Oceasoft™

USER GUIDE

Atlas

Temperature datalogger

www.oceasoft.com

Notices and safety

Disclaimer and limitation of liability

OCEASOFT assumes no responsibility for any loss or claims by third parties which may arise through the use of this product. In particular, users must not use the product in any manner not specifically indicated by OCEASOFT. OCEASOFT shall not be held liable for improper use of this product. This document is non-contractual and subject to change without notice.

Battery warnings

OCEASOFT Atlas™ modules contain a non-rechargeable, non-removable lithium battery. Battery life is influenced by operating temperatures.

Approvals

FCC statements (FCC part 15 modular qualification – FCC ID: 2AA9B04)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Caution

Any changes or modifications to this equipment not expressly approved by OCEASOFT may cause, harmful interference and void the FCC authorization to operate this equipment.

FCC RF Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IC Statements (Industry Canada RSS-210 modular qualification – IC: 12208A-04)

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

CE

OCEASOFT Atlas (Bluetooth component BMD-300) is compliant with the essential requirements and other relevant requirements of the following standards and/or normative documents.

- Directives:
    - 2014/53/EU Radio Equipment Directive (RED)
    - 2014/30/EU EMC Directive
    - 2014/35/EU Low Voltage Directive
- In application of the following standards
    - EN 61326-1: 2012
    - EN 301 489-1 V1.9.2
    - EN 301 489-3: V1.6.1
    - EN 301 489-17 V2.2.1
    - EN 300 330-2 V2.1.1
    - EN 300 328 V2.1.1
    - CEI 61010-1: 2010

EU Declaration of Conformity provided in Appendix 2 of this document.

MIC (Japan)

This equipment contains specified radio equipment that has been certified to the Technical Regulation Conformity Certification under the Radio Law.

- BMD-300 Type Acceptance Number: 210-106799

Australia / New Zealand

The BMD-300 radio equipment in this device has been tested to comply with the AS/NZS 4268:2012 / AMDT 1:2013, Radio equipment and systems – Short range devices – Limits and methods of measurement.

Bluetooth

- RF-PHY Component (Tested) – DID: D030629
- QDID: 81876

WEEE compliance

This wireless device complies with the essential requirements and other relevant provisions of the Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE Directive).

Environmental protection

Please respect local regulations concerning disposal of packaging, unused wireless devices and their accessories, and promote their recycling.

RoHS compliance

The wireless device complies with the restriction of the use of certain hazardous substances in electrical and electronic equipment, 2011/65/EU Restriction of Hazardous Substances Directive (RoHS Directive). Do not dispose of this product with household trash. OCEASOFT recycles this product under certain conditions. Please contact us for more information.

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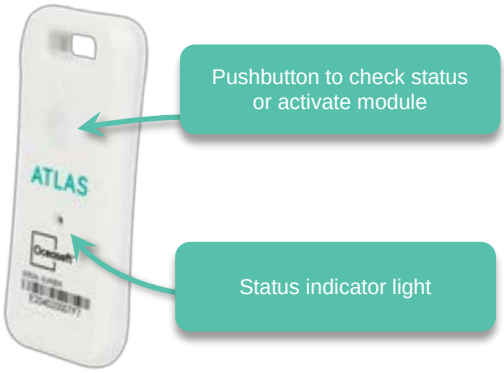
1 Introduction

Congratulations and thank you for choosing the OCEASOFT Atlas wireless monitoring solution.

1.1 Summary

OCEASOFT Atlas is a Bluetooth-enabled wireless device designed to monitor temperature-sensitive products during shipping. With its small footprint, Atlas fits conveniently inside many types of product packaging and containers, where it tracks temperature according to parameters that you can define for your specific needs.



Atlas records ambient temperature at regular intervals and stores the information in its memory. Atlas is designed for relatively short-term operation for shipping applications lasting about 12 months. The battery in Atlas is not replaceable.

By using OCEASOFT Atlas with specially designed companion products, you can benefit from a flexible temperature monitoring solution that adapts to many usage scenarios, from low- to very high-volume needs. With this solution, you can keep track of critical temperature information wirelessly without having to open any containers.

1.2 Package contents

- 1 Atlas module with internal temperature sensor
- Adhesive tape for mounting

1.3 Companion products

The Atlas datalogger is designed to work with several different types of companion products from OCEASOFT, in particular, depending on the volume of modules you intend to use, and whether or not you wish to use the OCEACloud online tools.

> The Atlas datalogger must only be used be used with companion products approved and recommended by OCEASOFT.

1.3.1 OCEAView™ Mobile: program modules, read and push data

The OCEAView Mobile Application for iOS® and Android® offers numerous features (*described in detail in the OCEAView Mobile Application user documentation*). Notably, it allows you to:

- Program all datalogging settings on Atlas modules, including temperature ranges, alarm limits, and the module's startup mode.
- Read and geolocate data collected from the module wirelessly
- Push mission and temperature data to the OCEACloud™ online service (note: Atlas modules include free data storage and access on OCEACloud)

1.3.2 OCEAView™ Web: Read and manage data

OCEAView Web is a web application that allows you to access and analyze Atlas mission information (notably temperature, location, and other key events) that is pushed to the OCEACloud service either *manually* by users with smartphones or automatically by the OCEABridge™ gateway.

1.3.3 OCEABridge™: Collect and push data with Bluetooth ⇔ Internet gateway

Placed at a central location in a storage or shipping facility, OCEABridge™ automatically collects data via Bluetooth when it detects OCEASOFT Atlas devices within wireless range. It then forwards the data to the OCEACloud online platform, where you can access it with OCEAView Web.

1.4 Process summary

Here is a sample overview of the tracking process using Atlas dataloggers.

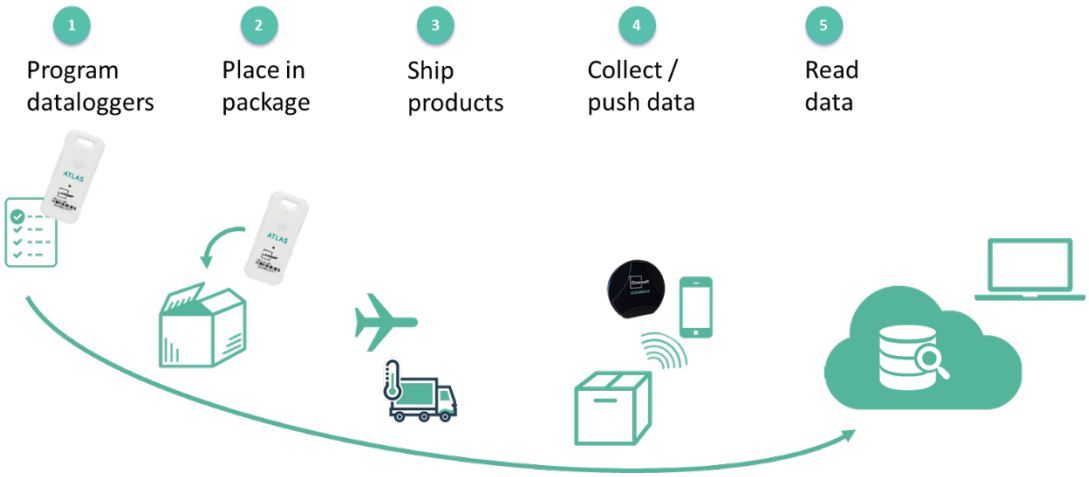
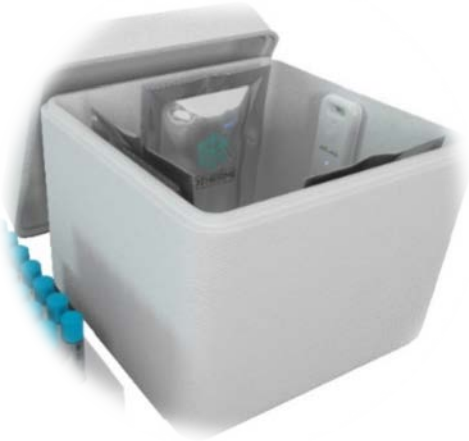


Figure 1 – End-to-end cycle from packaging to data on OCEACloud

1.5 Placing your Atlas module



Atlas™ is designed to be placed directly inside the product package or container whose temperature you would like to monitor.

Depending on the situation, you may choose to use the provided adhesive to fix the datalogger to the side of the container, or leave it loose inside a product box.

1.6 Links to download user guides

You may download the user guides related to the companion products described above from http://www.oceasoft.com/obt.

1.7 Atlas features

1.7.1 Wireless technologies

- Bluetooth® Smart for reading and transmitting data.

  Range: Up to about 50 meters (160 ft.) in line-of-sight

  Frequency (worldwide): 2.4 GHz

  Max output: 4 dBm
- Flight mode to stop wireless activity during air flight (RTCA DO-160 compliant)

1.7.2 Monitoring

- Temperature range: -30 to +70°C
- Humidity range: 0 to 99.99% non-condensing
- Reading precision: ± 0.3°C
- Sensor resolution: 0.01°C
- Configurable high/low alarm limits, delays, alerts, transmission interval
- Read interval from 15 to 59 seconds, or 1 to 255 minutes
- Data storage:
  - Unlimited data storage on OCEACloud
  - 16,000 readings stored in internal memory, with option to overwrite oldest data or stop datalogging when memory is full (corresponds to approximately 111 days autonomy when reading every 10 minutes)
- Automatic and spontaneous alarm transmission (alarms transmitted as they occur, captured by OCEAView software running in Watch Mode or by OCEABridge gateway)
- LED indicator for alarm status & communication
- Customizable module name

1.7.3 Casing & dimensions

- IP54 product protection index
- ABS casing
- Unique serial number for every module
- Dimensions
  H: 81 mm (3.2 in.)
  W: 43.4 mm (1.4 in.)
  D: 8.2 mm (0.3 in.)
- Weight: 26.2 g (0.9 oz.)
- Adhesive mount (optional)

1.7.4 Operating and storage conditions

- Indoor use only
- Designed for altitudes up to 6,500 feet (2,000 meters)
- Module operating range: -30 to +70°C
- Module storage conditions: 0°C to 30°C (32°F and 86°F); 0 to 99.99% relative humidity non-condensing
- Pollution degree: 3

1.7.5 Battery

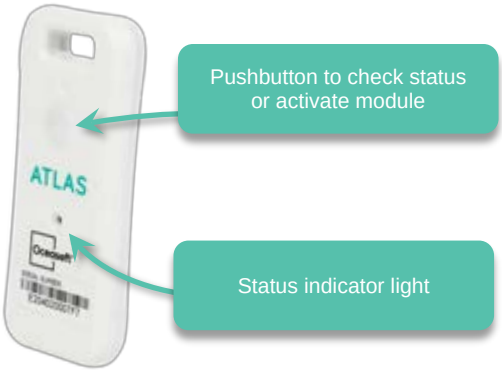
- Non-replaceable Lithium battery
- Battery life up to 12 months

  The shelf life (before first use) depends mainly on the storage temperature. To benefit from a full year of operation we recommend storing Atlas modules between about 10°C and 20°C (50°F and 68°F).

  See *Appendix 1 – Atlas battery life* on page 14 for estimated operating and storage times

2 Using your Atlas module

Generally speaking, most of the useful features provided by Atlas are activated or accessed through the companion software and hardware tools. The module itself is quite simple, with just two user interface functions: the pushbutton and the LED light.



2.1 Using the pushbutton

The Atlas pushbutton is used to either to:

- Activate Bluetooth on the module so you can program it with the OCEAView mobile application on your smartphone or tablet, or
- Check device status with the LED (color codes described below)

2.1.1 Activating Bluetooth to program with OCEAView Mobile

Upon delivery from the factory, Atlas modules are in a mode called “deep sleep”. That mode is used to preserve battery life before the module is used. Wireless communication and datalogging are both deactivated in deep sleep. When you want to program your Atlas module via Bluetooth using the OCEAView Mobile application, you must first activate it.

To activate an Atlas module:

1. Press and hold the pushbutton on the front of the Atlas module for 3 seconds.
2. Bluetooth is activated, the LED blinks blue, and the Atlas may be discovered by OCEAView Mobile for 1 minute.
3. During that period, you will see the device listed in the OCEAView Mobile display, at which point you may connect to it to configure a mission.

2.1.2 Using the LED to check module status

The color LED on the front of the Atlas module indicates module status. The LED on Atlas modules is activated by pressing the button on the front of the module, offering different patterns based on status, as shown below:

General (● = short flash)	
Bluetooth is activated for 1 minute if the module is in one of these states: a) Deep sleep b) Flight Mode c) Battery Low	 (blinks blue once every 10 seconds for 1 minute)
Module currently connected via Bluetooth	 (blinks blue twice every 6 seconds for one minute)

Mission status (● = short flash, ⬤ fixed for 3 seconds)				
	No mission programmed	Mission programmed and waiting to start	Mission started	Mission stopped
Everything OK				
Alarm in progress	n/a	n/a		
Alarm occurred	n/a	n/a		

This same behavior is obtained using the OCEAView mobile application, with the **Blink LED to identify module** function, as described in the OCEAView User Guide.

3 Maintaining your modules

3.1 Cleaning Instructions

You occasionally may need to clean your Atlas modules depending on site or environmental conditions.

Here are some recommendations and guidelines for cleaning your modules:

- Clean using a soft cloth with water, a detergent or isopropanol.
- Do not use any aggressive cleaning agents or scratching cleansers that might cause damage to your datalogger.

4 Appendix 1 – Atlas battery life

Many factors have an influence on Atlas battery life, both during use and in storage before being used. Here are the main considerations to take into account when evaluating product battery life:

- **Ambient temperature**: battery capacity is diminished when subject to very cold operating and/or storage conditions.
- **Wireless communications**: Bluetooth connections, from the OCEAView software to the Atlas module, consume battery power. Logically, the more you connect, the more you use the battery.

  However, it is worth noting that no connection is established when using Atlas with the OCEABridge gateway, or when simply viewing Atlas devices in OCEAView (without going into details). In that case, only the Bluetooth advertisement frames are read, and Bluetooth emits those frames regularly, whether or not you connect.

Note: The reading frequency does not have significant impact on battery life. Because of the product's optimized electrical architecture and circuitry, there is no significant difference, in terms of battery life, if the sensor reads and stores data once every ten minutes or once every minute.

4.1 Battery details

Atlas is designed as a single-use temperature monitoring solution, and thus contains a non-user-replaceable battery.

- Battery type: CR2450N
- System: Li / MnO_2
- Nominal voltage: 3 V

4.2 Estimated operating lifetime

The following chart shows estimated Atlas operating lifetime based on:

- Storage for 1 year before first use
- 1 reading per minute

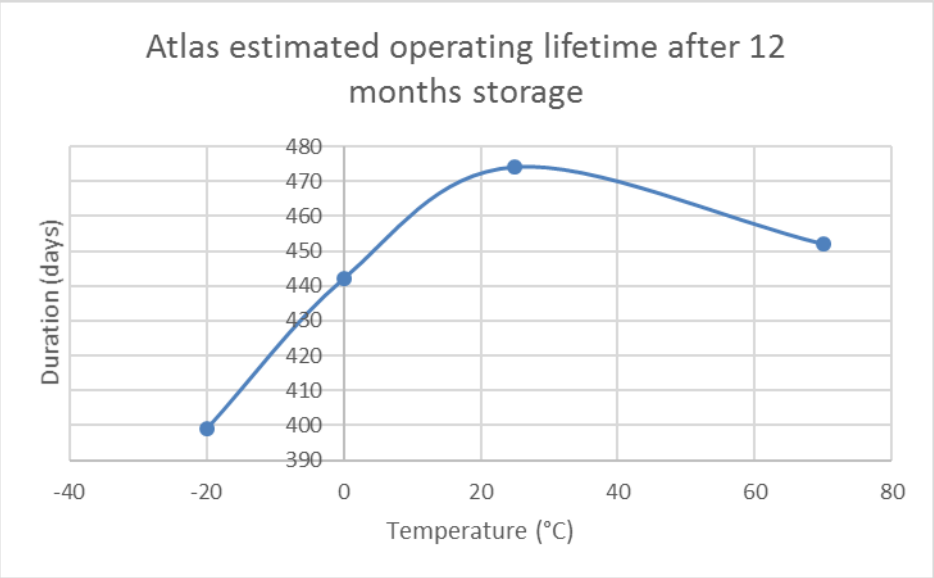


Figure 2: Atlas battery operation estimation after 12 months in storage

4.3 Estimated shelf-life (storage prior to use)

Atlas is designed to provide operation for 12 months, generally on a single mission. In order to ensure 12 months of reliable operation, it is important for the product to be used within a reasonable period of time after manufacturing. A “Use by” date is indicated on the product packaging.

The chart below shows estimated shelf life for Atlas at various temperatures, to ensure 12 months operation with 1 reading per minute (number of connections and downloads not counted here).

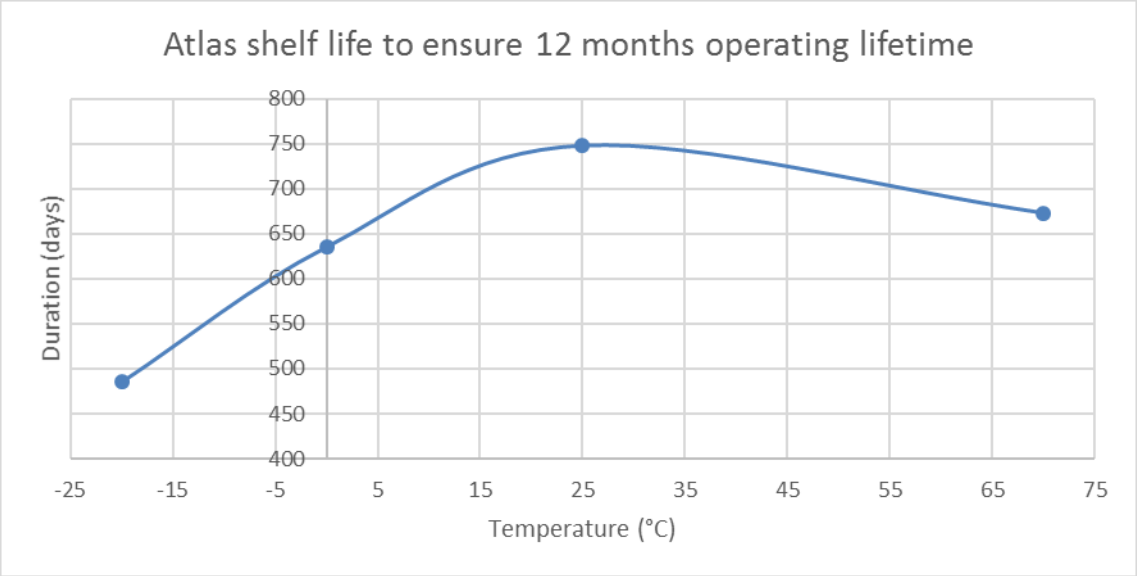


Figure 3: Atlas battery shelf-life estimation to ensure 12 months operation

5 Appendix 2 – EU Declaration of Conformity

SMQ-DOC-030-UNI-V01

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EU DECLARATION OF CONFORMITY
DECLARATION DE CONFORMITE UE

We, OCEASOFT SA, hereby declare under our sole responsibility that the following product(s)
Nous, OCEASOFT SA, déclarons sous notre seule responsabilité que le(s) produit(s) suivant(s)

Product Name / *Nom du Produit*	Description / *Description*
ATLAS	Datalogger

Intended to operate with the Software(s) / Accessories listed below
Destiné(s) à fonctionner avec le(s) logiciel(s) / Accessoire(s) listé(s) ci-dessous

SW & Accessories / *SW & Accessoires*	Description / *Description*
OCEAView Mobile (Android and iOS)	Mobile application for ATLAS products
OCEAView WebApp	Web application for ATLAS products
OCEABridge	Wireless receiver for ATLAS products

Is (are) in conformity with the provisions of the following EU directives
Est (sont) en conformité avec les exigences des directives UE suivantes

EU directive / *Directive UE*	Title / *Titre*
2014/53/EU	Radio Equipment Directive (RED)
2014/30/EU	EMC Directive
2014/35/EU	Low Voltage Directive
2011/65/EU	Restriction of Hazardous Substances Directive

The following standards were used to verify compliance with the applicable directives
Les normes ci-dessous ont été utilisées pour assurer la conformité aux directives applicables

Ref. & version / *Ref. & version*	Title / *Titre*
EN 61326-1 : 2012	EN 300330-2 V2.1.1
EN 301 489-1 V1.9.2	EN 300328 V2.1.1
EN 301 489-3 : V1.6.1	CEI 61010-1 : 2010
EN 301 489-17 V2.2.1	

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