



Your data, anywhere

# PULSAR Data Logger

The fully integrated low power satellite telemetry

## Overview

The Ontoto Pulsar is a compact, lightweight, solar-powered pulse data logger designed for long-term remote telemetry applications. With the global coverage of the Iridium satellite constellation, the device can communicate in the most remote environments. The device accepts pulse inputs from a variety of sources such as flow meters and rain gauges. Utilising energy harvesting technology to optimise the energy extracted from sunlight, the device can operate in even low light conditions. With the Ontoto Connect App, the device is easily configured and deployed on-site. All devices can be remotely managed through the Ontoto Web Portal.



## Special Features

- For flow meter applications, the totaliser can be configured to initialise the base value for pulse count accumulation.
- Device configuration via the Ontoto Connect App or remotely through the Ontoto Web Portal.
- Firmware updates via BLE.
- Sampling and transmission periods as low as one minute.
- Custom packet to optimise data usage, resulting in significant reduction of transmission costs.
- Real-time customer support and debugging with the Ontoto Connect application.

## Certification

The Ontoto Pulsar has been designed to comply with the Australian Standards:

- AS/NZS 3820:2009 for low voltage battery-powered devices
- Iridium Certification

## Site Expectations

- The site needs to have a clear view of the sky for best possible satellite connectivity.
- The device ideally should be mounted on a conductive surface (a ground plane for the antenna) to optimise signal strength
- For optimal energy efficiency, at least one solar cell should be facing the sun (north for Southern Hemisphere).
- The data logger is a scientific instrument that needs to be installed correctly. If the logger is not installed correctly the accuracy of its data cannot be relied upon.

## Technical Specifications

Power-Source	• 2 x solar-powered lithium-ion supercapacitors
Supercapacitor	• Voltage: 3.6 V • Capacity: 40mAh
Service life	• >10 years
Solar panel	• 3 x 0.1 W monocrystalline
Maximum pulse frequency	• 1000 Hz
Transmission	• Satellite via Iridium band (1616-1626 MHz)
Clock accuracy	• $\pm 2$ seconds per day, automatically resynced on a transmission
Memory	• 128MB NAND flash memory, up to 8 million samples of local storage
Operating temperature	• -40°C to +85°C
Dimensions	• 30 x 40 x 60mm
Weight	• 100 grams

## Ontoto Connect App (iOS and Android)

The Ontoto Connect mobile app allows onsite management of the data logger to be undertaken wirelessly via BLE. There is no need to connect a laptop directly to the device.

The key features of the Ontoto Connect App are:

- **Data logger configuration**

Configure the device name, sampling period, transmission period, and alarm threshold.

- **Firmware update**

Available firmware updates can be downloaded from the Ontoto server and uploaded to the device.

- **Sensor Test**

The device will scan through each connected sensor. The measurements of each sensor and any detected errors will be displayed.

- **Network Test**

Tests for Satellite connectivity and signal strength and displays any detected faults.

- **Update the device location**

The location of the device will be updated with the GPS coordinates of the phone and transmitted to the Ontoto Web Portal.

- **Read data log**

The device stores all recorded data in persistent memory for redundancy and auditing purposes. The data log is processed into a CSV file.

- **Real-time debug log streaming**

While using the app, the debug log received from the device is automatically streamed to the Ontoto server, allowing for seamless debugging during deployment.

## Software-as-Service Free Ontoto Web Portal For User

The Ontoto Web Portal is a free and fully integrated cloud platform.

The features of this portal include:

- Remote configuration for all devices, for example configuring sampling and transmission periods, alarm thresholds and firmware updates.
- View raw and derived data in customisable charts.
- Custom charts can be configured to compare data between multiple data loggers.
- Generate and send customised reports according to client requirements.
- Data from grouped devices can be downloaded into a single CSV file.
- Static water level from Australian Height Datum (AHD), Below Top of the Column (BTOC) and custom datum is derived by using the water level above sensor and dip info entered via mobile app.
- Create and manage users.
- Track and notify device health:
  - » Data fault detection.
  - » Missed reporting cycle detection.
  - » Device malfunction detection.
  - » Site wakeup detection.
  - » Device status and battery, signal strength.
- Data forwarding to SCADA systems via FTP, SFTP and API.

## Software-as-Service Device Management Portal

Ontoto develops partnerships with all its clients to enhance their experience of managing their data. For clients with a larger number of users and devices, access is provided to Ontoto's free Device Management Portal. This provides all the functionality of the Ontoto Web Portal with additional features to enable advanced management of devices, including:

- Quality assurance.
- Firmware update management.
- Debug log Information.
- SIM and data usage management.
- Device production record.
- User management.
- Support ticket system.
- Billing system.

## Ontoto Pulsar Satellite Water Metering

The Ontoto Pulsar can be fitted to any pulse water meter to provide remote telemetry monitoring. The simple, compact design, incorporating only one toggle switch, is easy to install and provides auditable data for the lifetime of the water meter.



## Ontoto Pulsar For Tipping Rain Gauge

The compact design of the Ontoto Pulsar enables it to be fitted to any pulse tipping rain gauge. Once the installation is complete you can receive your auditable data directly to your computer with for the lifetime of the rain gauge.



## Warranty

Ontoto Pty Ltd will warrant the entire product (excluding the batteries) for 5 years from the date of delivery for parts and labour.