

# iREF-GNSS-PRO

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

The iREF-GNSS-PRO is a RTK 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 and provides an autonomous power provision, integrated UHF or VHF radio modem, WLAN, LTE / GPRS, UART and Ethernet interface. Via the Ethernet interface also a transmission of RTK corrections via the iDMN Dynamic Mesh Communication Network is supported (PoE interface integrated to supply the external iDMN).

- RTK GNSS reference station, up to 20 Hz data rate
- GNSS Options: GPS, GLONASS, Galileo, BeiDou, TerraStar; moving base station support for specific heading and alignment support applications
- iREF-GNSS-PRO comes with an all-frequency GNSS antenna and a heavy aluminum tripod
- Output data format: RTCA, RTCMV3, RTCM, CMR
- Integrated NTRIP interface or / 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 initial position surveying of iREF
- Ethernet I/F for iDMN Dynamic Mesh Com. Network
- Integrated WLAN for wireless configuration capability
- Power Supply: via 10...28 V DC or 80...235 V AC or via internal battery. Operation for typically 15 hrs via 2 integrated batteries. Integrated charger for batteries. Integrated PoE to supply optional iDMN
- 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 a long time operation including 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 to configure also the iREF-GNSS-PRO.

In need of less features, please ask our sales engineers for our products [iREF-GNSS-BASIC](#) and [iREF-M200](#).

### Technical Data of iREF-GNSS-PRO:

RTK performance:	± 1 cm + 1 ppm CEP (L1L2 RTK); GPS + GLONASS + optionally GALILEO, BeiDou
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:	NovAtel CORRECT / TerraStar or e.g. AXIO-NET (via integrated NTRIP Client) 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 PinWheel (standard, included) or ChokeRing antenna (option)
Radio Modem:	up to 19.2 k Bd; UHF 430 MHz (default) or VHF 160 MHz (option); output power 0.5 W (option: 5 W VHF)
Mesh Network (option):	support of <a href="#">iDMN</a> (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 for radio modem antenna; cables for GNSS antenna and radio modem antenna
Versions available:	iREF-GNSS-PRO-NTRIP, iREF-GNSS-PRO-UHF, iREF-GNSS-PRO-VHF, iREF-GNSS-PRO-VHF-5

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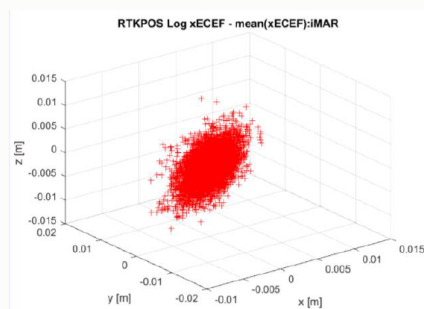
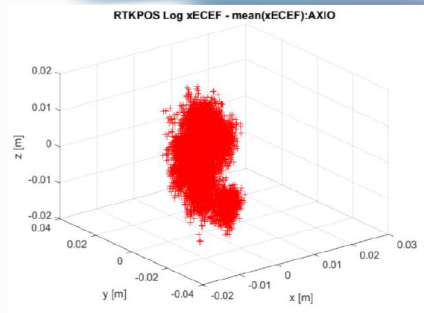
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## RTK Correction Data Impact iREF vs. AxioNet

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

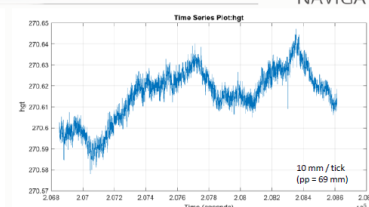
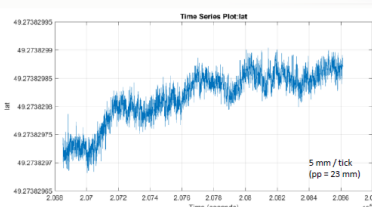
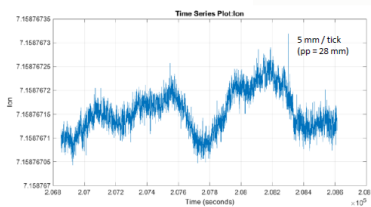
Data Fusion

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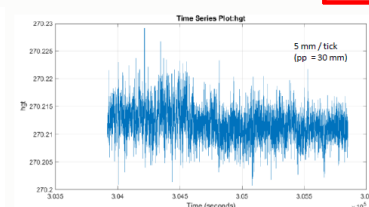
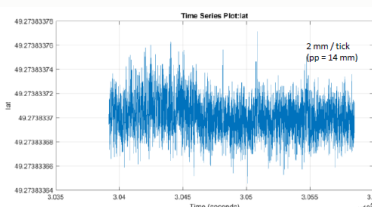
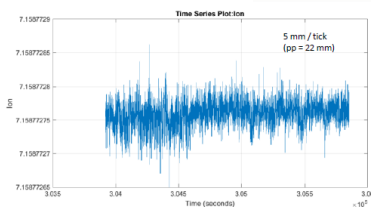
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## RTK Correction Data iREF vs. AxioNet



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)

Navigation

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