iREF-GNSS-BASIC

Basic Multi-Constellation RTK GNSS Reference Station
with UHF/VHF or / and iDMN Data Transmission

The iREF-GNSS-BASIC is a RTK GNSS reference station to distribute RTK correction data to mobile participants (rovers) in the field. iREF-GNSS-BASIC comes in a highly ruggedized water-tight enclosure and provides an autonomous power provision, UHF or VHF radio modem as well as 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 as option).

- 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-BASIC 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)
- Ethernet I/F for iDMN Dynamic Mesh Communication Network for RTK transmission via NTRIP
- 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.
- plug&play with iMAR's INS solutions

The iREF-GNSS-BASIC 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-BASIC after installation are supported:

- by using the local coordinates from a map
- by averaging of measured data over a certain period of time,
- via an external iNetGo+ 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-BASIC.

If an additional integrated WLAN interface and an integrated LTE / GPRS modem are desired, please ask or sales engineers for our product iREF-GNSS-PRO.

Technical Data of iREF-GNSS-BASIC:

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; option: Power over Ethernet (PoE) to supply optional iDMN
Correction data input:	NovAtel CORRECT or AXIO-NET (via integrated NTRIP Client) or similar [for initial position setup, if desired and no averaging is used and no surveyed point is available]
GNSS antenna:	NovAtel PinWheel (standard, included) or ChokeRing antenna (option)
Radio Modem:	up to 19.2 kBd; 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. This provides additionally a standard WLAN access of user's Notebook to iREF-GNSS-BASIC
Autonomous Operation:	typically 15 hrs (if battery is fully charged; depends on power consumption of active radio modem etc.)
Environment Protection:	IP65
Power:	2 integrated rechargeable batteries / 10...28 V DC Input (~15 W) / 80…235 V AC
Additional parts (options):	Aluminum tripod for GNSS antenna; antenna mast for radio modem antenna; cables for GNSS antenna and radio modem antenna; external LTE GSM radio modem
Versions available:	iREF-GNSS-BASIC-NTRIP, iREF-GNSS-BASIC-UHF, iREF-GNSS-BASIC-VHF, iREF-GNSS-BASIC-VHF-5

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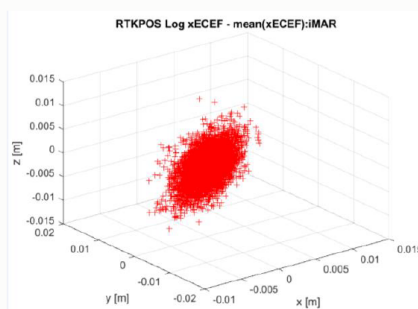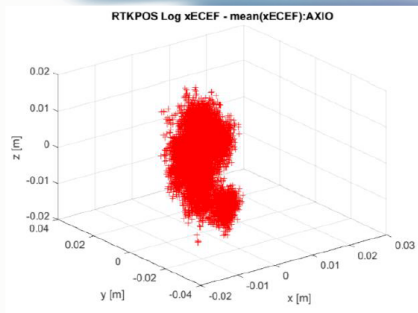Phone: +49-(0)-6894-9657-0 • Fax: +49-(0)-6894-9657-22
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RTK Correction Data Impact
iREF vs. AxioNet

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

→ iREF: Lower random drift,
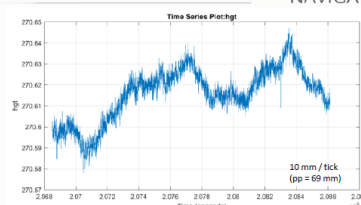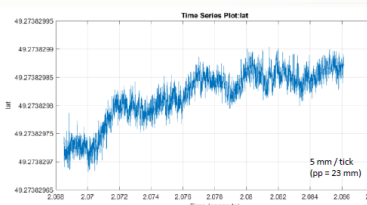higher accuracy

Navigation
Guidance
Control
Surveying
Localization
Stabilization
Tracking
Transfer
Alignment
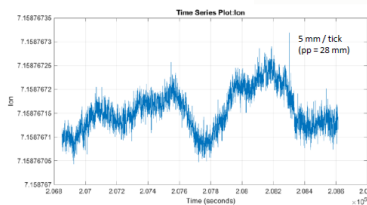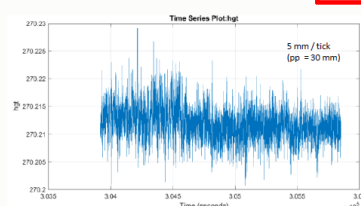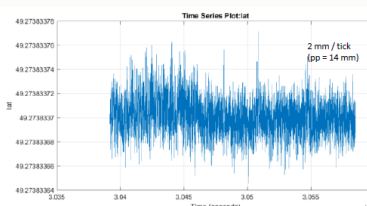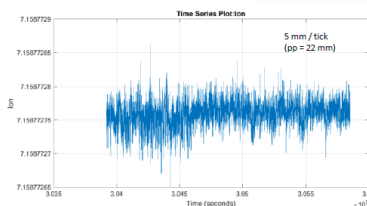Protection
Data Fusion

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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
Guidance
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Stabilization
Tracking
Transfer
Alignment
Protection
Data Fusion

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