User Guide

Atlas™

Data logger & wireless sensor

Temperature • Light • Relative humidity

DICKSON
Environmental Monitoring + Compliance Experts

Notices and safety

Disclaimer and limitation of liability

Dickson assumes no liability for any loss or claims by third parties which may arise through the use of this product. Users must not use the product in any manner not specifically indicated by Dickson.

Dickson shall not be held liable for improper use of this product.

This document is non-contractual and subject to change without notice.

Safety instructions

The latest safety instructions document is available for download from the Dickson website. Flash this QR code to access the document:

https://docs.oceaview.com/dickson_safety.pdf

Certifications and compliance

Caution: Any changes or modifications made to this product not expressly approved in writing by Dickson could void the user's authority to operate the equipment.

FCC statement

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 Part 15 §107 - §109 - §207 - §247 (Ed 2008).

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 statement

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 - Conformity with European regulations

This device is compliant with the essential requirements and other relevant requirements of the following directives.

- 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

상호명: (주)테솔

기자재명칭(모델명): Atlas Data Logger

제조자: DICKSON

인증번호: R-R-TES-Atlas

WEEE compliance

This 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

This device is compliant with the restriction of the use of certain hazardous substances in electrical and electronic equipment Directive 2002/95/EC (RoHS Directive). Do not dispose of this product with household trash. Dickson recycles this product under certain conditions. Please contact us for more information.

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Juin 2023 Ref: ING-INS-158-EN Rev. 06

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1 Introduction

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

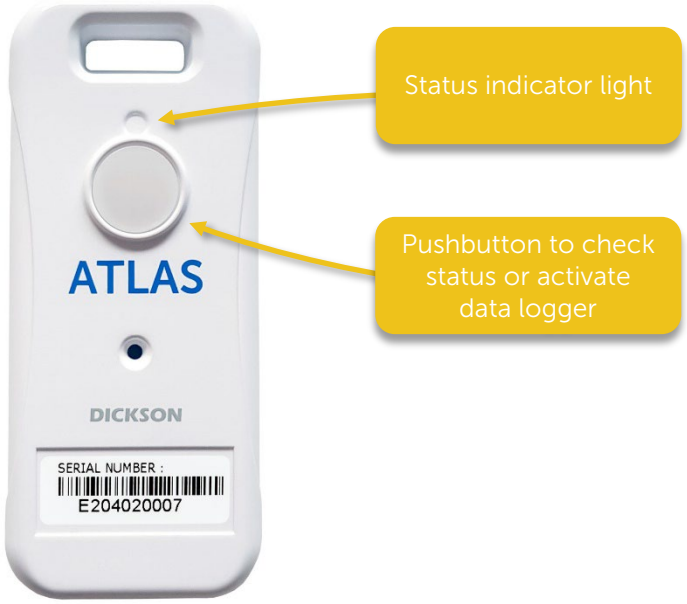
1.1 Summary

Dickson's Atlas is a Bluetooth-enabled wireless data logger designed for monitoring temperature, humidity, and light sensitive products during shipping. Atlas may also be used as a remote wireless sensor, paired with Cobalt X data loggers and connected via Bluetooth.

With its small footprint, Atlas fits conveniently inside many types of product packaging and containers, where it records temperature, relative humidity, and light levels according to parameters that you can define for your specific needs.

Atlas reads its integrated sensors at regular intervals and stores the information in internal memory. Atlas is designed for to be used for applications lasting up to about 12 months. The battery in Atlas is not replaceable.

Atlas gives you the benefit of a flexible monitoring solution that adapts to many usage scenarios, from low to high-volume needs. With this solution, you can keep track of critical parameters wirelessly without having to open containers in transit.



Atlas data logger (front view)

1.2 Package contents

- 1 Atlas data logger with internal temperature, relative humidity, and light sensors
- Adhesive tape for mounting

1.3 Companion products

The Atlas datalogger is designed to work with several different types of companion products from Dickson, in particular, depending on the volume of modules you intend to use, and whether or not you wish to use the OCEAView Cloud or On-premises monitoring platform.

> The Atlas datalogger may only be used with companion products approved and recommended by Dickson.

1.3.1 OCEAView Mobile

Program data loggers and read sensor data on your smartphone

The OCEAView Mobile application for iOS® and Android® offers many data logging features (described in detail in the OCEAView Mobile application user documentation). Notably, OCEAView Mobile enables you to:

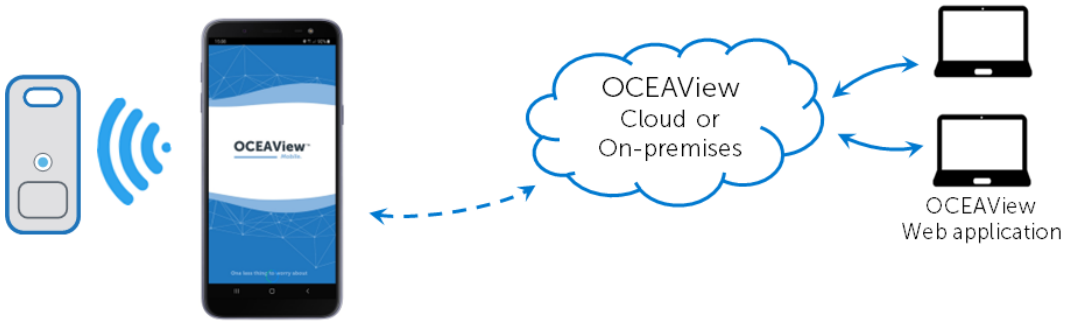
- Program all data logging settings on Atlas modules, including temperature, relative humidity, and light ranges, alarm limits
- Read data and geolocate data logger

Read and program Atlas with OCEAView Mobile in a standalone scenario

1.3.2 OCEAView Cloud or On-premises

Use OCEAView Mobile to push data to your OCEAView monitoring platform

OCEAView Cloud or On-premises is a complete web platform that allows you to access Atlas data (notably sensor readings, alarm details, and events) that is pushed manually by users with smartphones running the OCEAView Mobile application.



Read and program Atlas with OCEAView Mobile, synchronize with OCEAView Cloud or On-premises solution

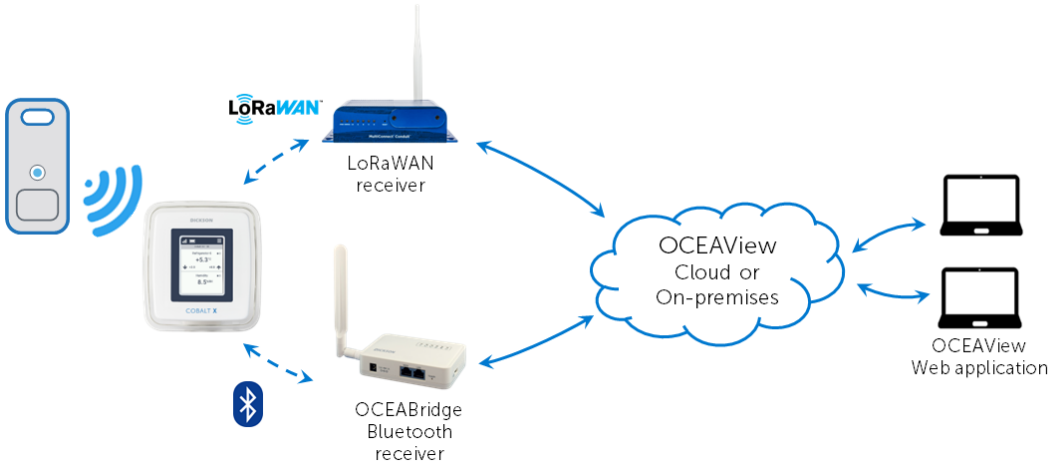
1.3.3 OCEAView Legacy

Access data pushed via OCEABridge (v2)

The OCEAView Legacy web application may be used with the OCEABridge Bluetooth-enabled gateway to automatically collect and transfer sensor readings from Atlas data loggers within wireless range.

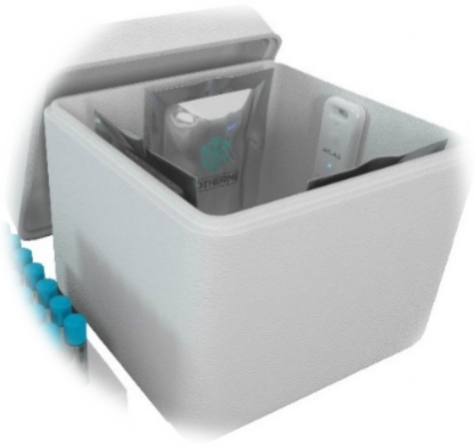
1.3.4 Using Atlas as a remote wireless sensor with Cobalt X

Atlas can be used as a wireless sensor with Dickson's Cobalt X data loggers. In this scenario, the Atlas device does not store sensor readings, but rather transmits them to a paired Cobalt X data logger. This provides the Cobalt X with identical functionality as wired sensors but with the convenience of wireless connectivity to avoid cabling constraints.



Atlas paired as wireless sensor for Cobalt X, connected to OCEAView Cloud or On-premises solution via LoRaWAN or Bluetooth

1.4 Placing your Atlas data logger



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.

1.5 Atlas features

1.5.1 Wireless technologies

- Bluetooth® Low Energy 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
- NFC (Near-field Communication)

  Range: About 4 cm (1.6 in.)
- Activatable sleep mode to stop wireless activity automatically during airplane take-off and landing (RTCA DO-160 compliant)

1.5.2 Monitoring

- Temperature range: -30°C to +70°C
- Humidity range: 0 to 90% non-condensing
- Expanded uncertainty after calibration: ±0.3°C to ±0.5°C for temperature and ±4% for relative humidity
- Sensor resolution: 0.01°C
- Configurable high/low alarm limits, delays, alerts, transmission interval
- Programmable read interval
- Data storage:
  - Unlimited data storage on OCEAView Cloud or On-premises solution
  - 1 16,000 readings with 1 measurement point OR 4,000 readings per measurement point (about 4 months OR 4 weeks of data with reading interval of 10 minutes)
- LED indicator for alarm status & communication
- Customizable module name

1.5.3 Casing & dimensions

- IP30 product protection index
- ABS casing
- Unique serial number for every data logger
- 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)

1.5.4 Operating and storage conditions

- Indoor use only
- Designed for altitudes up to 6,500 feet (2,000 meters)
- Operating range: -30°C to +70°C
- Storage conditions: 0°C to 30°C (32°F and 86°F); 0 to 90% relative humidity non-condensing

1.5.5 Battery

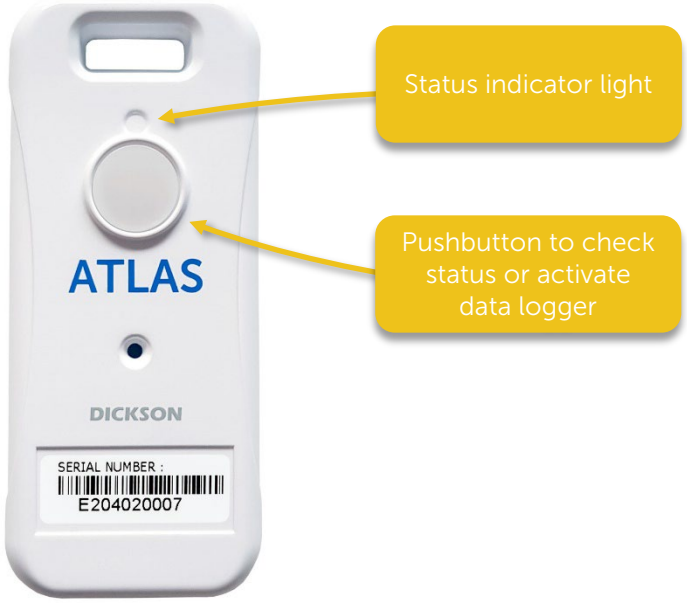
- Non-replaceable Lithium battery
- Battery life up to 12 months

  The shelf life (before first use) depends mainly on the storage temperature. To benefit from a full year of operation we recommend storing Atlas data loggers at around 25°C (77°F).

  See *Appendix 1 – Atlas battery life* on page 16 for estimated operating and storage times

2 Using your Atlas data logger

Generally speaking, most of the useful features provided by Atlas are activated or accessed through OCEAView Mobile software. The data logger itself is quite simple, with just the pushbutton and LED status light.



Atlas data logger (front view)

2.1 Using the pushbutton

The Atlas pushbutton is used to either to:

- Activate Bluetooth so you can program the data logger using OCEAView Mobile on your smartphone, or
- Check device status with the LED (color codes described below)

2.1.1 Activating Bluetooth for OCEAView Mobile or Cobalt X pairing

Upon delivery from the factory, Atlas data loggers are in "deep sleep" mode to preserve battery life before use. Wireless communication and datalogging are both deactivated in deep sleep. When you want to program your Atlas device via Bluetooth using OCEAView Mobile, you must first activate it.

To activate an Atlas data logger:

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 or a Cobalt X data logger for 1 minute. Please check the user guides for those products for more details.

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)

Data logging (● = short flash, ⬤ fixed for 3 seconds)				
	No data logging programmed	Data logging programmed and waiting to start	Data logging started	Data logging 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 data logger

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.

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

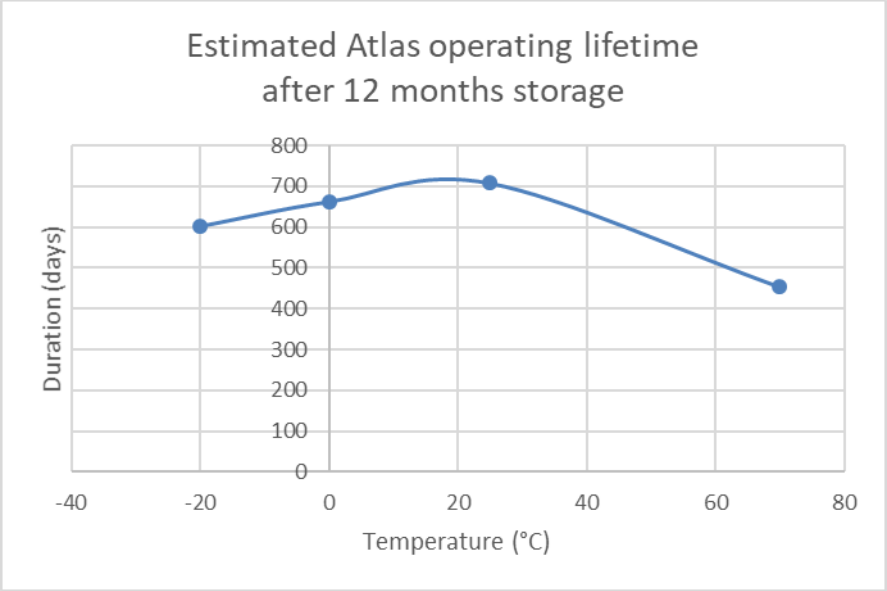
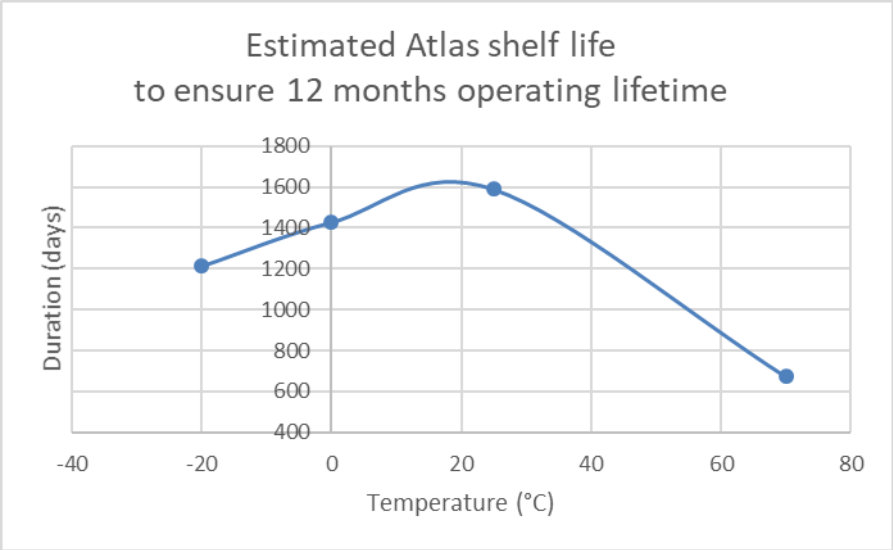


Figure 1: Atlas battery operation estimation after 12 months in storage

4.3 Estimated shelf-life (storage prior to use)

Atlas is designed to provide operation for 12 months, generally on a single mission. To ensure 12 months of reliable operation, it is important for the product to be used within a reasonable period of time after manufacturing.

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).



Atlas battery shelf-life estimation to ensure 12 months operation

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