viDoc®

Model 24

Product description

vigram®
smart documentation

Included in delivery

> GNSS antenna (standard or performance)
> Front- & ground laser
> Charging cable
> User manual

iPhone Pro or iPad Pro recommended.
The viDoc® is compatible with:

iOS: Find out from your app provider which iPhones are supported and how, and whether compatibility with viDoc® is possible.

Android: Find out from your app provider which Android devices are supported and how, and whether compatibility with viDoc® is possible.

Unity: Find out from your app provider which Unity devices are supported and how, and whether compatibility with viDoc® is possible.

Note: Not every App (iOS / Android / Unity) is supported.

viDoc® Functional Overview

Thread
for rover or survey rod

Ground laser
Rover function with laser for precise distance measurement to the ground. Straight and up to an angle of 20°

Front laser
for precise distance measurement

GNSS antenna
ensures the satellite connection

Antenna zero point

Bumper

On and off switch

USB-C charging port

Improved Connector
for a more stable connection with the viDoc® Case

RTK funktion
enables high precision in the measurement up to 1 cm + 1 ppm

Bumper
for greater angular accuracy and consistent reliability

6 hours of battery operation.

The viDoc® is connected to the smartphone via Bluetooth.

It's so easy to turn your smartphone into a professional measurement tool:

viDoc® Technical Data

viDoc® Model 24

Measurements	153 x 73 x 23 mm
Weight	285 g
Temperature range	-5 up to +35 °C
Humidiy	5 up to 95 % (not condensing)

GNSS antenna

	Standard	Performance
Measurements	55.6 mm x 27.5 mm	55.6 mm x 27.5 mm
Weight	< 19 g	< 19 g
Waterproof status	IP67	IP67
Operating temperature	-40 up to +75 °C	-40 up to +75 °C
Storage temperature	-50 up to +80 °C	-50 up to +80 °C
Humidiy	Up to 95 %	Up to 95 %
Polarization	RHCP	RHCP
Satellite signals (Standard & Performance)	GPS: L1; BDS: B1; GLONASS: L1 : 1559~1602; Galileo: E1 GPS: L2; BDS: B2/B3; GLONASS: L1 : 1207~1278; Galileo :E5	
Coverage	360°	360°
Supply voltage	3 up to 16 VDC	3 up to 16 VDC
Power consumption	< 35 mA	< 35 mA
LNA gain	36 ± 2 dB	40 ± 2 dB
Noise figure	< 2.0 dB	< 2.0 dB
V.S.W.R.	< 2.0	< 2.0
Measure angle[1]	0° = high precision 45° = low precision 90° = poor precision	0° = high precision 45° = high precision 90° = high precision

Laser

Measurement accuracy	± 3 mm (depending on lighting conditions, materials and angle of impact)
Angle accuracy absolute	± 0.05 °
Measuring range	Ground laser: 0.5 up to 30 m Front laser: 0.5 up to 15 m
Acc. angle measurement / skew measurement function	Ground laser (2 m): 20° = ± 2 cm // 30° = ± 3 cm // 45° = ± 5 cm Front laser (5 m): 0–90° < 20 cm
Laser class	2
Laser type	635 nm, < 1 mW
Measurement times	0.1 up to 4 sec
Supply voltage	2.5 up to 3.3 V
Operating temperature	0 up to 40 °C

Performance specifications	Constellation-independent, flexible signal tracking, improved positioning under challenging environmental conditions[2] with multi-satellite use. Reduced downtime in the event of loss of signal (up to 5 seconds). The following satellite signals are used simultaneously: GPS: L1C/A (1575.42 MHz); L2C (1227.60 MHz) BeiDou: B1I (1561.098 MHz); B2I (1207.140 MHz) Galileo: E1-B/C (1575.42 MHz); E5b (1207.140 MHz) GLONASS: L1OF (1602 MHz + k*562.5 kHz, k = –7,..., 5, 6) L2OF (1246 MHz + k*437.5 kHz, k = –7,..., 5, 6) QZSS		
Positioning services[3]	Device type	Multi-band GNSS high precision receiver	
	Accuracy of pulse signals	RMS 30 ns	
		99 % 60 ns	
	Frequencies of pulse signals	0.25 Hz up to 10 MHz	
	Convergence time	RTK < 10 sec	
	Static survey RTK position accuracy	Horizontal acc.	1 cm + 1 ppm
		Vertical acc.	1 cm + 1 ppm
	RTK run up/ramp up time[4]	Cold start (sec) up to 90 sec	
		At operating temperature up to 8 sec	
	RMS[5 6] measurement accuracy (after system calibration, measured with performance antenna)	Horizontal acc.	5 mm at 15 min
		Vertical acc.	8 mm at 15 min
		Horizontal acc.	10 mm at 30 min
		Vertical acc.	15 mm at 30 min
	Speed accuracy	0.05 m/s	
	System limits	Height	5,000 m
		Acceleration	< 4 g
		Speed	500 m/s
	IMU	6-axis sensor	
		16-bit digital, triaxial accelerometer	
		16-bit digital, triaxial gyroscope and geomagnetic	
		Angle accuracy	< 0.3°
		Scan rate	< 100 Hz
		Temperature measurement	permanent
		Acceleration rate	< 4 g
		Sensitivity temperature drift	± 0.03 %/K
		Gyroscope operating rate	< 250°/s
Power supply: Operating times in continuous operation	Receive and transmit	max. 6 hours	
	With active laser module	max. 5 hours	
	Under real conditions	max. 6 hours	
	Battery pack	LiPo, 2 x 1,200 mAh, 7.4 Wh, 3.7 V	
Model accuracy[7] absolute position and height (relativ)	– with control points	< 1 cm	
	– only via RTK positioning	< 5 cm	
	– only with LIDAR (iOS)	< 10 cm	

viDoc® Technical Data

Remarks

1 High precision = technical accuracy up to 1 cm
Low precision = susceptible to fluctuations due to external influences, susceptible to shading >180°
Poor precision = very susceptible to fluctuations due to external and internal influences

2 Challenging GNSS environments are places where there is sufficient satellite availability for the receiver as a prerequisite for minimum accuracy, but where the signal can be partially shaded or reflected by trees, buildings and other objects. The actual results may vary due to the location and atmospheric activitiy, due to strong flickering, the condition and availability of the satellite system and the degree of multipath scattering and signal coverage.

3 Precision and reliability can be affected by certain factors such as multipath scattering, obstacles, satellite geometry and atmospheric conditions. The stated specifications require stable setups, a clear view of the sky, an environment free of electromagnetic interference and multipath scattering, optimal GNSS configurations and, in addition, surveying methods as they are usually used for surveys of the highest order with occupation times adapted to the base lengths. Baselines over 30 km in length require ephemeris accuracy and occupation times of up to 24 hours may be necessary to achieve high-precision static specification.

4 Accuracies may be affected by atmospheric conditions, multipath signals, shadowing and satellite geometry. The reliability of the initialisation is permanently transmitted to ensure the highest quality. Compensations are solved on the software side.

5 RMS efficiency is based on repeatable on-site measurements. The achievable accuracy and the initialization time can vary depending on the type and performance data of the receiver and antenna, the geographic location of the user, atmospheric conditions, scintillation intensity, the status and availability of the GNSS constellation, the degree of multipath scatteing and the proximity to shading (e.g. from large trees and buildings) vary. Validation in different situations on site.

6 Measurement iterations based on 1 minute. Better position accuracy through error rate filtering.

7 The models were mapped with a viDoc® Rover and an iPhone15 Pro Max.
The model accuracy depends on the environmental conditions and the calculation settings. Results after Postprocessing with an photogrammetry software.

viDoc® Accessories

GNSS antenna
Standard / Performance

viDoc® Case
for Smartphone

viDoc® Case for Tablet –
iPad Pro 11“
iPad Pro 12,9“

FLIR ONE® Pro
Thermal imaging camera*

Target marker set

Carbon rover pole with
three fixed viDoc® heights:
1.4 m, 1.6 m and 1.8 m

Thread adapter for
carbon rover pole

Extension rod 55 cm

Powerbank

USB stick for direct
local data backup

USB-C charging cable

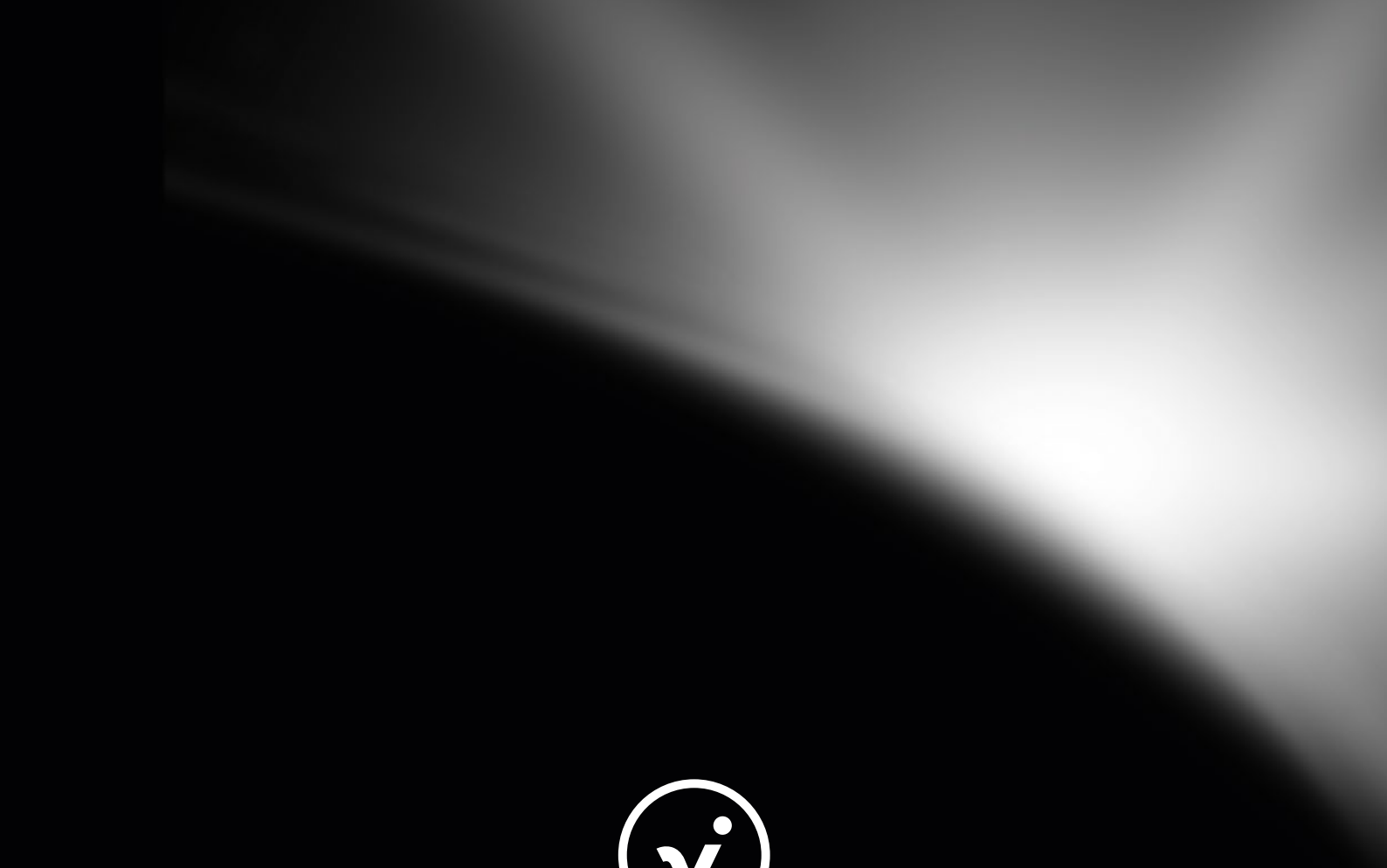
viDoc® Beltbag

Transport Box
viDoc® Basic

Transport Box
viDoc® Professional

Transport Box
viDoc® Premium

* Currently not available for
iPhone 15 Pro and
iPhone 15 Pro Max



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