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GNSS Receiver

PRODUCT BROCHURE

- GNSS Receiver Manufacturer
- Professional OEM&ODM
- Over 15 years experience in R&D and manufacturing

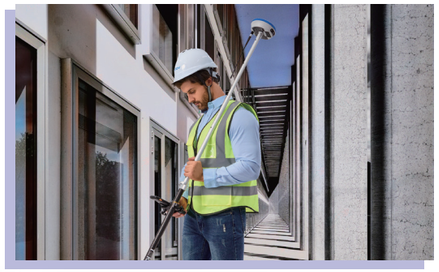
ABOUT US

Company Introduction

Guangzhou Toksurvey Information Technology Co., Ltd. was founded in 2019 by a team of R&D engineers. The company team has nearly 15 years of R&D background. At present, the company has nearly 2,500 square meters of office and factory, complete set of research equipment, and strong technical background.

Our company is committed to the R&D, production and sales of high-precision satellite positioning terminal products. More than 60% of the employees are engineers. Driven by technological innovation, the company maintains a steady growth rate of 60% every year.

At present, the company has successfully launched high-precision GNSS RTK (T5 series, T10 series, T20 series, T30 series, T40 series and T50 series), portable RTK receiver (P8 series), high-precision CORS station (NET660 series), data controller, GNSS antenna, precision agriculture, mechanical control, marking robot, USV and SLAM to the market. We not only provide trainings about our products, but also provide a series of relevant solutions.



TOKNAV

Our Targets

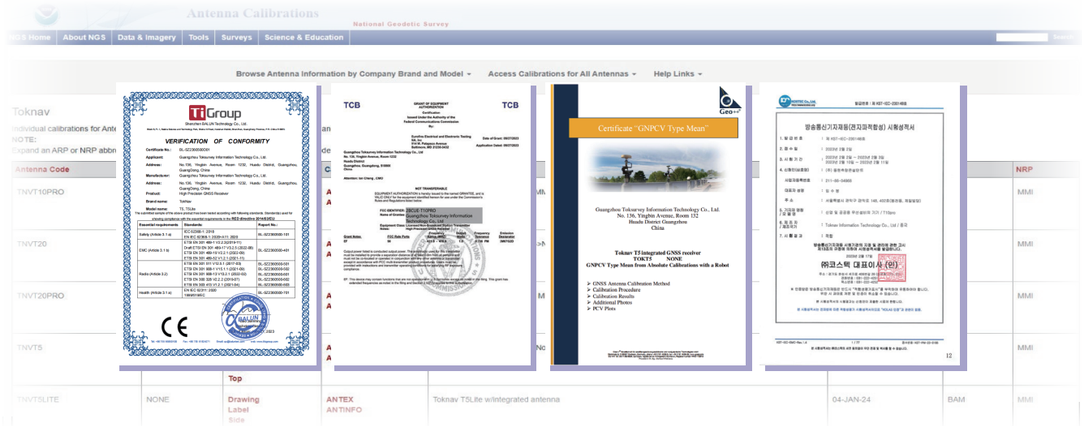
Mission	Vision	Value	Slogan
Make positioning more precise and easier.	Working together to improve global surveying quality.	To become a leader in the global surveying and mapping service.	Your reliable supplier in positioning!

Fields of Application

TOKNAV products can be widely used in precision surveying & mapping, mining operations, deformation monitoring, autonomous driving and other fields. We currently have a number of mature GNSS application solutions, such as deformation monitoring, CORS network, marking robots, precision agriculture, mechanical control and digital construction field. TOKNAV products have passed CE, FCC, KC, NGS, IGS and other certifications, and are exported to more than 100 countries and regions around the world. Our products are well received in the global market, and now we have become a system integration supplier in the global market.

- Construction
- Monitoring
- Mapping & GIS
- Surveying
- Agriculture
- Marine

Certifications



CONTENT

Products

GNSS Receiver Line Overview

PRODUCTS		T5Lite	T5	T10Pro	T20Pro	tBase	T30	T30Pro
ITEM								
HARDWARE SYSTEM		ARM Cortex-A7 1.8GHz						
OS		Linux						
GNSS	GPS	L1C/A, L1C, L2P(Y), L2C, L5						
	GLONASS	L1, L2, L3						
	GALILEO	E1, E5a, E5b, E6						
	BDS	B1I, B2I, B3I, B1C, B2a, B2b						
	QZSS	L1, L2, L5						
	SBAS	L1						
	NavIC (IRNSS)	L5						
	Channel	1408						
	Data format	NMEA-0183						
	Correction I / O Protocol	RTCM3.X						
	Data update frequency	5Hz(max)		20Hz(max)				
SYSTEM	Bluetooth	BR+EDR+BLE						
	WIFI	802.11 b/g/n						
	Network	LTE FDD: B1/2/3/5/8 LTE TDD: B38/39/40/41 GSM: 900/1800MHz		LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8				
	Data Radio	Not support	Receive Only Frequency: 410~470MHz Protocol: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Air baud rate: 9600 / 19200bps	Frequency: 410~470MHz Protocol: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT RF transmit power: 0.5W/1.5W Air baud rate: 9600 / 19200bps	Integrated high-power transceiver Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Frequency Range: 410~470MHz Power: 1W/2W/5W Air Baud Rate: 9600, 19200bps			
	Storage	32GB						
	Tilt measurement	IMU60°						
	Other	Not support		NFC				
ELECTRICAL	Battery	3.7V, 9600mAh			7.4V, 6500mAh	7.2V, 13800mAh		
	Work time	More than 16 hours (Rover)			More than 18 hours (Rover)	More than 12 hours (5W Radio, Base)	More than 48 hours (Rover)	
	Charge	MTK PE+1.1/2.0 9V/2A, USB PD 12V/1.25A, 5V/3A			USB PD 15V/2A, 5V/3A			
ENVIRONMENTAL	Work Temperature	-20℃~+60℃						
	Storage Temperature	-40℃~+85℃						
	Shock	Withstand 1.5M pole drop						
	Protection	IP65		IP68				
PHYSICAL	Material	Magnesium alloy main body, ABS/PC top cover						
	Dimension	100.5mm*100.5mm*69mm	100.5mm*100.5mm*72mm	Φ147.9mm*68mm	Φ143.5mm*90.7mm	Φ174.9mm*104.9mm		
	Weight	600g	630g	740g	900g	1500g		

Manufacturers may update parameters at any time, please refer to the latest product information.

GNSS Receiver Line Overview

PRODUCTS		T40	T40Pro	T50basic	T50	T50Pro
ITEM						
HARDWARE SYSTEM		ARM Cortex-A7 1.8GHz				
OS		Linux				
GNSS	GPS	L1C/A, L1C, L2P(Y), L2C, L5				
	GLONASS	L1, L2, L3				
	GALILEO	E1, E5a, E5b, E6				
	BDS	B1I, B2I, B3I, B1C, B2a, B2b				
	QZSS	L1, L2, L5				
	SBAS	L1				
	NavIC (IRNSS)	L5				
	Channel	1408				
	Data format	NMEA-0183				
	Correction I / O Protocol	RTCM3.X				
	Data update frequency	20Hz(max)				
SYSTEM	Bluetooth	BR+EDR+BLE				
	WIFI	802.11 b/g/n				
	Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8				
	Data Radio	Integrated high-power transceiver Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Frequency Range: 410~470MHz Power: 1W/2W/5W Air Baud Rate: 9600, 19200bps		Integrated high-power transceiver Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT, SATEL, LORA Frequency Range: 410~470MHz Power: 0.5W/1.5W Air Baud Rate: 4800, 9600, 19200bps		
	Storage	32GB				
	Tilt measurement	IMU60°				
	Other	NFC, AR Stakeout, Laser Measurement, Laser Camera	NFC, AR Stakeout, Photogrammetry	NFC, AR Stakeout	NFC, AR Stakeout, Laser Measurement, Laser Camera	NFC, AR Stakeout, Photogrammetry
ELECTRICAL	Battery	7.2V，3400mAh *2		7.4V, 6500mAh		
	Work time	More than 20 hours (Rover)		Over 16 hours (Typical, Rover, GSM)		
	Charge	Dedicated charger, 9~24VDC		USB PD 15V/2A 5V/3A		
ENVIRONMENTAL	Work Temperature	-20°C~+60°C		-30°C~+65°C		
	Storage Temperature	-20°C~+70°C		-40°C~+85°C		
	Shock	Withstand 1.5M pole drop				
	Protection	IP68				
PHYSICAL	Material	Magnesium alloy main body, ABS/PC top cover				
	Dimension	Φ160mm*103mm		Φ132 * 83mm		
	Weight	850g(without battery)		770g		

Manufacturers may update parameters at any time, please refer to the latest product information.

GNSS Receiver Line Overview

PRODUCTS		NET660	NET660i	NET660i-H	NET660i-1U
ITEM					
HARDWARE SYSTEM		ARM Cortex-A7 1.8GHz			
OS		Linux			
GNSS	GPS	L1C/A, L2P(Y), L2C, L5	L1C/A, L1C, L2P(Y), L2C, L5	L1C/A, L2P, L2C, L5	L1C/A, L1C, L2, L5
	GLONASS	L1, L2, L3		L1, L2	
	BDS	B1I, B2I, B3I, B1C, B2a, B2b		B1I, B2I, B3I, B1C, B2b	B1I, B2I, B3I, B1C, B2a, B2b
	GALILEO	E1, E5a, E5b	E1, E5a, E5b, E6	E1, E5a, E5b, E6	
	QZSS	L1 C/A, L2C, L5	L1, L2, L5		L1, L2, L5, L6(CLAS)
	SBAS	L1 C/A	L1	L1 C/A	
	NavIC (IRNSS)	L5		Not support	L5
	Channel	/	1408		1507
	Differential Data	RTCM 3.X			
	Position Data	NMEA-0183			
	Frequency	1Hz, 2Hz, 5Hz, 10Hz, 20Hz			2Hz, 5Hz (Turn off Integrated Navigation)
	Data format	RINEX, Custom			
	IMU	Not support			Support
SYSTEM	Serial Port	Standard RS232 interface with baud rates supporting 9600, 19200, 38400, 115200, and 230400 bps			
	Network port	Standard RJ45 interface, 10/100M adaptive			
	USB	Applying Type-C Interface, Quick Charge and data transfer supported	Integrated on the 7-pin interface, support access to the computer to copy data directly		
	Network Communication	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8			
	Interface	PWR*1: Power supply port DATA*1 COM*2 SIM*1 PPS*1 Ethernet*1 GNSS*1: Main antenna 4G*1: 4G antenna port	PWE*1: Power supply port DATA*1 PPS*1 SIM*1: Nano SIM card Ethernet*1 GNSS*1: Main antenna 4G*1: 4G antenna port	PWE*1: Power supply port DATA*1 PPS*1 SIM*1: Nano SIM card Ethernet*1 GNSS*2: TNC port 4G*1: 4G antenna port	PWE*1: Power supply port DATA*1 PPS*1 SIM*1: Nano SIM card Ethernet*1 GNSS*1: Main antenna 4G*1: 4G antenna port
	Storage	32GB storage			
ENVIRONMENTAL	Operating Temperature	-20℃~+60℃	-40℃~+85℃		
	Storage Temperature	-20℃~+70℃	-40℃~+85℃		
	Protection Class	IP68			
PHYSICAL	Material	Magnesium alloy main body			
	Dimension	172*148*58mm	148.8*105*50.3mm		
	Weight	1920g	490g		

Manufacturers may update parameters at any time, please refer to the latest product information.

T5Lite GNSS Receiver

T5Lite is a mini portable multifunctional GNSS receiver, a new generation of measurement engine supporting tilt measurement, built-in 4G Modem, Bluetooth and WIFI. It adopts a new appearance design, magnesium alloy structure and Linux operating system. It is an economical and portable geodesic GNSS receiver.

CHARACTERISTIC

Linux intelligent system

ARM Cortex-A7 + Linux, the intelligent system platform, brings efficient computing and unlimited expansion of product functions to users.

Multi constellation

With its 1408 channels, T5 provides an excellent on board real time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BDS, GALILEO, QZSS, SBAS and IRNSS) are included.

Tilt Measurement

T5Lite has the IMU module. Fast initialization and up to 60° inclination.

Combined antenna

The new four in one antenna integrates GNSS, WIFI, Bluetooth and 4G, with smaller volume and better signal.

4G Modem

T5Lite has an internal 4G Modem that operates with more cellular network signals, a fast internet connection is guaranteed.

Long Endurance

Built in high-capacity lithium battery ensures continuous working time of more than 16 hours under normal operation.

IP65 Design

Industrial design, solid magnesium ally shell, in line with IP65 design requirements, safe and reliable.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux

GNSS	
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5*(IRNSS support in future)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	5Hz(max)
Reacquisition Time	<1s
Cold Start Time	<40s

ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Precision (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ±（2.5mm+1ppm） Vertical: ±（5mm+1ppm）
Velocity Estimation (RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm

SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/5/8 LTE TDD: B38/39/40/41 GSM: 900/1800MHz
Storage	32GB Storage

INDICATOR	
Bluetooth Indicator	Show Bluetooth status
Satellite Indicator	Show position status
Data link Indicator	Show differential signal status
Power Indicator	Show power status

BATTERY	
Battery	3.7V, 9600mAh
Work time	More than 16 hours (Typical, Rover, GSM) The static working mode supports continuous data collection for 24 hours
Charge	MTK PE+1.1/2.0 9V/2A USB PD 12V/1.25A 5V/3A (Support fast charging adapter andadaptively and dynamically adjustcharging current)

ENVIRONMENT	
Work Temperature	-20°C~+60°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP65

PHYSICAL	
Materials	Magnesium alloy main body, ABS/PC top cover
Dimensions	100.5mm*100.5mm*69mm
Weight	600g

ACCESSORIES	
T5Lite Device	1 SET
USB power adapter	1 PCS
USB A To Type-C	1 PCS

CERTIFICATION	
Regulatory Compliance	CE, NGS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T5 GNSS Receiver

T5 is a mini portable multifunctional GNSS receiver, a new generation of measurement engine, supporting tilt measurement, built-in 4G Modem, radio, Bluetooth and WIFI. It adopts a new appearance design, magnesium alloy structure and Linux operating system. It is an extremely light-weight and portable geodesic GNSS receiver.

CHARACTERISTIC

Linux Intelligent System

ARM Cortex-A7 + Linux, the intelligent system platform, brings efficient computing and unlimited expansion of product functions to users.

Multi Constellation

With its 1408 channels, T5 provides an excellent on board real time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BDS, GALILEO, QZSS, SBAS and IRNSS) are included.

Tilt Measurement

T5 has the IMU module. Fast initialization and up to 60° inclination.

Combined Antenna

The new four in one antenna integrates GNSS, WIFI, Bluetooth and 4G, with smaller volume and better signal.

4G Modem

T5 has an internal 4G Modem that operates with more cellular network signals, a fast internet connection is guaranteed.

Long Endurance

Built in high-capacity lithium battery ensures continuous working time of more than 16 hours under normal operation.

IP65 Design

Industrial design, solid magnesium alloy shell, in line with IP65 design requirements, safe and reliable.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5*(IRNSS support in future)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	5Hz(max)
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Precision (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ± （2.5mm+1ppm） Vertical: ± （5mm+1ppm）
Velocity Estimation (RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/5/8 LTE TDD: B38/39/40/41 GSM: 900/1800MHz
Storage	32GB Storage
Data Radio	Receive Only Frequency: 410~470MHz Protocol: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Air baud rate: 9600 / 19200bps

INDICATOR	
Bluetooth Indicator	Show Bluetooth status
Satellite Indicator	Show position status
Data link Indicator	Show differential signal status
Power Indicator	Show power status
BATTERY	
Battery	3.7V, 9600mAh
Work time	More than 16 hours (Typical, Rover, GSM) The static working mode supports continuous data collection for 24 hours
Charge	MTK PE+1.1/2.0 9V/2A USB PD 12V/1.25A 5V/3A (Support fast charging adapter andadaptively and dynamically adjustcharging current)
ENVIRONMENT	
Work Temperature	-20°C~+60°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP65
PHYSICAL	
Materials	Magnesium alloy main body, ABS/PC top cover
Dimensions	100.5mm*100.5mm*72mm
Weight	630g
ACCESSORIES	
T5 Device	1 SET
USB power adapter	1 PCS
USB A To Type-C	1 PCS
Radio Antenna	1 PCS
CERTIFICATION	
Regulatory Compliance	CE, NGS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T10Pro GNSS Receiver

T10Pro is a latest portable multifunctional GNSS receiver, a new generation of measurement engine, supporting tilt measurement, NFC, built-in 4G Modem, Bluetooth and WIFI. It adopts a new appearance design, magnesium alloy structure and Linux operating system. It is an extremely light-weight, fully functional and portable geodesic GNSS receiver.

CHARACTERISTIC

Linux Intelligent System

ARM Cortex-A7 + Linux, the intelligent system platform, brings efficient computing and unlimited expansion of product functions to users.

Multi Constellation

With its 1408 channels, T10Pro provides an excellent on board real time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BDS, GALILEO, QZSS, SBAS and IRNSS) are included.

Tilt Measurement

T10Pro has the IMU module. Fast initialization and up to 60° inclination.

Combined Antenna

The new four in one antenna integrates GNSS, WIFI, Bluetooth and 4G, with smaller volume and better signal.

4G Modem

T10Pro has an internal 4G Modem that operates with more cellular network signals, a fast internet connection is guaranteed.

Long Endurance

Built in high-capacity lithium battery ensures continuous working time of more than 16 hours under normal operation.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux

GNSS	
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5*(IRNSS support in future)
Channel	1408
Data format	NMEA-0183
Correction I / O Protocol	RTCM 2.X, RTCM3.X
Data update frequency	5 Hz (típico) 20 Hz (máx.)
Recapture Time	<1s
Cold Boot	<30s

POSITIONING ACCURACY	
Single (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Time Accuracy (RMS)	20ns
Static Accuracy (RMS)	Horizontal: ± (2.5mm+0.5ppm) Vertical: ± (5mm+0.5ppm)
Speed Accuracy (RMS)	0.03m/s
Tilt compensation Accuracy(within 60°)	≤2cm

SYSTEM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Storage	32GB Almacenamiento

Data Radio	Frecuencia:410~470MHz Protocolo: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Potencia de transmisión por radiofrecuencia: 0.5W/1.5W Velocidad en baudios del aire:9600 / 19200bps

INDICATOR	
Power Indicator	Show power status
Satellite Indicator	Show position status
Data link Indicator	Show differential signal status

BATTERY	
Battery	3.7V, 9600mAh
Work time	More than 16 hours (Typical, Rover, GSM) The static working mode supports continuous data collection for 24 hours under full power
Charge	MTK PE+1.1/2.0 9V/2A USB PD 12V/1.25A 5V/3A Support fast charging adapter and adaptively and dynamically adjust charging current

ENVIRONMENTAL	
Work Temperature	-20°C~+60°C
Storage Temperature	-40°C~+85°C
Shock	Soporta caídas desde postes de 1.5M
Protection	IP68

PHYSICAL	
Material	Magnesium alloy main body, ABS/PC top cover
Dimension	Φ147.9mm*68mm
Weight	740g

A FULL SET	
T10Pro Device	1 SET
USB power adapter	1 PCS
USB A To Type-C	1 PCS
Radio Antenna	1 PCS

CERTIFICATION	
Cumplimiento normativo	NGS, CE, FCC, KC

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T20Pro GNSS Receiver

T20Pro is a high-performance GNSS receiver that provides an easy-to-use solution for users. TOKNAV T20Pro supports the original tilt compensating GNSS solution. Multi constellation and frequency tracking always guarantee a fixed solution for your job. LCD display screen can make your operation faster and easier. T20Pro built-in 5W radio allows users to have a longer working distance, up to 16km in open areas, The durable IP68 design makes it possible to work in extreme environments.

CHARACTERISTIC

Linux Intelligent System

ARM Cortex-A7 + Linux, the intelligent system platform, brings efficient computing and unlimited expansion of product functions to users.

Multi Constellation

With its 1408 channels, T20Pro provides an excellent on board real time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BDS, GALILEO, QZSS and SBAS) are included.

Adjustable Power

T20Pro has internal radio of adjustable power of 1W/2W/5W, and works as base station at 5W power. The transmission distance can reach to maximum 16km when working in the open area.

Combined Antenna

The new four in one antenna integrates GNSS, WIFI, Bluetooth and 4G, with smaller volume and better signal.

4G Modem

T20Pro has an internal 4G Modem that operates with more cellular network signals. A fast internet connection is guaranteed.

Long Endurance

Built in high-capacity lithium battery ensures continuous working time of more than 18 hours under normal operation.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5(Requires firmware support)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz(max)
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Precision (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ± (2.5mm+0.5ppm) Vertical: ± (5mm+0.5ppm)
Velocity Estimation (RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Radio	Frequency: 410~470MHz Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT
Radio	RF transmit power: 1W/2W/5W Air Baud Rate: 9600, 19200bps
Storage	32GB storage
DISPLAY	
LCD	Screen size: 1.3inch Display mode: TFT Display format: 240*RGB*240 View Angle: FULL
BATTERY	
Battery	7.4V, 6500mAh
Work time	More than 18 hours (Typical, Rover, GSM) The static working mode supports continuous data collection for 26 hours
Charge	USB PD 15V/2A 5V/3A (Support fast charging adapter and adaptively and dynamically adjust charging current)
ENVIRONMENT	
Work Temperature	-20°C~+60°C
Storage Temperature	-40°C~+85°C
Shock	Withstand a 1.5m pole drop
Protection	IP68
PHYSICAL	
Materials	Magnesium alloy casing with ABS/PC plastic top cover
Dimensions	Φ143.5 * 90.7mm
Weight	900g
ACCESSORIES	
T20Pro	1 Unit
USB power adapter	1 PCS
Type-C To Type-C	1 PCS
Radio Antenna	1 PCS
CERTIFICATION	
Regulatory Compliance	NGS, CE, FCC

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

tBase GNSS Receiver

tBase is designed and developed specifically for professional base station applications. It features a high-precision positioning module, supporting full-system, multi-frequency satellite signal tracking. Equipped with 4G, Bluetooth, WiFi, a 5W radio, and a large-capacity battery, it meets the demands for concurrent data links at base stations and alleviates the endurance concerns typical of built-in radio work modes, making measurements more convenient and efficient.

CHARACTERISTIC

Linux Intelligent System

ARM Cortex-A7+Linux, the intelligent system platform, brings efficient computing and unlimited expansion of product functions to users.

Full System GNSS Reception

The receiver integrates a high-precision positioning module, utillizing 1408 channels to support a comprehensive range of signals including BDS B1I/B2I/B3I/B1C/B2a/B2b(PPP), GPS L1/L2/L5, GLONASS L1/L2/L3, Galileo E1/E5a/E5b/E6(PPP) and QZSS L1/L2/L5.

Extended Range and Battery Life

Features a built-in radio capable of 5W transmission and a 13800mAh battery, ensuring operational distances over 16km and continuous operation up to 12 hours.

Concurrent Data links

The integrated 4G and 5W radio enables simultaneous network and radio differential transmission, streamlining operations by eliminating the need to choose between radio and network.

Remote VPN Management

With an integrated VPN, the device allows remote configuration of various functions without the need to return to the base station setup point, facilitating flexible adjustment of work requirements in complex environments.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5(IRNSS support in future)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz(max)
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Precision (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ± (2.5mm+1ppm) Vertical: ± (5mm+1ppm)
Velocity Estimation (RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8

Storage	32GB storage
Radio	Integrated high-power transceiver Frequency Range: 410~470MHz Power: 1W/2W/5W Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Air Baud Rate: 9600, 19200bps
INDICATOR	
Power Indicator	Indicates power and charging status
Differential Signal Indicator	Indicates differential signal transmission status
Satellite Indicator	Indicates satellite reception status
Bluetooth Indicator	Indicates Bluetooth connection status
BATTERY / CHARGE	
Capacity	7.2V, 13800mAh
Endurance	Over 12 hours(5W Radio, Base)
Charging	Supports USB PD 15V/2A and 5V/3A(With adaptive dynamic current adjustment)
ENVIRONMENT	
Operating Temperature	-20°C~+60°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy casing with ABS/PC plastic top cover
Dimensions	Φ174.9 * 104.9mm
Weight	1500g
ACCESSORIES	
tBase	1 Unit
Power adapter	1 PCS
Type-C To Type-C	1 PCS
Radio Antenna	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T30 GNSS Receiver

T30 is a full-featured GNSS receiver designed for long battery life and high precision. It includes an advanced positioning module supporting full-system and multi-frequency satellite signal tracking. Equipped with 4G universal connectivity, Bluetooth, WiFi, a 5W data radio, and a large-capacity battery, it can operate continuously for up to two days on a single charge. The device integrates a high-precision inertial navigation system combined with AR and laser camera technology for AR stakeout and laser measurement, and augmented reality plotting, making surveying tasks more efficient and convenient.

CHARACTERISTIC

Linux Intelligent System

Linux+ARM Cortex-A7, the intelligent system platform, brings efficient computing and unlimited expansion of product functions to users.

Full System GNSS Reception

The receiver integrates a high-precision positioning module, utillzing 1408 channels to support a comprehensive range of signals including BDS B1I/B2I/B3I/B1C/B2a/B2b(PPP), GPS L1/L2/L5, GLONASS L1/L2/L3, Galileo E1/E5a/E5b/E6(PPP), QZSS L1/L2/L5.

Full Netcom 4G Communication

Based on the Linux platform, this full netcom 4G solution supports mobile, Unicom, Telecom 2/3/4G networks for better compatibility and stronger, more stable connections.

Visualized Laser Measurement

Featuring a high-precision, millimeter-grade laser ranging module and a high-definition camera, the receiver enables precise point-and-measure functionality. The combination of high-accuracy inertial navigation and the camera's HD visuals ensures seamless operation even in complex environments.

AR Real-Time Stakeout

Utilizes a professional ultra-wide-angle camera to provide high-definition real-time plotting functionality, making layout tasks more accurate and convenient.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5(Requires firmware support)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz(max)
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Precision (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ± (2.5mm+1ppm) Vertical: ± (5mm+1ppm)
Velocity Estimation (RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
Laser Measurement	The three-dimensional accuracy of laser tilt measurement within 5m: no more than 2.5cm
SYSTEM PLATFORM	
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Radio	Integrated high-power transceiver Frequency Range: 410~470MHz Power: 5W Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Air Baud Rate: 9600, 19200bps

Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Storage	32GB storage
Laser Camera	Sensor size: 1/3.06 inch Aperture:f/2.9 Resolution: 4224*3200 Field of view:D44°H=35°V=26.5° Distortion:＜1%
AR Camera	AR real-time stakeout supported Sensor size: 1/2.8 inch Aperture: f/2.5 Resolution: 1920*1080 Field of view: D70.3°H62.7°V38.6° Distortion: ＜0.38%
INDICATOR	
Power Indicator	Indicates power and charging status
Differential Signal Indicator	Indicates differential signal transmission status
Satellite Indicator	Indicates satellite reception status
Bluetooth Indicator	Indicates Bluetooth connection status
BATTERY / CHARGE	
Capacity	7.2V, 13800mAh
Endurance	Over 48 hours(when applying controller network mode)
Charging	Supports USB PD 15V/2A and 5V/3A (With adaptive dynamic current adjustment
ENVIRONMENT	
Operating Temperature	-20°C~+60°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy casing with ABS/PC plastic top cover
Dimensions	Φ174.9 * 104.9mm
Weight	1500g
ACCESSORIES	
T30	1 Unit
Power adapter	1 PCS
Type-C To Type-C	1 PCS
Radio Antenna	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T30Pro GNSS Receiver

The T30Pro is a long-life battery GNSS receiver integrates AR and Photogrammetry. It has a built-in high-precision positioning module that supports tracking satellite signals from all systems and frequency bands. It is equipped with 4G full Netcom, Bluetooth, Wi-Fi, a 5W data transmission radio. With a 7.2V, 13800mAh battery, it supports two days of operation after a single charge. The receiver also features a high-precision IMU module, Photogrammetry, and AR stakeout, further expanding the boundaries of RTK survey.

CHARACTERISTIC

Linux Intelligent System

Linux+ARM Cortex-A7 intelligent system platform offers efficient computation and unlimited product functionality expansion.

Full System GNSS Reception

The receiver integrates a high-precision positioning module with 1408 high-speed channels. It supports BDS B1I/B2I/B3I/B1C/B2a/B2b(PPP), GPS L1/L2/L5, GLONASS L1/L2/L3, Galileo E1/E5a/E5b/E6(PPP), QZSS L1/L2/L5 signals reception and calculation.

Photogrammetry

Equipped with a 1/2.6-inch large base high-definition wide-angle camera, it integrates high-precision inertial navigation algorithms and works with high-performance Android handheld devices for high-precision image measurement.

AR Real-Time Stakeout

Utilizes a professional ultra-wide-angle camera to provide high-definition real-time plotting functionality, making layout tasks more accurate and convenient.

4G Full NetCom

The 4G NetCom solution based on the Linux platform fully supports 2/3/4G networks of China Mobile/China Unicom/China Telecom, offering better compatibility, stronger signals, and more stable connections.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5(IRNSS support in future)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz(max)
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Precision (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ±（2.5mm+1ppm） Vertical: ±（5mm+1ppm）
Velocity Estimation (RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Radio	Integrated receiver/transmitter Frequency Range: 410~470MHz Power: 1W/2W/5W Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Air Baud Rate: 9600, 19200

Storage	32GB storage
IS Camera	Supports image survey Sensor size: 1/2.6 inch Focal length: 6mm Aperture: f/2.8 Resolution: 1920*1080 Field of view: D51.8°H42.4°V32.4° Distortion: ＜0.5%
AR Camera	Supports AR real scene stakeout Sensor size: 1/2.8 inch Aperture: f/2.5 Resolution: 1920*1080 Field of view: D70.3°H62.7°V38.6° Distortion: ＜0.38%
INDICATOR	
Power Indicator	Indicates power and charging status
Differential Signal Indicator	Indicates differential signal transmission status
Satellite Indicator	Indicates satellite reception status
Bluetooth Indicator	Indicates Bluetooth connection status
BATTERY / CHARGE	
Capacity	7.2V, 13800mAh
Endurance	Over 48 hours(when applying controller network mode)
Charging	Supports USB PD 15V/2A and 5V/3A
ENVIRONMENT	
Operating Temperature	-20°C~+60°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy casing with ABS/PC plastic top cover
Dimensions	Φ174.9 * 104.9mm
Weight	1500g
ACCESSORIES	
T30Pro	1 Unit
Power adapter	1 PCS
Type-C To Type-C	1 PCS
Radio Antenna	1 PCS
7-Pin Data Cable	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T40 GNSS Receiver

T40 is a versatile GNSS receiver equipped with dual-laser cameras. It integrates a high-precision positioning module, IMU, AR, laser technology, and laser visualization to enable high-precision positioning, tilt measurement, AR real-world staking, and visualized laser point measurement. It boasts a maximum testing radius of up to 30 meters. The receiver features a robust magnesium-aluminum alloy design, offering durability and reliability. It supports hot-swappable batteries, allowing quick recharging without power interruption, thereby extending operational time.

CHARACTERISTIC

Full-System, Multi-Frequency GNSS Receiver

The receiver integrates a high-precision positioning module with 1,408 high-speed channels. It supports full-system and multi-frequency signal reception and processing, including: BDS: B1I, B2I, B3I, B1C, B2a, B2b, GPS: L1 C/A, L1C, L2C, L5, GLONASS: L1, L2, L3, Galileo: E1, E5a, E5b, E6, QZSS: L1, L2, L5, SBAS and NavIC systems.

Tilt Measurement

Equipped with an intelligent high-precision inertial navigation (IMU) module, the device offers real-time tilt compensation, eliminating the issue of "floating points" in RTK surveys.

AR Stake Out

A professional ultra-wide-angle camera provides HD real-world stake out capabilities. Its user-friendly AR stake out application ensures precise, one-shot staking performance.

Visualized Laser Measurement

Featuring a high-precision, millimeter-grade laser ranging module and a high-definition camera, the receiver enables precise point-and-measure functionality. The combination of high-accuracy inertial navigation and the camera's HD visuals ensures seamless operation even in complex environments.

Extended Battery Life

The receiver supports two detachable batteries that allow hot-swapping without power interruption. This enables quick battery replacement, significantly extending operational endurance.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5*(Requires firmware support)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz max
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Time Accuracy(RMS)	20ns
Static(RMS)	Horizontal: ± (2.5mm+1ppm) Vertical: ± (5mm+1ppm)
Speed Accuracy(RMS)	0.03m/s
Tilt Compensation (⩽60°)	<2cm
AR Stake Out Accuracy	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Laser Measurement	⩽2.5cm 3D error within 5m range
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Storage	32GB storage
Radio	Integrated high-power transceiver Frequency Range: 410~470MHz Power: 1W/2W/5W
Radio	Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Air Baud Rate: 9600, 19200bps
Laser Module	Type: Class 3R Range: 30m Precision: ±5mm±100*10-6*D , (D: Measurement Distance) Wavelength: 520±20nm Power: 3.8mW
Laser Assist Camera	Sensor： 1/3.06 inch Resolution: 4224x3200 FOV: D44°H35°V26.5° Distortion: ＜1%
AR Camera	AR Stakeout Supported Sensor: 1/2.8 inch Aperture: f/2.5 Resolution: 1920*1080 FOV: 70.3°H62.7°V38.6° Distortion: ＜0.38%
DISPLAY	
LCD Panel	Sensor: 1.3 inch Resolution: 240*RGB*240
BATTERY / CHARGE	
Capacity	7.2V, 3400mAh*2 (Removable, dedicated charger)
Endurance	Over 20 hours(when applying controller network mode)
Charging	9~24VDC
ENVIRONMENT	
Operating Temperature	-20°C~+60°C
Storage Temperature	-20°C~+70°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy casing with ABS/PC plastic top cover
Dimensions	Φ160 * 103mm
Weight	850g(without battery)
ACCESSORIES	
T40	1 Unit
External Battery	2 PCS
Battery Charging Cradle	1 PCS
Radio Antenna	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T40Pro GNSS Receiver

The T40Pro is a versatilel GNSS receiver equipped with photogrammetry technology. It integrates a high-precision positioning module, IMU, AR, and a high-definition imaging camera, combining precise inertial navigation and positioning data. It enables tilt measurement, AR real-time staking, and image-based survey, allowing for efficient extraction of high-precision coordinates from real-world images. The receiver features a robust magnesium-aluminum alloy design, offering durability and reliability. It supports hot-swappable batteries, allowing quick recharging without power interruption, thereby extending operational time.

CHARACTERISTIC

Linux Intelligent System

The Linux + ARM Cortex-A7 intelligent system platform provides users with efficient computing power and unlimited expansion of product features.

Tilt Measurement

Equipped with an intelligent high-precision inertial navigation (IMU) module, the device offers real-time tilt compensation, eliminating the issue of “floating points” in RTK surveys.

AR Stake Out

A professional ultra-wide-angle camera provides HD real-world stake out capabilities. Its user-friendly AR stake out application ensures precise, one-shot staking performance.

Photogrammetry

The receiver is equipped with a high-definition wide-angle camera with a large 1/2.6-inch sensor, integrating high-precision inertial navigation algorithms. Coupled with a high-performance Android controller, it achieves high-precision image survey.

Extended Battery Life

The receiver supports two detachable batteries that allow hot-swapping without power interruption. This enables quick battery replacement, significantly extending operational endurance.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7
OS	Linux
GNSS	
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5*(Requires firmware support)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz max
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Time Accuracy(RMS)	20ns
Static(RMS)	Horizontal: ± （2.5mm+1ppm） Vertical: ± （5mm+1ppm）
Speed Accuracy(RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
AR Stakeout Accuracy	Horizontal： ±(8mm+1ppm) Vertical： ±(15mm+1ppm)
Photogrammetry Accuracy	Error of 2-4 cm within 2-15 meters.
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD:B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Storage	32GB Storage

Data Radio	Integrated receiver/transmitter Frequency Range: 410~470MHz Power: 1W/2W/5W Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT Air Baud Rate: 9600, 19200
IS Camera	Supports Photogrammetry Sensor size: 1/2.6 inch Focal length: 6mm Aperture: f/2.8 Resolution: 1920*1080 Field of view: D51.8° H42.4° V32.4° Distortion: < 0.5%
AR Camera	AR Stakeout Supported Sensor: 1/2.8 inch Aperture: f/2.5 Resolution: 1920*1080 FOV: 70.3°H62.7°V38.6° Distortion: ＜0.38%
DISPLAY	
LCD Panel	Sensor: 1.3 inch Resolution: 240*RGB*240
BATTERY	
Battery	7.2V，3400mAh *2 (Removable battery, dedicated charger)
Work time	Over 20 hours (when applying controller network mode)
External power	9~24VDC
ENVIRONMENT	
Work Temperature	-20°C~+60°C
Storage Temperature	-20°C~+70°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy main body, ABS/PC top cover
Dimensions	Φ160mm*103mm
Weight	850g(without battery)
ACCESSORIES	
T40Pro	1 Unit
External Battery	2 PCS
Battery Charging Cradle	1 PCS
Radio Antenna	1 PCS

Equipped with electronic fence system, Toknav’s product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T50basic GNSS Receiver

T50basic is a portable multi-functional GNSS. It has a built-in high-precision positioning module that supports tracking satellite signals from all systems and frequency bands. It is equipped with 4G full network access, bluetooth, WIFI and built-in data transmission radio. The high-precision IMU integrates AR to achieve tilt measurement, tilt measurement and AR real-Time Stakeout, making the measurement work more convenient and efficient.

CHARACTERISTIC

Linux Intelligent System

Linux+ARM Cortex-A7 intelligent system platform offers efficient computation and unlimited product functionality expansion.

Full System GNSS Reception

The receiver integrates a high-precision positioning module, utilizing 1408 channels to support a comprehensive range of signals including BDS (B1I/B2I/B3I/B1C/B2a/B2b), GPS (L1/L2/L5), GLONASS (L1/L2/L3), Galileo (E1/E5a/E5b/E6), QZSS (L1/L2/L5),SBAS and NavIC.

Tilt Measurement

Built-in intelligent high-precision inertial navigation module for real-time tilt compensation, eliminating "fly points" in RTK measurement.

AR Real-Time Stakeout

Utilizes a professional ultra-wide-angle camera to provide high-definition real-time plotting functionality, making stakeout tasks more accurate and convenient.

4C Full NetCom

The 4G NetCom solution based on the Linux platform fully supports 2/3/4G networks, offering better compatibility, stronger signals, and more stable connections.

Long Endurance

Industrial design, solid magnesium alloy shell, in line with IP68 design requirements, safe and reliable.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5(IRNSS support in future)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz(max)
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Precision (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ± (2.5mm+1ppm) Vertical: ± (5mm+1ppm)
Velocity Estimation (RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
AR Stakeout	Horizontal: ±(8mm+1ppm) Vertical: ±(15mm+1ppm)
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8

Storage	32GB storage
Radio	Integrated transceiver radio Frequency Range: 410~470MHz Power: 0.5W/1.5W Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT, SATEL, LORA Air Baud Rate: 4800, 9600, 19200
AR Camera	Supports AR real scene stakeout Sensor size: 1/2.8 inch Aperture: f/2.5 Resolution: 1920*1080 Field of view: 69.3°±3° Distortion: ＜0.38%
BATTERY / CHARGE	
Capacity	7.4V, 6500mAh
Endurance	Over 16 hours (Typical, Rover, GSM)
Charging	USB PD 15V/2A 5V/3A
ENVIRONMENT	
Operating Temperature	-30°C~+65°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy casing with ABS/PC plastic top cover
Dimensions	Φ132 * 83mm
Weight	770g
ACCESSORIES	
T50basic	1 Unit
Type-C power adapter	1 PCS
Type-C To Type-C	1 PCS
Radio Antenna	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T50 GNSS Receiver

T50 is a portable multi-functional GNSS. It has a built-in high-precision positioning module that supports tracking satellite signals from all systems and frequency bands. It is equipped with 4G full network access, bluetooth, WIFI and built-in data transmission radio. The high-precision IMU integrates AR and Laser to achieve tilt measurement, Laser measurement and AR real-Time Stakeout, making the measurement work more convenient and efficient.

CHARACTERISTIC

Linux Smart System

Linux+ARM Cortex-A7 intelligent system platform offers efficient computation and unlimited product functionality expansion.

Full System GNSS Reception

The receiver integrates a high-precision positioning module, utilizing 1408 channels to support a comprehensive range of signals including BDS (B1I/B2I/B3I/B1C/B2a/B2b), GPS (L1/L2/L5), GLONASS (L1/L2/L3), Galileo (E1/E5a/E5b/E6), QZSS (L1/L2/L5),SBAS and NavIC.

Tilt Measurement

Built-in intelligent high-precision inertial navigation module for real-time tilt compensation, eliminating "fly points" in RTK measurement.

AR Real-Time Stakeout

Utilizes a professional ultra-wide-angle camera to provide high-definition real-time plotting functionality, making stakeout tasks more accurate and convenient.

4C Full NetCom

The 4G NetCom solution based on the Linux platform fully supports 2/3/4G networks, offering better compatibility, stronger signals, and more stable connections.

Laser Measurement

Equipped with a high-precision millimeter-level laser ranging module, combined with high-precision inertial navigation for accurate laser targeting in complex environments.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5*(Requires firmware support)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz max
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Time Accuracy(RMS)	20ns
Static(RMS)	Horizontal: ± (2.5mm+1ppm) Vertical: ± (5mm+1ppm)
Speed Accuracy(RMS)	0.03m/s
Tilt Compensation (⩽60°)	<2cm
AR Stake Out Accuracy	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Laser Measurement	⩽2.5cm 3D error within 5m range
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Storage	32GB storage

Radio	Integrated high-power transceiver Frequency Range: 410~470MHz Power: 0.5W/1.5W Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT, SATEL, LORA Air Baud Rate: 4800, 9600, 19200
Laser Module	Type: Class 3R Range: 100m Precision: ±5mm±100*10-6*D , (D: Measurement Distance) Wavelength: 520±20nm Power: 3.8mW
Laser Assist Camera	Sensor： 1/3.06 inch Resolution: 4224x3200 FOV: D44°H35°V26.5° Distortion: ＜1%
AR Camera	AR Stakeout Supported Sensor: 1/2.8 inch Aperture: f/2.5 Resolution: 1920*1080 FOV: 69.3°±3° Distortion: ＜0.38%
BATTERY / CHARGE	
Capacity	7.4V, 6500mAh
Endurance	Over 16 hours(when applying controller network mode)
Charging	USB PD 15V/2A 5V/3A
ENVIRONMENT	
Operating Temperature	-30°C~+65°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy casing with ABS/PC plastic top cover
Dimensions	Φ132 * 83mm
Weight	770g
ACCESSORIES	
T50	1 Unit
Type-C power adapter	2 PCS
Type-C To Type-C	1 PCS
Radio Antenna	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

T50Pro GNSS Receiver

T50Pro is a portable multi-functional GNSS. It has a built-in high-precision positioning module that supports tracking satellite signals from all systems and frequency bands. It is equipped with 4G full network access, bluetooth, WIFI and built-in data transmission radio. The high-precision IMU integrates AR and Photogrammetry to achieve tilt measurement, Photogrammetry and AR real-Time Stakeout, making the measurement work more convenient and efficient.

CHARACTERISTIC

Linux Intelligent System

Linux+ARM Cortex-A7 intelligent system platform offers efficient computation and unlimited product functionality expansion.

Full System GNSS Reception

The receiver integrates a high-precision positioning module, utilizing 1408 channels to support a comprehensive range of signals including BDS (B1I/B2I/B3I/B1C/B2a/B2b), GPS (L1/L2/L5), GLONASS (L1/L2/L3), Galileo (E1/E5a/E5b/E6), QZSS (L1/L2/L5),SBAS and NavIC.

Tilt Measurement

Built-in intelligent high-precision inertial navigation module for real-time tilt compensation, eliminating "fly points" in RTK measurement.

Photogrammetry

Equipped with a 1/2.6-inch large base high-definition wide-angle camera, it integrates high-precision inertial navigation algorithms and works with high-performance Android handheld devices for high-precision Photogrammetry.

AR Real-Time Stakeout

Utilizes a professional ultra-wide-angle camera to provide high-definition real-time plotting functionality, making stakeout tasks more accurate and convenient.

IP68 Design

Industrial design, solid magnesium alloy shell, in line with IP68 design requirements, safe and reliable.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7
OS	Linux
GNSS	
GPS	L1C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5*(Requires firmware support)
Channel	1408
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	20Hz max
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
SINGLE (RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS (RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Time Accuracy(RMS)	20ns
Static(RMS)	Horizontal: ± （2.5mm+1ppm） Vertical: ± （5mm+1ppm）
Speed Accuracy(RMS)	0.03m/s
Tilt Correction (Within 60°)	<2cm
AR Stakeout Accuracy	Horizontal： ±(8mm+1ppm) Vertical： ±(15mm+1ppm)
Photogrammetry Accuracy	Error of 2-4 cm within 2-15 meters.
SYSTEM PLATFORM	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	LTE FDD:B1/2/3/4/5/7/8/12/13/ 18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Storage	32GB Storage

Data Radio	Integrated receiver/transmitter Frequency Range: 410~470MHz Power: 0.5W/1.5W Protocols: TRIMTALK, TRIMMK3, SOUTH, TRANSEOT, SATEL, LORA Air Baud Rate: 4800,9600, 19200
IS Camera	Supports Photogrammetry Sensor size: 1/2.6 inch Focal length: 3.27mm Aperture: f/2.8 Resolution: 1920*1080 Field of view: 83x72x51° Distortion: < 0.5%
AR Camera	AR Stakeout Supported Sensor: 1/2.8 inch Aperture: f/2.5 Resolution: 1920*1080 FOV: 69.3°±3° Distortion: ＜0.38%
BATTERY	
Battery	7.4V, 6500mAh
Work time	Over 16 hours (when applying controller network mode)
Charge	USB PD 15V/2A 5V/3A
ENVIRONMENT	
Work Temperature	-30°C~+65°C
Storage Temperature	-40°C~+85°C
Shock Resistance	Can withstand a 1.5m drop at normal temperatures
Protection Rating	IP68
PHYSICAL	
Materials	Magnesium alloy main body, ABS/PC top cover
Dimensions	Φ132mm*83mm
Weight	770g
ACCESSORIES	
T50Pro	1 Unit
Type-C power adapter	1 PCS
Type-C To Type-C	1 PCS
Radio Antenna	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

NET660 GNSS Receiver

NET660 GNSS receiver is a high-performance device engineered specifically for the construction of ground-based enhancement systems, such as those used with the Beidou navigation satellite system. It boasts an built-in Linux operating system and fully independent intellectual property rights. Its diverse interfaces and communication methods, along with support for event inputs, PPS outputs, and substantial data storage, make it an ideal choice for foundational system construction.

CHARACTERISTIC

Linux Intelligent System

Utilizing a Linux + ARM Cortex-A7 system platform, the NET660 offers efficient computation and endless possibilities for product function expansion.

Comprehensive GNSS Receiver

The device integrates a high-precision positioning module capable of receiving and processing signals from a full array of systems and frequencies, including BDS (B1I/B2I/B3I, B1C/B2a/B2b), GPS (L1CA/L2P/L2C/L5), GLONASS (G1/G2), Galileo (E1/E5a/E5b), QZSS, SBAS, and IRNSS, providing complete system and full-frequency signal reception and solution.

Advanced Positioning Capabilities

Features narrowband interference resistance and continuous wave interference suppression, enabling rapid initial positioning and fast satellite signal lock for quick and precise data acquisition necessary for subsequent processing.

Versatile Connectivity Options

Offers Ethernet, WiFi, serial ports, Bluetooth, and mobile network interfaces, allowing for flexible connectivity solutions.

Protocol Compatibility

Supports a variety of protocols including Ntrip Client/Server/Caster, TCP Client/Server, FTP for file transfers, and HTTP/HTTPS for secure communications over protected networks.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2b, B2b
GALILEO	E1, E5a, E5b
QZSS	L1C/A, L2C, L5
SBAS	L1C/A
NavIC(IRNSS)*	L5*(Requires firmware support)
L-band	
Standard Output	NMEA-0183
Correction I/O Protocol	RTCM 3.X
Frequency	1Hz, 2Hz, 5Hz, 10Hz, 20Hz max
Reacquisition Time	<1s
Cold Start Time	<40s
ACCURACY	
Single(RMS)	Horizontal: 1.5m / Vertical: 2.5m
DGPS(RMS)	Horizontal: 0.4m / Vertical: 0.8m
RTK(RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Timing Accuracy (RMS)	20ns
Static Mode Precision (RMS)	Horizontal: ± (2.5mm+1ppm) Vertical: ± (5mm+1ppm)
Data Availability	⩾98% (Data available/Data collected)
Data Completeness	⩾98%(Data collected/ Expected data to be collected)
INTERFACE	
Bluetooth	BR+EDR+BLE
WIFI	802.11 b/g/n
Network	Full frequency LTE FDD: B1/2/3/4/5/7/8/12/13/ 18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Ethernet Port	Standard RJ45 interface, 10/100Mbps network adaptive
Serial Port	Two 5-pin connectors; standard RS232 interface with baud rates supporting 9600, 19200, 38400, 115200, and 230400 bps
Storage	32GB storage
INDICATOR	
LCD Display	Size: 1.3inch Resolution: 240*RGB*240
Power Indicator	Indicates power and charging status
Differential Signal Indicator	Indicates the status of network connection
Satellite Indicator	Indicates satellite reception status
Bluetooth Indicator	Indicates Bluetooth connection status
BATTERY / CHARGE	
Capacity	7.2V, 13800mAh
Endurance	Over 24 hours(Supports continuous data collection for 26 hours on a full charge)
Charging	TYPEC - USB PD 15V/2A 5V/3A LEMO - 12V/2A DC Input supported
ENVIRONMENT	
Operating Temperature	-20°C~+60°C
Storage Temperature	-20°C~+70°C
Shock Resistance	GB/T2423
Protection Rating	IP68
PHYSICAL	
Material	Magnesium alloy main body
Dimension	172mm*148mm*58mm
Weight	1920g
ACCESSORIES	
NET660	1 Unit
Power adapter	1 PCS
Serial Port	2 PCS
WIFI Antenna	1 PCS
4G Antenna	1 PCS

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

NET660i GNSS Receiver

NET660i is a cost-effective and miniaturized GNSS receiver designed for the construction of Beidou ground-based augmentation system. It has built-in Linux operating system, completely independent intellectual property development, rich interface types, diverse communication methods, and supports large-capacity data storage. It is the best choice for the construction of the Beidou ground-based augmentation system.

CHARACTERISTIC

Multi Constellation

With its 1408 channels, NET660i provides an excellent on board real time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BDS, GALILEO, QZSS and SBAS) are included.

Rich Interfaces & Various Communication Methods

NET660i provides Ethernet， serial and mobile network interfaces for customers to choose.

Compatible with Multiple Protocols

NET660i supports Ntrip Client/Server/Caster, TCP Client/Server connection, FTP protocol file transfer, HTTP/HTTPS protocol, private network transfer function with protection policy.

Cloud Service Function

NET660i can regularly report the device status such as device location, network status, signal strength, satellite reception status, etc., and supports cloud platform to restart, reset, and upgrade the remote device.

Support Front-end Solution

NET660i supports the front-end calculation function which can complete the static data calculation on the device inside and upload the results to the cloud, which greatly reduces the requirements for the computing power of the cloud server.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BDS	B1I, B2I, B3I, B1C, B2a, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1(PPP)
NavIC (IRNSS)	L5(IRNSS support in future)
Channel	1408
Differential Observation Accuracy(RMS)	10.0cm
Kinematic Phase Observation Accuracy(RMS)	1.0cm
Data Format	RINEX, Custom
Position Data	NMEA-0183
Differential Data	RTCM 3.X
Data update frequency	1Hz, 2Hz, 5Hz, 10Hz, 20Hz
Receive Data Availability	⩾98% (Data available/Data collected)
Data Integrity	⩾98%(Data collected/ Data should be collected)
Single (RMS)	Horizontal: 1.5m / Vertical: 2.5m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Static Accuracy (RMS)	Horizontal: ± (2.5mm+0.5ppm) Vertical: ± (5mm+0.5ppm)
Timing Precision (RMS)	20ns

SYSTEM	
Serial Port	Standard RS232 interface, Baud rate supports 1200, 2400, 4800, 9600, 19200, 38400, 115200, 230400bps
USB	Integrated on the 7-pin interface, support access to the computer to copy data directly
Network port	Standard RJ45 interface, 10/100Mbps network adaptive
Network Communication (Full Netcom)	LTE FDD: B1/2/3/4/5/7/8/12/13/ 18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Interface	PWE*1: Power supply port DATA*1 PPS*1 SIM*1: Nano SIM card Ethernet*1 GNSS*1: Main antenna 4G*1: 4G antenna port
Storage	32GB storage, circular storage support multi-channel storage
ELECTRICAL CHARACTERISTIC	
Voltage Input	9-24V DC(12V typical)
Power Dissipation	1.8W(typ)
ENVIRONMENT	
Operating Temperature	-40°C~+85°C
Storage Temperature	-40°C~+85°C
Protection Class	IP68
PHYSICAL	
Material	Magnesium alloy main body
Dimension	148.8mm*105mm*50.3mm
Weight	490g

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

NET660i-H GNSS Receiver

NET660i-H is a cost-effective and miniaturized GNSS receiver designed for the construction of Beidou ground-based augmentation system. It has built-in Linux operating system, completely independent intellectual property development, rich interface types, diverse communication methods, and supports large-capacity data storage. NET660i-H supports full system and frequency, and dual-antenna directed positioning solution with dual-antenna independent differential output capability. It is the best choice for the construction of the mechanical intelligent control system.

CHARACTERISTIC

Multi Constellation

With its 1408 channels, NET660i-H provides an excellent on board real time navigation solution with high accuracy. All GNSS signals (GPS, GLONASS, BDS, GALILEO and QZSS) are included.

Rich Interfaces & Various Communication Methods

NET660i-H provides Ethernet, serial and mobile network interfaces for customers to choose.

Compatible with Multiple Protocols

NET660i-H supports Ntrip Client/Server/Caster, TCP Client/Server connection, FTP protocol file transfer, HTTP/HTTPS protocol, private network transfer function with protection policy.

Cloud Service Function

NET660i-H can regularly report the device status such as device location, network status, signal strength, satellite reception status, etc., and supports cloud platform to restart, reset, and upgrade the remote device.

Support Front-end Solution

NET660i-H supports the front-end calculation function, which can complete the static data calculation on the device inside and upload the results to the cloud, which greatly reduces the requirements for the computing power of the cloud server.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L2P/L2C, L5
GLONASS	L1, L2
BDS	B1I, B2I, B3I, B1C*, B2b(PPP)
GALILEO	E1, E5a, E5b, E6(PPP)
QZSS	L1, L2, L5
SBAS	L1C/A
Channel	1408
Differential Observation Accuracy(RMS)	10.0cm
Kinematic Phase Observation Accuracy(RMS)	1.0cm
Data Format	RINEX, Custom
Position Data	NMEA-0183
Differential Data	RTCM 3.X
Data update frequency	1Hz, 2Hz, 5Hz, 10Hz, 20Hz
Receive Data Availability	⩾98% (Data available/Data collected)
Data Integrity	⩾98%(Data collected/ Data should be collected)
Single (RMS)	Horizontal: 1.5m / Vertical: 2.5m
RTK (RMS)	Horizontal: ± (8mm+1ppm) Vertical: ± (15mm+1ppm)
Static Accuracy (RMS)	Horizontal: ± (2.5mm+0.5ppm) Vertical: ± (5mm+0.5ppm)
Timing Accuracy (RMS)	20ns
Heading Accuracy(RMS)	0.2°/m

SYSTEM	
Serial Port	Standard RS232 interface, Baud rate supports 1200, 2400, 4800, 9600, 19200, 38400, 115200, 230400bps
USB	Integrated on the 7-pin interface, support access to the computer to copy data directly
Network port	Standard RJ45 interface, 10/100Mbps network adaptive
Network Communication (Full Netcom)	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Interface	PWE*1: Power supply port DATA*1 PPS*1 SIM*1: Nano SIM card Ethernet*1 GNSS*2: TCN port 4G*1: 4G antenna port
Storage	32GB, circular storage support multi-channel storage
ELECTRICAL CHARACTERISTIC	
Voltage Input	9-24V DC(12V typical)
Power Dissipation	2W(typ)
ENVIRONMENT	
Operating Temperature	-40°C~+85°C
Storage Temperature	-40°C~+85°C
Protection Class	IP68
PHYSICAL	
Material	Magnesium alloy main body
Dimension	148.8mm*105mm*50.3mm
Weight	490g

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.

NET660i-1U GNSS Receiver

NET660i-1U is a high-performance, compact GNSS receiver designed for unmanned vehicles. It features the latest high-performance automotive-grade positioning chip, an integrated MEMS inertial measurement unit, and a functional safety processor. The receiver supports high-performance RTK positioning and deeply coupled navigation algorithms, effectively addressing challenges such as satellite signal interference, blockage, and multipath effects. It provides continuous, real-time, and reliable high-precision position and posture information, suitable for applications in intelligent driving, precision agriculture, and intelligent robotics.

CHARACTERISTIC

Linux Intelligent System

ARM Cortex-A7 + Linux, the intelligent system platform, brings efficient computing and unlimited expansion of product functions to users.

All-system Dual-frequency GNSS Receiver

Integrated high-precision positioning module with fully independent intellectual property rights, supporting: BDS B1I, B2I, B3I, B1C*, B2a, B2b*(PPP), GPS L1C/A, L1C*, L2, L5， GLONASS L1, L2, Galileo E1, E5a, E5b, E6*, SBAS L1C/A, QZSS L1C/A, L2, L5, L6(CLAS*) .

Compatibility with Multiple Protocols

NET660i-1U supports Ntrip Client/Server/Caster, TCP Client/Server connections, FTP file transfer, HTTP/HTTPS, and MQTT transmission.

Built-in Deeply Coupled Navigation Algorithm

Integrated MEMS inertial measurement unit enables dead reckoning, providing continuous high-precision position and speed information even during short-term obstructions. The deeply coupled navigation algorithm improves GNSS signal quality, enhancing positioning accuracy in urban canyons by 2-5 times compared to loosely coupled algorithms.

Cloud Service Functionality

The device can regularly report the device status such as device location, network status, signal strength, satellite reception status, etc., and support cloud platform to restart, reset, and upgrade the remote device.

SPECIFICATION

SYSTEM	
HARDWARE SYSTEM	ARM Cortex-A7 1.8GHz
OS	Linux
GNSS	
GPS	L1 C/A, L1C*, L2, L5
GLONASS	L1, L2
BDS	B1I, B2I, B3I, B1C*, B2a, B2b*(PPP)
GALILEO	E1, E5a, E5b, E6*(PPP)
QZSS	L1C/A, L2, L5, L6(CLAS*)
SBAS*	L1C/A
NavIC(IRNSS)*	L5*
Marked * indicates firmware support is required	
Channel	1507
Pseudirange Observation Accuracy	⩽10.0cm
Carrier Phase Observation Accuracy	⩽1.0cm
Single Accuracy(RMS)	Horizontal: 1.5m / Vertical: 2.5m
RTK Accuracy(RMS)	Horizontal: ± (10mm+1ppm) Vertical: ± (15mm+1ppm)
Static Accuracy (RMS)	Horizontal: ± (2.5mm+1ppm) Vertical: ± (5mm+1ppm)
Time Accuracy (RMS)	⩽20ns(It does not include delays caused by RF cables or antennas)
Position Data	NMEA-0183
Differential Data	RTCM 3.X
Data Format	RINEX, Custom
Data update frequency	2Hz, 5Hz(Turn off integrated Navigation) IMU: 50/100Hz
IMU	
IMU parameters	Gyroscope Range: ±300°/s Full temperature zero deviation: 0.3°/s Scale error: 4‰ Three-axis orthogonal coupling error: 1.7‰ (0.1°)
Accelerometer	Measuring range: ±16g Full temperature zero deviation: 5mg Scale error: 2‰ Three-axis orthogonal coupling error: 0.9‰ (0.05°)
SYSTEM	
Serial Port	Standard RS232 interface, Baud rate supports 1200, 2400, 4800, 9600, 19200, 38400, 115200, 230400bps
USB	Integrated on the 7-pin interface, support access to the computer to copy data directly
Network port	Standard RJ45 interface, 10/100Mbps network adaptive
Network Communication	LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41 WCDMA: B1/2/4/5/6/8/19 GSM: B2/3/5/8
Interface	PWE*1: Power supply port DATA*1 PPS*1 SIM*1: Nano SIM card Ethernet*1 GNSS*1: Main antenna 4G*1: 4G antenna port
Storage	32GB, circular storage support multi-channel storage
ELECTRICAL CHARACTERISTIC	
Voltage Input	9-24V DC(12V typical)
Power Dissipation	1.8W
ENVIRONMENT	
Operating Temperature	-40°C~+85°C
Storage Temperature	-40°C~+85°C
Protection Class	IP68
PHYSICAL	
Material	Magnesium alloy main body
Dimension	148.8mm*105mm*50.3mm
Weight	490g

Equipped with electronic fence system, Toknav's product have area code restrictions.
Any issue please contact Toknav or local dealers to verify the specific details.

Manufacturers may update parameters at any time, please refer to the latest product information.