BRUNO-3000

FROM SURVEY TO STAKEOUT - CONFIDENCE IN EVERY POINT

BRUNO-3000 GNSS receiver is a powerful and intelligent solution built for modern surveying challenges. It combines advanced GNSS technology with precise IMU capabilities to deliver fast, accurate, and reliable positioning. Designed for efficiency and ease of use, it ensures seamless performance across varied terrains, helping professionals achieve consistent, high-quality results with confidence.

ACCURACY MEETS EFFICIENCY

FEATURES

- *Advanced GNSS and IMU integration*
- *Fast initialization and fix time*
- *High-precision positioning performance*
- *Rugged and durable field design*
- *Seamless multi-device connectivity*
- *Long-lasting battery performance*

BENEFITS

- *Faster setup and deployment*
- *Consistent accuracy in all terrains*
- *Reduced errors and rework*
- *Reliable performance in tough conditions*
- *Improved workflow and productivity*
- *All-day uninterrupted field operations*

SPECIFICATION

GNSS TECHNOLOGY & SERVICES

Channels		1608 channels
Signal tracking	GPS	L1C/A, L2C, L2P (Y), L5
	GLONASS	L1C/A, L1P, L2 C/A, L2P, L3 CDMA
	Galileo	E1, E5a, E5b, E5AltBOC, E6
	BeiDou	B1, B2, B3
	QZSS	L1 C/A, L1 SAIF, L2 C, L5, LEX
	NavIC / IRNSS	L5
	SBAS	L1C/A, L5 (QZSS, WAAS, MSAS, GAGAN)
PPP Support	Correction services	B2b-PPP, E6B-HAS
RTK Reliability	Initialization reliability	> 99.8%
Tilt Compensation	IMU-based pole tilt compensation	Calibration-free, immune to magnetic disturbances | E-Bubble leveling | Tilt angle: 0°-60°

MEASUREMENT PERFORMANCE & ACCURACY

Time for RTK initialisation		< 10 s
Real time kinematics (RTK)	Single baseline	Horizontal: 8 mm + 1 ppm RMS | Vertical: 15 mm + 1 ppm RMS
	Initialization reliability	> 99.9%
Post-processing kinematics (PPK)		Horizontal: 3 mm + 1 ppm RMS | Vertical: 5 mm + 1 ppm RMS
PPP	Support B2b-PPP, E6B-HAS	Horizontal: 10 cm | Vertical: 20 cm
High-precision static		Horizontal: 2.5 mm + 0.1 ppm RMS | Vertical: 3.5 mm + 0.4 ppm RMS
Static and rapid static	Static (phase)	Horizontal: 2.5 mm + 0.5 ppm RMS | Vertical: 5.0 mm + 0.5 ppm RMS
Code differential		Horizontal: 0.4 m RMS | Vertical: 0.8 m RMS
Autonomous		Horizontal: 1.5 m RMS | Vertical: 2.5 m RMS
Positioning rate		Up to 50 Hz
Time to first fix	Cold start	< 45 s
	Hot start	< 8 s
	Signal re-acquisition	< 1 s
IMU update rate		200 Hz, AUTO-IMU
RTK tilt-compensated	Not for static control points	Additional horizontal pole-tilt uncertainty typically less than 5 mm + 0.7 mm

COMMUNICATIONS

Communication ports		1× 7-pin LEMO port (RS-232) | 1× USB Type-C port (external power, data download, firmware update) | 1× UHF antenna port (TNC female)
Communication protocols	RTK data protocols	RTCM 2.x, RTCM 3.x, CMR input / output, HCN, RTCM MSM
	NMEA output	NMEA 0183
	File formats	RINEX 2.11, 3.02
	Network RTK	NTRIP Client, NTRIP Caster
Built-in LTE modem	LTE (FDD) frequency bands	B1, B2, B3, B4, B5, B7, B8, B20
	DC-HSPA+ / HSPA / UMTS bands	B1, B2, B5, B8
	GSM frequency bands	EDGE/GPRS/GSM 850/900/1800/1900 MHz
	SIM card type	Nano-SIM card
Wi-Fi		IEEE 802.11a/b/g/n/ac | Access point mode
Bluetooth		5.0 and 4.2 +EDR, backward compatible
Built-in UHF modem	Receive & transmit UHF radio modem	Standard Internal Rx/Tx: 410–470 MHz
	Transmit power	0.5 W to 2 W
	Protocol	Transparent, TT450, Satel
	Link rate	9,600 bps to 19,200 bps
	Range	Typical 3 km to 5 km, up to 15 km with optimal conditions

Data storage	Storage	8 GB internal memory
	Data type and recording rate	GNSS raw data and RINEX data

GENERAL

User interface	Display and controls	1.1" OLED Color Display | 2 LED | 2 physical buttons
Weight and dimensions	Weight | Dimensions	1.15 kg (2.54 lb) | Ø 152 mm × 78 mm (Ø 5.98 in × 3.07 in)
Power management	Internal power supply	Built-in non-removable Li-Ion battery | 9,900 mAh | 7.2 V
	External power supply	9 V DC to 28 V DC
	Power consumption	Typical 4.5 W (depending on user settings)
	Operating time — UHF/4G RTK Rover	Up to 18 h
	Operating time — UHF RTK Base	Up to 9.5 h
	Operating time — Static	Up to 18 h
Environmental	Temperature	Operating: -20°C to +65°C (-4°F to +149°F) | Storage: -20°C to +85°C (-4°F to +185°F)
	Shock / Drop	Survive a 2-meter pole drop
	Proof against water and dust	IP67 waterproof and dustproof | Protected from temporary immersion to depth of 1 m
	Waterproof membrane	Prevents water vapor ingress under sun exposure and heavy rain
	Humidity	100% condensation
Tilt sensor	Increased measurement productivity	Calibration-free IMU for pole tilt compensation | Immune to magnetic disturbances | E-Bubble leveling

TILT COMPENSATION

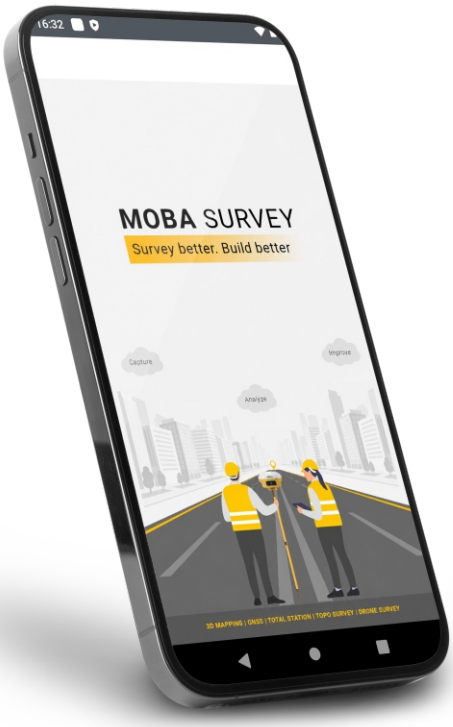
Tilt compensation	Increased measurement productivity and traceability	Calibration-free IMU, immune to magnetic disturbances
Real-time kinematic tilt compensated	Not for static control points	Additional horizontal pole-tilt uncertainty typically less than 5 mm + 0.7 mm

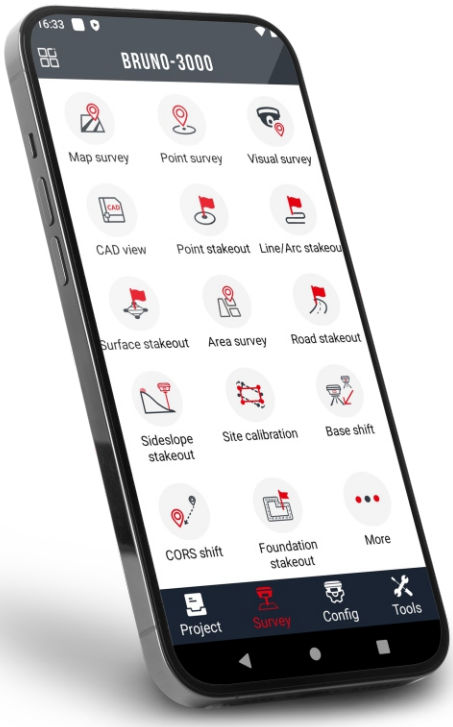
CERTIFICATIONS

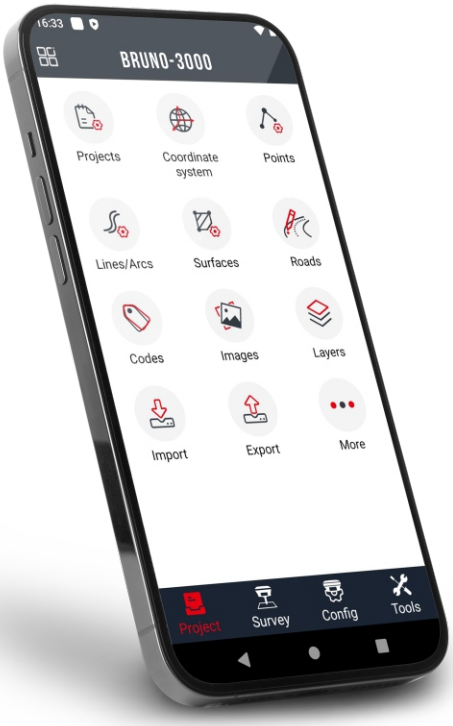
Standards		CE Mark | FCC Part 15 Subpart B Class B | NGS Antenna Calibration | MIL-STD-810H, method 514.8 | NCC | WPC | MIL-STD 810G/F

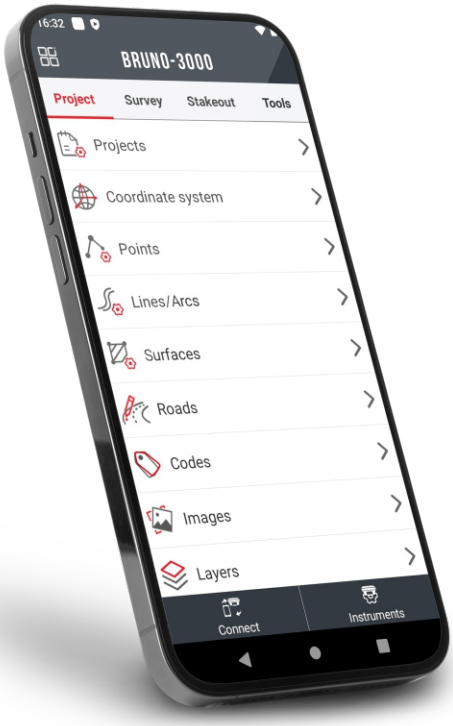
* All specifications are subject to change without notice. Compliant, but subject to availability of BDS ICD, GLONASS, Galileo, QZSS and IRNSS commercial service definition. GLONASS L3, Galileo E6, Galileo E6 High Accuracy Service (HAS), BDS B2b and SBAS L5 will be provided through future firmware upgrade. Accuracy and reliability are determined under open sky, free of multipaths, optimal GNSS geometry and atmospheric conditions. Performance assumes minimum of 5 satellites. Typical observed values. Battery life is subject to operating temperature.

SOFTWARE









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