Cobalt XS

Data logger for OCEAView and DicksonOne monitoring platforms

DICKSON
Environmental Monitoring + Compliance Experts

Notices and safety

Read this first

Please read these simple guidelines before using your Dickson product. It may be dangerous or against local laws or regulations to not follow them.

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. In the case that the device is used in any manners not specified by Dickson, the protection provided by the device may be compromised. The proper use of the device is of the responsibility of the user.

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

Wireless interference

All wireless devices may be susceptible to interference, which could affect performance.

Battery / electrical warning

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT OPEN OR REMOVE THE PRODUCT CASING. NO USER-SERVICEABLE PARTS INSIDE. ONLY AUTHORIZED PERSONNEL MAY REPAIR THIS PRODUCT.

The lightning flash with arrowhead symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

- This product contains one non-rechargeable 3.6V lithium battery.
- Make sure you respect (+/-) polarity, as indicated inside the battery compartment, when inserting batteries into Dickson devices. Reversing polarity by inserting the batteries incorrectly can cause the product to heat up and may lead to battery liquid leakage.
- Use only batteries recommended by Dickson. Do not use a different type of battery, such as rechargeable, alkaline and magnesium. An incorrect battery may cause the device to heat up and may result in fire or battery liquid leakage.
- Never dispose of Dickson products or batteries in fire, as that may cause the battery to explode or leak flammable liquid or gas.
- Do not charge regular batteries that are not specifically rechargeable.
- When the battery is low, or in case the battery-operated device in question remains unused for a lengthy period of time, remove the battery from the device in order to avoid any risk of battery liquid leakage.
- Never leave batteries within the reach of children.
- Do not dismantle, cut, crush, bend, puncture, or otherwise damage the battery in any way. In case of a battery leak, avoid all contact with the liquid present on the battery.
- Rinse with clear water immediately in case the battery liquid comes into contact with the eyes, mouth, or skin. Contact a doctor or emergency service immediately. Battery liquid is corrosive and can damage vision or cause blindness or chemical burns.
- To prevent fires or explosion risks, use non-conductive tape over battery terminals and/or place batteries in separate plastic bags. Batteries should never be crushed, burned, or put in household waste. For proper disposal, batteries should be taken to specific battery collection points.

Keep your device dry. If your device is water resistant, check its IP rating and make sure that you only use the device under safe conditions with respect to its intended purpose and technical specifications.

California Proposition 65

This product can potentially expose you to chemicals including lead, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov

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.

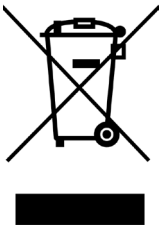
CE - Conformity with European regulations

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

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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1 Introduction

Congratulations and thank you for choosing Cobalt XS, a powerful and flexible wireless data logger created by Dickson. Ideal for life science, agri-food, and logistics sectors, Cobalt XS gives you a cost-effective and reliable way to keep an eye on the environmental parameters of your sensitive assets, storage facilities, products, equipment, and more.

The Cobalt XS data logger implements LoRaWAN wireless connectivity to provide very long-range coverage that minimizes your related on-site infrastructure requirements. This data logger also supports Dickson's Smart-Sensor technology, which makes it easier to keep up with calibration tasks by storing all calibration information directly in the sensor. This enables both high accuracy and on-the-fly sensor swapping when needed.

- Fully integrated with the following Dickson monitoring platforms:
  - OCEAView Cloud
  - OCEAView On-premises
  - DicksonOne Cloud
- Compatible with the following Dickson environmental parameter sensors:
  - Digital temperature
  - Smart-Sensor Pt100
  - Dual temperature/humidity sensors
- Button-controlled high-contrast LCD screen

1.1 What's in the box

- Cobalt XS data logger
- External antenna
- 3.6V Lithium battery
- Mounting kit with wall-mount plate (screws/anchors, Velcro®)

1.2 Technical features

Applications	Refrigerators • Freezers • ULT freezers • Nitrogen tanks • Water baths • Ovens • Incubators • Autoclaves • Cold rooms • Cleanrooms • Warehouses
Supported sensors	Temperature • Temperature/relative humidity
Sensor calibration options	ISO/IEC 17025 (COFRAC) accredited • In-house laboratory certified (non-accredited) • NIST-traceable • Recalibration via sensor exchange
Measurement points	One Binder connector for single or dual sensor probes

Display & interface	2.4" (6.1 cm) LCD screen for setup, server synchronization, latest readings, battery level, signal strength • Temperature in °C or °F
Monitoring software	Integration with OCEAView Cloud, DicksonOne Cloud, and OCEAView On-premises platforms • Data logging setup handled via OCEAView or DicksonOne • Adjustable sensor reading interval
Alarms	Alarms and warnings indicated by flashing light • Managed directly by data logger and transmitted to monitoring platform for fast user notification • 3 high & 3 low limits (with programmable delay for each limit)
Connectivity	LoRaWAN long-range wireless technology, range up to about 15 km/10 miles L.O.S.(1) • LoRaWAN regional channel plans in ISM radio spectrum: EU868, US915, AS923-1, AU915, IN865, KR920 • Bluetooth Low Energy (compatible with OCEAView Mobile smartphone app 3.6.2 and higher) • Omnidirectional antenna
Data management	4,000 readings per sensor (about 4 weeks of data with reading interval of 10 minutes) • Unlimited storage of uploaded data on web platform
Power	3.6 V user-replaceable lithium battery (only use SAFT LS17500 battery in Cobalt XS data loggers). The device does not support any other battery type. • At least 1 year battery life (standard usage) • Maximum current consumption 100mA • Maximum power 0.36W
Operating conditions	Standard data logger: 0 °C to +50 °C (+32 °F to +122 °F); 0 to 90% relative humidity (non-condensing) • With optional IP67 casing: -30 °C to +50 °C (-22 °F to +122 °F); 0 to 99.9% relative humidity (non-condensing) • Product may be used at a maximum altitude of 2,000 meters (6,562 ft)
Storage conditions	-10 °C to +60 °C (+14 °F to +140 °F) • 0 to 90% RH (non-condensing) • Optimal storage around 25 °C (77 °F)
Casing & dimensions	ABS plastic casing • 69 x 107 x 31 mm (2.7 x 4.22 x 1.22 in.) • Weight with battery: 130 g (4.6 oz.)
Pollution degree	Pollution degree: 2 (only non-conductive pollution is supported under normal conditions; temporary conductivity caused by condensation is to be expected)
Mounting & installation	Wall-mount kit with screws or Velcro® • For indoor use only in non-harsh environments • Maximum mounting height 1.8 meters (about 6 feet) from the floor
Certifications	FCC • CE

1.3 Data logger presentation

Figure 1 – Cobalt XS hardware features

1.4 Dimensions

1.4.1 Datalogger

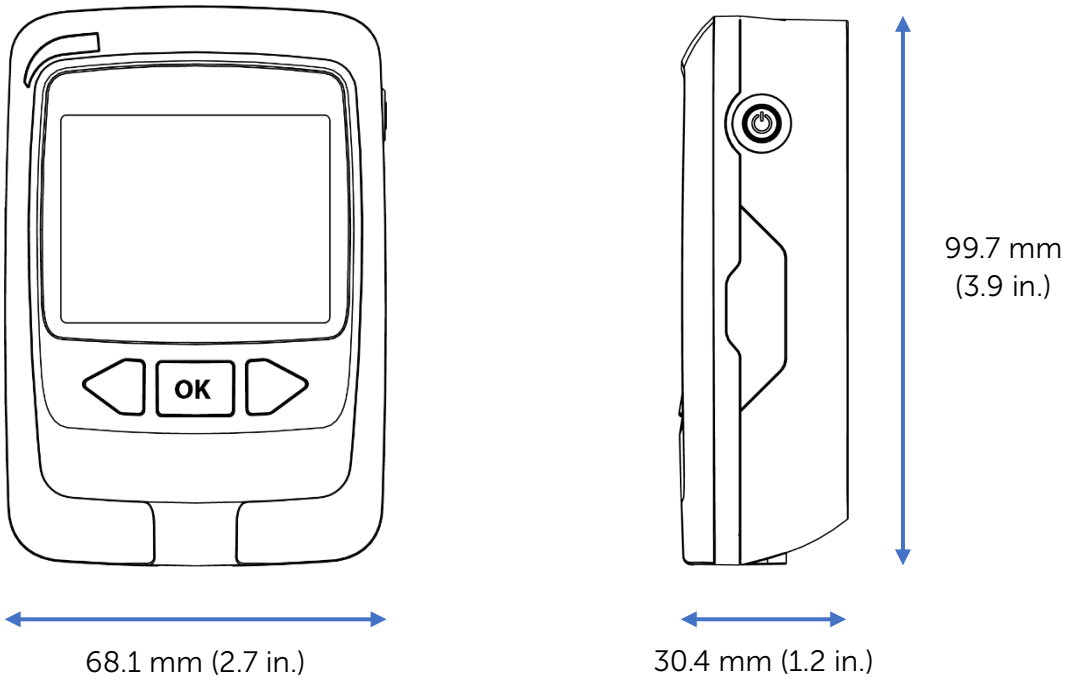


Figure 2 – Cobalt XS dimensions

1.4.2 Wall-mount plate

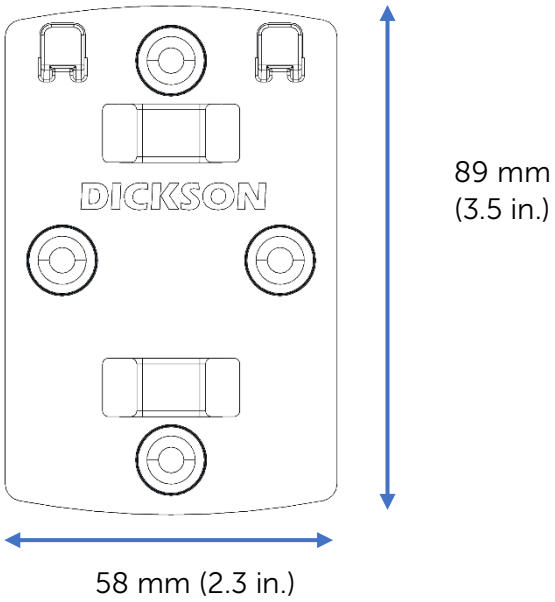


Figure 3 – Wall-mount plate dimensions

1.5 How it works

1.5.1 Prerequisites for using Cobalt XS

To use the Cobalt XS data logger, you will need:

- A compatible sensor
- An account on an OCEAView Cloud, DicksonOne Cloud, or OCEAView On-premises monitoring platform
- An operational Dickson LoRa gateway connected to your monitoring platform

1.5.2 Star wireless network topology

LoRaWAN is a long-range wireless technology (with range up to about 10 mi./15 km) whose architecture is based on a "star" topology. Wireless data loggers connect to a gateway communicating bi-directionally with a server that collects and analyzes information collected by sensors (either on the Cloud or on-site).

The long-range connectivity provided by LoRaWAN greatly simplifies installations on geographically large sites, where a single gateway is often sufficient to cover entire complexes and campuses. Depending on site size or building density, it may be necessary to use more than one gateway.

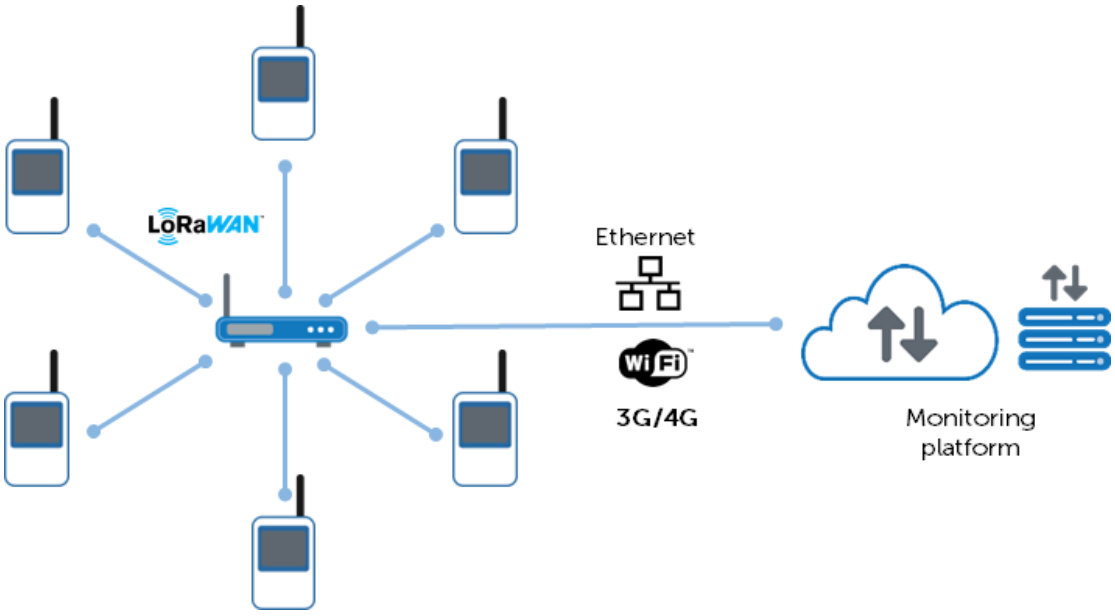


Figure 4 – Data loggers communicate with a LoRaWAN gateway connected to the monitoring platform

1.5.3 Connectivity with OCEAView and DicksonOne

The Cobalt XS data logger can be used with either the OCEAView Web or OCEAView On-premises monitoring platforms, or the DicksonOne Cloud monitoring platform. In terms of connectivity and Cobalt XS operation, these two options function identically:

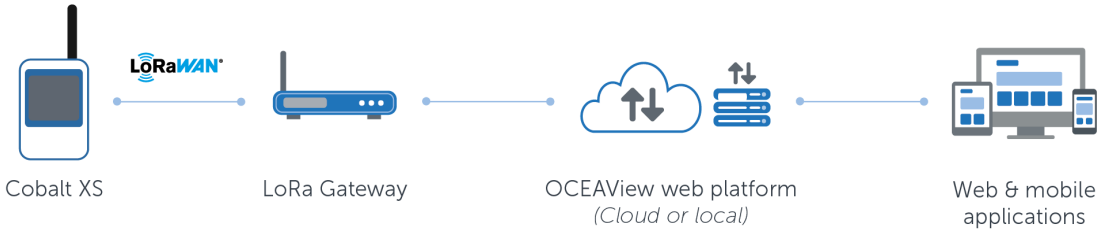


Figure 5 – Cobalt XS connecting to OCEAView

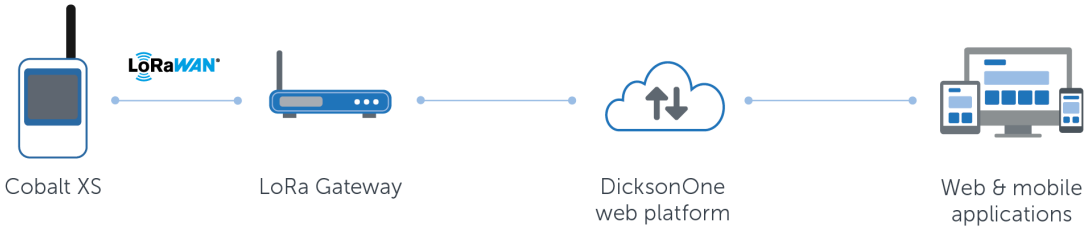


Figure 6 – Cobalt XS connecting to DicksonOne

There are a few minor differences in terms of data logging functionality between the two platforms that will be pointed out in this user guide.

For more details regarding monitoring functionality and data logger programming, please check the appropriate application documentation:

OCEAView User Guide (PDF)

Dickson One (on-line guides)

1.6 General information

1.6.1 Attaching the antenna

For your Cobalt XS data logger to communicate effectively with your LoRa gateway, you must attach the provided antenna.

To attach the antenna

1. Place the antenna on the plug on the data logger.
2. Hand-tighten the brass ring to attach the antenna firmly, but without over-tightening.

Figure 7 – Attaching the antenna

1.6.2 Using the navigation buttons

The Cobalt XS interface is controlled by four buttons that allow you to perform various actions and manage various device settings.

- Navigate through the menu using the three buttons on the front of the data logger.
  - > Press and hold the OK button briefly to enter the menu.
  - > Use the left and right buttons (◁ ▷) to move through the menu items on the screen, and the central OK button to select the currently displayed item.
  - > To return to the main screen, you may either press and hold the OK button briefly to back out, or navigate to the **Back** option and press OK. Otherwise, the screen always returns to the home screen after one minute of inactivity.
- Turn the screen off/on using the round button on the side of the data logger.
  - > Press and hold the side button for about 3 seconds to turn the screen off to save battery power. Press the side button or any of the other buttons to turn the screen back on.

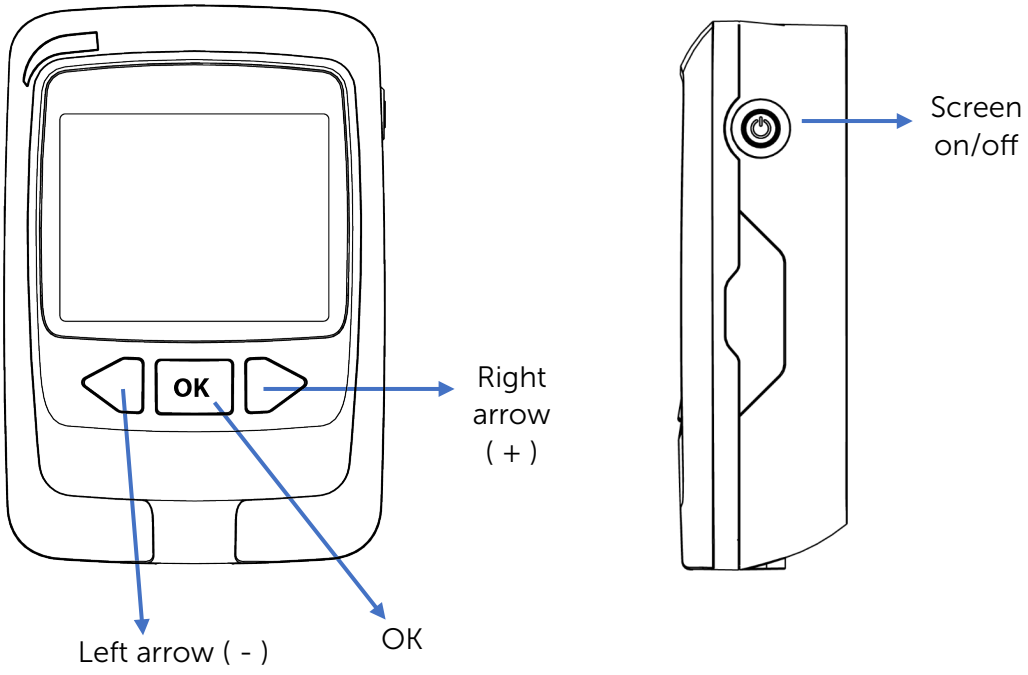


Figure 8 – Cobalt XS buttons

1.6.3 Menu structure

This diagram shows the Cobalt XS menu structure. Navigate through the menu items as described in the previous section.

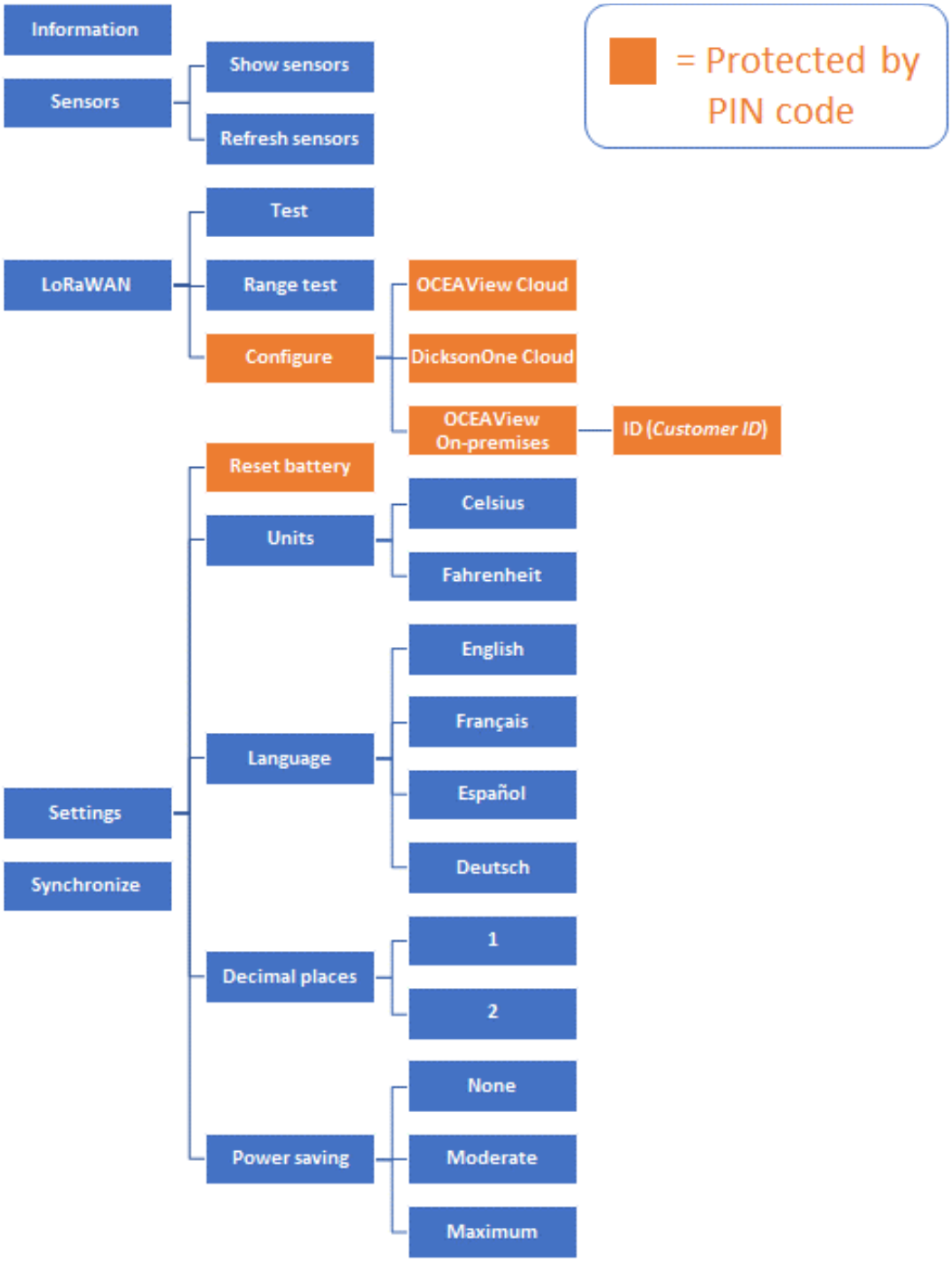


Figure 9 – Cobalt XS menu structure

1.6.4 Entering numbers

The buttons on the datalogger enable you to manually enter numbers when prompted by the device. You will need to do this to access several options in the Cobalt XS menu:

- LoRa Configuration (*requires a PIN code*)
- Battery reset (*requires a PIN code*)
- Customer code (*required for OCEAView On-premises solution only*)

> **In OCEAView:** the PIN code is configured in your user profile.
>
> **For DicksonOne:** enter "000000" (six zeros) if prompted for a PIN code.

Here's how to enter numbers using the button-controlled interface:

1. When you need to enter a number, the interface looks like this (using the example of PIN code entry) – notice the triangular cursor beneath the first digit (1).

2. Press ◁ or ▷ to move the cursor left or right (2) from one digit to the next.

3. Press OK to change the number above the cursor. Each press increases the number.
4. Stop when the number is correct, then press ▷ to move on to the next number.
5. When the number is complete, press ▷ to move the cursor to **OK** and then press the OK button to confirm. If you select **Back**, the previous screen is displayed.

2 Getting started

2.1 Activating the data logger – inserting the battery

Activate your Cobalt XS data logger by inserting the battery. We recommend that you plug the sensor into the datalogger before you begin, but the device will detect the sensor automatically afterwards as well.

To activate the Cobalt XS:

1. Remove the battery cover from the back of the data logger.
2. Insert the battery inside the cavity, making sure to respect polarity, as indicated by the + and – symbols embossed in the plastic.
3. Clip the battery cover in place.
4. The data logger takes a few seconds to boot and is then ready for use.

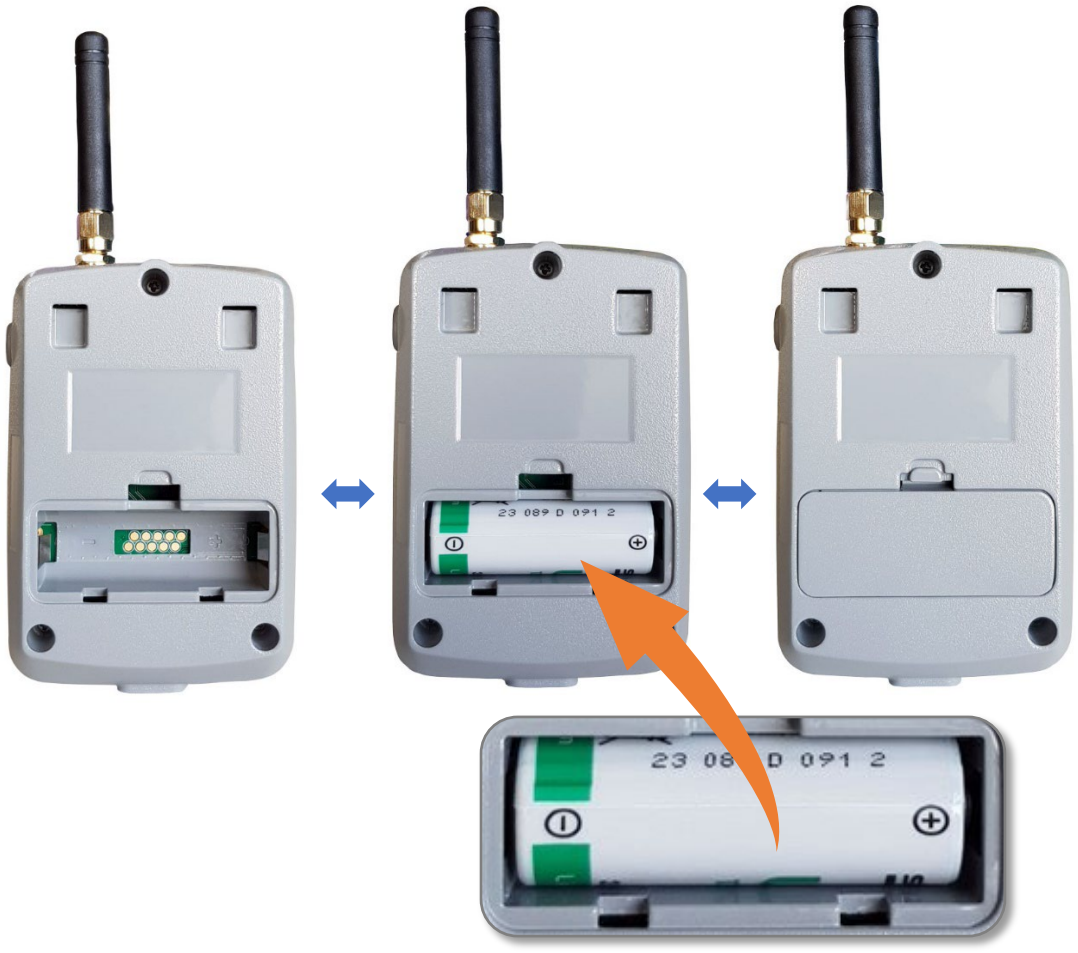


Figure 10 – Inserting the battery into the data logger

2.2 Choosing your monitoring platform

After you activate the data logger by inserting the battery, the next step is to choose which monitoring platform you want to use. Several options are available:

OCEAView Cloud	OCEAView monitoring platform running on secure public Cloud server.
DicksonOne Cloud	DicksonOne monitoring platform running on a secure public Cloud server.
OCEAView On-premises	OCEAView monitoring platform running on private server within an organization's own infrastructure.

To choose your platform:

1. The screen looks like this when you first activate the data logger:

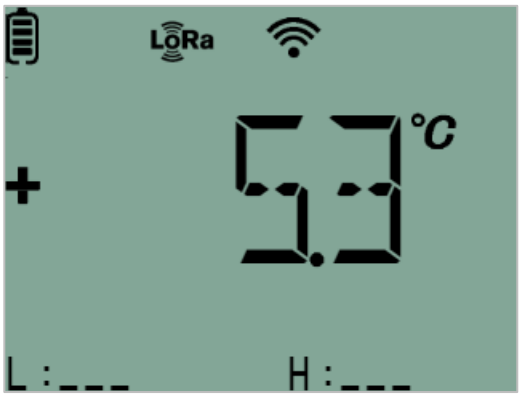
2. Press the right or left button (or) until your platform is displayed.
3. Press OK to choose the platform.
4. Depending on your platform, you will see one of three possible screens, described below.

2.2.1 OCEAView Cloud

If you select OCEAView Cloud, the data logger connects to your LoRa gateway and you may add it to your monitoring system. The default screen for an unprogrammed data logger is displayed.

2.2.2 DicksonOne Cloud

With DicksonOne Cloud, datalogging starts automatically without any programmed high or low limits. After a short moment, a registration code is displayed, which you must then use to add the data logger via the DicksonOne web application.



2.2.3 OCEAView On-premises

For an OCEAView On-premises solution, you must enter your 8-digit Customer ID here. Enter the number using the ◁, ▷, and OK buttons as described in section *1.6.4 – Entering numbers, p. 18.*

Select **OK** when done.

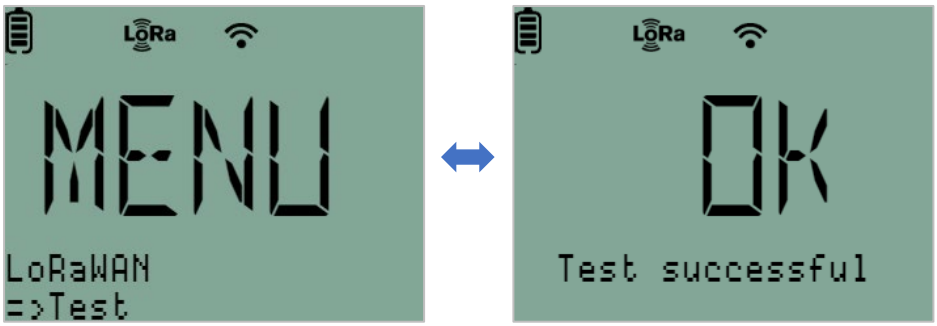
2.3 Checking LoRa wireless connectivity

2.3.1 Testing connectivity

You can test LoRa wireless connectivity to make sure that your data logger is communicating correctly with your LoRa Gateway.

To test connectivity:

1. Press and hold OK to enter the menu.
2. Press ◁ or ▷ until you reach **LoRaWAN**, then press OK
3. **Test** is the first option, so just press OK to run the test. If the LoRa gateway is within range, the test is successful as shown here. Otherwise, check to make sure the gateway is up and running.



2.3.2 Checking signal strength (Range test)

For a more technical overview, you can display LoRa signal strength details by running a range test. This information may be useful for troubleshooting or working with Technical Support.

To check signal strength:

1. Press and hold OK to enter the menu.
2. Press ◁ or ▷ until you reach **LoRaWAN**, then press OK
3. Press ▷ until you reach **Range test**, then press OK to run the test several times to compare values.

2.3.3 Changing your monitoring platform

You may change the monitoring platform as described here.

1. Press and hold OK to enter the menu.
2. Press ◁ or ▷ until you reach **LoRaWAN**, then press OK
3. Press ▷ until you reach **Configure**, then press OK
4. Enter your PIN code (as described in section *1.6.4 – Entering numbers, p. 18*).
   > If the data logger has not yet connected to your OCEAView platform, or if you are using DicksonOne, use 000000 (six zeros) as the PIN code.

   > If your data logger has already connected to your OCEAView platform, you must enter a valid PIN code to continue.
5. Press the right or left button (◁ or ▷) until your platform is displayed.
6. Press OK to choose the platform.

2.4 Placing your Cobalt XS data logger

For optimal performance in terms of wireless connectivity, follow these recommendations when physically placing your Cobalt XS data logger:

- Do not place the data logger within 40 cm (16 in.) of another data logger.
- Make sure the data logger is not placed on an electrical conduit or cable tray (such as those used for computer network cables).
- Keep about 20 cm (8 in.) of clear space around the data logger. For example, a data logger that is "stuck" between two refrigerators may not communicate effectively.
- If possible, orient the data logger so that it faces the general direction of the gateway for best results, with the antenna vertical and not laying on a flat surface.

Make sure all cables, if any, are firmly attached and that sensors are properly placed in the appropriate space being monitored.

2.5 Mounting your data logger

Your Cobalt XS data logger includes a wall-mount plate that can be used to fix the device solidly on a wall.

To mount the data logger on a wall with screw:

1. Place the plate on the wall and insert the screws through the appropriate holes.
2. Place the data logger on the mount and slide it down until it clips firmly onto the upper hooks on the mounting plate:

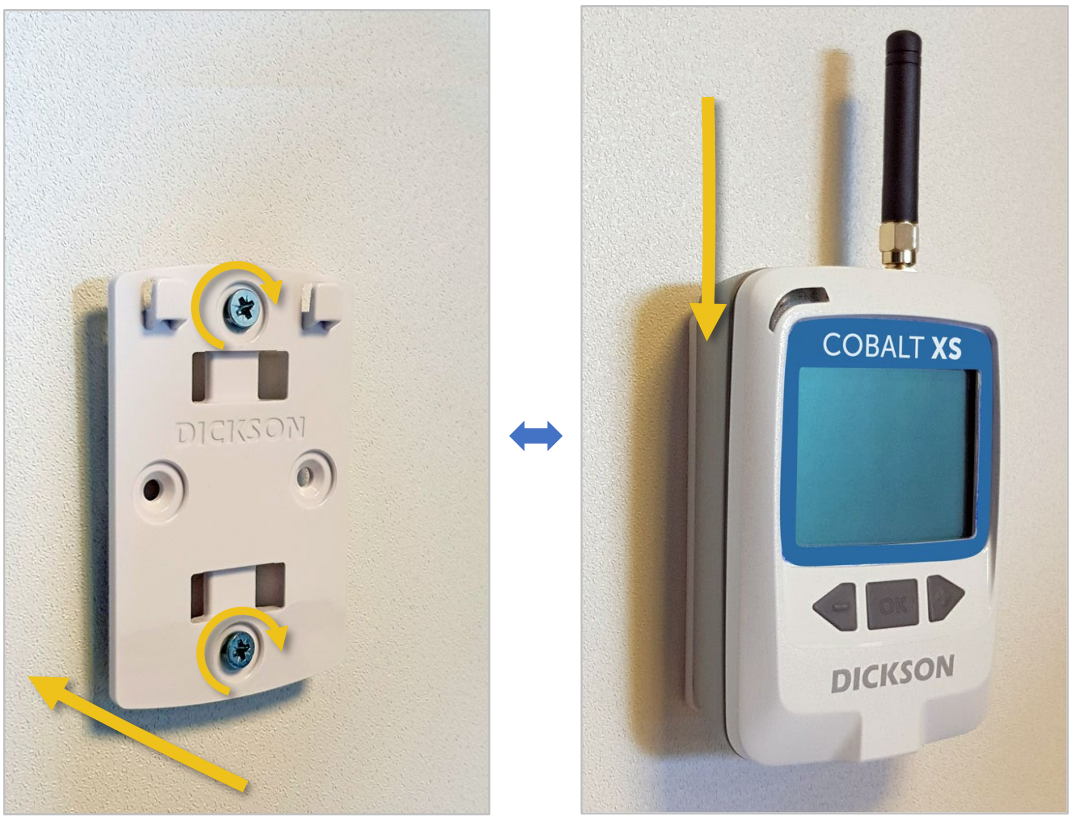


Figure 11 – Mounting the Cobalt XS with the wall-mount plate

3 Sensors

3.1 Supported sensors (see Sensor Reference Guide)

For details regarding supported sensors, please see the **Dickson Sensor Reference Guide**

Click here for PDF

3.2 Plugging in sensors

The Cobalt XS has one Binder plug on the bottom side of the casing.

To plug in a sensor:

1. Align the slot on the sensor plug with the key on the Binder plug on the data logger.
2. Press firmly until the sensor cable is firmly seated on the connector.

Figure 12 – Plugging a sensor into the Cobalt XS data logger

To remove a sensor:

1. Hold the black sensor plug.
2. Pull straight out until the plug is free.

You can swap a sensor for an identical sensor even while data logging is running. At calibration time, you can remove the current sensor and plug in a freshly calibrated sensor without any down time or data loss. The monitoring platform adapts automatically and data logging continues seamlessly with the new sensor. You may use the **Refresh sensors** option to accelerate the process.

3.3 Refresh sensor(s) to update the monitoring platform

When you physically plug a supported sensor into the connector on the Cobalt XS data logger, the device automatically recognizes the sensor and sensor type. That information is then transmitted wirelessly to the monitoring application.

If a sensor is not present, or not up to date in the web application, you may use the **Refresh sensors** option to force it to detect the new sensor and update the configuration.

To force a sensor update:

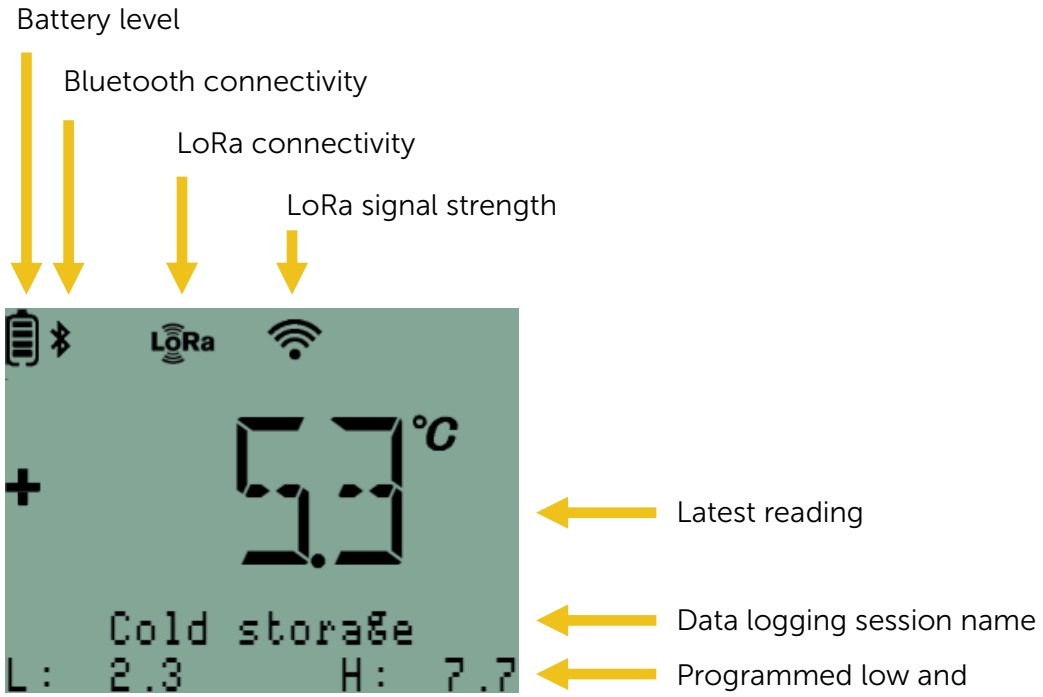
1. Press and hold OK to enter the menu.
2. Press  until you reach **Sensors**, then press OK
3. Press  until you reach **Refresh sensors**, then press OK
4. Wait while the system updates data in your monitoring platform.

4 Data logging with Cobalt XS

4.1 Screen presentation

Here are the elements on the Cobalt XS screen during data logging:

Normal screen



Screen with alarm / warning

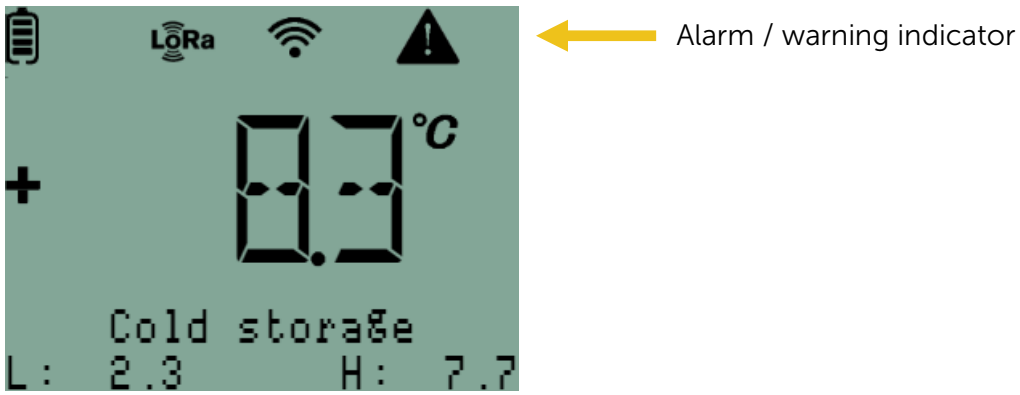


Figure 13 – Cobalt XS screen overview

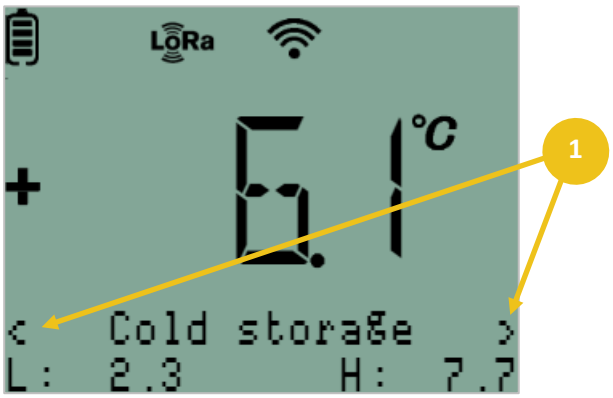
For more information about alarms, please see section *4.6 – Alarms and warnings, p. 32*.

4.2 Starting data logging

Data logging is managed entirely through your monitoring platform. Please check the appropriate user documentation for your platform if you need more information about programming high and low limits, handling alarms, sending alerts to users, and more.

When data logger is running with one sensor, the display looks like this:

When your data logger has a dual sensor, and both are being used for data logging, the display looks like this, with right/left arrows (1) indicating that a second sensor is present:



You can press the right or left button ( ) to see the other sensor:

4.3 Data synchronization

The Cobalt XS data logger automatically uploads data readings at regular intervals, as determined by your monitoring platform settings. You may force synchronization of your Cobalt XS data logger with the server in order to speed up certain operations, instead of waiting for the next scheduled synchronization:

- When adding a new sensor to a Cobalt XS data logger: if you use the **Synchronize** function, the new sensor is updated on the server right away, otherwise the update occurs at the next programmed data transfer.
- If you make data logging configuration changes on the server, using the **Synchronize** function on the data logger causes those changes to be taken into account right away.

When using the Synchronize feature, please wait about 30 seconds between presses. Due to the nature of LoRaWAN communications, it may take a moment for information to be updated completely.

To synchronize your data logger data:

1. Press OK to enter the menu.
2. Press ◁ until you reach **Synchronize**, then press OK
1. If the data logger's network connection is up and running (which you can test as described in section *2.3.1 – Testing connectivity, p. 22*), information is updated bidirectionally.

4.4 Show sensors

Whether data logging is running or not, you may use the **Show sensors** feature to display the current readings and parameters of each sensor connected to your Cobalt XS data logger.

To see sensor information:

1. Press and hold OK to enter the menu.
2. Press ▷ until you reach **Sensors**, then press OK
3. As **Show sensors** is the first option, press OK

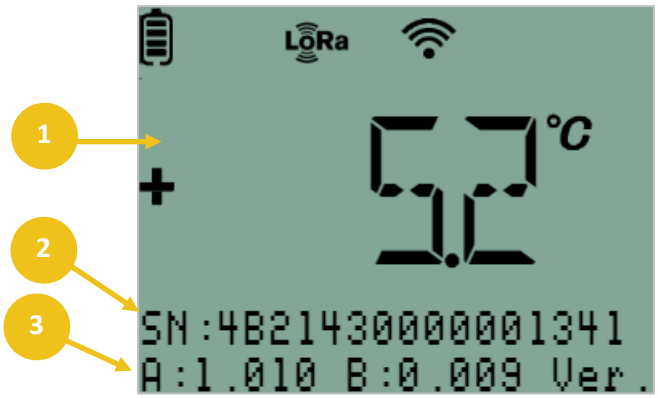


Figure 14 – Sensor information

The following sensor information is displayed on the screen:

1. Latest reading
2. Sensor serial number
3. Sensor calibration correction coefficients

4. If a dual sensor is connected to the data logger, press the right or left button (◁ or ▷) to see the second sensor.

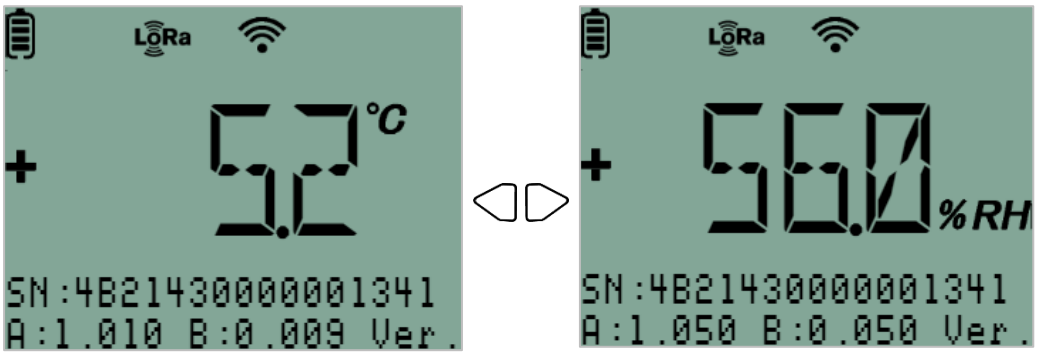


Figure 15 – Sensor information for a dual temperature and relative humidity sensor

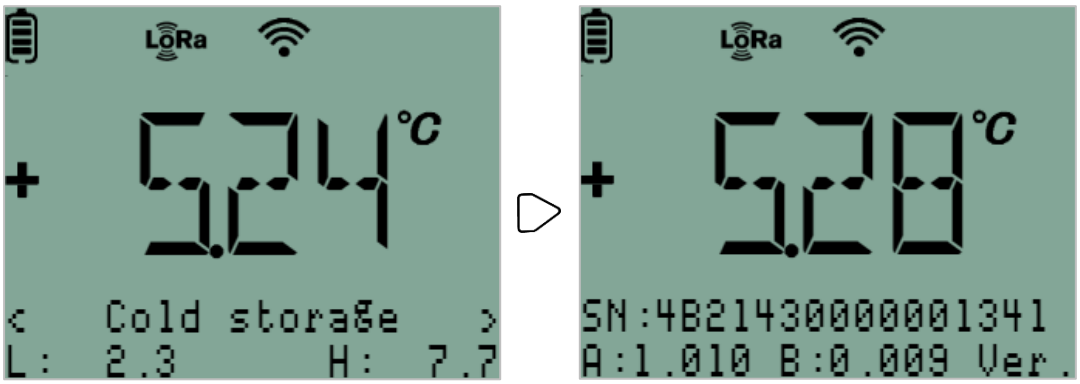
4.5 On-demand sensor reading while data logging

The data logger is programmed to read its sensor(s) at regular intervals – configured using your monitoring platform – but you can check the current sensor reading at any time when data logging is running, without affecting recorded data or sensor graphs.

On-demand readings are for information only and are not stored in the database. Only readings taken at the programmed interval are stored.

To perform an on-demand read while data logging is running:

1. Press the OK button. The screen displays the sensor serial number, calibration correction coefficients, and version (if applicable).



It is completely normal for there to be variations between the initial display (which shows the last read value) and the on-demand read value (which shows the current reading).

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2. If you want to see the second sensor on a dual-sensor probe, first press to access the second sensor, then press OK

4.6 Alarms and warnings

One of the Cobalt XS data logger's most important features is its ability to detect alarm conditions and work in tandem with the monitoring platform to notify designated users when problems occur.

An alarm condition can be one of the following:

- An **excursion**, where the read sensor value is outside the programmed target range. Excursions may be set up in the monitoring platform to be treated either as warnings (which do not require acknowledgment) or alarms (which require acknowledgment via the monitoring platform).
- A **technical alarm**, such as:
    - Low battery (when the battery level drops below 10% of its full charge)
    - Unexpected stop (if the data logger stops functioning for some reason, such as when the battery is removed)
    - Sensor failure (if the data logger was unable to read the sensor)
    - Invalid sensor type (if an incompatible or unknown sensor type was plugged in)
    - Communication error – [XX] minutes without communication with the server

Regardless of the programmed data transfer interval, alarms generated by the data logger are always transmitted spontaneously to the server as soon as they are detected by the data logger.

When an alarm or warning occurs, the LED in the upper left-hand corner of the data logger casing flashes for as long as the data logger remains in excursion. The light stops flashing if, at the next programmed sensor read, the alarm condition has ended.

Two colors are used for alarms:

- Red for limit alarms and technical alarms, which require acknowledgment in the monitoring platform.
- Orange for warnings, which are recorded in the audit trail like alarms but do not require acknowledgement.

Figure 16 – Data logger with alarm (left) and warning (right)

In either case, the light stops flashing when the sensor value returns to its normal range, or when the technical alarm is resolved.

Alarms and warnings both trigger alerts (user notification or alarm device) if programmed. The only difference is that warnings do not need to be acknowledged by entering a PIN code via the monitoring platform.

4.7 Data logger information

General information about the data logger can be found in the **Information** screen. This information is mostly useful in case you need technical support and are asked to provide specific details.

To see information:

1. Press and hold OK to enter the menu.
2. As **Information** is the first option, press OK
3. Press the right or left button (◁ or ▷) to see the available information, including:
   - Data logger serial number
   - Firmware version
   - LoRa radio information
   - Date and time
   - Registration code for DicksonOne Cloud (if applicable)

5 General settings

5.1 Resetting the battery counter

The Cobalt XS data keeps track of battery life on an ongoing basis. If you change the battery in your data logger, you must reset the battery counter as described here in order to indicate the correct battery level on the screen:

1. Press and hold OK to enter the menu.
2. Press ◁ or ▷ until you reach **Settings**, then press OK
3. As **Reset battery** is the first option, press OK
4. Enter your PIN code and select **OK** to continue:

   OCEAView users should enter their regular PIN code, as configured in their user profile.

   DicksonOne users should just enter 000000 (six zeros).
5. You will be prompted to confirm this action. Press ◁ or ▷ to choose **Yes** or **No**, then press OK

Only use 3.6 V non-rechargeable batteries approved by Dickson.

5.2 Displaying temperature in °C or °F

The Cobalt XS screen can display temperature values in either Celsius (°C) or Fahrenheit (°F).

To set the temperature unit:

1. Press OK to enter the menu.
2. Press ◁ or ▷ until you reach **Settings**, then press OK
3. Press ▷ until you reach **Units**, then press OK
4. Choose either **Celsius** or **Fahrenheit** then press OK to confirm.

5.3 Choosing the display language

1. Press and hold OK to enter the menu.
2. Press ◁ or ▷ until you reach **Settings**,, then press OK
3. Press ▷ until you reach **Language**, then press OK
4. Press the right or left button (◁ or ▷) until the desired language is displayed (English, French, Spanish, or German).
5. Press OK to confirm.

5.4 Decimal places

You may choose to display sensor readings on the home screen with either one or two decimal places, as shown here:

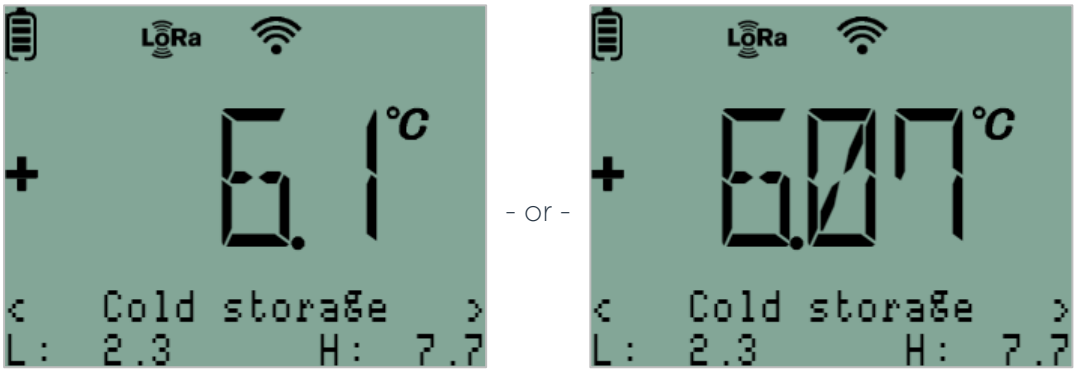


Figure 17 – Values displayed with one or two decimal points

To change decimal place settings:

1. Press and hold OK to enter the menu.
2. Press ◁ or ▷ until you reach **Settings**, then press OK
3. Press ▷ until you reach **Decimal places**, then press OK

4. Press ▷ to scroll through the available options:
   "1" Shows one number after the decimal, with rounding rules applied.
   "2" Shows two numbers after the decimal.
5. Press OK to select the desired option.

5.5 Power saving

The data logger offers power saving features to help extend the battery life of your data logger:

To choose power saving options:

1. Press and hold OK to enter the menu.
2. Press ◁ or ▷ until you reach **Settings**, then press OK
3. Press ▷ until you reach **Power saving**, then press OK
4. Press ▷ to scroll through the available options:

   None No power saving is activated.

   Moderate The sensor reading remains on the screen, but the screen contrast is reduced and the information at the bottom of the screen is removed after one minute, as shown here:

   Maximum The screen turns off after one minute. Press any button to reactivate.

   In any case, the display always returns to the home screen after one minute of inactivity.
5. Press OK to select the desired option.

You may also use the data logger's side button to turn off the display, but that does not affect the settings described here.

6 FAQ & maintenance

6.1 Common questions and answers

Can you acknowledge alarms directly on the data logger?

Cobalt XS does not have an alarm acknowledgement function, so you must acknowledge alarms using your monitoring software platform.

How long will the battery last?

The estimated Cobalt XS operating lifetime is at least one year with normal use, based on these general conditions:

- Starting with a new battery
- Using Moderate power saving (default setting)
- 1 reading every 10 minutes
- LoRa wireless transmission every 20 minutes
- Ambient operating environment 10-20°C
- 1 interaction with the device menu per day

What factors affect battery life?

Data logger battery life varies depending upon several main factors:

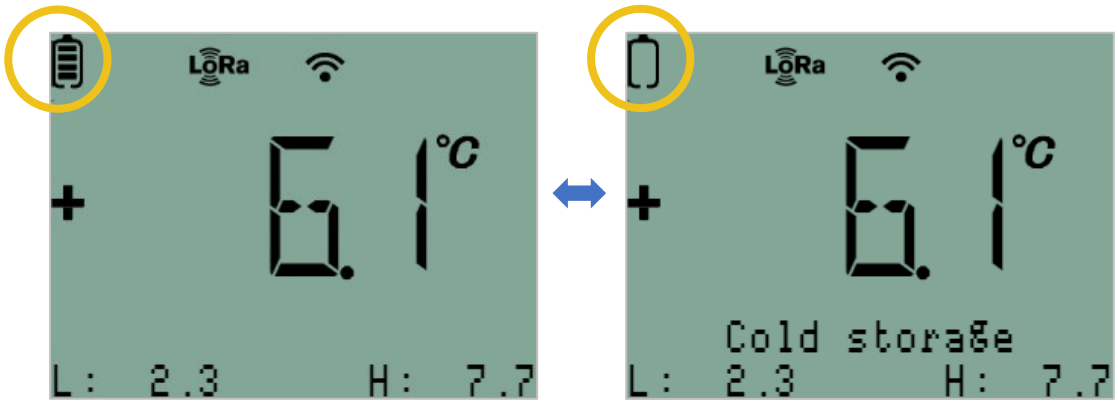
Ambient temperature: battery capacity is diminished when subject to very cold or extreme heat conditions.

Wireless communication: wireless communications consume battery power. Therefore, battery life depends on factors such as the connection frequency and signal quality.

Alarm indicator (LED): when the system triggers an alarm, the LED on the data logger casing flashes as long as your data logger remains in an alarm condition. Prolonged use of the LED consumes power and reduces the data logger's battery life.

Is there a warning when the battery gets low?

Yes, a **Low battery** alarm is generated when the battery counter reaches 10% of the battery capacity. The alarm is sent to your monitoring platform and notifications are sent as defined by alert rules. Battery level is indicated on the screen as shown here (100% and 10%):



Does the Cobalt XS use Bluetooth?

Cobalt XS implements Bluetooth wireless connectivity for use with the OCEAView Mobile smartphone application (as of OCEAView Mobile v3.6.2). When Bluetooth is connected, the indicator light flashes blue and the logo and the Bluetooth logo is displayed on the data logger screen.

What should I do if the LoRa connectivity test fails?

First, check and make sure that the gateway is up and running, and is able to communicate with your monitoring platform.

Another reason might be that the gateway is beyond wireless range. An easy test is simply to bring the data logger very close to the gateway and rerun the test.

Where can I find information about compatible sensors?

For details regarding supported sensors, please see the Dickson Sensor Reference Guide.

Click here for PDF

I swapped the sensor with a new one and received a Sensor Fail error. But everything seemed OK after that. What happened?

The most likely reason is that you performed the swap just as the sensor was being read by the data logger. This generates an alarm concerning that precise moment. If the new sensor is working correctly, that problem can be considered as being very temporary and you can simply acknowledge the alarm on the monitoring platform to close it.

The data logger screen does not seem to turn on. Nothing is displayed and there does not seem to be any reaction when I press the buttons. What should I do?

The battery might be low, and the screen is turned off because the data logger is in power saving mode.

Remember to use the **Reset battery** function when you install fresh batteries, but never use that function unless you actually change the battery!

Also, check to make sure a fresh battery is installed and inserted in the right direction (+/- polarity according to the image in the battery slot). Contact technical support if the battery is OK and still nothing is displayed on the screen.

The data logger is properly connected to the web platform. Why don't I get any temperature readings?

The data logger uses the LoRa wireless protocol. The data logger connects wirelessly to your LoRa gateway and transfers data periodically, but not necessarily at every reading. If you modify data logging settings in the monitoring platform, the values on the data logger screen will be updated when the next transfer interval occurs. Wait for the next transfer interval to get your data updated.

This could also be due to a loose cable or improperly connected temperature sensor. Check the cable between the data logger and the sensor. Unplug the sensor and plug it back in. Make sure there are no exposed wires. Try a different sensor.

The unit or temperature range for my sensor is not displayed correctly in the web application. What should I do?

Under rare conditions, it may happen that the sensor's physical parameter (unit) or temperature does not appear properly in the web application. If that occurs, resynchronize the information by unplugging the sensor from the Cobalt XS data logger and selecting **Sensors ➔ Refresh Sensors**. Then plug the sensor back into the data logger and select **Sensors ➔ Refresh Sensors** again to push updated information to the web application.

Can external sensors be submerged in glycol?

Yes, for all metal-tipped sensors, but not the dual temperature/humidity sensor (with the white Teflon/PTFE casing). To "absorb" sudden variations in temperature, such as those caused by opening and closing the chamber door, you may submerge the metal part of the sensor in glycol or glycerol. This limits inconsequential temperature variations recorded by the sensor. Check your laboratory's Quality guide for recommendations and make sure to use a volume of glycol that corresponds to the volume of product(s) you are monitoring. To achieve the same results, you may also delay the transmission of alarms via the software and leave the sensors exposed.

6.2 Cleaning instructions

You may occasionally need to clean your Cobalt XS data logger depending on conditions at your site. Here are some recommendations and guidelines for cleaning your data loggers:

1. The data logger may be cleaned using a soft cloth lightly moistened with water or isopropyl alcohol.
2. Do not use any aggressive cleaning agents or scratching cleansers that might damage your data logger.
3. Do not submerse the data logger in any liquid, as the casing is not waterproof.

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