

# iREF-M200

## Multi-Constellation RTK GNSS Reference Station with NTRIP Communication Interface to iDMN Data Transmission

The iREF-M200 is a RTK GNSS reference station to distribute RTK correction data to mobile participants in the field. iREF-M200 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 the iDMN Dynamic Mesh Communication Network or any other IP based network.

- RTK GNSS reference station, up to 20 Hz data rate
- GNSS Options: GPS, GLONASS, Galileo, BeiDou, TerraStar etc.; moving base station support for specific heading support applications
- iREF-M200 comes with an all-frequency antenna and a heavy aluminum tripod
- Output data format: RTCA, RTCMV3, RTCM, CMR (other on request)
- Ethernet I/F for [iDMN](#) Dynamic Mesh Communication Network (option) for RTK transmission via NTRIP Caster); UART I/F for ext. radio modem
- Power Supply: via 10...34 V DC, overvoltage protected according to MIL standards
- water-tight, light-weight (0.8 kg), small size, EMI protected, ruggedized aluminum enclosure
- plug&play with iMAR's INS solutions

The iREF-M200 is equipped with sturdy connectors and is designed for autonomous operation.

In operational mode the GNSS antenna is mounted on a rugged aluminum tripod which is also included in the delivery. Data transmission is via iMAR's [iDMN](#) or any other NTRIP capable network (Ethernet). Following initial surveying procedures of the position of the iREF-M200 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 [NetGo+](#) LTE / GSM modem, using data of a local RTK correction data provider (for a few minutes of setup only).

Beside of the data transmission via Ethernet, also an external radio modem can be 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-M200 GNSS RTK reference station.

If a stand-alone operating RTK GNSS reference 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](#) is your solution.

### Technical Data of iREF-M200:

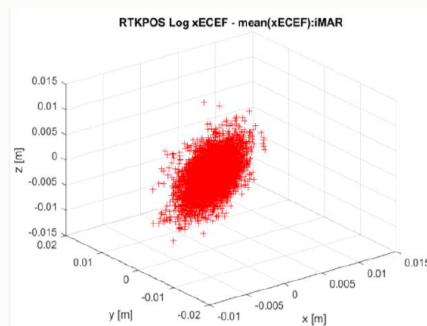
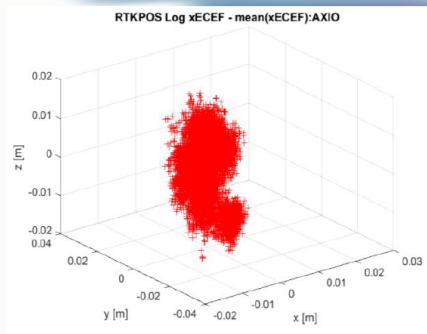
RTK performance:	± 1 cm + 1 ppm CEP (L1L2 RTK rover)
Data rate:	GPS + GLONASS + optionally GALILEO, BeiDou etc up to 20 Hz (typically 1 Hz data transmission is sufficient for most rover applications)
Time to first fix:	typ. < 60 s
Interfaces:	UART RS232 / RS422, Ethernet; PPS output (RS422 level)
Correction 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) or ChokeRing antenna (option)
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-M200
Environment Protection:	IP66
Power:	Two separate inputs for 9...34 V DC (< 10 W) The iREF-M200 takes the power from the source with the higher voltage.
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): <a href="#">iXCOM-CMD</a>



## 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

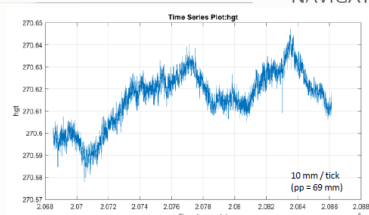
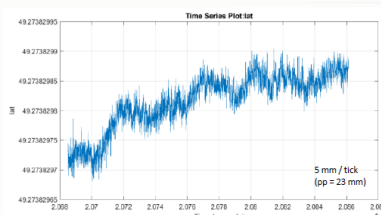
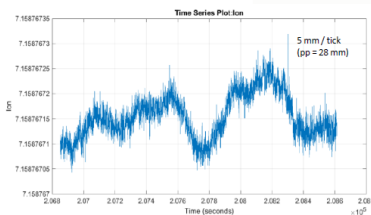
Protection

Data Fusion

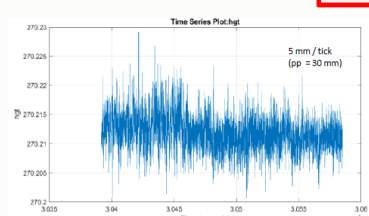
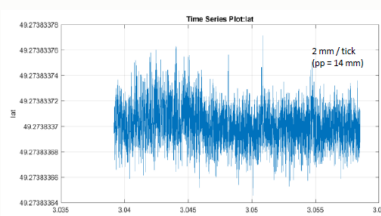
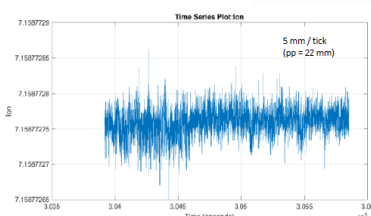
[www.imar-navigation.de](http://www.imar-navigation.de)

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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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