

# Constellator

Multi-constellation GNSS simulator



The expansion of GNSS Constellations and Satellite Based Augmentations Systems has provided receiver developers and integrators with more options – and more complexity – than ever before.

GPS Modernization and SBAS enhancements on several continents provide opportunities to push receiver performance (from TTFF to accuracy and stability) to unequalled levels. All the while, navigation security and vehicle automation objectives make integrating position and velocity information an even more crucial component of overall system success

But more constellations, more frequencies, more modulations and more codes make developing and testing tomorrow's receiver a more demanding task.. And, for some applications, the risks of jamming and spoofing during the service life of a receiver are higher than ever and require developing and testing of complex remediation strategies.

**That is why Syntony created Constellator.** Designed to test receivers against the demands of the future, it matches top-end processing performance and RF quality with utmost flexibility in simulation control.

**Corner cases.** In addition to performing fair weather tests, Constellator was designed to subject receivers to suboptimal conditions, extreme situations and combinations of errors difficult to access in real world tests. All of it finely controlled and indefinitely repeatable.

**A team-player.** Constellator is compatible with other best in class test solutions to provide the GNSS component in end-to-end system tests, including with hardware in the loop.

**A future-proof investment.** The core of Constellator is its software, ensuring that no matter what new constellations, satellites and codes the future brings, it will be able able to handle them. Most of functional upgrades will then be software-only.

**Affordable TCO.** Hardware maintenance, calibration, and support at affordable prices, providing to Constellator a quick ROI, and transforming it into a profitable investment

- ✂ 128 channels (extensible) delivering high quality satellite signals on 6 distinct frequencies
- ✂ Hardware-in-the-loop testing at 10 to 100Hz refresh rates
- ✂ Extensive simulation options
  - ✂ Full time and location control
  - ✂ Receiver trajectories with extreme dynamics
  - ✂ Atmospheric propagation errors
  - ✂ Satellite errors
  - ✂ Multipath and obscuration
  - ✂ On-the-fly scenario modifications

*Constellator can be delivered in different form factors, all remotely accessible via Ethernet. The built-in screen version is depicted to the right.*

*Constellator's GUI allows fine-grained control over every aspect of the simulation and provides real-time feedback at run-time.*

