

Key features

- Compact and easy to use L1/L2 handheld RTK system.
- Easy attachments for smartphone, tablet and GPS stick
- Low sensor weight (approx. 300 g without GNSS antenna)
- E-paper display for providing system information
- Can be used without external control unit (precise IoT, robotics)
- Configurable data flow, configuration change via internet
- Integration of low-cost or high-end RTK modules
- Flexible GNSS antenna solutions (helix or patch antennas)
- Alberding ALPOS® service with m2m SIM card and support

Integrated sensor hardware

- Integrated multi-frequency GNSS RTK receiver
- Integrated 4G LTE Cat M1 modem with GSM/GPRS fallback
- Integrated BT/WLAN module
- Integrated memory (SD card, 32 Gb)
- Integrated power supply (LiPo battery with 3.2 Ah)
- Integrated additional sensors (inertial, temperature, pressure)
- Integrated processor with Ntrip client functionality
- External connections: USB-C socket, SMA socket



Examples of application fields



GIS data collection



Traffic



Machine positioning



Surveying

System description

The Alberding GEO-MICHEL® is a powerful and scalable sensor for high-precision satellite-based positioning. Under suitable conditions, the integrated multi-frequency GNSS RTK receiver provides coordinates of the receiving antenna accurate to the centimeter after only a few seconds.

During system development, great importance was attached to compactness and ease of operation. By pre-configuring the sensor, the measurement can be started by simply pressing a button. GNSS correction data dial-in is automated via the integrated 4G LTE modem and the Ntrip client software.

The positions, which are accurate to the centimeter, can be stored internally or transferred wirelessly in the standardized NMEA format to a smartphone or tablet PC for further processing with an app. Real-time transmission of positions via mobile radio to a server is also supported.

Information about the measurement process is provided to the operator via LED and the very easy-to-read e-paper display. The (Fn) key can be adapted to the tasks (e.g. saving and sending positions or recording raw data) on the software side.

The GEO-MICHEL® was primarily developed for users outside of surveying who need to record precise positions quickly, easily and cost-effectively. With a suitable GNSS antenna on the rover pole, surveyors can also benefit from the system.

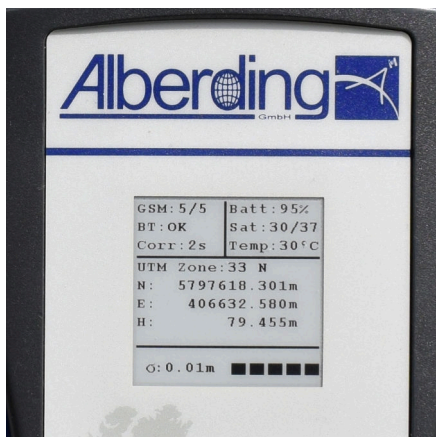
Technical specifications

Physical	Dimensions (LxBxH):	16.7 cm x 8.2 cm x 4.1 cm (6.57" x 3.23" x 1.61")
	Weight (incl. battery):	308 g (0.68 lb)
Physical	Display:	1.54" e-Paper
	Status indicators (LEDs):	Charging status, Mobile communications, Bluetooth, GNSS status, Data transfer
Physical	Buttons:	Button "Power", Button "Function"
	GNSS antenna connector:	SMA female (optional second socket for heading)
Communi- cations	Bluetooth v4.2 + EDR:	Range: ~5 m, SPP protocol
	Cellular:	LTE Cat M1/NB2, GSM/GPRS Fallback
Communi- cations	Data/Power:	USB-C
Electrical	External power input:	5 V max. 2 A
	Power consumption:	Typ. 1.8 W
Electrical	max. battery life:	6 h bei 20 °C
	Rechargeable battery:	3,7 V, 3,2 Ah
Electrical	Recharge power consumption:	max. 8 W
	Full recharge time:	~ 2,5 h with LED status indicator
Electrical	Protections:	Short circuit
		Overcurrent charge and discharge
Electrical		Overvoltage charge (overcharge)
		Undervoltage charge (over-discharge)
Electrical		Temperature
Data and memory	Data storage:	Integrated memory card
	Wireless data output:	Bluetooth, mobile internet
Data and memory	Wireless data input:	Bluetooth, mobile internet
	Wired data output:	Serial USB-C
Data and memory	Wired data input:	Serial USB-C
Environmental	Operating temperature:	-20 °C to +55 °C (-4 °F to +131 °F)
	Humidity:	up to 80 %
Environmental	Ingress protection:	IP65
	Enclosure material:	ABS, TPE seal
Environmental	Compliance:	CE, RoHS and Lead-free
Optional accessories	1. USB-C Power supply max. 15 W	
	2. Pole holder	
Optional accessories	3. SMA 45° angle adapter	

GNSS manufacturer specifications (u-blox F9P)

Scalable tracking	GNSS signals:	L1C/A & L2C code and carrier phase
	GPS	L1OF & L2OF code and carrier phase
Scalable tracking	GLONASS	B1I & B2I code and carrier phase
	BeiDou	E1-B/C & E5b
Scalable tracking	Galileo	L1C/A & L2C
	QZSS	L1C/A
Scalable tracking	SBAS	184
	Number of channels:	RTK: 10 Hz
Scalable tracking	Max. update rates:	RAW: up to 20 Hz
Accuracy (RMS) ¹	Autonomous L1:	1.5 m
	RTK ² :	0.01 m + 1 ppm
Accuracy (RMS) ¹	RTK convergence time:	< 10 sec
Time to First Fix	Cold start:	24 s
	Warm start:	2 s
Time to First Fix	Signal re-acquisition:	2 s

External connections



Display



SMA GNSS antenna



USB-C with dust protection

¹Depends on baseline length, number of satellites in view, satellite geometry, GNSS antenna, multipath environment and atmospheric conditions

²ppm limited to baseline up to 20 km

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P/N: Alberding A08-RTK GEO-MICHEL®
Made in Germany

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