




# WATCHLOG PRO ORB

## CELLULAR / WI-FI CLOUD GATEWAY & CONTROLLER FOR REMOTE MONITORING WITH INTERNAL ANTENNAS



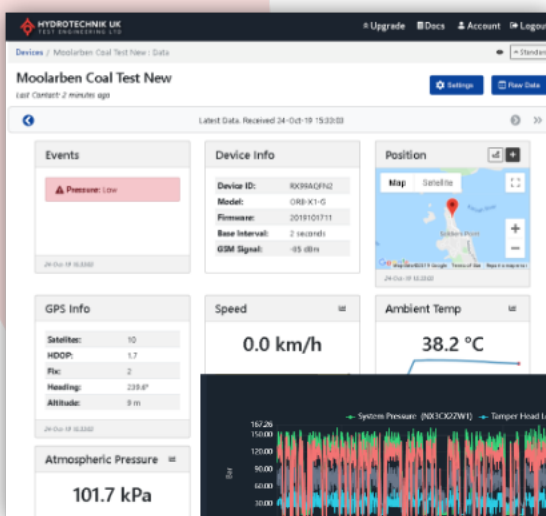
Designed for harsh industrial environments, dust-proof, waterproof, UV resistant and strong, Watchlog Pro is a programmable device which allows sensor data to be transmitted to our Watchlog cloud monitoring portal or a custom web server via 4G (SIM card) or Wi-Fi.

Powered by 10 to 75V DC or solar, the QUAD has GPS position, speed, temperature, angle, vibration, and tamper sensors built-in. External sensors such as pressure, temperature, flow, displacement and other sensors or machine data using common inputs such as 4–20mA, 0–10V, Frequency, Modbus, CANbus and RS232/RS485.

 Our powerful cloud platform allows users to monitor and log sensor data on customisable dashboards. Optionally, the Watchlog Pro can push Sensor data to your own custom or 3<sup>rd</sup> party platform.

### TYPICAL APPLICATIONS

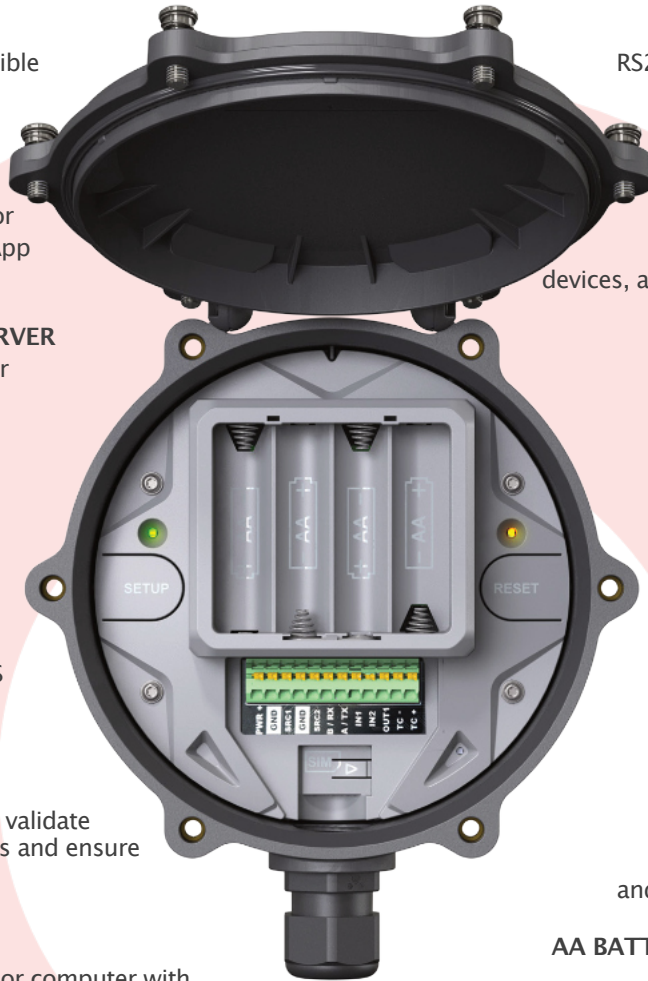
- Machine utilisation** – create uniform metrics across a fleet.
- Engine diagnostics** – monitor for fault codes.
- Sensor monitoring** – MODBUS, NMEA, 4–20mA, voltage and more.
- Safety systems** – interlocks, gas concentration, liquid level.
- Driver safety** – monitor speed, pitch, roll, wind, air quality.
- Remote control** – write scripts to control attached systems.
- Level measurement** – calculate volume in odd shaped tanks.
- Complex sensors** – script power control and measurement timing.
- Reliability** – monitor oil condition, temperatures, pressure and more.
- Data consolidation** – send data to your preferred endpoint.
- Water management** – flow, level and quality with a single device.





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## Features



**WiFi +4G LTE4**  
CAT-M1 for best possible coverage. CAT-1 for global connectivity



**BLUETOOTH**  
Monitor BLE beacons or send data to the BLE App



**DIRECT TO YOUR SERVER**  
Send data to the server of your choice



**GPS+GNSS**  
Accurate position and speed



**NOTIFICATIONS**  
Receive email and SMS warnings and alarms



**SECURE**  
Embedded certificates validate identities, encrypt links and ensure integrity



**SIMPLE SETUP**  
Use any phone, tablet or computer with the integrated web server



**INTEGRATED ANTENNAS**  
All antennas are internal for simple deployment and reliable operation



**FLEXIBLE SENSOR INTERFACE**  
RS232, RS485, MODBUS, CANBus, Bluetooth, output, 4-20mA, pulse and voltage



**USER PROGRAMMABLE**  
Write scripts to manipulate data, create alerts, control devices, and create customised payloads



**VERSATILE MOUNTING**  
DIN rail, wall or panel mount



**IP67**  
Waterproof and Dust proof



**BUILT TOUGH**  
Glass filled nylon  
UV resistant and strong



**CLOUD SERVICES**  
Use the Watchlog Portal to view and store data and configure and update devices



**AA BATTERIES + SOLAR +10 -72VDC**  
Integrated solar regulator  
Internal backup battery

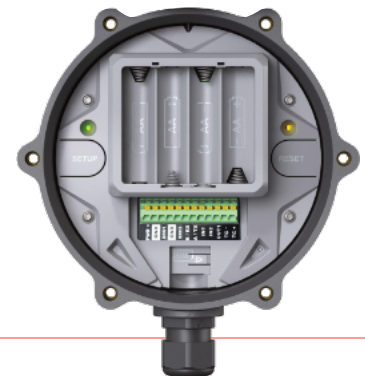


**INTERNAL SENSORS**  
Accelerometer for pitch, roll and vibration. Tamper detection, temperature, and voltage monitoring

## Order Code

Order Code	Network Features
ORB-C2-W	Wi-Fi
ORB-C2-G	Wi-Fi, 4G LTE CAT-M1, GNSS
ORB-C2-H	Wi-Fi, 4G LTE CAT-1, GNSS





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## Technical Specifications

<b>Power</b>	<p>External supply: 10VDC to 75VDC</p> <p>4 x AA Long-life lithium: battery calculator can be downloaded from the Senquip website</p> <p>Solar: typical 12V 10W, with regulator and backup battery internal to the Senquip ORB</p> <p>Internal rechargeable backup battery: 3.7V, 1800mAh LiPo</p> <p>Typical current draw (LiPo): 65uA (sleep), 40-70mA (measure), 100mA (Wi-Fi), 120mA (4G LTE)</p>
<b>Configuration</b>	<p>Local via embedded web server</p> <p>Remote via the Watchlog Portal</p>
<b>Edge Processing</b>	<p>Write and deploy JavaScript applications to manipulate data, create combinational alerts, execute local control, or create customised payloads for sending to 3rd party servers.</p>
<b>Internal Sensors</b>	<p>GPS: horizontal accuracy <math>\pm 5m</math> (<math>&lt; 2.5m</math> CEP-50), speed <math>\pm 1km/h</math>. Time to first fix typically <math>&lt; 60s</math></p> <p>Bluetooth version 4.2: receive and transmit BLE advertising messages</p> <p>Accelerometer: 3-axis, <math>\pm 16G</math>. Pitch and roll accuracy <math>\pm 1\sigma</math>, vibration</p> <p>Ambient temperature: <math>-40</math> to <math>85\text{oC}</math>, accuracy <math>\pm 1\text{oC}</math></p> <p>Ambient pressure: 300 - 11 hPa, accuracy <math>\pm 1</math> hPa</p> <p>Supply, AA battery, and internal LiPo voltage monitoring</p> <p>Tamper detection through use of internal light sensor</p>
<b>Multi purpose Inputs/Output</b>	<p>Input 1: Analog + Digital (0-72V), pulse counting (up to 10kHz)</p> <p>Input 2: Analog + Digital (0-72V)</p> <p>Output 1: Open collector (500mA, 72V max)</p> <p>Alternate function, Input 3: Analog + Digital (0-72V)</p> <p>Source 1: 12V, 100mA max (battery backed) , 4-20mA</p> <p>Alternate function, Input 4: Digital (0-12V)</p> <p>Source 2: 12V, 100mA max (battery backed) , 4-20mA</p> <p>Alternate function, Input 5: Digital (0-12V)</p>
<b>Serial</b>	<p>RS232 (3-wire), RS485 (2-wire)</p> <p>Serial capture or MODBUS RTU Master</p> <p>CAN Bus: High Speed CAN FD (4Mbps), Line Faults to <math>\pm 60V</math></p>
<b>Network</b>	<p>4G LTE CAT-M1 (ORB-C1-G) / 4G LTE CAT-1 (ORB-C1-H)</p> <p>SIM card holder for Micro-SIM (internal soldered SIM optional)</p> <p>Wi-Fi (ORB-C1-W)</p> <p>Endpoint: Watchlog Portal and 3rd party MQTT(S), HTTP(S), UDP servers</p> <p>Data format: JSON or script your own</p>
<b>Mechanical</b>	<p>Dimensions: 153mm wide, 174mm height (including cable gland), 50mm depth</p> <p>Weight: 400g excluding AA batteries and mounting brackets</p> <p>Enclosure material: UV stabilised glass filled nylon</p> <p>Stainless lid screws, spring mounted and captive</p> <p>Ships with stainless pole and wall mounting brackets</p> <p>Terminal block wire size: 24 (min) to 16 (max) AWG</p>
<b>Environmental</b>	<p>Operating temperature: <math>-40\text{C}</math> to <math>85\text{C}</math></p> <p>Water Ingress: IP67, IP68 (Contact us for alternate gland)</p>