# viDoc®

## Product description

vigram® | PIX4D

# viDoc® for Smartphone

## Included in the scope of delivery

GNSS antenna

viDoc for Smartphone

USB charging cable

SP case


Box

# viDoc® for Tablet

## Included in the scope of delivery

GNSS antenna

USB charging cable

viDoc for Tablet


Folding ruler


Box

# viDoc® for Smartphone

## 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

**On and off switch**

**USB charging cable**

**RTK function**
Enables high precision in the measurement up to 1cm+1ppm

**8 hours of battery operation.**

**The viDoc is connected to the smartphone via Bluetooth.**

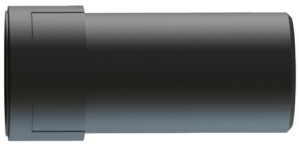
# viDoc®

## Technical Data

### viDoc

| | Smartphone | Tablet |
|---|---|---|
| Measurements | 153x72x19 mm | 253x184x29 mm |
| Weight | 242 g | 484 g |
| Temperature range | –5 up to +35 °C | |
| Humidiy | 5–95 % (not condensing) | |

### GNSS antenna



| | |
|---|---|
| Measurements | 55,6 mm x 27,5 mm |
| Weight | < 19 g |
| Temperature range | –40 up to + 80 °C |
| Humidiy | Up to 95 % |
| Polarization | RHCP |
| Satellite signals | GPS: L1/L2<br>GLONASS:G1/G2<br>Beidou: B1/B2/B3<br>Galileo: El/E5b |
| Coverage | 360° |
| Supply voltage | 3–16 VDC |
| Power consumption | < 35 mA |
| Gain | 36 ± 2 dB |
| Noise figure | < 1,5 dB |
| V.S.W.R. | < 2,0 |

### Laser

**is not included in the scope of delivery – can be unlocked later.**

**Can be used only with the viApp (not included) and are not compatible with Pix4Dcatch.**

| | |
|---|---|
| Measurement accuracy | ± 2 mm |
| Measuring range | Ground laser: 0,5 – 40 m<br>Front laser: 0,5 – 20m |
| Laser class | 2 |
| Laser type | 635 nm, < 1 mW |
| Measurement times | 0,1 up to 4 sec. |
| Supply voltage | 2,5 – 3,3 V |
| Operating temperature | 0 up to 40 °C |

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**Performance specifications**

Constellation-independent, flexible signal tracking, improved positioning under challenging environmental conditions1 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)<br>L2OF (1246 MHz + k*437.5 kHz, k = –7,..., 5, 6)<br>QZSS |

**Positioning services[2]**

| | |
|---|---|
| Device type | Multi-band GNSS high precision receiver |
| Accuracy of pulse signals | RMS 30 ns<br>99 % 60 ns |
| Frequencies of pulse signals | 0,25 Hz up to 10 MHz |
| Convergence time | RTK < 10 sec. |
| Static survey | POSITION 1cm + 1ppm<br>HIGHT 1cm + 1ppm |
| RTK run up/ramp up time[3] | Cold start (Sec.) 24 sec.<br>At operating temperature 2 sec. |
| RTK-Position accuracy RMS[4 5] (repeatability for static measurement) | POSITION 7mm at 15 min<br>HIGHT 8mm at 15 min<br>POSITION 15mm at 30 min<br>HIGHT 21mm at 30 min |
| Speed accuracy | 0,05 m/s |
| System limits | Height 5.000 m<br>Acceleration < 4 g<br>Speed 500 m/s |
| IMU | Prepared |

**Power supply**

Smartphone operating times in continuous operation:

| | Smartphone | iPad |
|---|---|---|
| receive and send | max. 9 hours | max. 9 hours |
| with active Lasermodule | max. 6 hours | max. 6 hours |
| under real conditions | max. 8 hours | max. 8 hours |
| battery pack | 2.400 mAh | 3.200 mAh |

**Model accuracy[6] absolute position and height**

| | |
|---|---|
| – with EXIF data | < 10 cm |
| – with CSVdata | < 10 cm |
| – with CSV+GCP data | < 2 cm |
| – with EXIF+GCP data in cloud processing | < 2 cm |

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## Technical Data

**Remarks**

1 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.

2 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.

3 Can be influenced by atmospheric conditions, multipath signals, shadowing and satellite geometry. The reliability of the initialization is permanently monitored to ensure the highest quality.

4 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.

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

6 The models were mapped with a Vigram Rover and an iPhone 11.
The model accuracy depends on the environmental conditions and the calculation settings. The results may vary depending on the software provider.

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E/29 April 2021