

iREF-GNSS-PRO

Professional Multi-Constellation RTK GNSS Reference Station with extended Communication Features

The iREF-GNSS-PRO is a portable GNSS reference station to distribute RTK correction data to mobile participants (rovers) in the field. iREF-GNSS-PRO comes in a highly ruggedized water-tight enclosure, is smart battery powered (hot swappable), integrates UHF or VHF radio modem, WLAN, LTE / GPRS, UART, and Ethernet interfaces. Via the Ethernet interface also an integrated NTRIP Caster provides RTK correction streams via network, e.g. via the iDMN Dynamic Mesh Communication Network (PoE interface integrated to provide power to an external iDMN node).

- RTK GNSS reference station, up to 20 Hz data rate
- multi-constellation / multi-frequencies GNSS: GPS, GLONASS, Galileo, BeiDou, QZSS; moving base station support for specific heading and alignment support applications
- iREF-GNSS-PRO comes with an all-frequency GNSS antenna and a sturdy aluminium tripod
- Correction data formats: RTCMV3, RTCMV2, CMRV2
- Integrated NTRIP caster and radio modem for UHF (1 W) or VHF (1 W or 5 W)
- Integrated LTE GSM modem to receive RTK correction data to support position surveying
- POE Interface for iDMN Dynamic Mesh Network (Power & Data)
- Integrated WLAN for wireless configuration capability
- External Power Supply: via 11...35 VDC or 85...264 VAC 50/60Hz
- Internal smart batteries support operation for typically 15 hrs
- plug&play with iMAR's INS solutions

The iREF-GNSS-PRO is equipped with sturdy connectors and is designed for autonomous operation.

Two high density batteries allow long time operation even including a high transmission powered radio modem.

In operational mode the GNSS antenna is mounted on a rugged aluminum tripod which is also included in the delivery. Options for data transmission are 430 MHz or 160 MHz band or iMAR's [iDMN](#) Dynamic Mesh Communication Network.

Following initial surveying procedures of the position of the iREF-GNSS-PRO after installation are supported:

- by using the local coordinates from a map
- by averaging of measured data over a certain period of time,
- via the integrated LTE / GSM modem, using data of a local RTK correction data provider (for a few minutes of setup only).



The well known MS Windows and Linux based [iXCOM-CMD](#) configuration and visualization software is available also to configure the iREF-GNSS-PRO.

In need of less features, please ask our sales engineers for our [iREF-M300](#).

Technical Data of iREF-GNSS-PRO:

RTK performance:	± 2 cm + 1 ppm CEP (L1L2 RTK); GPS, GLONASS, GALILEO, BeiDou, QZSS
Data rate:	up to 20 Hz (typically 1 Hz data transmission is sufficient for most rover applications)
Time to first fix:	typ. < 60 s
Interfaces:	UART RS232 / RS422, Ethernet, WLAN, LTE GSM modem, Power over Ethernet (PoE)
Correction data input:	NTRIPV2 (via integrated NTRIP Client), SBAS or similar [for initial position setup, if desired and no averaging is used and no surveyed point from a local map is available]
GNSS antenna:	NovAtel VEXXIS® (standard, included) or ChokeRing antenna (option)
Radio Modem:	up to 19.2 kbps; UHF 430 MHz (default) or VHF 160 MHz (option); output power 0.5 W (option: 5 W VHF)
Mesh Network (option):	support of iDMN (Dynamic Mesh Communication Network) to distribute RTK correction data via NTRIP (NTRIP Caster).
Autonomous Operation:	typically 15 hrs (if battery is fully charged; depends on power consumption of active radio modem, iDMN etc.)
Environment Protection:	IP65
Power:	2 integrated rechargeable batteries / 10...28 V DC Input (~15 W) / 80...235 V AC
Additional parts:	Aluminum tripod for GNSS antenna; antenna mast and cables for radio modem and GNSS antenna;
Versions available:	iREF-GNSS-PRO-NTRIP, iREF-GNSS-PRO-UHF, iREF-GNSS-PRO-VHF

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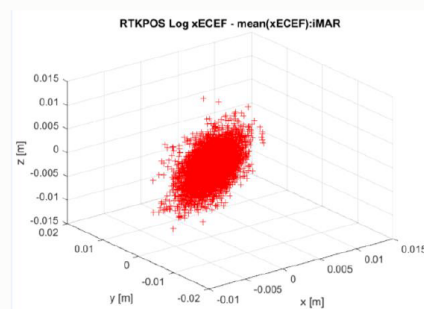
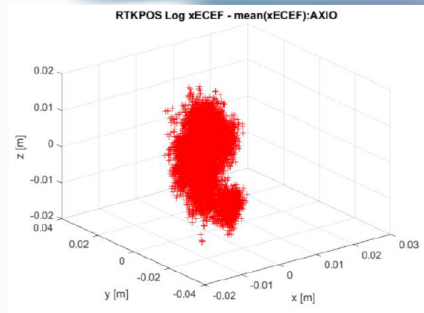
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RTK Correction Data Impact iREF vs. AxioNet

GNSS data with AxioNet RTK corrections (upper plot) and with iMAR's iREF RTK corrections

→ iREF: Lower random drift, higher accuracy



Navigation

Guidance

Control

Surveying

Localization

Stabilization

Tracking

Transfer Alignment

Protection

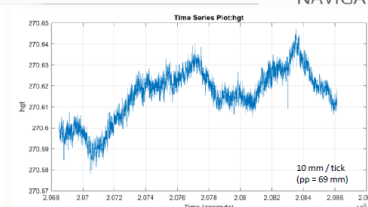
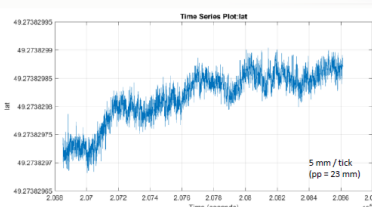
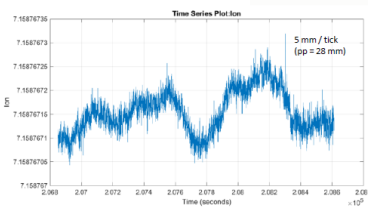
Data Fusion

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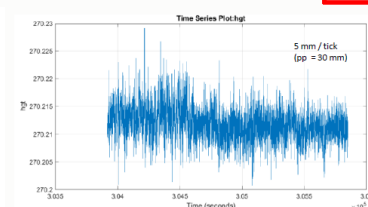
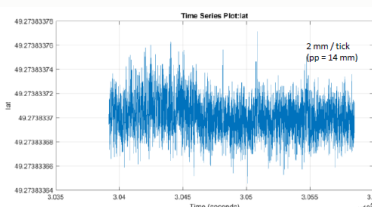
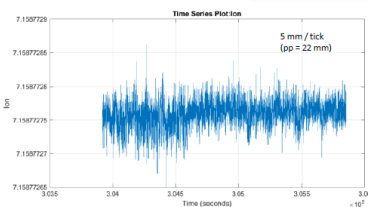
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RTK Correction Data iREF vs. AxioNet



RTK corrected data using AxioNet (virtual base station – 78 mm peak-peak)



RTK corrected data using iMAR's iREF (real base station – 39 mm peak-peak)

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