and autosteer installations.

If you require more information about SMART, visit novatel.com/products/gnss-receivers/smart-antennas

novatel.com
sales@novatel.com
1-800-NOVATEL (U.S. and Canada)
or 403-295-4900
Europe 44-1993-85-24-36
SE Asia and Australia 61-400-833-601
**SMART-MR10**

**Performance**

**Channel Configuration**
- 14 GPS L1, 14 GPS L2
- 12 GLONASS L1, 12 GLONASS L2 (optional)
- 2 SBAS
- 1 L-band

**Horizontal Position Accuracy (RMS)**
- Autonomous (L1) 1.5 m
- Autonomous (L1/L2) 1.2 m
- SBAS 0.6 m
- CDGPS 0.6 m
- DGPS 0.4 m
- OmniSTAR VBS 0.6 m
- XP 0.15 m
- HP 0.1 m
- RT-20 (optional) 0.2 m
- RT-2™ (optional) 1 cm + 1 ppm

**Measurement Precision**
- GPS GLONASS L1 C/A Code 4 cm 15 cm
- L1 Carrier Phase 0.5 mm 1.5 mm
- L2 P(Y) Code 8 cm 8 cm
- L2 Carrier Phase 1.0 mm 1.5 mm

**Maximum Data Rate**
- Measurements 20 Hz
- Position 20 Hz

**Time to First Fix**
- Cold Start 65 s
- Hot Start 35 s

**Signal Reacquisition**
- L1 0.5 s (typical)
- L2 1.0 s (typical)

**Time Accuracy**
- 20 ns RMS

**Velocity Accuracy**
- 0.03 m/s RMS

**Physical and Electrical**

**Dimensions** 233 mm x 232 mm x 89 mm height

**Weight** 1.9 kg

**Power**
- Input Voltage +9 to +36 VDC
- Power Consumption 3.7 W (typical)

**Connector**
- 23-pin Tyco Ampseal

**Mounting**
- 1/4 NC and M6 mounting holes

**Interfaces**
- 3 RS-232 serial ports (1 port configurable to RS-422)
- 1 CAN Bus NMEA 2000
- 1 Bluetooth
- Emulated Radar
- 1 PPS
- Event mark input

**Environmental**

**Temperature**
- Operating -40°C to +70°C
- Storage -55°C to +90°C

**Humidity** 95% non-condensing

**Compliance**

**Emissions**
- FCC, CE, Industry Canada, BT SIG

**Immunity**
- CE

**Vehicular Standards**
- ISO 7637: Compliance ensures product’s ability to operate through vehicular electrical system surges (including inductive load switching transients, crank cycle and load dump)
- ISO 15003: Compliance ensures product’s ability to withstand vehicular electrical system abnormal conditions (short circuits to battery or ground, overvoltage reverse polarity and abnormal power voltage)

**Optional Accessories**
- Mounting plate
- Quick release kit
- Interface cables

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1 Satellite Based Augmentation Systems (SBAS) include WAAS (North America), EGNOS (Europe) and MSAS (Japan).
2 Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
3 Expected accuracy after convergence. RT-20 and RT-2 are independent of GL1DE.
4 Typical value. No almanac or ephemerides and no approximate position or time.
5 Typical value. Almanac and recent ephemerides saved and approximate time entered.
6 Relative time accuracy does not include biases due to RF or antenna delay.
7 Export licensing restricts operation to a maximum velocity of 515 metres per second.
8 Fixed CAN messages in firmware.