

NAVIGATE

GEMINI GPS | GNSS RECEIVERS & ANTENNAS

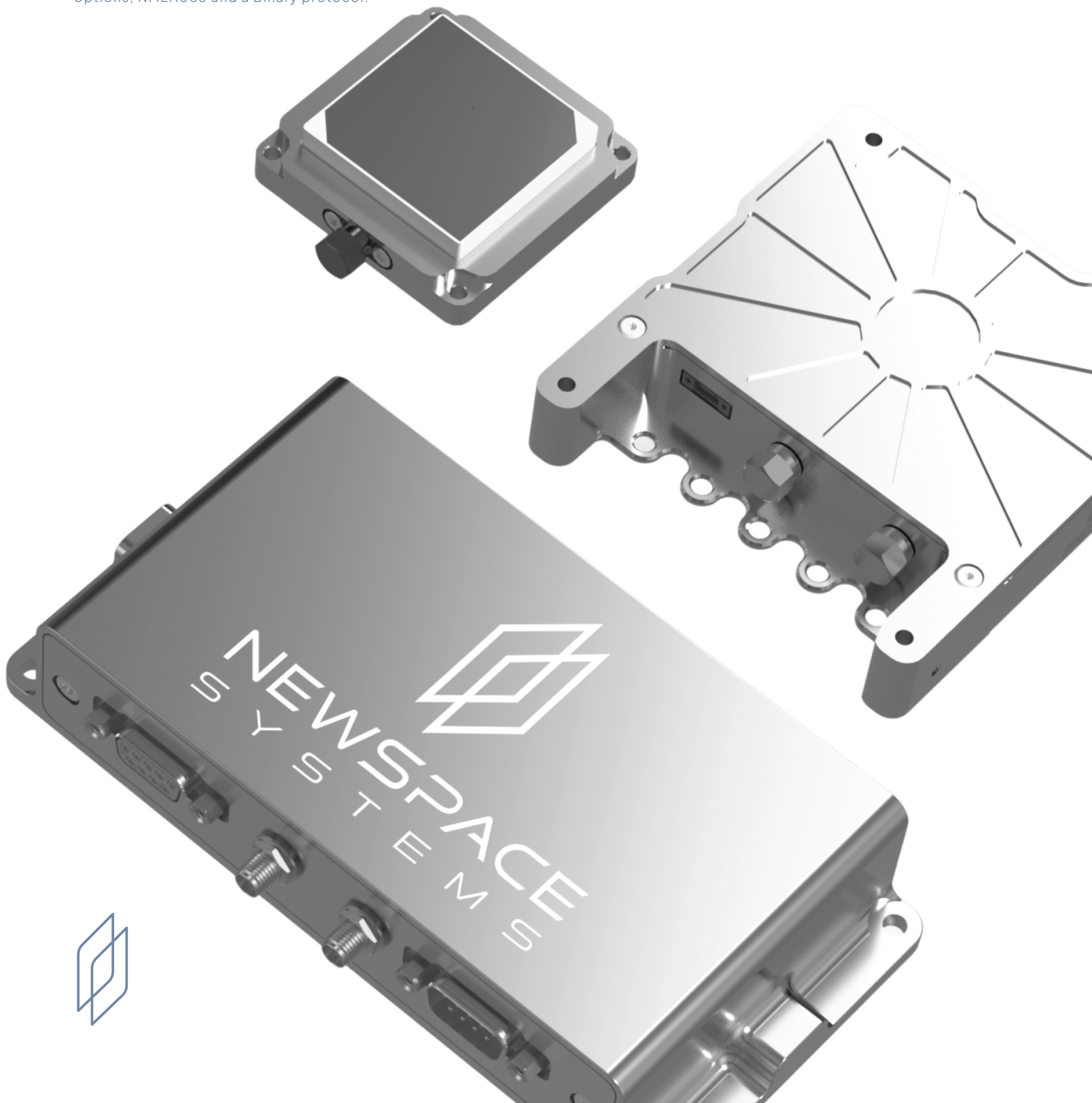
The NSS Gemini receiver range is available as an L1 frequency GPS Receiver and a multi-constellation, multi frequency GNSS receiver, utilizing a heritage chipset. Targeted towards low-cost SmallSat constellations, it allows for space altitude and velocity use cases. The Gemini-SR5 operates from a 5 V supply voltage while the Gemini-MR28 operates from an unregulated 28V supply voltage incorporating latch-up protection/detection and a watchdog timer for increased reliability and robustness. The Gemini range introduces two new protocol options, NMEA083 and a Binary protocol.

80+ **RECEIVERS DELIVERED**

60+ **IN ORBIT**

RECEIVER OPERATIONAL **SINCE 2020**

UTILIZED ON ASIAN **SAR AND EUROPEAN**
SATELLITE CONSTELLATIONS



QUALIFICATIONS

The NewSpace Systems (NSS) GPS Receivers are based on the NSS NGPS-01-422 and NGPS-03-422 which has been flying for more than a decade. To date, >60 Receivers and >70 Antennae have delivered globally to a variety of international missions and constellation programmes. The Gemini-SR5 has undergone extensive qualification and has been delivered since 2024.

APPLICATION

- Accurate determination of orbital position
- Accurate knowledge of time
- Orbit maneuvers
- Time and/or position stamping of payload data

KEY FEATURES

- L1 5V 4 Receiver / 28 V Multi-Constellation
- Small size and low mass
- Radiation tolerant COTS
- Simple to interface

PERFORMANCE	GEMINI-SR5	GEMINI-MR28
Position accuracy [1σ]	< 2 m SEP	< 1.5 m SEP
Velocity accuracy [1σ]	< 0.1 m/s	< 0.05 m/s
Update rate	Up to 20 Hz	Up to 20 Hz
Operating frequency	L1 (1575.42 MHz)	GPS L1/L2C, GALILEO E1/E5b, QZSS, BDS B1I/B2I, GLONASS L1/L2
TTFF (Time To First Fix)	50s	50s
PHYSICAL CHARACTERISTICS	GEMINI-SR5	GEMINI-MR28
Dimensions	96 mm x 91 mm x 18 mm	155 mm x 31 mm x 76 mm
Mass	< 154 g	< 383 g
Power (Nominal)	< 0.5 W (excluding active antenna)	< 2 W (excluding active antenna)
ENVIRONMENTAL CHARACTERISTICS	GEMINI-SR5	GEMINI-MR28
Operating Temperature	-25 °C to +70 °C	-25 °C to +70 °C
Mechanical Tests (Qualification)	14.1 g _{RMS}	14.1 g _{RMS}
Radiation (TID) (Qualification)	30 krad (component level)	30 krad (component level)
INTERFACES	GEMINI-SR5	GEMINI-MR28
Power supply	5 V _{DC}	28 V _{DC}
Data	RS-422 (NMEA/Binary)	RS-422 (NMEA/Binary)
Connector	2 x SMA Female (antenna), 15-pin Nano-D	2 x SMA Female (antenna), Male D-Sub standard density 9-pin and female D-Sub standard density 9-pin
Mechanical	4 x M3 on Cubesat PC104 footprint	4 x M4 mounting holes

ACCEPTANCE TESTING: All FM parts undergo random vibration (10 GRMS) as well as thermal cycling (four-cycle ambient pressure) to five degrees beyond operational thermal specifications. However, NewSpace can perform additional environmental testing if required by a client.

CONFIGURATION MANAGEMENT: Specifications are subject to change. Please refer to the latest version