



The Xidus GNSS simulator portfolio is built on 15 years heritage in hardware development for the satellite navigation market. Based on the cornerstones of flexibility, fidelity, performance and reliability the Xidus simulator sets new standards in the field of GNSS signal simulation.

Providing the perfect test solutions, the Xidus GNSS Simulator is fully capable of multi-constellation, multi-frequency simulations for a wide range of test scenarios used in research and development of GNSS receivers, including aviation, maritime and other navigation applications.

Key features

- GPS L1/L2/L5, Galileo E1/E5/E6, GLONASS L1/L2, BeiDou B1I/B2I/B3
- GNSS Augmentation – WAAS, EGNOS, GAGAN, MSAS, SDCM
- Vehicle Defined Motion Trajectories
- User Loaded Trajectory File
- Up to 128 LOS channels + 512 multipath channels
- Up to 4 RF outputs per single device
- Multi-Device capability as Master-Slaves-System
- Multiple Vehicle and Multiple Antenna
- Antenna Gain / Phase Pattern (Rx/Tx)
- Various Error Models: Ionospheric, Tropospheric, Ramp, Satellite Clock Error, Multipath
- Flexible Configuration using GUI/Remote Commands
- High Frequency Stability and Signal Purity
- Phase Synchronized Modules
- Simulation rate up to 1000 Hz
- CE compliant
- **3 years warranty**

Hardware Capability

Product	Xidus-4HU	Xidus-6HU
Max RF-Outputs	2	4
Module Slots	4	8
Number of Channels	128	256
Multipath Channels	512	1024
Multi Constellation	yes	yes
Module Capability		
Total LOS Channels	32	
Frequency Bundles	4	
Channels (per bundle)	8	
Multipath Channels (per channel)	4	
Frequency Ranges (per bundle)	1110 MHz ... 1450 MHz 1500 MHz ... 1950 MHz 2050 MHz ... 2540 MHz	
Dimension: WxHxD (without connectors, feed and handle)	447.5 x 177.8 x 400.5 mm ³	447.5 x 266.7 x 500 mm ³ (approx.)
Temperature Range	0 °C ... 40 °C	
Mains Power Input	100 V ... 240 V AC, 47 Hz ... 63 Hz	
Mains Power Consumption	350 W (max.)	650 W (max.)

Optional: Additional plug-in Xidus Signal Modules

Noise Generator	
Noise Density	-173 dBm/Hz to -120 dBm/Hz
Resolution	0.1 dB
Accuracy	±0.3 dB
Bandwidth	500 MHz in L-band

Interfaces

Interface	IN	OUT
Trigger	BNC female	BNC female
PPS	BNC female	BNC female
10 MHz Reference	BNC female	BNC female
Sync	SMA female	SMA female
Monitor		2 * SMA female
	bidirectional	
Ethernet	2 * RJ-45	

Signal Specifications

Power Levels	
Signal Power Range	-173 dBm to -90 dBm (optional up to -75 dBm)
Possible Power Range	100 dB
Resolution	0.01 dB
Linearity Over Power Range	< 0.1 dB
Absolute Accuracy	±0.3 dB
Signal Accuracy	
Velocity	1460000 m/s
Acceleration	667000 m/s ²
Jerk	6600000 m/s ³
Pseudorange	< 1 mm
Pseudorange Rate	< 1 mm/s
Inter-Channel Bias	0 mm
Harmonics	< -40 dBc
Spurious	< -40 dBc
Phase Noise	< 0.005 rad RMS
Frequency Stability	< ±5·10 ⁻⁸ (optional < ±5·10 ⁻¹⁰)

Supported GNSS Systems

Full coverage of all existing GNSS-Systems:

System	Frequency Band	Supported Signals
GPS	L1	C/A Code, P-Code (Open Service), L1C
	L2	C/A Code, P-Code (Open Service), L2C
	L5	I, Q
Galileo	E1	Open Service
	E5	E5a Data/Pilot E5b Data/Pilot
	E6	CS Data/Pilot
GLONASS	G1	C/A Code, P-Code (Open Service)
	G2	C/A Code, P-Code (Open Service)
BeiDou	B1	B1-I
	B2	B2-I
	B3	B3
SBAS (WAAS, EGNOS, MSAS, GAGAN,SDCM)	L1	C/A Code
	L5	I, Q
IRNSS	L5	Standard Positioning Service
QZSS	L1	C/A Code, L1C
	L2	L2C
	L5	I, Q

Signal Commanding and Generation

Hardware-In-The-Loop Ready	
Trajectory Dynamics Update Rate	up to 1000 Hz
Position Calculation Update Rate	> 120 MHz
Software/Hardware Latency	< 30 ms
Remote User Position Input	Ethernet stream

Xidus Studio Features

Multi-Antenna Simulation	2 / 4 (Depends on available outputs)
Multi-Vehicle Simulation	2 / 4 (Depends on available outputs)
Differential GNSS	on request
Trajectory Shapes	
Static	yes
Circle	Speed, radius
Rectangle	3GPP, TS 25.171
Figure of 8	Speed, radius
Load File (Ascii format)	yes
Constellation Formats Supported	RINEX, YUMA, AGL, SEM
Signal Propagation and Errors Simulation	
Ionospheric Model	Klobuchar
	Klobuchar BeiDou
	MOPS RTCA DO-229D Grid
	NeQuick
Tropospheric Model	Saastamoinen
	MOPS RTCA DO-229D
	Fixed offsets
Multipath	Ground reflector
	Generic reflector (user defined)
	Sinusoidal
Satellite Clock Error	Recursive Digital Filter
	Gauss Markov 2nd order
	Ramp Generator

Xidus Software Control Flexibility

The Xidus Studio graphical user interface (GUI) provides the capability to configure and monitor multiple simulations in parallel. It comes with a powerful configurator to communicate to the Xidus Core.

Xidus Core is a powerful processing application that is flexible to run on the same PC as Xidus Studio or on different PC's. Each core can handle a single simulation at a time and control any available Xidus hardware units via ethernet.

