# TECHNICAL SPECIFICATIONS

| GNSS Performance (1) | |
|---|---|
| Channels | 1608 channels |
| GPS | L1C/A, L2C, L2P(Y), L5 |
| GLONASS | L1, L2, L3 |
| Galileo | E1,E5a,E5b,E6* |
| BeiDou | B1I, B2I, B3I, B1C, B2a, B2b |
| QZSS | L1, L2, L5, L6* |
| SBAS | L1, L2 |
| PPP | B2b-PPP |

| GNSS Accuracies (2) | |
|---|---|
| Real time kinematic (RTK) | Horizontal: 8 mm + 1 ppm RMS<br>Vertical: 15 mm + 1 ppm RMS<br>Initialization time: < 10 s<br>Initialization reliability: >99.9% |
| Post - processing kinematics (PPK) | Horizontal: 3 mm + 1 ppm RMS<br>Vertical: 5 mm + 1 ppm RMS |
| Post - processing static | Horizontal: 2.5 mm+ 0.5 ppm RMS<br>Vertical: 5 mm+ 0.5 ppm RMS |
| Code differential | Horizontal: 0.4 m RMS<br>Vertical: 0.8 m RMS |
| Autonomous | Horizontal: 1.5 m RMS<br>Vertical: 2.5 m RMS |
| Vision survey | Typical 2~4 cm ,range 2~10 m |
| Positioning rate (3) | 1 Hz, 5 Hz and 10 Hz |
| Time to first fix (4) | Cold start: < 45 s<br>Hot start: < 10 s<br>Signal re-acquisition: < 1 s |

| IMU Sensor | |
|---|---|
| IMU Type | 4D AUTO-IMU |
| IMU update rate | 200Hz |
| IMU tilt angle | 0-60° |
| Additional horizontal pole-tilt | Typically less than 2.5 cm within 30° |

| Hardware | |
|---|---|
| Size (L x W x H) | Φ134 mm x 80 mm<br>(Φ 5.28 in × 3.15 in) |
| Weight | 750 g (1.65 lb) |
| Front panel | 1 LED + 1 Button |
| Environment | Operating: -40°C to +65°C<br>(-40°F to +149°F)<br>Storage: -40°C to +85°C<br>(-40°F to +185°F) |
| Humidity | 100% non-condensation |
| Ingress protection | IP67 waterproof and dustproof, protected from temporary immersion to depth of 1 m |
| Shock resistance grade | IK08 |
| Drop | Survive a 2-meter pole drop |
| Tilt sensor | Calibration-free IMU for pole-tilt compensation. Immune to magnetic disturbance |

| Camera | |
|---|---|
| Sensor pixels | 2 MP |
| Field of view | 75° |
| Video frame rate | 25 fps |
| Image group capture | Typical 2 Hz capturing rate, up to 25 Hz Max. capturing time: 60 s, size of an image group appr. 60 MB |

| Communication | |
|---|---|
| Wi-Fi | 802.11 b/g/n/ac, access point mode |
| Bluetooth® | v 4.2 |
| Others | NFC |
| Ports | 1 x USB Type-C port (external power, data download, firmware update) ;1 x UHF antenna port (TNC female) |
| UHF radio (5) | Standard Internal Tx/Rx: 410 - 470 MHz<br>Transmit Power: 0.5 W, 1W<br>Protocol: EFIX, Transparent, TT450, Satel (6)<br>Link rate: 9,600 bps to 19,200 bps<br>Range: Typical 3 km, up to 8 km with optimal conditions conditions |
| Data formats | RTCM2.x, RTCM3.x, CMR input / output, Full Star RINEX2.11, 3.02 NMEA 0183 output<br>HCN, HRC and RINEX static formats<br>NTRIP Client, NTRIP Caster |
| Data storage | 8 GB high-speed memory |

| Electrical | |
|---|---|
| Power consumption | Typical 2.2 W (depending on user settings) |
| Li -ion battery capacity | Rechargeable and built-in Lithium Battery 4900mAh, 7.2 V |
| Operating time on internal battery (7) | RTK Rover, UHF/ 4G mode w/o camera: up to 16.5 h<br>RTK Rover, Vision Stakeout/Vision Survey: up to 9.5 h<br>UHF RTK Base: up to 10 h<br>Static: up to 22 h |
| External power input | 5 V / 2 A |

*All specifications are subject to change without notice.
(1) Compliant, but subject to availability of BDS ICD and Galileo commercial service definition. Galileo E6 and QZSS L6 will be provided through future firmware upgrade.
(2) Accuracy and reliability are determined under open sky, free of multipaths, optimal GNSS geometry and atmospheric condition. Performances assume minimum of 5 satellites, follow up of recommended general GPS practices.
(3) Compliant and 10 Hz to be provided through future firmware upgrade.
(4) Typical observed values.
(5) The use of UHF datalink may be subject to local regulations. Users must ensure that the device is not operated without the permission of the local authorities on frequencies or power output other than those specifically reserved and intended for use without required permit.
(6) Compliant and Satel protocol to be provided through future firmware upgrade.
(7) Battery life is subject to operating temperature.


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EFIX
*Measure What You See*

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# F8

**ADVANCED PALM-SIZE VISION IMU-RTK**


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EFIX
Measure What You See

# VISION

Stakeout & Survey

**FULL** -Star

**AUTO** -IMU


## MEASURE WHAT YOU SEE

The EFIX F8 seamlessly integrates cutting edge VISION, GNSS and IMU technologies to meet the needs of professional surveyors. It offers unparalleled accuracy and efficiency for surveying tasks.

With the integration of dual cameras, the F8's advanced vision system allows surveyors to effortlessly overcome obstacles and survey challenging terrain, including difficult-to-fix, hard-to-reach, and hazardous points. Real-time visual feedback enables precise stakeout without the complexity of offset methods, resulting in improved efficiency and accuracy.

By leveraging the capabilities of the F8, surveyors can streamline their workflow, increase productivity and achieve exceptional results in every project they undertake.

### FULL CONSTELLATION SUPPORT AND ADVANCED RTK ENGINE: RTK SIGNAL BOOSTED BY 60%!

- 1608 signal channels and advanced Full-Star algorithm to track full constellation and frequencies.
- High-efficiency SoC provides a 60% increase in processing speed.

### EFFORTLESS AR VISION NAVIGATION + VISION STAKEOUT

- Convenient AR vision navigation with large arrows and accurate real-time distance indication.
- Immersive AR Visual Stakeout to vividly display ground stakeout points in the eField software, increasing efficiency by 50%.

### VISION SURVEY: ACCURATELY MEASURE COMPLEX SCENES IN REAL-TIME

- Easily obtain high-precision 3D coordinates from real-time video, enabling accurate measurements of challenging scenes, including signal-obscured, hard-to-reach and hazardous points.
- High-speed dynamic panoramic shooting, high-quality and distortion-free image capture, automated image matching with up to 85% overlap rate.

### EFFICIENT 3D MODELING FROM FIELD TO OFFICE

- Capture POS photos with F8's Vision Survey for both individual building modeling and collaborative modeling with drones to complement aerial surveys.
- Seamlessly integrate F8's engineering data into industry-standard software such as ContextCapture for 3D modeling.

### FULLY INTEGRATED GNSS AND 4D AUTO-IMU

- Automatic 4D IMU initialization during motion eliminates initialization thresholds.
- Maintain IMU initialization throughout field operations to ensure continuous accuracy.

### eField: EMPOWER ENGINEERING & CONSTRUCTION PROFESSIONALS

- Effortless stakeout with automatic rotation of the CAD base map based on the surveyor's perspective.
- Smooth handling of large CAD drawings for efficient graphical operations.
- Optimize Triangulated Irregular Networks (TIN) for accurate earthwork calculations using advanced filtering techniques.
- Simplify road stakeout with graphical representation of cut-fill values imported via LandXML.