



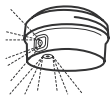
FJD TrionTM V10a



RTK SYSTEM WITH AR STAKEOUT

VISION BEYOND COORDINATES: SMALLER, BUT MORE POWERFUL

Light weight, heavy results! That's what you can get from the V10a Septentrio. Powered by the best-in-class Septentrio Mosaic-X5 module, the V10a Septentrio shows strong anti-interference and anti-distortion performance with built-in AIM+ and IONO+ technologies, giving you accurate and stable signals all the time. It further improves your AR staking and live CAD surveying accuracy, making it an ideal choice for outdoor projects.



AR Visual Guidance

Dual 5MP cameras
83° Field of View



Lighter and Smaller

15% Lighter
18% Smaller



100Hz

Ultra high update rate
100Hz



AIM+

Advanced Interference
Monitoring and Mitigation



Rugged Reliability

IP68 Water-Proof
2m Drop-Proof



RTK

Accuracy

H: 0.6 cm + 0.5 ppm
V: 1 cm + 1 ppm



IONO+

Ionospheric
Scintillation Monitoring



APEM+

Advanced Multipath
Mitigation



High Update Rates Low Latency

Data Update Rates 100 Hz Max.
Latencies < 10 ms

CAPTURE MORE, WORRY LESS



Septentrio Integration

The integrated Septentrio Mosaic-X5 module enables the V10a to deliver great results even in tough conditions. Powered by AIM+ technology, the module suppresses a wide variety of interferers, keeping your signal accurate and stable. It further uses IONO+ technology to correct signal distortion and delays, delivering reliable multi-constellation GNSS data across challenging field conditions.

Clear Vision, Precise Measurements

Running on a powerful 4-core processor and utilizing multi-engine algorithms, the V10a allows you to easily follow the on-screen visual guidance for smooth AR stakeout. With mixed reality technology for superimposing CAD drawings, it enables construction personnel to preview and evaluate the design scheme more comprehensively, ensuring quality and safety on the construction site.



Tilt Surveying for High Efficiency

The V10a can measure accurately even when its pole isn't perfectly straight. It automatically fixes the angle for tilt surveys up to 60°, making sure you get precise measurements every time.



Communication Diversity

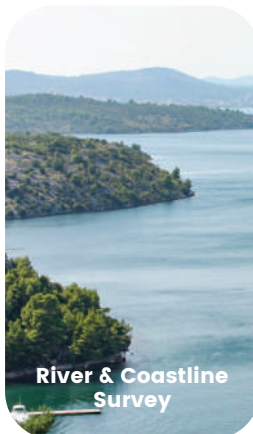
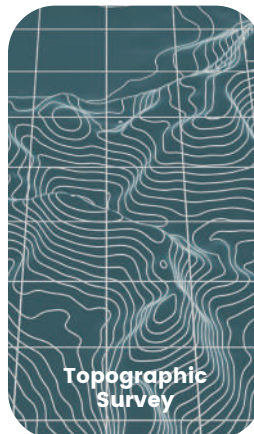
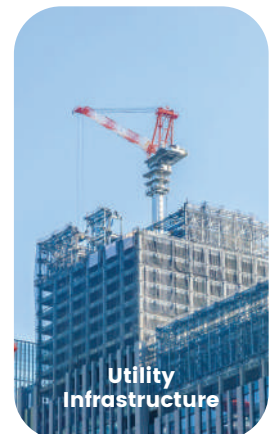
The V10a offers many ways to connect wirelessly, including Wi-Fi, Bluetooth, and one-tap NFC pairing. It has both internal and external radios to keep strong signals even in harsh weather conditions. Integrated with a 4G modem, the V10a works with many different network types like TDD-LTE, FDD-LTE, WCDMA, GPRS, and GSM/EDGE.

Diverse Controller Options

The V10a Septentrio gives you lots of controller choices. You can select a compact 5.5-inch keyboard controller, an 8-inch tablet, or a 10-inch tablet. All of them are made to fit your workflow and preferences. Powered by high-performance processors, these controllers run fast and have ultra-responsive touchscreens to help you work better. Their screens also adjust brightness automatically, making them easy to see even in bright sunshine.



APPLICATION SCENARIOS



SPECIFICATIONS

GNSS

Channels	448 channels
GPS	L1C/A, L1P(Y), L2C, L2P, L5
GLONASS	L1CA, L2CA, L2P, L3 CDMA
BeiDou	B1I, B1C, B2a, B2I, B3
Galileo	E1, E5a, E5b, E5 AltBOC
QZSS	L1C/A, L2C, L5
NavIC	L5
SBAS	EGNOS, WAAS, GAGAN, MSAS, SDCM (L1, L5)

Communications and Data Storage

SIM card type	Nano-SIM card
Network modem	Integrated 4G modem: TDD-LTE, FDD-LTE, WCDMA, EDGE, GPRS, GSM
Wi-Fi	2.4&5 GHz, 802.11a/b/g/n/actouch pairing
Wireless connection	NFC for device
Bluetooth®	BT4.2&BLE
Ports	7-pin LEMO port UHF antenna port USB Type-C port
Built-in UHF radio	Rx/Tx: (410-470)MHz / (902-928)MHz Transmit Power: 2W Protocol: TRIMTALK, TRIMMARK III, TT450S, TRANSEOT, Satel 3AS 4FSK, LoRa Link rate: 9,600 bps to 19,200 bps MAX Range: 6-12 km typically ⁸
Data formats	NMEA 0183, v2.3, v3.03, v4.0 RINEX v2.x, v3.x; RTCM v2.x, v3.x (MSM included) CMR v2.0 (out/in), CMR+ (input only)
Data storage	32 GB internal memory

Camera

Sensor resolution	Forward: 5 MP, downward: 5 MP
Field of view	83°

¹ Open sky conditions

² RMS levels

³ Baseline < 40 km

⁴ 99.9%

⁵ Incl. software compensation of the sawtooth effect

⁶ No information available (no almanac, no approx position)

⁷ Ephemeris and approx. position known

⁸ Ideal environment

Positioning

RTK performance ^{1,2,3}	H: 6 mm+0.5 ppm V: 10 mm+1 ppm Initialization time 7s
Post-processing static	H: 2.5 mm+0.5 ppm RMS V: 5 mm+0.5 ppm RMS
High-precision static	H: 2.5 mm+0.1 ppm RMS V: 3.5 mm+0.4 ppm RMS
PPK accuracy	H: 3 mm+1 ppm RMS V: 3.5 mm+1 ppm RMS
Other positioning	Standalone: Horizontal 1.2 m, Vertical 1.9 m
Modes Accuracy ^{1,2}	SBAS: Horizontal 0.6 m, Vertical 0.8 m DGNSS: Horizontal 0.4 m, Vertical 0.7 m
Velocity accuracy	3 cm/s
Maximum update rate	Position: 100 Hz Measurements only: 100 Hz
Latency ⁴	<10 ms
Time precision xPPS out ⁵	5 ns
Event accuracy	< 20 ns
Time to first fix	Cold start ⁶ : < 45s Warm start ⁷ : < 20s; Re-acquisition: 1 s
Tilt angle	RMS: 8 mm + 0.6 mm/° tilt
RTK accuracy with tilt compensation	30°/2.5 cm

Hardware

Temperature	Operating: -35 °C -65 °C Storage: -40 °C -70 °C
Humidity	95% non-condensation
Ingress protection	IP68, dustproof, protected from continuous immersion to depth of 1 m
Drop	Designed to survive a 2-meter pole-drop
Li-ion battery capacity	Built-in battery 4900 mAh, 7.4 V 30 W PD Fast Charge
Operating time on internal battery	Rover 15 h, Base 10 h Static: >25 h
External power input	9-28 V DC
Dimensions (DxH)	Φ130×68 mm
Weight	Approximately 800g
Power Consumption	UHF/4G RTK Rover w/o camera: Typical 3W Visual stakeout: Typical 4.5W
Waterproof and breathable membrane	Prevent water vapor from entering under harsh environments Immune to magnetic disturbances
Tilt Sensor	E-bubble leveling

Note: The battery life is subject to the operation environment, working temperature, and working mode. It has a standard lifespan in normal operating conditions.

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