iREF-M300

Multi-Constellation RTK GNSS Base Station
with RTCA, RTCM and NTRIP Communication Interface

The **iREF-M300** is a RTK GNSS reference station to distribute RTK correction data to mobile participants in the field. **iREF-M300** comes inside a highly ruggedized water-tight IP67 metal enclosure with military main connector. Via the Ethernet interface the RTK corrections can be transmitted via NTRIP or via the iDMN Dynamic Mesh Communication Network or any other IP based network. **iREF-M300** is used in permanent as well as in mobile installations.

- RTK GNSS base station, up to 20 Hz data rate
- All-frequencies / all-constellations GNSS capability: GPS, GLONASS, Galileo, BeiDou etc.
- iREF-M300 comes as an option with an all-frequency antenna and a heavy aluminum tripod
- Output data format: RTCA, RTCMV3, RTCM, CMR, NTRIP (other on request)
- Ethernet I/F for RTK correction transmission via NTRIP Caster; UART I/F for transmission via ext. radio modem (UHF, VHF)
- Power Supply: via 10…34 V DC, overvoltage protected according to MIL standards
- Water-tight, light-weight (0.8 kg), small size, EMI / EMC protection, ruggedized aluminum enclosure
- Plug&Play with iMAR's INS solutions
- Configuration / monitoring with iXCOM-CMD software

The **iREF-M300** is equipped with sturdy connectors and is designed for autonomous operation. In operational mode, the GNSS antenna is mounted on a rugged aluminum tripod.

Following initial surveying procedures of the antenna position of the **iREF-M300** 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 (needs only a few minutes of setup).

Beside of the data transmission via Ethernet, also data transmission via an external radio modem is supported via UART RS422 or RS232 on demand.

The well known MS Windows and Linux based iXCOM-CMD configuration and visualization software is available to configure also the **iREF-M300** GNSS RTK base station.

If a stand-alone operating RTK GNSS base station is required (i.e. with integrated rechargeable batteries) or if a solution with already integrated radio modem is desired, the usage of our iREF-GNSS-PRO or iREF-GNSS-BASIC or iRRR will be your solution.

Technical Data of iREF-M300:

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RTK performance:	± 1 cm + 1 ppm CEP; all-frequency / all constellation (GPS, GALILEO, GLONASS, BeiDou, etc
Data rate:	up to 20 Hz (typically 1 Hz data transmission is sufficient for most rover applications)
Time to first fix:	typ. < 120 s
Interfaces:	UART RS232 / RS422, Ethernet; PPS output (RS422 level)
Time Server:	iREF-M300 can be operated as NTP Time Server
First installation:	for initial position setup, averaging capability is provided as well as surveyed point coordinate input or external RTK input supported
GNSS antenna:	e.g. NovAtel VEXXIS GNSS-8xx
Environment Protection:	IP66
Power Supply:	Two separate inputs for 9...34 V DC (< 10 W). The iREF-M300 takes the power from the source with the higher voltage (e.g. from one battery and one line based supply).
Part Number:	iREF-M300/T: 00193-00900-0518
Accessoires:	- Aluminum tripod for GNSS antenna (option)
	- Antenna mast for radio modem antenna (option)
	- GNSS Antenna and cable for GNSS antenna (option)
	- operator software (GUI): iXCOM-CMD

Example Data

RTK Correction Data Impact
iREF vs. AxioNet

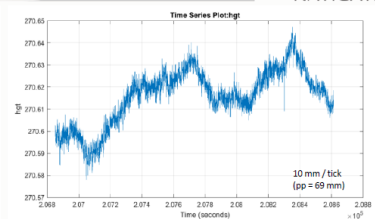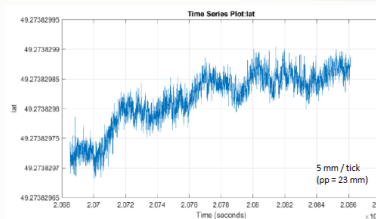GNSS data with AxioNet RTK corrections (upper plot) and with iMAR's iREF RTK corrections
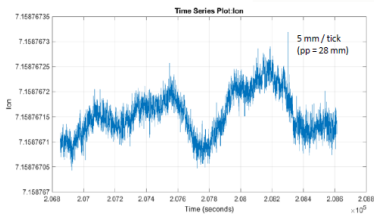
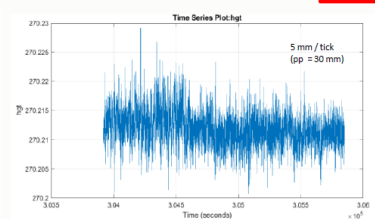→ iREF: Lower random drift, higher accuracy
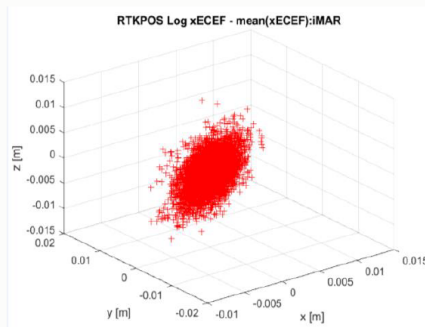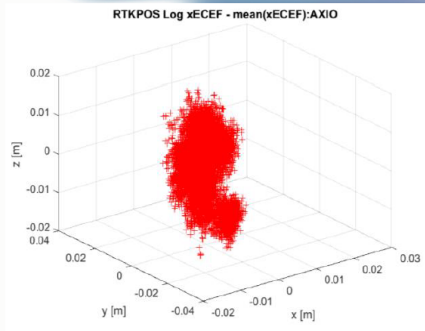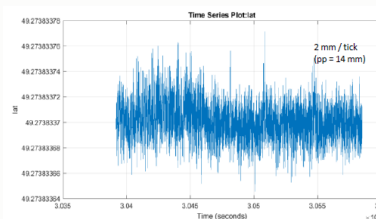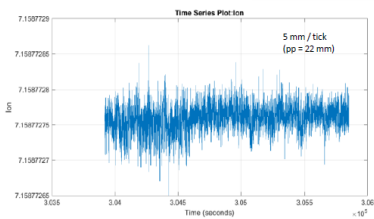
Navigation
Guidance
Control
Surveying
Localization
Stabilization
Tracking
Transfer Alignment
Protection
Data Fusion

www.imar-navigation.de

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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