
# FGS 1
## geo-FENNEL GNSS-System

**The geo-FENNEL GNSS Receiver FGS 1 is produced especially for working in challenging terrain.**

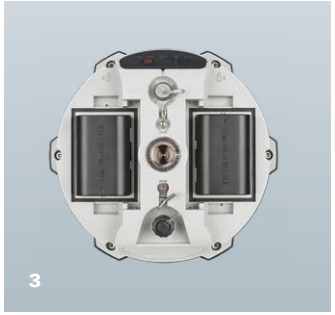
It covers all available GNSS-Sources, such as GPS, GLONASS, GALILEO and BEIDOU or can be limited to specific sources by the user. The integrated anti-jamming capability makes it possible to work under difficult conditions.

The receiver is standardly equipped with Bluetooth, an integrated radio modem (Rx, Tx) and a 4G modem.

The system can be connected with other receivers easily and is supported by application software like Carlson SurvCE or MicroSurvey FieldGenius.

The intelligent design makes the FGS 1 a compact and lightweight device.






1. Small and compact
2. Clear keypad
3. Hot-swap battery design

| TECHNICAL DATA | FGS 1 |
|---|---|
| ART. NO. | 751000 |
| **Signal tracking** | |
| 256 channels with simultaneously tracked satellite signals | |
| GPS | L1, L2, L2C, L5 |
| GLONASS | L1/L2 |
| BEIDOU | E1, E5a, E5b |
| GALILEO | Yes, but not activated |
| SBAS | WAAS, EGNOS, MSAS, GAGAN |
| | |
| **Performance specifications** | |
| Cold start | < 50 s |
| Warm start | < 30 s |
| Initialisation time typically | < 10 s |
| Initialisation reliability typically | > 99.9 % |
| Signal reacquisition | < 1.5 s |
| | |
| **Positioning specifications** | |
| Post processing static | |
| Horizontal | 2.5 mm + 0.5 ppm RMS |
| Vertical | 5.0 mm + 0.5 ppm RMS |
| Real time kinematic | |
| Horizontal | 8 mm + 1 ppm RMS |
| Vertical | 15 mm + 1 ppm RMS |
| E-RTK (< 100 km) | |
| Horizontal | 0.20 m + 1 ppm RMS |
| Vertical | 0.40 m + 1 ppm RMS |
| Code differential GNSS positioning | |
| Horizontal | 0.25 m + 1 ppm RMS |
| Vertical | 0.50 m + 1 ppm RMS |
| SBAS typically | < 1 m 3D RMS |
| Stand-alone | < 1.5 m RMS |
| | |
| **Communication** | |
| 1 serial port (7-pin LEMO), baud rates up to 921,600 bps | |
| Radio modem (optional) | Tx/Rx with full frequency range from 410 to 4702 MHz |
| Transmit power | 0.5 – 2 W adjustable |
| Integrated GSM | 4G modem |
| Positioning update rate | 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz |
| 5 LED indicating lights | Power, satellite tracking, differential data |
| | and data recording |
| Bluetooth®; V 4.0 protocol, work compatible with Windows 7®, Windows mobile® and Android® | |
| | |
| **Data format** | |
| Data inputs/outputs | |
| Correction data I/O | RTCM 2.x, 3.x, CMR & CMR+ (GPS only) |
| Position data outputs | |
| ASCII | NMEA-0183 GSV, RMC, HDT, VHD, GGA, |
| | GSA, ZDA, VTG, GST, PJK, PTNL, AVR, GGK |
| geo-FENNEL Binary update to 20 Hz | |

| TECHNICAL DATA | FGS 1 |
|---|---|
| **Physical** | |
| Size (W x H) | 15.8 x 7.5 cm |
| Weight | 0.95 kg (including battery) |
| | |
| **Environmental** | |
| Operating temperature | -40 °C – +65 °C (40 °F – 149 °F) |
| Storage temperature | -40 °C – +85 °C (40 °F – 185 °F) |
| Humidity resistance | 100 % condensation |
| Dust and water protection | IP67 (withstands 1 m submersion) |
| Shock and vibration proofing | Yes (survives a 2 m pole drop) |
| | |
| **Electrical** | |
| Input voltage | 5 – 27 VDC |
| Power consumption | 3.1 W (3 constellations) |
| Power supply | Li-Ion 2 x 2,000 mAh |
| Operating time | 9 hours |
| Memory | 8 GB (up to 32 GB) |

**FEATURES**

- High-speed processing
- Support for both post-processing and kinematic
- Processing ability separate or to be combined with GPS, GLONASS, GALILEO and BEIDOU
- Support for downloads & use of precise ephemeris
- Generation of various reports
- User friendly


# Field Controller DC 6

## Light and Compact Data Collector

**The data collector DC 6 is a well-equipped and powerful field controller with a large internal memory.**

The robust and feature-rich device is a simple and powerful solution for the daily challenges in the field.

| TECHNICAL DATA | DC 6 | DC 6 | |
|---|---|---|---|
| ART. NO. | 750060 | | |
| **Hardware** | | **GPS Specifications** | |
| Operating system | Windows Mobile 6.5 | Channels | 72 |
| Processor | TI Sitara TM AM335x 1 GHz | Tracked satellites | GPS/QZSS: L1 C/A |
| ROM | 8 GB | | SBAS: L1 C/A |
| SD expansion | 32 GB | | WAAS, EGNOS, MSAS |
| | | | GLONASS: L10F |
| **Interface and Input** | | | Galileo: E1 B/C |
| Integrated speakers | Yes | | BEIDOU: B1 |
| Microphone | Yes | Accuracy | Velocity accuracy: 0.05 m/s |
| Telephone handset | Yes | | Position accuracy: 2.5 m |
| Support for recording and playback | Yes | | Post-processed: 1.2 m |
| Soft key | Digital soft keyboard, character input, | Max navigation update rate | 4 Hz |
| | supports handwriting and spelling input | Cold start | 29 s |
| External power supply | Yes | | |
| SD card slot | Yes, up to 32 GB | **Supported Protocols** | |
| USB port, serial port | Yes | Protocols | RTCM 2.3, NMEA 0183, UBX binary, |
| | | u-blox proprietary | |
| **Display** | | | |
| Model | Blanview TFT, LED backlit | **Data Communication** | |
| Resolution | 480 x 640 VGA | Communication module | Built-in universal quad-band commu- |
| Size | 3.7" | | nication module (WCDMA) |
| | | Multimedia | Multimedia message |
| **Data Communication** | | Voice calls | Yes |
| Bluetooth device | 2.1+DER | SIM card | Yes |
| Wi-Fi | 802.11 b/g wireless LAN | | |
| | | **Physical Specifications** | |
| **Power Supply** | | Size | 193 x 91 x 42 mm |
| Battery capacity | 7.2 V, removable li-ion 24.4 Wh | Weight | 925 g with battery |
| Working hours | Up to 10 hours | Relative humidity | 5% ~ 95% non-condensing |
| | | Operating temperature | -30 °C – +60 °C |
| **Camera** | | Storage temperature | -30 °C – +70 °C |
| Static mode | AutoFocus 5 MP | Waterproof/dustproof | IP67 |
| Image format | JPG (2048 x 1536) | Drop | Withstands 1.5 m free drop onto hard |
| Video mode | Up to VGA resolution | | surface |

**SUPPLIED WITH**

- Adapter
- USB cable
- Battery
- Charger
- Hand strip
- Stylus
- CD and manual
- Screen protector

**FEATURES**

- Small, handy and powerful controller
- Dust and water protection up to IP67
- Integrated GNSS receiver, incl. GALILEO
- Supports software applications like Carlson SurvCE and MicroSurvey FieldGenius

# Juniper Mesa²
## A Powerful Tablet

» **Mesa² – combines the advantages of a tablet PC and a robust data collector.**

» In a slim case with the highest protection against water and dust IP68, the Mesa² tablet is the ideal companion even in the toughest environments. With the Windows 10 interface, it brings a powerful functionality for mobile data collection.

With its 7" large and extra-clear display for images, maps and application programmes and its powerful battery of up to 20 hours, the Mesa² is up to all requirements in the field.

| TECHNICAL DATA | JUNIPER MESA² | TECHNICAL DATA | JUNIPER MESA² |
|---|---|---|---|
| ART. NO. | 750080 | | |
| Operating System | Microsoft® Windows 10 Pro | Wireless connectivity | Bluetooth® wireless technology 4.0, |
| Processor | Quad-core Intel® Atom™ Z3745 | | extra-long range |
| Memory | 4 GB RAM (LPDDR3) | | Wi-Fi 802.11 a/b/g/n 2.4 GHz and 5 GHz |
| Primary data storage | 64 or 128 GB flash storage | | Micro-SIMSlot 4G LTE, GSM, Verizon |
| Micro SD/SDXC card slot | SD/SDXC slot, user accessible | | |
| | | Environmental ratings and standards | IP68 rating (1.4 meters for 2 hours), |
| **Physical features** | | | waterproof and dustproof |
| Dimensions, standard | 137 mm x 215 mm x 35 mm | | |
| Weight | 0,68 - 0,9 kg | | |
| | | **SUPPLIED WITH** | |
| **Display** | | | |
| Active viewing area | 7" (178 mm) | · Removable li-ion battery | |
| Resolution | WXGA 800 x 1280 pixel resolution | · AC wall charger with international plug kit | |
| Touchscreen | Capacitive multi-touch interface for use with gloves or fine-tip stylus, and in wet conditions | · Input: 100–240 VAC, 50/60 Hz, 0.5 A | |
| | | · Output: 12 VDC, 1.67 A | |
| | | · Capacitive fine-tip stylus with tether | |
| | Chemically strengthened Dragontrail™ high ion exchange (HIE™) cover glass for impact and scratch resistance | | |
| Keyboard | Programmable keys | | |
| | Backlit keys | | |
| Batteries | Rechargeable li-ion battery pack, 3.65 VDC 10,600 mAh, 38.7 Whr | | |
| | Run time of up to 20 hours | | |
| | User-replaceable | | |
| Connector ports | USB 3.0 host (full-size A connector) | | |

# FGS 1
## Set

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 1 COMPLETE SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 751060** |
| **incl. FieldGenius:** | **ART. NO. 751050** |

- 2 x GNSS antenna FGS 1
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller DC 6
- 2 x USB cable for FGS 1
- 2 x RS-232 cable for FGS 1
- 1 x measuring tape 3 m
- 1 x tribrach AJ 10 black
- 1 x tribrach adaptor AL 11-D black with optical plummet
- 1 x container
- 1 x user manual

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 1 COMPLETE SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 751095** |
| **incl. FieldGenius:** | **ART. NO. 751090** |

- 2 x GNSS antenna FGS 1
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller Mesa²
- 2 x USB cable for FGS 1
- 2 x RS-232 cable for FGS 1
- 1 x measuring tape 3 m
- 1 x tribrach AJ 10 black
- 1 x tribrach adaptor AL 11-D black with optical plummet
- 1 x container
- 1 x user manual

# FGS 1
## Set

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 1 NETWORK SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 750160** |
| **incl. FieldGenius:** | **ART. NO. 750100** |

- 1 x GNSS antenna FGS 1
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller DC 6
- 1 x USB cable for FGS 1
- 1 x RS-232 cable for FGS 1
- 1 x measuring tape 3 m
- 1 x container
- 1 x user manual

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 1 NETWORK SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 750195** |
| **incl. FieldGenius:** | **ART. NO. 750090** |

- 1 x GNSS antenna FGS 1
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller Mesa²
- 1 x USB cable for FGS 1
- 1 x RS-232 cable for FGS 1
- 1 x measuring tape 3 m
- 1 x container
- 1 x user manual


# FGS 100
## geo-FENNEL GNSS-System

» **The new geo-FENNEL GNS receiver FGS 100 is, due to its unique-in-its-class compact design, a reliable partner in the field, given its suitability for working under rough conditions and in difficult terrain.**

» It is equipped with an internal TILT-sensor and compensates slopes of the antenna pole up to 30°. This function makes the survey job much easier than before.

Equipped with a powerful UHF modem (Rx & Tx), Wi-Fi and a 4G modem, it offers a variety of connectivity options.

The receiver with its 572 channels supports all available GNSS sources, such as GPS, GLONASS, GALILEO and BEIDOU without the need for further activation.

The system is open to third-party software and supports the Carlson SurvCE and MicroSurvey® FieldGenius software solutions.

| TECHNICAL DATA | FGS 100 |
|---|---|
| ART. NO. | 760010 |
| **Signal Tracking** | |
| Channels, which are simultaneously tracked | 572 |
| GPS | L1, L2, L2C, L5 |
| GLONASS | L1, L2 |
| GALILEO | E1, E5a, E5b |
| BEIDOU | B1, B2, B3 |
| QZSS | Yes (reserved) |
| SBAS | WAAS, EGNOS, MSAS, GAGAN |
| | |
| **Performance Specifications** | |
| Cold start | < 50 s |
| Warm start | < 30 s |
| Hot start | < 15 s |
| Initialisation time | < 10 s |
| Signal reacquisition | < 2 s |
| Initialisation reliability | > 99.9 % |
| Tilt sensor | Up to 30° |
| | |
| **Positioning Specifications** | |
| Static | |
| Horizontal | 2.5 mm + 0.5 ppm RMS |
| Vertical | 5.0 mm + 0.5 ppm RMS |
| Real-time kinematic(RTK) | |
| Horizontal | 8.0 mm + 1 ppm RMS |
| Vertical | 15.0 mm + 1 ppm RMS |
| E-RTK (< 100 km) | |
| Horizontal | 0.20 m + 1 ppm RMS |
| Vertical | 0.40 m + 1 ppm RMS |
| DGPS | < 0.4 m RMS |
| SBAS | 1 m 3D RMS |
| Stand-alone | 1.5 m 3D RMS |
| | |
| **Data Communication** | |
| 1 serial port (7-pin LEMO) baud rates up to 921,600 bps | |
| UHF modem | Tx/Rx with a frequency range from 410–470 MHz |
| Transmitting power | 0.5 – 2 W |
| Range | 1 – 5 km |
| Wi-Fi/4G modem | |
| 4G bands | 800 / 900 / 1,800 / 2,100 / 2,600 MHz |
| 3G bands | 900 / 2,100 MHz |
| 2G bands | 900 / 1,800 MHz |
| Support GSM, point to point/points and NTRIP | |
| Position data output rates | 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz |
| 5 LEDs | Indicating power, satellite tracking, GPRS status and differential data |
| Bluetooth® | V 4.0 protocol, compatible with Windows OS and Android OS |

| TECHNICAL DATA | FGS 100 |
|---|---|
| **Data Format** | |
| Correction data I/O | RTCM 2.X, 3.X, CMR, CMR+ (GPS only) |
| Position data output | |
| ASCII | NMEA-0183 GSV, RMC, HDT, VHD, GGA, GSA, ZDA, VTG, GST; PTNL, PJK; PTNL, AVR; PTNL, GGK |
| geo-FENNEL Binary update to 20 Hz | |
| | |
| **Physical** | |
| Size | Ø 15.8 cm × 7.5 cm |
| Weight | 0.95 kg with two batteries |
| | |
| **Environmental** | |
| Operating temperature | -40 °C to + 65 °C |
| Storage temperature | -40 °C to + 85 °C |
| Humidity | 100% condensation |
| Waterproof and dustproof | IP67 |
| Shockproof | Designed to survive a 2 m drop onto concrete |
| | |
| **Electrical and Memory** | |
| Input voltage | 5–27 VDC |
| Power consumption | 3.1 W |
| Power supply | 2 × 2,000 mAh, up to 9 hours typically |
| Internal memory | 8 GB |

**FEATURES**

- Working distance of internal UHF varies in different environments; the maximum distance is 5 km in ideal situations
- Works with all kinds of CORS-systems worldwide
- Integrated TILT-sensor with an accuracy up to 3 cm
- Small and handy design
- Supports MicroSurvey FieldGenius and Carlson SurvCE

**SUPPLIED WITH**

Depends on the constellation of additional field controller and usage as base/rover or network system.

# FGS 100
## Set

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 100 COMPLETE SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 761060** |
| **incl. FieldGenius:** | **ART. NO. 761050** |

- 2 x GNSS antenna FGS 100
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller DC 6
- 2 x USB cable for FGS 100
- 2 x RS-232 cable for FGS 100
- 1 x measuring tape 3 m
- 1 x tribrach AJ 10 black
- 1 x tribrach adaptor AL 11-D black with optical plummet
- 1 x Container
- 1 x user manual

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 100 COMPLETE SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 761095** |
| **incl. FieldGenius:** | **ART. NO. 761090** |

- 2 x GNSS antenna FGS 100
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller Mesa²
- 2 x USB cable for FGS 100
- 2 x RS-232 cable for FGS 100
- 1 x measuring tape 3 m
- 1 x tribrach AJ 10 black
- 1 x tribrach adaptor AL 11-D black with optical plummet
- 1 x container
- 1 x user manual

# FGS 100
## Set

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 100 NETWORK SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 760160** |
| **incl. FieldGenius:** | **ART. NO. 760150** |

- 1 x GNSS antenna FGS 100
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller DC 6
- 1 x USB cable for FGS 100
- 1 x RS-232 cable for FGS 100
- 1 x measuring tape 3 m
- 1 x container
- 1 x user manual

**SUPPLIED WITH**
**GNSS-SYSTEM FGS 100 NETWORK SET**

| | |
|---|---|
| **incl. SurvCE:** | **ART. NO. 760195** |
| **incl. FieldGenius:** | **ART. NO. 760190** |

- 1 x GNSS antenna FGS 100
- 1 x MircroSurvey Fieldgenius-Software or Carlson SurvCE-Software
- 1 x field controller Mesa²
- 1 x USB cable for FGS 100
- 1 x RS-232 cable for FGS 100
- 1 x measuring tape 3 m
- 1 x container
- 1 x user manual

# CORS FRS 300 Pro
## Reference Station

**The geo-FENNEL Reference Station FRS 300 Pro is an easy-to-use system for creating your own reference network. Use in conjunction with other reference stations in a CORS network and stand-alone use are both possible.**

With the geo-FENNEL Reference Station FRS 300 Pro, all available GNSS systems, such as GPS, GLONASS, GALILEO and BEIDOU can be used without effort. The integrated lithium-ion battery prevents data loss and continues to operate reliably until power is restored.

The built-in web server makes it easy to modify receiver, status and firmware settings. User management can be created and monitored easily with the supplied software. The geo-FENNEL Reference Station FRS 300 Pro is the ideal partner for agriculture, deformation monitoring and surveying.


| TECHNICAL DATA | CORS FRS 300 PRO |
|---|---|
| ART. NO. | 752000 |
| **Signal Tracking** | |
| Channels, which are simultaneously tracked: 496 | |
| | |
| GPS | L1 C/A, L1P, L2C, L2P, L5 |
| GLONASS | L1 C/A, L1P, L2 C/A, L2P |
| GALILEO | E1, E5a, E5b |
| BEIDOU | B1, B2, B3 |
| QZSS | Yes (reserved) |
| SBAS | WAAS, EGNOS, MSAS, GAGAN |
| Time precision | GPS+GLONASS+BEIDOU 20 ns |
| | |
| **Positioning Specifications** | |
| Static | |
| Horizontal | 3.0 mm + 0.1 ppm RMS |
| Vertical | 3.5 mm + 0.4 ppm RMS |
| Single-baseline RTK | |
| Horizontal | 8.0 mm + 1 ppm RMS |
| Vertical | 15.0 mm + 1 ppm RMS |
| Network RTK | |
| Horizontal | 8,0 mm + 0.5 ppm RMS |
| Vertical | 15.0 mm + 0.5 ppm RMS |
| E-RTK (< 100 km) | |
| Horizontal | 0.20 m + 1 ppm RMS |
| Vertical | 0.40 m + 1 ppm RMS |
| DGPS | < 0.4 m RMS |
| SBAS | 1 m 3D RMS |
| Stand-alone | 1.5 m 3D RMS |
| | |
| **Data Communication** | |
| 3 LEMO ports | |
| One 2-pin LEMO port for power supply and battery charging | |
| One 7-pin LEMO port (USB UART port) for system debugging and static data downloading | |
| One 7-pin LEMO port (RS485 Protocol) for meteorological sensor/barograph/ inclinometer connection | |
| 1 DB9 male port: Standard RS232 protocol | |
| 1 standard USB port: Connect with external storage card | |
| 1 RJ45 LAN Ethernet port (10/100 Mbit/s) supports protocols HTTP, TCP/IP, FTP, NTRIP | |
| 3 SMA male connectors | |
| - 1 PPS output | |
| - Event output | |
| - Reserve for Bluetooth® and W-LAN | |
| 2 TNC connectors | |
| - GNSS-antenna connector | |
| - Frequency-marker oscillator input connector | |

| | |
|---|---|
| **Data Format** | |
| Correction data I/O | RTCM 2.X, 3.X, CMR & CMR+ (GPS only) |
| | |
| Position data output | |
| ASCII | NMEA-0183 GSV, RMC, HDT, VHD, GGA, GSA, ZDA, VTG, GST; PTNL, PJK; PTNL, AVR; PTNL, GGK |
| Extended NMEA-0183 | BDGGA, GPNTR, GPCDT, GPHPR |
| geo-FENNEL Binary BINEX, RTCM3.X, compatible with major CORS software (VRS, FKP and iMax) | |
| | |
| **Data Logging** | |
| Loop recording function supporting long-term recording | |
| Supports simultaneous data recording | |
| Maximum 50 Hz data-logging rate | |
| Storage capacity | 8 GB internal memory |
| | Maximum 1 TB external memory |
| File format | RINEX 3.X, 2.X or geo-FENNEL |
| | Binary format |
| File log session | 5 / 10 / 15 / 20 / 30 min or 1 / 2 / 4 / 24 hour |
| Data retrieval and transfer | FTP and USB |
| | |
| **Physical** | |
| Size | 202 mm x 163 mm x 75 mm |
| Weight | 2.4 kg |
| Housing | Sturdy aluminium housing |
| | |
| **Environmental** | |
| Operating temperature | -40 °C to + 80 °C |
| Storage temperature | -45 °C to + 85 °C |
| Humidity | 100% condensation |
| Waterproof and dustproof | IP67 |
| Vibration | MIL-STD-810G |
| Shockproof | Designed to survive a 1 m drop onto concrete |
| | |
| **Electrical and Memory** | |
| Power consumption | 3.5 W |
| Power supply | 9.5-28 VDC, with over-voltage protection |
| Internal battery | 7.4 V, 8,800mAh, li-ion; 16-hour continuously working |
| | |
| **User Interface** | |
| Front panel display | 4 arrow keys and data-entry power button, reset button and ESC button |
| | LCD display showing receiver's status |

## OPTIONAL ACCESSORIES

**GAT 300 GNSS geodetic antenna**
ART. NO. 752010

**GAT 500 GNSS choke-ring antenna**
ART. NO. 752020

**10 m cable**
ART. NO. 752001

**30 m cable**
ART. NO. 752003

**50 m cable**
ART. NO. 752005

## SUPPLIED WITH

· geo-FENNEL GRU software

# GAT 300/500
## GNSS-Antennas

» GAT 500

» GAT 300

| TECHNICAL DATA | GAT 300 | GAT 500 |
|---|---|---|
| ART. NO. | 752010 | 752020 |
| Antenna type | Geodetic | Choke ring |
| GPS | L1, L2, L5 | L1, L2, L5 |
| GLONASS | L1, L2 | L1, L2, L3 |
| GALILEO | E1, E2, E5 | E1, E5a, E5b |
| BEIDOU | B1, B2, B3 | B1, B2, B3 |
| SBAS | No | Yes |
| Impedance | 50 Ohm | 50 Ohm |
| Polarisation | RHCP | RHCP |
| Axial ratio | ≤ 3 dB | ≤ 3 dB |
| Azimuth coverage | 360° | 360° |
| Noise figure | ≤2.0 | ≤ 2.0 |
| Gain at zenith | 5.5 dBi | 7 dBi |
| Phase at centre accuracy | ± 2 mm | ± 1 mm |
| | | |
| **LNA** | | |
| LNA gain | 40 dB | 50 dB ± 2 dB |
| Noise figure | ≤ 2 dB | ≤ 2 dB |
| VSWR output | ≤ 2.0 | ≤ 2.0 |
| Operation voltage | 3 – 18 VDC | 3.3 – 12 VDC |
| Operation current | ≤ 45 W | ≤ 55 W |
| Ripple | ± 1 dB | ± 2 dB |
| Group delay | < 5 ns | < 5 ns |
| | | |
| **Physical** | | |
| Size | Ø 152 x 62.2 mm | Ø 379 x 311 mm |
| Connector | TNC female | 2.4 kg |
| Weight | 374 g | 6.9 kg |
| | | |
| **Environmental** | | |
| Operating temperature | -40 °C to + 85 °C | -40 °C to + 85 °C |
| Storage temperature | -55 °C to + 85 °C | -45 °C to + 85 °C |
| Humidity | 95% non-condensing | 95% non-condensing |