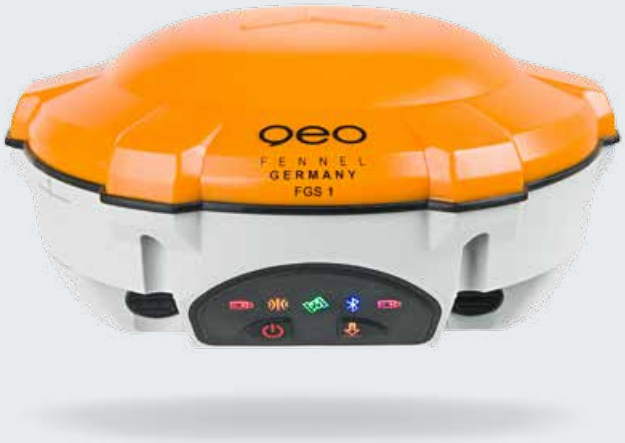
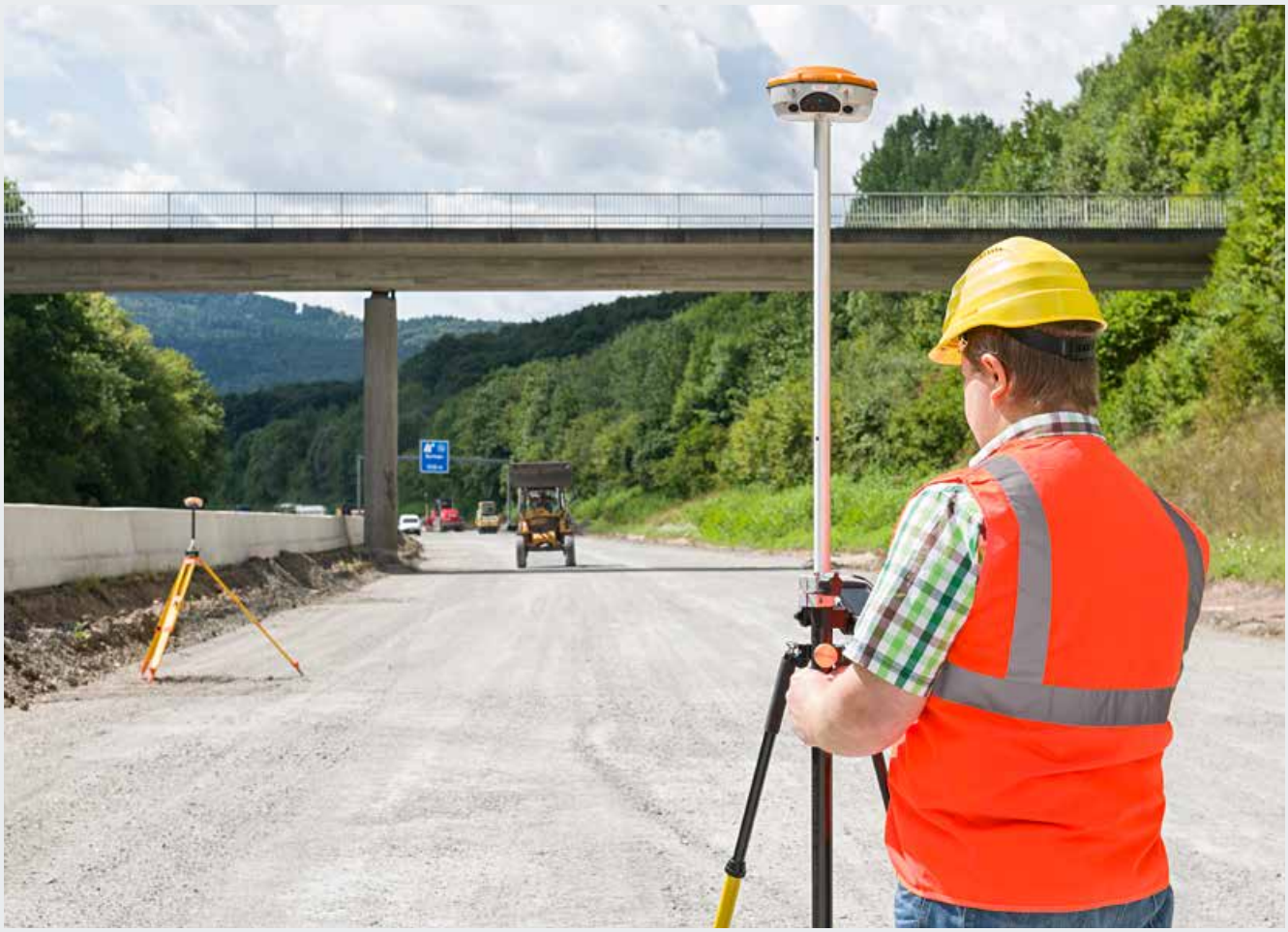
FGS 1
Unique GPS Set for multi-purpose applications



The geo-FENNEL FGS 1 is a robust receiver designed for challenging environments integrated into a compact device that is lightweight and highly portable.

The FGS 1 can track all current working GNSS constellations. By using a unique algorithm it can operate in RTK mode combining all GNSS constellation signals or by using a single GNSS constellation signal such as GLONASS, GALILEO or BEIDOU. The strong anti-interference ability of the receiver makes it possible to work in any environment. The FGS 1 integrates a cutting edge GNSS board, Bluetooth®, optional UHF (Rx & Tx) into a compact system. The smart design positions the FGS 1 among the lightest and most compact receivers currently available. The system is open to third party applications and supported by MicroSurvey FieldGenius and Carlson SurvCE field applications.



TECHNICAL DATA	FGS 1
Signal tracking	
256 channels with simultaneously tracked satellite signals:	
GPS	L1 C/A, L1/L2P, L5
GLONASS	L1/L2
BEIDOU	B1, B2, B3
GALILEO	Yes, but not activated
SBAS	WAAS, EGNOS, MSAS
Performance specifications	
Cold start	< 50 s
Warm start	< 30 s
Initialization time typically	< 10 s
Initialization reliability typically	> 99.9 %
Signal reacquisition	< 2 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	10 mm + 0.5 ppm RMS
vertical	20 mm + 0.5 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 – 4702 MHz
Transmit power	0.5 – 2 W adjustable
Integrated GSM	3G UMTS modem
Positioning update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz
5 LED indicating lights	Power, satellite tracking, differential data and data recording
Bluetooth®; V 2.X 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
geo-FENNEL Binary update to 20 Hz	
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	IP 67 (withstands 1 m submersion)
Shock and vibration proof	Yes (survives a 2 m pole drop)
Electrical	
Input voltage	5 – 27 VDC
Power consumption	2.85 W (3 constellations)
Power supply	Li-Ion 1800 mAh
Operating time	8 hours
Memory	256 MB
External memory extension slot	mini SD (up to 16 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
- Supports downloads & use of precise ephemeris
- Generation of various reports
- User-friendly

1

2

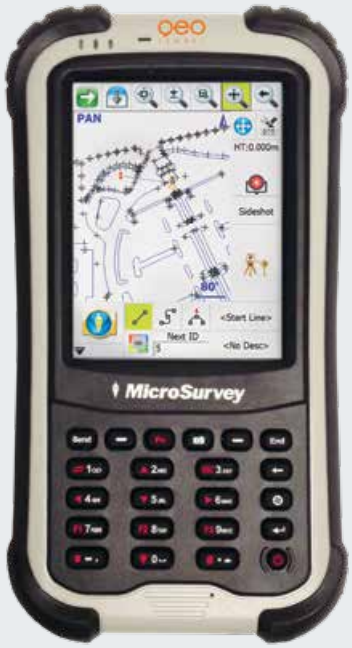
2

1 Small and compact

2 Clear keypad

3 Hot swap battery design

DC5
Modern field controller



A reliable and feature-packed data collector, at an astounding price. The DC5 provides a fast processor, a 9-pin serial port, and much storage space.

The DC5 strikes an unprecedented value when it comes to a rugged handheld data collector. This feature-packed device is a simple yet powerful solution to your biggest field data challenges.


1


2

TECHNICAL DATA	DC5
Operating temperature	-20 °C – +60 °C (-4 °F – 140 °F)
Storage temperature	-30 °C – +70 °C (-22 °F – 158 °F)
Waterproof	IP 65
Size	177 mm (7") x 91 mm (3.6") x 33 mm (1.3")
Weight	453 g (16 oz)
Active viewing area	480 x 640 portrait
GPS receiver	
U-blox6 single frequency GPS receiver 50 channels	(GPS, SBAS)
Accuracy	1–3 meter
Time to first fix	32 seconds
	NMEA-0183, RTCM/CMR, CORS (VRS/NRS)
Supported languages	English, German, Czech, French, Greek, Hungarian, Italian, Spanish, Portuguese, Russian, Slovak, Turkish, Korean, Polish, Swedish

FEATURES

- Microsoft Windows Mobile® 6.5
- 806 MHz Marvell PXA-310 Xscale CPU
- Integrated Bluetooth® V2.1+EDR and Wi-Fi and GSM/GPRS modem
- Integrated 3.1 megapixel camera
- 256 MB RAM and 4 GB TF internal storage
- Supports up to 32 GB TF memory
- VGA color display, TFT color, LED backlight
- Speaker and microphone
- TWO 1500 mAH Li-Ion batteries (12 hours of operation)
- Drop: 1.5 m (5 ft) height onto a concrete floor
- Display: 3.7" VGA TFT color
- Waterproof mini-USB port
- Wi-Fi 802.11 b/g
- GSM/GPRS Modem 850/900/1800/1900 Global Four Frequency Support

SUPPLIED WITH

- Li-Ion battery
- Stylus pen and tether
- Hand strap
- USB data / charging cable
- USB wall charger / adapter

geo-FENNEL GRU Software and Post-Processing Solution

GRU-Software

The geo-FENNEL Utility Software is an easy-to-use tool for setting up the configuration of the FGS 1 GPS Antenna. It also provides the option to load recordings from the internal memory and convert into RINEX.

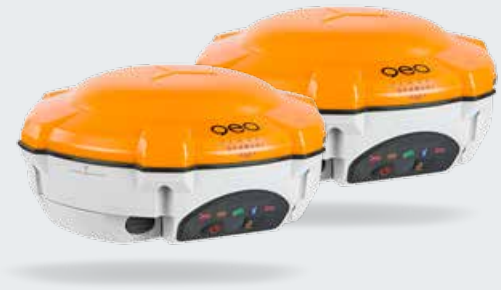
TECHNICAL DATA	
Software	
Supplied software	MicroSurvey FieldGenius 7

geo-FENNEL Post-Processing Solution

The geo-FENNEL PPS is a fully functioned post-processing software which is developed independently. This software package adopts a brand new data processing engine which can process mixed data of GPS, GLONASS and BEIDOU. The main functions are including static baseline processing, ephemeris forecast, project management, closure search, network adjustment, result export, coordinate system management and coordinate transformation.

This software can process geo-FENNEL FGS 1 static GNSS data and RINEX standard format. This way it can import data from various brands of GNSS receivers available on the market. It can freely process GPS, GLONASS and BEIDOU combined or separate data. It supports the operation modes of static, rapid static and post processing kinematic (PPK). The software has a user-friendly interface.

FGS 1 Sets



SUPPLIED WITH GPS SYSTEM FGS 1 COMPLETE SET

ART.-NO. 751000

- 2 x GNSS Antenna FGS 1
- 1 x MicroSurvey FieldGenius Software
- 1 x Field controller DC5
- 1 x Post-processing Software
- 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 GPS SYSTEM FGS 1 NETWORK SET

ART.-NO. 750100

- 1 x GNSS Antenna FGS 1
- 1 x MicroSurvey FieldGenius Software
- 1 x Field controller DC5
- 1 x Post-processing Software
- 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