



**DICKSON**

2024  
**PRODUCTS &  
SERVICES**

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**OCEAView**<sup>™</sup>

Environmental Monitoring +  
Compliance Experts

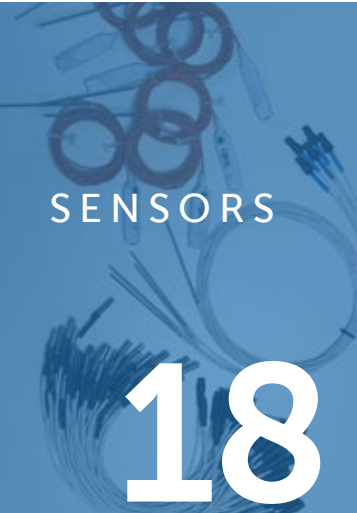
# WELCOME TO DICKSON

Welcome to Dickson, where innovation has meant precision since 1923. For over a century, we’ve been at the forefront of revolutionizing how organizations monitor and control their environments.

Dickson’s commitment to excellence is embedded in the design and delivery of solutions that seamlessly help you monitor physical parameters such as temperature, humidity, CO<sub>2</sub> levels, differential pressure, and more.

At Dickson, we have nurtured a global reputation as leaders in providing top-tier monitoring solutions. **Trusted by Fortune 100 companies and deployed by over 80,000 clients around the world, our solutions help you protect what you value the most.**

Environmental Monitoring + Compliance Experts



# ABOUT DICKSON



Dickson's environmental monitoring solutions cater to a diverse range of industries, including pharma and healthcare, manufacturing, research and laboratories, aerospace, food and beverage, logistics, and transportation.

Backed by ISO 9001:2015 certification, our dedication to precision permeates every team across the entire company's global efforts, notably the services provided by our three regional in-house metrology laboratories. Our labs in Europe and the United States are ISO/IEC 17025 accredited\*, a guarantee of calibration compliant with international standards. Our lab in Malaysia is pursuing the accreditation process.

Join us as we continue to redefine monitoring excellence for highly regulated industries, securing and optimizing valuable assets across the globe.

\* ISO/IEC 17025 accreditation in Europe by COFRAC for OCEASOFT, a Dickson company; in the United States by A2LA.



*One less thing to worry about*

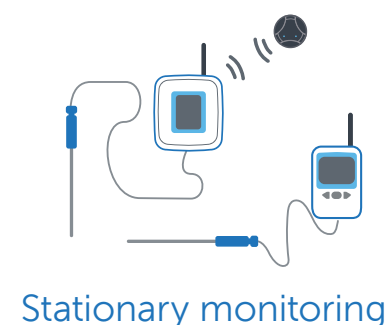


# Monitor with confidence

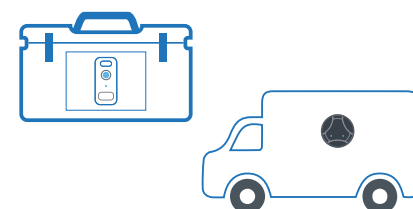


When you need to ensure the integrity of sensitive products, research work, and storage facilities that rely on specific and consistent ambient conditions, we know you have a lot on your mind.

Dickson's advanced environmental monitoring solution helps you stay informed about critical parameters and gives you one less thing to worry about.



Stationary monitoring

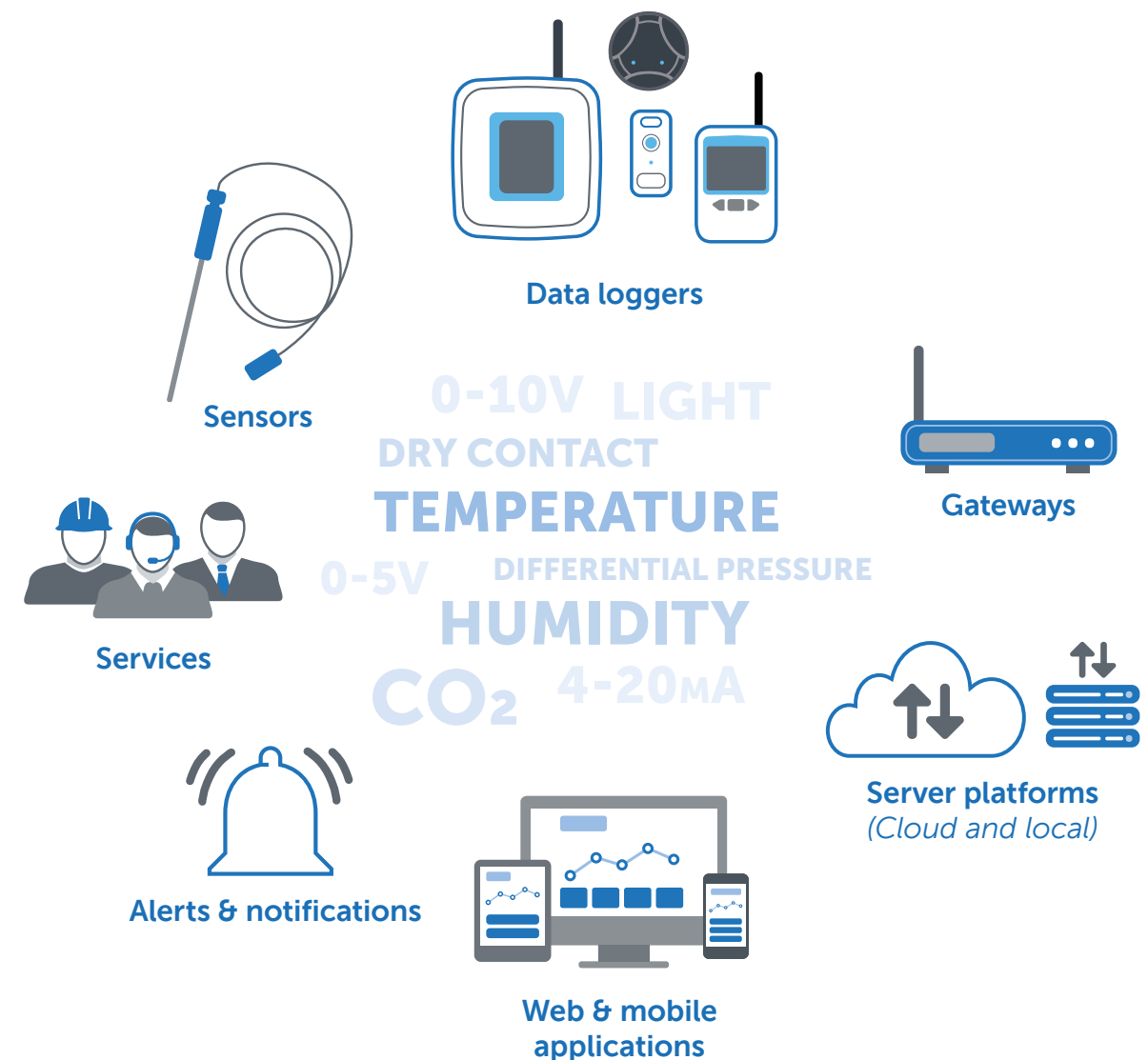


In-transit monitoring

OCEAView, our advanced monitoring solution, provides remote monitoring, data traceability, and alert notification with Dickson's innovative wireless sensors and a robust web platform to protect your most critical products and environments.

**OCEAView is compliant with the most stringent regulations and respects FDA 21 CFR Part 11 guidelines.**

## End-to-end expertise



### Monitoring

- Complete range of sensors and calibration services
- Advanced wireless connectivity
- Continuous data reading, collection, and transfer
- Visual dashboards and system overview

### Traceability

- Auditable and non-modifiable system log
- Downloadable graphs, sensor data, and device information
- Compliant with GxP and FDA 21 CFR Part 11 guidelines
- Automated reports

### Alerts

- Up to 3 high and 3 low alarm/warning levels per measurement point
- Notification by e-mail, SMS/text, and voice call
- Technical alarms for all sensors, data loggers, and gateways
- LoRa® Alert Siren and LoRa® Alert Relay for fast on-site response

# Data Loggers

| Wireless data loggers



# Cobalt X1 / X2™



## Universal multi-sensor data logger

- Numerous wired and wireless sensors for monitoring critical environmental parameters (up to 4 sensors can be used simultaneously)
- Ideal for the life sciences sector, including labs, hospitals, storage facilities, and pharma production areas
- Interactive touchscreen for fast access to setup, information, and alarm acknowledgment with a PIN code
- Fully integrated with OCEAView Cloud or On-premises monitoring solution with LoRaWAN® long-range or Bluetooth® short-range wireless connectivity



## Full-featured touchscreen data logger with LoRaWAN and Bluetooth connectivity, featuring support for up to four simultaneous wired and/or wireless sensors

Cobalt X1 and Cobalt X2 data loggers can be used with multiple external sensors simultaneously to monitor your invaluable equipment. Readings are first stored locally, then transmitted to the OCEAView remote monitoring solution via LoRaWAN or Bluetooth. These data loggers provide interactive touchscreen controls and highly visible alert indicators, with support for a wide variety of environmental sensors, including Dickson's Bluetooth enabled remote sensors. The data logger detects excursions directly, displaying alarms and notifying the system as soon as they occur to provide the fastest possible response.

### KEY FEATURES

- **Monitoring applications:** refrigerators, freezers, ULT freezers, nitrogen tanks, water baths, ovens, CO<sub>2</sub> incubators, autoclaves, cold rooms, cleanrooms, warehouses, and more
- **Physical parameters:** temperature, relative humidity, CO<sub>2</sub>, differential pressure, 4-20 mA, 0-5 V, 0-10 V, dry contact input, light
- **Supported sensors:** one or two Binder connectors for all Dickson Smart-Sensors, digital temperature sensors, and Atlas/Emerald wireless sensors, third-party Pt100 sensors (using Smart-Sensor Binder or Omega adapter)
- **Calibration options:** ISO/IEC 17025 accredited, certified (non-accredited), or NIST-traceable; recalibration via sensor exchange
- **Cobalt X1:** up to 2 measurement points  
**Cobalt X2:** up to 4 measurement points
- 2.4" (6.1 cm) glove-compatible, color touchscreen for setup, synchronization with server, viewing latest readings and alarm status, and acknowledging alarms with PIN code
- Temperature displayed in °C or °F
- 3 high & 3 low alarm or warning limits with programmable delay for each limit and adjustable sensor reading interval for each measurement point
- Data logging on up to 4 sensors simultaneously
- Excursions detected directly by data logger, indicated by flashing lights and buzzer (sound only when running on AC power) and transmitted immediately to OCEAView platform for fast user notification
- Fully integrated with OCEAView Cloud and On-premises monitoring platforms; all data logging setup handled via the OCEAView web application



### Connectivity

- LoRaWAN long-range wireless technology, free field range up to about 15 km/10 miles<sup>(1)</sup>
- Bluetooth Low Energy (for use with OCEABridge receiver, remote sensors, and OCEAView Mobile iOS and Android app)



### Data management

- 4,000 readings per measurement point (about 4 weeks of data with reading interval of 10 minutes)
- Unlimited storage of uploaded data in OCEAView

### Hardware details

- **Operating conditions:** 0 °C to +50 °C (+32 °F to +122 °F); 0 to 90% RH (non-condensing); with optional IP67 casing: -10 °C to +50 °C (+14 °F to +122 °F); 0 to 99.9% RH (non-condensing)

- 2 x 3.6 V user-replaceable Lithium batteries; at least 1 year battery life with normal use
- 5 V USB power adapter (optional)
- ABS / ABC-PC casing<sup>(2)</sup>
- IP30 standard; optional IP67 external case for protection against shocks
- Mounting kit with magnet; optional locking with padlock
- **Certifications:** FCC, IC/ISED, CE, ICASA, UKCA, ANATEL, RCM, SRRC, SDPPI, SIRIM, NTC, KC



PART NUMBER <sup>(3)</sup>	DESCRIPTION	SENSORS <sup>(4)</sup>
Cobalt X1 / X2 data logger		
ENR.CX1.P001, ENR.CX1.R001 depending on region	Cobalt X1 - Multi-frequency for Americas, Europe, and Asia	up to 2
ENR.CX1.L001	Cobalt X1 - China	
ENR.CX2.P001, ENR.CX2.R001 depending on region	Cobalt X2 - Multi-frequency for Americas, Europe, and Asia	up to 4
ENR.CX2.9001	Cobalt X2 - China	
Accessories		
ACH.ALM.0012	Universal power adapter for Cobalt X1 and Cobalt X2 data loggers • 5 V / 110-240 V • 3 m (10 ft) USB cable	
ACC.ENR.0056	IP67 waterproof protection case with transparent cover	

(1) Actual range depends on environment and datalogger/gateway antenna orientation. (2) Use a dry cloth to clean data logger. (3) Please contact us if you need to order without batteries. (4) Sensors sold separately.





The essential data logger

- Designed for the OCEAView Cloud and OCEAView On-premises monitoring platforms
- LoRaWAN® wireless connectivity for energy efficient long-range coverage
- For use with Dickson’s wired digital temperature, Smart-Sensor Pt100, and dual temperature/ humidity sensors
- Ideal for the life sciences sector, including labs, hospitals, storage, and manufacturing facilities
- Button-controlled high-contrast LCD screen



Cobalt XS is the latest addition to Dickson’s data logger range for the OCEAView monitoring solution. With its small footprint and LoRaWAN wireless connectivity, Cobalt XS supports a variety of external temperature and relative humidity sensors.

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 to minimize your related on-site network infrastructure requirements. Dickson’s Smart-Sensor technology makes maintenance easier by storing all calibration information directly in the sensor, enabling on-the-fly sensor swapping when it comes time for recalibration. The data logger detects excursions directly, displaying alarms and notifying the system as soon as they occur to provide the fastest possible response.

KEY FEATURES

- **Monitoring applications:** Refrigerators, freezers, ULT freezers, nitrogen tanks, water baths, ovens, incubators, autoclaves, cold rooms, cleanrooms, warehouses
- **Physical parameters:** temperature, humidity
- **Supported sensors:** one Binder connector for Dickson Pt100 Smart-Sensors™, dual temperature/ relative humidity sensor, digital temperature sensors, third-party Pt100 sensors (using Smart-Sensor Binder or Omega adapter)
- **Calibration options:** ISO/IEC 17025 accredited, certified (non-accredited), or NIST-traceable; recalibration via sensor exchange
- 2.4" (6.1 cm) LCD screen for settings, latest readings, synchronization, battery level, signal strength
- Temperature displayed in °C or °F
- 3 high & 3 low alarm or warning limits with programmable delay for each limit and adjustable sensor reading interval for each measurement point
- Data logging on up to 2 sensors simultaneously
- Excursions detected directly by data logger, indicated by flashing lights and transmitted immediately to OCEAView platform for fast user notification
- Fully integrated with OCEAView Cloud and On-premises monitoring platforms; all data logging setup handled via the OCEAView web application



Connectivity

- LoRaWAN long-range wireless technology, free field range up to about 15 km/10 miles<sup>(1)</sup>
- Bluetooth Low Energy (for use with OCEAView Mobile iOS and Android app)

Data management

- 4,000 readings per measurement point (about 4 weeks of data with reading interval of 10 minutes)
- Unlimited storage of uploaded data in OCEAView

Hardware details

- **Operating conditions**  
0 °C to +50 °C (+32 °F to +122 °F); 0 to 90% RH (non-condensing); with optional IP67 casing, -10 °C to +50 °C (+14 °F to +122 °F); 0 to 99.9% RH (non-condensing)
- 1 x 3.6 V user-replaceable lithium battery (at least 1 year battery life with normal use)<sup>(2)</sup>
- ABS / ABC-PC casing<sup>(3)</sup>
- IP30 standard; optional IP67 external case for protection against shocks
- Mounting kit with screws/anchors and Velcro®
- **Certifications:** CE, FCC, IC/ISED, SIRIM, UKCA<sup>(4)</sup>

PART NUMBER <sup>(5)</sup>	DESCRIPTION	SENSORS <sup>(5)</sup>
Cobalt XS data logger		
ENR.CXS.P001	Cobalt XS - Multi-frequency for worldwide use	Single or dual sensor probe
Accessories		
contact us	IP67 waterproof protection case with transparent cover	

(1) Actual range depends on environment and datalogger/gateway antenna orientation. (2) Please contact us if you need to order without batteries. (3) Use a dry cloth to clean data logger. (4) Additional worldwide certifications in progress, please check with us regarding regional availability. (5) Sensors sold separately.







**Robust wireless temperature sensor for Cobalt X1/X2 data loggers or multi-destination data logger for mobile monitoring**

Emerald Bluetooth enabled devices offer two operating modes for temperature monitoring: they can be paired with Cobalt X1/X2 data loggers as remote sensors for cable-free placement, managed through OCEAView Cloud or On-premises solutions just like our wired sensors. Or they can be used as data loggers for temperature monitoring on the move, configured and managed using the OCEAView™ Mobile application.

Data logger / temperature sensor

- Wireless temperature sensor for Cobalt X1/X2 data loggers or mobile data logger
- Robust casing and shock-resistance ideal for transport applications and cold chain monitoring on the go
- Data access and synchronization either with OCEAView Cloud or On-premises platforms or OCEAView Mobile smartphone app for iOS and Android

**KEY FEATURES**

- **Monitoring applications:** wireless sensor for Cobalt X1/X2 data loggers or full-featured data logger for cold chain and transport
- **Physical parameter(s):** temperature
- **Supported sensors:** internal temperature sensor, Dickson standard Pt100 sensors
- **Calibration options:** ISO/IEC 17025 accredited; certified (non-accredited); or NIST-traceable
- 1 measurement point with adjustable read interval
- 3 high and 3 low alarm limits with programmable delay and on-board alarm management; visual alarm/status indicator; alerts and notifications via OCEAView, depending on operating mode
- Data logging configuration and integration with OCEAView Cloud/On-premises or OCEAView Mobile

- Connectivity

  - Bluetooth Low Energy
- Data management

  - 16,000 readings (about 4 months of data with reading interval of 10 minutes)
  - Unlimited storage of uploaded data in OCEAView
- Hardware details

  - 3.6 V user-replaceable Lithium battery(at least 1 year battery life with normal use)
  - **Operating conditions:** -40 °C to +85 °C (-40 °F to +185 °F); 0 to 90% RH (non-condensing)
  - **Storage conditions:** -40 °C to +85 °C (-40 °F to +185 °F); 0 to 90% RH (non-condensing); optimal storage around 25 °C (77 °F)
  - **Dimensions:** Ø50 x 20 mm (Ø1.9 x 0.8 in.)
  - **Weight with battery:** 48 g (1.7 oz.)
  - IP44 (IP40 with external sensor)
  - Mounting kit for use with screws or magnet
  - Certifications: CE, FCC, IC, UKCA, SIRIM, KC, EN 12830

PART NUMBER	DESCRIPTION
Emerald data logger with internal sensor	
ENR.EMD.P005	Data logger with internal temperature sensor
Emerald data logger for external Pt100 sensor (not included)	
ENR.EMD.P006	Data logger with connector for external Pt100 sensor (see Sensors, p. 18)



**Small footprint, triple-function wireless sensor for Cobalt X1/X2 data loggers or multi-destination data logger for mobile monitoring**

Atlas features temperature, humidity, and light sensors in a tiny device that fits directly inside small spaces. Featuring Bluetooth wireless connectivity, Atlas can be used with the OCEAView™ Mobile application as a data logger for mobile monitoring with or without Cloud or on-premises server synchronization, or as a wireless sensor paired with a Cobalt X1/X2 data logger.

Data logger / triple sensor

- Wireless temperature, humidity, and light sensors for Cobalt X1/X2 data loggers or mobile data logger
- Small size for easy placement with goods or items to monitor
- Data access and synchronization either with OCEAView Cloud or On-premises platforms or OCEAView Mobile smartphone app for iOS and Android

**KEY FEATURES**

- **Monitoring applications:** wireless sensor for Cobalt X1/X2 data loggers or full-featured triple sensor data logger, ideal for small spaces in cold chain and transport scenarios
- **Physical parameters:** temperature, humidity, light
- **Calibration options** (excluding light): ISO/IEC 17025 accredited; certified (non-accredited); or NIST-traceable
- 3 high and 3 low alarm limit with programmable delay and on-board alarm management; visual alarm/status indicator; alerts and notifications via OCEAView, depending on operating mode
- Data logging configuration and integration with OCEAView Cloud/On-premises or OCEAView Mobile

- Connectivity

  - Bluetooth Low Energy
- Data management

  - 16,000 readings when 1 measurement point is used (about 4 months of data with reading interval of 10 minutes); or 4,000 readings per measurement point when more than one sensor is used (about 4 weeks of data with reading interval of 10 minutes)
  - Unlimited storage of uploaded data in OCEAView
- Hardware details

  - Non-replaceable Lithium coin battery (at least 1 year battery life with normal use)
  - **Operating conditions:** -30 °C to +70 °C (-22 °F to +158 °F); 0 to 90% RH (non-condensing)
  - **Storage conditions:** -30 °C to +70 °C (-22 °F to +158 °F); 0 to 90% RH (non-condensing); optimal storage around 25 °C (77 °F)
  - IP 30, adhesive mounting
  - **Dimensions:** 81 x 43 x 8 mm (3.2 x 1.7 x 0.3 in.); Weight with battery: 24 g (0.8 oz.)
  - **Certifications:** CE, FCC, IC, SIRIM; DO 160G: 2010

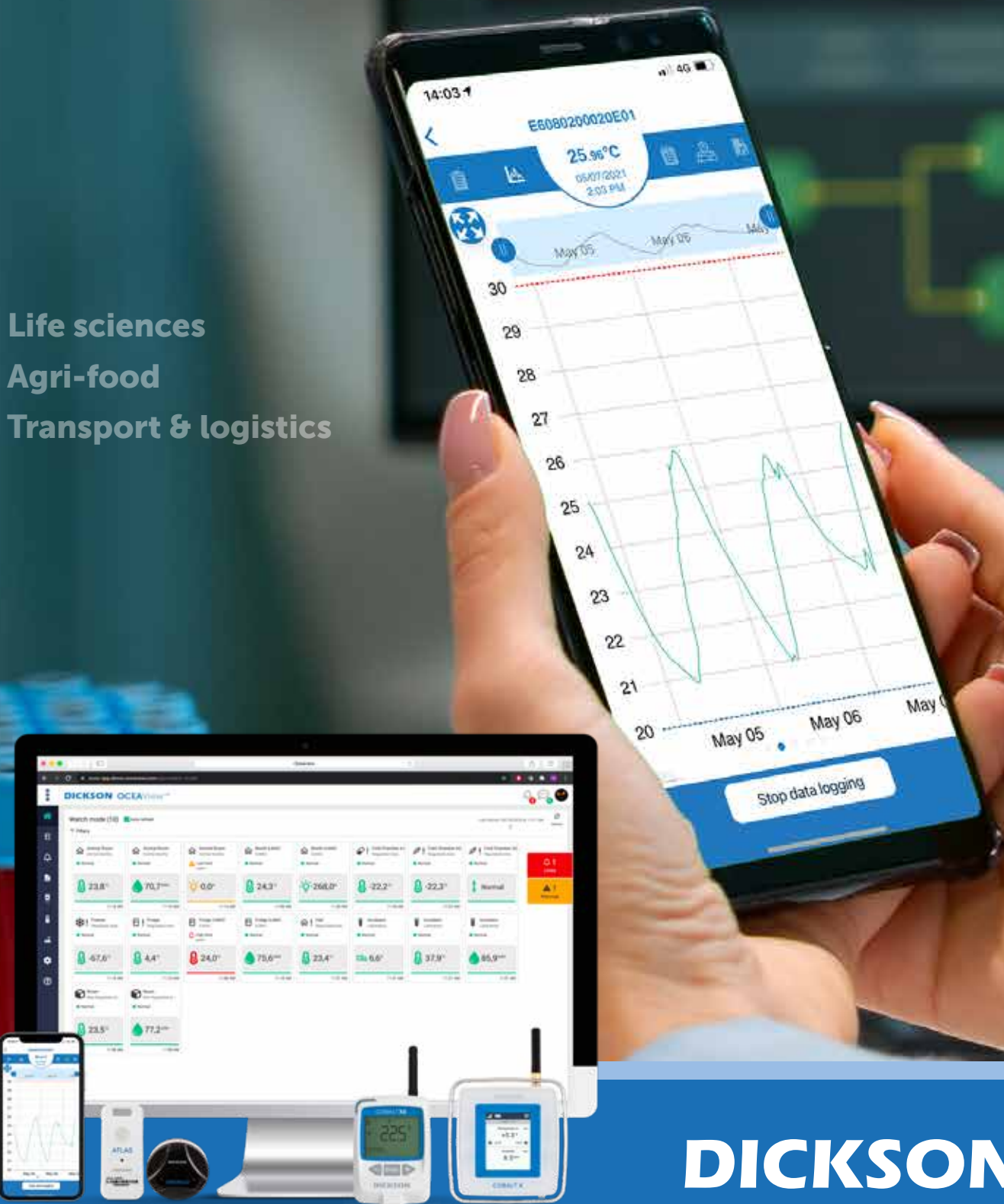
PART NUMBER	DESCRIPTION
Atlas data logger with internal sensors	
ENR.ATL.0003	Internal temperature, humidity, and light sensors



# MONITOR BETTER, WORRY LESS

Keep your valuable equipment safe!

Life sciences  
Agri-food  
Transport & logistics



DICKSON

## Data logger comparison

Data loggers		Cobalt X2™ 	Cobalt X1™ 	Cobalt XS™ 	Emerald™ 	Atlas™ 
Main features	Max. measurement points	4 (2 Binder connectors)	2 (1 Binder connector)	2 (1 Binder connector)	1	3
	Total memory (readings)	16,000	8,000	8,000	16,000	16,000
	Screen	LCD color touchscreen	LCD color touchscreen	LCD	None	None
	On-board alarm detection	✓	✓	✓	✓	✓
	On-screen alarm acknowledgement	✓	✓			
Other	IP rating	30	30	30	44	30
	IP67 casing option	✓	✓	✓		
	Replaceable battery(ies)	✓	✓	✓	✓	
	AC adapter (optional)	✓	✓			
Sensors	Temperature	✓	✓	✓	✓	✓
	Relative humidity	✓	✓	✓		✓
	CO <sub>2</sub>	✓	✓			
	Differential pressure	✓	✓			
	4-20 mA, 0-5 V, 0-10 V	✓	✓			
	Dry contact	✓	✓			
	Light	✓	✓			✓
Wireless	LoRaWAN®	✓	✓	✓		
	Bluetooth®	✓	✓	✓	✓	✓

Environmental Monitoring + Compliance Experts







# Sensors



| Embedded intelligence  
| or classic interface





Pt100 Smart-Sensor (-80 °C / +200 °C)			
	<p><b>APPLICATIONS</b> -80 °C freezers, industrial applications</p> <p><b>RESOLUTION</b> 0.03 °C</p> <p><b>EXPANDED UNCERTAINTY</b> ± 0.08 °C to 0.3 °C</p>	<ul style="list-style-type: none"><li>-80 °C to +200 °C</li><li>Dimensions: Ø 3 mm, L: 100 mm</li><li>Stainless steel</li><li>Class B</li><li>3-wire PTFE cable</li><li>Cable length: 350 cm (w/connector)</li><li>Protection index: IP66</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X1, Cobalt X2, Cobalt XS</p> <p><b>PART NUMBER</b> SON.TPT.0009</p>
Pt100 Smart-Sensor (-200 °C / +50 °C)			
	<p><b>APPLICATIONS</b> Cryogenic freezers, liquid nitrogen tanks</p> <p><b>RESOLUTION</b> 0.03 °C</p> <p><b>EXPANDED UNCERTAINTY</b> ± 0.08 °C to 0.3 °C</p>	<ul style="list-style-type: none"><li>-200 °C to +50 °C</li><li>Dimensions: Ø 3 mm, L: 200 mm; junction Ø 6 mm</li><li>Stainless steel</li><li>Class B</li><li>3-wire PTFE cable</li><li>Cable length: 140 cm (w/connector)</li><li>Protection index: IP66</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X1, Cobalt X2, Cobalt XS</p> <p><b>PART NUMBER</b> SON.TPT.0010</p>
Temperature and humidity Smart-Sensor			
	<p><b>APPLICATIONS</b> Storage facilities, stability chambers</p> <p><b>RESOLUTION</b> 0.01 °C 0.05% RH</p> <p><b>EXPANDED UNCERTAINTY</b> ± 0.3 °C to ± 0.5 °C ± 2% to 4% RH</p>	<ul style="list-style-type: none"><li>-40 °C to +100 °C</li><li>0 to 99.9% RH (non-condensing)</li><li>Dimensions: 33 x 12 mm</li><li>PTFE filter</li><li>With cable: 100 cm (incl./connector)</li><li>Without cable: 57 mm (incl./connector)</li><li>Protection index: IP65</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X1, Cobalt X2, Cobalt XS</p> <p><b>PART NUMBER</b> SON.HYG.0003 (w/cable) SON.HYG.0009 (w/o cable)</p>
CO <sub>2</sub> , Temperature, and humidity Smart-Sensor			
	<p><b>APPLICATIONS</b> Incubators</p> <p><b>RESOLUTION</b> 0.1% CO<sub>2</sub> 0.01 °C 0.05% RH</p> <p><b>EXPANDED UNCERTAINTY</b> ±0.4% at 5% CO<sub>2</sub>, 37°C, and 90% RH ±0.3°C at 37°C ±4%RH at 90% RH</p>	<ul style="list-style-type: none"><li>0 to 20% CO<sub>2</sub></li><li>0 °C to +50 °C</li><li>0 to 99.9% RH (non-condensing)</li><li>Dimensions: l: 83 mm, Ø12 mm</li><li>PTFE filter</li><li>Cable length: 100 cm (w/connector)</li><li>Protection index: IP65</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X1, Cobalt X2</p> <p><b>PART NUMBER</b> SON.CO2.0012</p>

Universal Smart-Sensor (4-20 mA / 0-5 V / 0-10 V)			
	<p><b>APPLICATIONS</b> Electrical current levels, industry standard equipment with 4-20 mA, 0-5 V, or 0-10 V output</p> <p><b>RESOLUTION</b> 0.01 mA or 0.01 V</p>	<ul style="list-style-type: none"><li>4-20 mA, 0-5 V, or 0-10 V</li><li>2-wire cable</li><li>Cable length: 290 cm</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X1, Cobalt X2</p> <p><b>SENSOR PART NUMBER</b> SON.420.0001</p>

Single differential pressure Smart-Sensor			
	<p><b>APPLICATIONS</b> Laboratories, pressure difference between "clean" and "dirty" areas</p> <p><b>RESOLUTION</b> 0.015625 Pa</p> <p><b>EXPANDED UNCERTAINTY</b> ± 4 Pa*</p>	<ul style="list-style-type: none"><li>One sensor</li><li>-500 to +500 Pa (-2.0 to +2.0 inches H<sub>2</sub>O)</li><li>Tube: L: 50 cm, Ø 4 mm (4-5 mm adapter included)</li><li>Compatibility: air, nitrogen</li><li>Supported overpressure: 1 bar (100 kPa, 400 inches H<sub>2</sub>O)</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X1, Cobalt X2</p> <p><b>SENSOR PART NUMBER</b> SON.PRE.0002</p>

Dual differential pressure Smart-Sensor			
	<p><b>APPLICATIONS</b> Laboratories, pressure difference between "clean" and "dirty" areas</p> <p><b>RESOLUTION</b> 0.015625 Pa</p> <p><b>EXPANDED UNCERTAINTY</b> ± 4 Pa*</p>	<ul style="list-style-type: none"><li>Two independent sensors</li><li>-500 to +500 Pa (-2.0 to +2.0 inches H<sub>2</sub>O)</li><li>Tube (x2): L: 50 cm, Ø 4 mm (4-5 mm adapter included)</li><li>Compatibility: air, nitrogen</li><li>Limited compatibility: O<sub>2</sub></li><li>Supported overpressure: 1 bar (100 kPa, 400 inches H<sub>2</sub>O)</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X2</p> <p><b>SENSOR PART NUMBER</b> SON.PRE.0003</p>

Single differential pressure Smart-Sensor + additional probe connector			
	<p><b>APPLICATIONS</b> Laboratories, pressure difference between "clean" and "dirty" areas</p> <p><b>RESOLUTION</b> 0.015625 Pa</p> <p><b>EXPANDED UNCERTAINTY</b> ± 4 Pa*</p>	<ul style="list-style-type: none"><li>One sensor, additional 50 cm connector cable</li><li>-500 to +500 Pa (-2.0 to +2.0 inches H<sub>2</sub>O)</li><li>Tube: L: 50 cm, Ø 4 mm (4-5 mm adapter included)</li><li>Compatibility: air, nitrogen</li><li>Supported overpressure: 1 bar (100 kPa, 400 inches H<sub>2</sub>O)</li></ul>	 <p><b>COMPATIBILITY</b> Cobalt X2</p> <p><b>SENSOR PART NUMBER</b> SON.PRE.0004</p>

\* The value for expanded uncertainty is that which is generally observed by the Dickson metrology laboratory for standard calibration on the following calibration points: 0, 15, 25, and 50 Pa.

- Smart-Sensor memory contains calibration correction coefficients (a/b or a/b/c), measurement uncertainty after calibration, drift after 1 year, and sensor serial number
- Plug-and-play operation for immediate use without any configuration
- Swap with freshly calibrated new Smart-Sensor without any data loss or downtime
- Automatic recognition by supported data loggers

# Standard sensors



Digital temperature sensor (-40 °C / +80 °C)			
	<b>APPLICATIONS</b> Refrigerators, cold rooms, freezers, ovens, incubators; optional metal pipe contact tip for monitoring Legionella conditions	<ul style="list-style-type: none"><li>-40 °C to +80 °C</li><li>Dimensions: Ø 6 mm, L: 30 mm</li><li>Stainless steel</li><li>Protection index: IP67</li></ul>	 <b>COMPATIBILITY</b> Cobalt X1, Cobalt X2, <b>SENSOR PART NUMBERS</b> SON.TNU.0001 (27 cm cable) SON.TNU.0002 (1 m cable) SON.TNU.0003 (3.5 m cable)
	<b>RESOLUTION</b> 0.0625 °C	<ul style="list-style-type: none"><li>Optional contact tip (ACC.SON.0001)</li></ul>	
	<b>EXPANDED UNCERTAINTY</b> ± 0.06 °C to ± 0.25 °C		

Digital temperature sensor (-40 °C / +120 °C)			
	<b>APPLICATIONS</b> Ovens, incubators, water baths	<ul style="list-style-type: none"><li>-40 °C to +120 °C</li><li>Dimensions: Ø 6 mm, L: 30 mm</li><li>Stainless steel</li><li>Cable length: 100 cm (w/connector)</li><li>Protection index: IP67</li></ul>	 <b>COMPATIBILITY</b> Cobalt X1, Cobalt X2, <b>SENSOR PART NUMBERS</b> SON.TNU.0005 Submersible version: SON.TNU.0011
	<b>RESOLUTION</b> 0.0625 °C	<b>SUBMERSIBLE VERSION</b> <ul style="list-style-type: none"><li>Dimensions: Ø 6 mm, L: 46 mm; cable length: 150 cm (w/connector)</li></ul>	
	<b>EXPANDED UNCERTAINTY</b> ± 0.06 °C to ± 0.25 °C		

Digital temperature sensor - Insertion probe (-40 °C / +120 °C)			
	<b>APPLICATIONS</b> Food products	<ul style="list-style-type: none"><li>-40 °C to +120 °C</li><li>Dimensions: Ø 6 mm, L: 150 mm</li><li>Handle length 100 mm</li><li>Stainless steel</li><li>Cable length: 200 cm (w/connector)</li><li>Protection index: IP67</li></ul>	 <b>COMPATIBILITY</b> Cobalt X1, Cobalt X2, <b>SENSOR PART NUMBER</b> SON.TNU.0009
	<b>RESOLUTION</b> 0.0625 °C		
	<b>EXPANDED UNCERTAINTY</b> ± 0.06 °C to ± 0.25 °C		

Dry contact input sensor cable			
	<b>APPLICATIONS</b> Monitoring door opening-closing, uninterruptable power supplies, air conditioning units, ultra-low-temperature freezers	<ul style="list-style-type: none"><li>2-wire cable with 2.5 mm jack</li></ul> <p>Note: Cobalt X1/X2 memory capacity for the dry contact sensor channel is 1,800 events (state-change with date &amp; time stamp)</p>	 <b>COMPATIBILITY</b> Cobalt X1, Cobalt X2 <b>SENSOR PART NUMBERS</b> ACC.ENR.0045 (2.9 m cable) ACC.ENR.0058 (3.5 m cable) ACC.ENR.0059 (5 m cable)

Pt100 sensor (-200 °C / +50 °C)			
	<b>APPLICATIONS</b> Cryogenic freezers, liquid nitrogen tanks, transport	<ul style="list-style-type: none"><li>-200 °C to +50 °C</li><li>Dimensions: Ø 4 mm, L: 50 mm</li><li>Stainless steel</li><li>Class B</li><li>3-wire PTFE cable</li><li>Cable length: 100 cm (w/connector)</li><li>Protection index: IP66</li></ul>	 <b>COMPATIBILITY</b> Emerald <b>SENSOR PART NUMBER</b> SON.TPT.0006
	<b>RESOLUTION</b> 0.03 °C		
	<b>EXPANDED UNCERTAINTY</b> ± 0.08 °C to ± 0.25 °C		

Pt100 sensor (-50 °C / +200 °C)			
	<b>APPLICATIONS</b> Incubators, ovens, transport	<ul style="list-style-type: none"><li>-50 °C to +200 °C</li><li>Dimensions: Ø 4 mm, L: 50 mm</li><li>Stainless steel</li><li>Class B</li><li>3-wire PTFE cable</li><li>Cable length: 100 cm (w/connector)</li><li>Protection index: IP66</li></ul>	 <b>COMPATIBILITY</b> Emerald <b>SENSOR PART NUMBER</b> SON.TPT.0012
	<b>RESOLUTION</b> 0.03 °C		
	<b>EXPANDED UNCERTAINTY</b> ± 0.08 °C to ± 0.25 °C		





# Gateways

| Linking data loggers to  
your monitoring solution

# LoRa® Gateways



LoRa Pro Gateway



LoRa Advanced Gateway



LoRa RAK Gateway

## End-to-end connectivity for your OCEAView™ platform and LoRaWAN® enabled data loggers

Dickson LoRaWAN wireless gateways offer exceptionally long-range wireless communication for LoRaWAN enabled data loggers, making it easy to deploy the OCEAView solution across large sites<sup>(1)</sup>. Several gateway models are available to meet your specific technical and/or regional needs.

### LoRa link to OCEAView

- Collects and forwards data between Dickson data loggers with LoRaWAN technology and your OCEAView Cloud or On-premises solution
- Long LoRaWAN wireless range
- WiFi, Ethernet, or 4G
- Very low interference with other nearby wireless devices
- Support for an unlimited number of data loggers

### KEY FEATURES

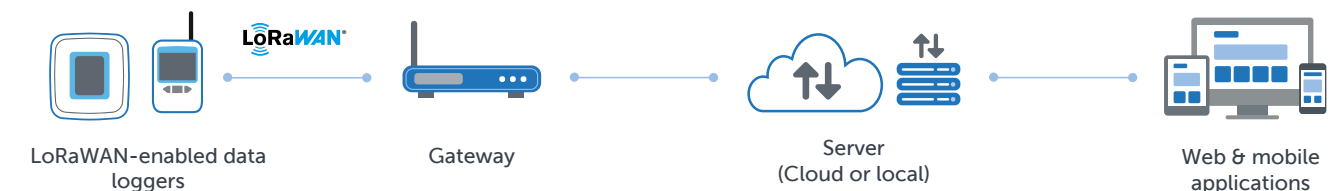
- Compatible with Dickson LoRaWAN-enabled Cobalt X1 / X2 and Cobalt XS data loggers
- Low energy technology preserves data logger battery
- LED status indicators
- Configuration and update via integrated web interface

### Connectivity

- LoRaWAN long-range and low-interference technology
- Range up to about 15 km/10 miles<sup>(1)</sup>
- Automatic data logger detection
- LoRaWAN channel plans in ISM frequency spectrum
- **Network options:** Ethernet, Wi-Fi (2.4 GHz), and/or 4G-LTE cellular

### Hardware details

- Antenna (+3dBi default; +5dBi or +8dBi optional, depending on region)
- External power supply (110-240V AC adapter)
- Wall-mount, screw attachment
- Regional certifications
- **Pro Gateway**
  - Operating conditions: 0 °C to +70 °C (32 °F to +158 °F); 20 to 90% RH (non-condensing)
  - PC-ABS (polycarbonate-ABS), IP30 rating
  - Dimensions: 165 x 135 x 36 mm (6.5 x 5.3 x 1.4 in.)
  - Weight: 284 g (10 oz.)
- **Advanced Gateway**
  - Operating conditions: -30 °C to +70 °C (-22 °F to +158 °F); 20 to 90% RH (non-condensing)
  - Anodized aluminum, IP30 rating
  - Dimensions: 161.3 x 107.4 x 42.8 mm (6.4 x 4.2 x 1.7 in.); weight: 450 g (16 oz.)
- **RAK Gateway (China only)**
  - Operating conditions: -10 °C to +55 °C (-14 °F to +131 °F); 20 to 90% RH (non-condensing)
  - PC-ABS (polycarbonate-ABS), IP30 rating
  - Dimensions: 166 x 127.5 x 36 mm (6.5 x 5.0 x 1.4 in.); weight: 300 g (11 oz.)



PART NUMBER	DESCRIPTION
<b>LoRa Advanced Gateway</b>	
GSR.REC.8005 (865/868 MHz) GSR.REC.5005 (915/923 MHz)	Ethernet / Wi-Fi
GSR.REC.8008 (865/868 MHz) GSR.REC.5008 (915/923 MHz)	Ethernet / Wi-Fi / 4G-LTE
GSR.REC.8006 (865/868 MHz)	Ethernet, outdoor installation
<b>LoRa Pro Gateway</b>	
GSR.REC.8007 (865/868 MHz) GSR.REC.5007 (915/923 MHz)	Ethernet only
GSR.REC.8010 (865/868 MHz)	Ethernet only — Power Over Ethernet <sup>(3)</sup>
GSR.REC.8009 (865/868 MHz) GSR.REC.5009 (915/923 MHz) GSR.REC.5010 (915/923 MHz) <sup>(2)</sup>	Ethernet / 4G-LTE
<b>LoRa RAK Gateway (China only)</b>	
GSR.REC.4005 (470 MHz)	Ethernet only
<b>Antenna options</b>	
Included by default	Omnidirectional — 3dBi gain 865/868 MHz or 915/923 MHz
ACC.GSR.0014 (865/868 MHz)	Taoglas omnidirectional — 5dBi gain Height: 82 cm (32.3 in.) Cable: 90 cm (35.4 in.)
ACC.GSR.0020 (915/923 MHz)	Taoglas omnidirectional — 3.5dBi gain Height: 32 cm (12.6 in.) Cable: 90 cm (35.4 in.)
ACC.GSR.0019 (865/868 MHz) ACC.GSR.0021 (915/923 MHz)	Taoglas omnidirectional — 8dBi gain For outdoor use (IP65 waterproof and lightning protection) Height: 147.4 cm (58 in.) Cable: 500 cm (197 in.)

<sup>(1)</sup> Line-of-Sight range based on environmental conditions & antenna orientation.

<sup>(2)</sup> Embedded 4G modem for Australia, New Zealand, and Israel.

<sup>(3)</sup> Draws power from Ethernet network cable.



# Bluetooth® Gateway

## Bluetooth link to OCEAView

- Collects and forwards data between Dickson Cobalt X1 / X2 data loggers in Bluetooth mode and your OCEAView platform
- Bluetooth Low Energy technology
- Ethernet or 4G-LTE network connectivity



## End-to-end Bluetooth® wireless connectivity for your OCEAView™ platform and Cobalt X1 / X2™ data loggers in Bluetooth mode

OCEABridge enables configuration and data transfer for Dickson data loggers within Bluetooth wireless range. Data loggers are detected automatically, and sensor readings are forwarded to your OCEAView platform.

## KEY FEATURES

- Collects data from Cobalt X data loggers running in Bluetooth mode
- Low energy technology preserves data logger battery
- LED status indicators
- Configuration and updates via integrated web interface

## Connectivity

- Bluetooth Low Energy
- Automatic detection of data loggers within Bluetooth wireless range
- Ethernet and/or 4G-LTE

## Data management

- Fully integrated with OCEAView monitoring platform (Cloud or on-premises)
- Collects and transfers data from data loggers to OCEAView

## Hardware details

- Operating conditions: 0 °C to +70 °C (+32 °F to +158 °F); 0 to 90% RH (non-condensing)
- Storage conditions: 0 °C to +50 °C (+32 °F to +122 °F); 0 to 90% RH (non-condensing)
- External power supply (110-240 VAC / 9 ~ 12v DC); maximum output current: 2.5A
- AR9331; 64 MB DDR RAM; 16 MB Flash
- Bluetooth Low Energy USB dongle
- Screw-mount
- ABS casing
- Dimensions: 120 x 85 x 28 mm (4.7 x 3.3 x 1.1 in.)
- Weight: 138 g (5 oz.)
- Certifications: CE, FCC, ACMA

PART NUMBER	DESCRIPTION
OCEABridge Bluetooth gateway	
GSR.REC.X001	OCEABridge 3 (Ethernet)
GSR.REC.XEA1	OCEABridge 3 (Ethernet, 4G) - EMEA/APAC
GSR.REC.XUS1	OCEABridge 3 (Ethernet, 4G) - USA Verizon
GSR.REC.XUS2	OCEABridge 3 (Ethernet, 4G) - USA AT&T

# ON-THE-GO MONITORING

*Stay compliant in cold chain logistics monitoring!*



# DICKSON

DicksonData.com

# Software

| Class-leading environmental  
monitoring platform





Complete monitoring, traceability, and alert platform for Cloud or On-premises deployment, providing an advanced remote monitoring solution to protect your most valuable assets

OCEAView is a rich and robust platform for monitoring your equipment’s environmental parameters that matter the most in labs, storage facilities, production areas, vehicles, and more. OCEAView is available with Cloud or On-premises versions to satisfy all your privacy and security constraints. The solution's attractive web interface gives you total control over all your equipment, data, sensors, users, reports, and calibration, with 24/7 e-mail, voice call, and SMS/text message alerts. The companion OCEAView Mobile app for iOS and Android is ideal for managing your Dickson Bluetooth data loggers and synchronizing Emerald and Atlas data loggers.

- Centralized sensor readings, alarms, and other information from data loggers
- Live dashboard to see system health and access latest information easily
- Manages your entire solution, including wired and wireless sensors, data loggers, data logging settings, alarm limits, alert notifications, equipment, configuration, users, reports, and more
- Secure OCEAView Cloud platform or OCEAView On-premises installation on your network infrastructure

On-premises license and Cloud subscription models

	Secure Cloud	On-premises (local)
Pricing	Based on the number of data loggers	Tier-based fee according to the number of sensors
Hosting <ul style="list-style-type: none"><li>• Web and mobile applications</li><li>• Unlimited number of users</li><li>• Interactive visual dashboard</li></ul>	Subscription	License
24/7 alert notifications <ul style="list-style-type: none"><li>• E-mail, SMS/text messages, voice call</li><li>• Alerts in all supported languages</li></ul>	Included	Optional subscription <i>(e-mail notification is always included by default)</i>
Support <ul style="list-style-type: none"><li>• Hotline</li><li>• Technical assistance</li><li>• Troubleshooting</li></ul>	Included	Optional subscription

- Developed in accordance with 21 CFR Part 11, GxP, HACCP & FSMA guidelines
  - Audit trail, user-level security compliant with FDA 21 CFR Part 11 guidelines
- Available as Cloud or On-premises solution
  - Auditable, customizable, and schedulable reports



KEY FEATURES

- Remote data logger configuration including sensor reading frequency, transfer intervals, alarm limits and associated delays
- 24/7 access to detailed data, events, and graphs
- Complete audit trail
- Available in English, French, Italian, German, Spanish, and Portuguese

Web application highlights

- User-friendly display for overall system health at a glance
- Company organization in sites and departments, with user profiles, roles, access control
- Regional preferences
- Sensor management with focus on monitored equipment
- Management of sensor calibration parameters, reminders, import/export

OCEAView Mobile for iOS and Android

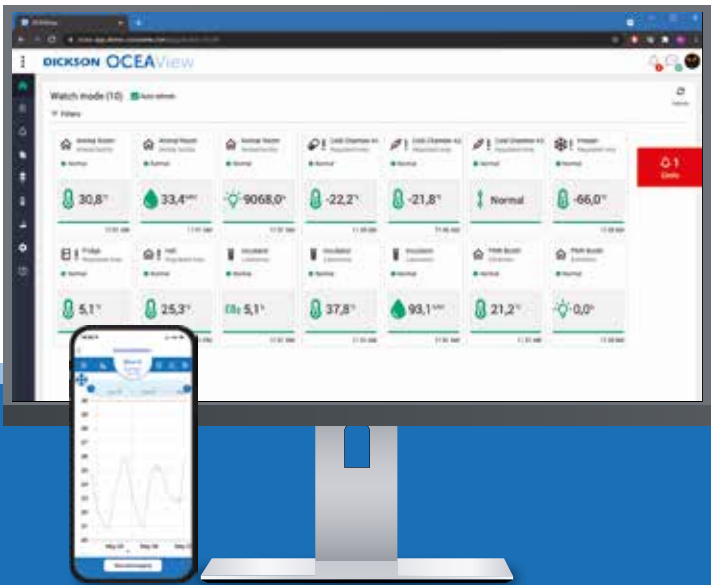
- Dickson Bluetooth data logger management

Data management

- Unlimited Cloud storage, guaranteed for 10 years
- Sensor data includes Mean Kinetic Temperature (MKT)
- Audit trail and schedulable reports (PDF, XLS, CSV)

Alarms and alerts

- Programmable excursion management with up to 3 high and 3 low alarm and/or warning limits per sensor for Cobalt X1 /X2 / XS data loggers; 3 high and 3 low alarm limits for Emerald and Atlas sensors
- Wide range of alarms, including technical, sensor, communication, and power alarms
- Alarms immediately visible on dashboard, notifications sent by OCEAView via e-mail, SMS/text, and/or voice message
- Acknowledgment by PIN code for Cobalt X1/X2/XS
- Flexible alert scheduling for workdays, weekends, nights, and holidays





Complete in-house calibration process for Dickson Smart-Sensors™ or digital temperature sensors, with convenient connection for up to 40 temperature, humidity, or CO2 sensors at a time

This sensor calibration tool enables people with a good level of metrology knowledge to handle specific calibration processes internally according to their standard operating procedures, potentially eliminating the need to outsource certain calibration operations and thus benefit from greater flexibility as needs change over time.

- OCEACal web application integrated in sensor hub, with support for up to 40 sensors at a time
- Compatible with temperature, humidity, and CO2 Smart-Sensors; digital temperature sensors
- Loads calibration parameters onto Smart-Sensors
- Produces reports and certificates automatically

How it works

1. Open the embedded OCEACal software, connect digital sensors or Smart-Sensors to the sensor hub, and prepare sensors for calibration.
2. Configure the calibration process with the number of setpoints, number of readings per setpoint, and the reading interval.
3. Use manual mode or automatic mode using a reference sensor.
4. Launch the calibration process.
5. A report and calibration certificate are generated automatically.
6. You may then proceed with sensor adjustment.



KEY FEATURES

- Supports Dickson temperature, humidity, and CO2 Smart-Sensors; digital temperature sensor
- Integrated OCEACal calibration application
- Automated process when using a Dickson standard reference chain, or manual process by entering reference sensor values from a non-connected measurement chain
- Smart-Sensors can be updated with new calibration parameters directly
- Configurable calibration cycle settings, such as setpoints, readings per setpoint, reading interval, etc.
- CSV file format export (compatible with OCEAView sensor calibration import function for digital temperature sensors)
- Calibration process report (PDF) and calibration certificate

Sensor hub hardware

- 40 sensor cables with Binder connectors to connect up to 40 sensors simultaneously
- Ethernet with fixed or dynamic (DHCP) IP address for network or direct computer access
- 110-240 V AC adapter with international plugs
- USB-C power cable
- LED power and status indicators
- ABS casing
- Dimensions: 250 x 180 x 75.5 mm (9.8 x 7.1 x 3 in.)
- Weight with cables: appr. 2.2 kg (4.9 lbs.)
- Use and storage at ambient temperature

- Calibrate up to 40 connected sensors at a time\*
- Simplified calibration with a Dickson reference chain

\* In automatic mode, 39 sensors plus the reference sensor

PART NUMBER	DESCRIPTION
OCEACal — calibration solution	
ACC.MTR.0008	Sensor hub with embedded OCEACal software





# Alerts

| Reinforce protection for  
| your most valuable assets



# LoRa® Alert Siren



## LoRaWAN® enabled wireless siren with bright light and sound, triggered if alarms are detected by your OCEAView™ platform

With its wireless connectivity, this siren is sure to attract people’s attention when alarms are detected. Define an alert strategy in OCEAView with notification using the siren, which is triggered remotely in case of an alarm. As a complement to e-mail, voice call, or text message notification, this is the perfect add-on for your monitoring solution’s alert system.

### Description

- Reinforces protection for sensitive goods and equipment
- Adjustable siren volume and flashing red light
- Runs on AC power with backup battery to maintain LoRaWAN connection in case of power outage

### KEY FEATURES

- Siren triggered wirelessly via LoRaWAN when alarm conditions are detected
- Fully integrated with alert rules in OCEAView monitoring solution (Cloud or on-premises)
- Push-button for wireless communication test, setup, and snooze
- Adjustable siren volume from 60 dBA to 100 dBA (± 10%)
- Green/red status indicator
- Automatically switches to backup battery to maintain LoRaWAN connectivity and generate an alert in case of power outage

### Connectivity

- LoRaWAN long-range wireless technology, range up to about 15 km/10 miles<sup>(1)</sup>

### Hardware details

- Operating conditions: 0 °C to +50 °C (+32 °F to +122 °F); 0 to 90% RH (non-condensing)
- 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)
- 110/240 V input auto-switching power adapter provided separately; 1.5 m (about 5 feet) cable; 12 V DC 1.0A output
- Li-SOCl<sub>2</sub> (LS14500) 3.6 V backup battery; non-rechargeable, non-replaceable
- Mounting kit for use with provided Velcro® or magnet; maximum mounting height < 2 meters (6.5 ft)
- ABS and polycarbonate plastic casing
- Dimensions: 160 x 80 x 83 mm (6.3 x 3.1 x 3.3 in.)
- Weight: 400 g (14.1 oz.)
- Certifications: CE, FCC, IC

PART NUMBER	DESCRIPTION
LoRaWAN-enabled audio/visual siren	
ACC.ALE.X001	Wireless alert device for OCEAView

(1) Line-of-Sight range based on environmental conditions & antenna orientation.

# LoRa® Alert Relay



## LoRaWAN® enabled alert relay to trigger your alert devices in case alarms are detected by your OCEAView™ platform

The Dickson wireless dry contact relay offers an interface between your OCEAView solution and your building’s technical management system. If an alarm is detected by OCEAView, the dry contact device can trigger two different alert devices with standard inputs.

### Description

- Interfaces OCEAView with your Building Management System
- Opens or closes relays to trigger your alert devices
- Two outputs, each of which can be configured as “normally open” or “normally closed”
- Runs on AC power with backup battery to maintain LoRaWAN connection in case of power outage

### KEY FEATURES

- Fully integrated with OCEAView monitoring solution (Cloud or on-premises)
- LoRaWAN-enabled dry contact alert relay to trigger up to two connected alert mechanisms or building alarm management system when alarm conditions are detected in OCEAView
- Push-button for wireless communication test, setup, snooze
- 2 simultaneous dry-contact outputs, “normal” status can be set as open or closed
- Automatically switches to backup battery to maintain LoRaWAN connectivity and generate an alert in case of power outage

### Connectivity

- LoRaWAN long-range wireless technology, free field range up to about 15 km/10 miles<sup>(1)</sup>

### Hardware details

- Operating conditions: 0 °C to +50 °C (+32 °F to +122 °F); 0 to 90% RH (non-condensing)
- 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)
- Max. relay power: 84W; max. voltage: 42VDC, 42VAC (max. frequency 60Hz); max. current: 2A
- 110-240V adapter with international plugs and 1 meter cable (3.3 ft.); AC adapter: 12V DC 1.0A output; relay limit: 24V DC - 0.4 A
- Li-SOCl<sub>2</sub> (LS14500) 3.6 V backup battery; non-rechargeable, non-replaceable
- Mounting kit with screws and Velcro®; maximum mounting height < 2 meters (6.5 ft)
- ABS plastic casing
- Dimensions: 102 x 54 x 30 mm (4 x 2.1 x 1.2 in.); weight: 122 g (4.3 oz.)
- Certifications: CE, FCC, IC

PART NUMBER	DESCRIPTION
LoRaWAN-enabled dry contact alert controller	
ACC.ALE.X002	Wireless alert relay for OCEAView

(1) Line-of-Sight range based on environmental conditions & antenna orientation.





# Accessories

| Add to your monitoring  
experience

# Accessories

## Batteries / Electrical



**LS14250 3.6 V LI battery**  
Emerald data loggers  
ACC.ENR.0032 (1 battery)  
ACC.EMD.0012 (pack of 4)



**LS17500 3.6 V LI battery**  
Cobalt X1 / X2 / XS  
ACC.ENR.0002 (1 battery)  
ACC.ENR.0004 (pack of 5)  
ACC.ENR.0100 (pack of 100)



**USB cable (3 m) + AC adapter**  
Cobalt X1 / X2  
ACH.ALM.0012

## Antennas



**32 cm (12.36 in.), +3.5 dB**  
For: LoRaWAN gateway  
ACC.GSR.0020 (915 MHz)



**82 cm (32.3 in.), +5 dB**  
For LoRaWAN gateway  
ACC.GSR.0014 (868 MHz)



**147 cm (57.9 in.), +8 dB**  
For LoRaWAN gateway  
ACC.GSR.0019 (868 MHz)  
ACC.GSR.0021 (915 MHz)



**80 cm (31.5 in.), +5.8 dB**  
For LoRaWAN gateway  
ACC.GSR.0022 (470-510 MHz)

## Dry contact cables



**Dry contact input (2.9 m)**  
Cobalt X1 / X2  
ACC.ENR.0045



**Dry contact input (3.5 m)**  
Cobalt X1 / X2  
ACC.ENR.0058



**Dry contact input (5 m)**  
Cobalt X1 / X2  
ACC.ENR.0059

## Extension cables



**Flat extension cable (1.5 m)**  
Cobalt X1 / X2 / XS  
PSF.RAL.0009



**Flat extension cable (3 m)**  
Cobalt X1 / X2 / XS  
PSF.RAL.0013



**Flat extension cable (5 m)**  
Cobalt X1 / X2 / XS  
PSF.RAL.0011



**Flat extension cable (10 m)**  
Cobalt X1 / X2 / XS  
PSF.RAL.0014



**CO<sub>2</sub> sensor extension cable**  
Cobalt X1 / X2  
PSF.RAL.0010 (42 cm)



# Accessories

## Miscellaneous



**Thermocouple sensor**  
For Cobalt X with  
Universal Smart-Sensor  
SON.TPT.0015 (with sensor)



**Analog / 4-20 mA converter**  
For Cobalt X with  
Universal Smart-Sensor  
ACC.ENR.0062 (without sensor)



**Sensor microcontroller  
(Binder)**  
Cobalt X1 / X2 / XS  
ACC.ENR.0061



**Sensor microcontroller  
(Omega)**  
Cobalt X1 / X2 / XS  
ACC.ENR.0054



**IP67 protective case**  
Cobalt legacy  
ACC.ENR.0066

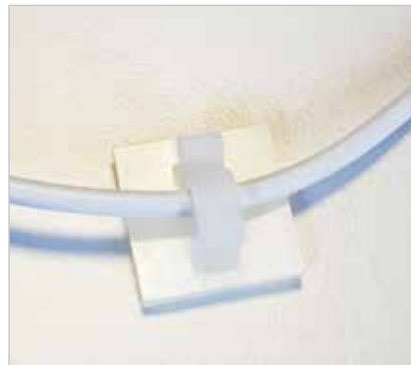


**IP67 protective case**  
Cobalt X1 / X2  
ACC.ENR.0056



**Tube and adapters**  
Differential pressure sensor  
PSF.KIT.0004

## Mounting kits



**Cable clip with adhesive**  
All wired sensors  
ACH.ACC.0010 (pack of 50)



**Magnetic mounting kit**  
Cobalt X1 / X2  
PSF.KIT.0029



**Mounting magnet**  
Emerald  
ACH.ACC.0007



**Mounting kit**  
2 cable ties, 4 cable clips  
PSF.KIT.0002



**Mounting kit**  
2 screws, 2 Velcro strips  
PSF.KIT.0107



# Services

| Get the help you need  
| at every step



# Calibration and metrology



## Accredited in-house laboratory

Dickson's regional offices each have an advanced in-house metrology laboratory to calibrate sensors for all your target ranges and applications. Meeting the highest industry standards, our in-house laboratories in Europe and the United States are accredited with the rigorous ISO/IEC 17025 international standard.

The following calibration options are available, depending on your products and requirements:

- **ISO/IEC 17025 accredited<sup>(1)</sup>**  
*For customers with specific quality system requirements*
- **Certified – non-accredited**  
*Using a reference chain calibrated according to the ISO/IEC 17025 standard*
- **NIST-traceable<sup>(2)</sup>**  
*Using a NIST calibrated reference chain*

A calibration certificate is provided, with correction parameters for use in Dickson monitoring software.

- **Expert in-house laboratories in three regions**
- **Calibration certificates** provided for each sensor
- Digital sensors and Dickson Smart-Sensors **recalibrated by sensor exchange**
- **Metrology training offered** by expert Dickson technicians



## Sensor exchange program for recalibration

In order to avoid both down-time and traceability interruptions, digital sensors and Dickson Smart-Sensors may be recalibrated by exchanging the sensor<sup>(3)</sup>. This means simply connecting a freshly calibrated sensor provided by Dickson to your data logger and safely removing the old sensor to be returned Dickson<sup>(4)</sup>.

For your standard Pt100 sensors, we propose on-site recalibration and/or verification<sup>(5)</sup> by a qualified technician. Sensor drift may also be calculated (upon request) to establish consistency over time.

(1) ISO/IEC 17025 accreditation in Europe by COFRAC for OCEASOFT, a Dickson company; in the United States by A2LA.  
(2) National Institute of Standards and Technology, federal technology agency, United States.  
(3) Only available for external digital sensors and Dickson Smart Sensors  
(4) A decontamination certificate is required.  
(5) Service available for Pt100 Smart-Sensors if sensor exchange is not desired.



# Technical support

## 01 Pre-installation site survey

Project planning can be a detailed and complex process. A site survey with performance tests under real conditions helps ensure optimal solution recommendations. Surveys save you time and money while ensuring the most effective monitoring system possible.

- Wireless connectivity analysis under real-world conditions at your site
- Optimizes system equipment and configuration
- Helps minimize cost and improve performance

- **Helps optimize equipment, placement, and configuration choices**
- **Speeds up deployment of most effective solution**



## 02 Monitoring solution installation

Depending on the configuration, site complexity, and technical resources, you may choose to have Dickson technicians or partners handle the installation process. We offer complete installation and configuration services for all Dickson data loggers, applications, alert solutions, and network infrastructure components.

- Benefit from a ready-to-use monitoring system
- On-site installation and qualification of all hardware and software, or installation via remote Internet connection
- Service provided by highly qualified technicians
- Enjoy peace of mind without technical hassles

- **Complete IQ/OQ documents for use with or without Dickson technician assistance**
- **Adapted to satisfy GxP requirements**



## 03 Installation and Operational Qualification

To ensure compliance with applicable requirements for Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP), Dickson has elaborated a series of customizable IQ/OQ documents that will guide you through rigorous end-to-end testing of your monitoring solution.

- Test scenarios leveraging Dickson's extensive expertise with Food and Drug Administration (FDA) and European Food Safety Authority (EFSA) audits
- Verification that all aspects of your solution match specifications and that every component and feature functions as required

- **Installation at your site or via remote connection**
- **Benefit from optimal configuration for your entire monitoring solution**

## CUSTOMER SUPPORT AND AFTER-SALES SERVICES

### How can we help you?

The Dickson team has unmatched expertise assisting customers with every aspect of their monitoring system. Our tech support staff is at your service to help resolve all your issues via email and/or phone call.

- User guides at your disposal
- Assistance and troubleshooting via email and telephone hotline
- Warranty repairs
- Remote maintenance
- Personalized support





Customer training

From beginner to advanced levels on every aspect of Dickson’s hardware and service offering

Dickson provides complete user training to help ensure the ongoing efficiency of your solution. After a monitoring solution is installed, our technicians tell you and your teams everything about it, with training sessions tailored to users’ real needs. This includes equipment maintenance, software use, data analysis and reports, alarm acknowledgment, metrology aspects, and more.

- Training can take place at customer site or Dickson offices
- Teaching materials provided
- Courses include both theoretical explanations and hands-on time experimenting with hardware and software

Sessions adapted to meet your needs

- Training on administration and daily use of your monitoring solution
- Expand your knowledge of metrology and calibration
- Groups or one-on-one sessions
- Training courses vary in length from 1/2 day to a full day



Temperature mapping training

This course teaches you how to characterize equipment in accordance with the NF X 15-140 standard using Dickson wireless monitoring solutions:

- Understanding characterization, related standards, and metrology basics
- Using mapping tools and software
- Generating reports and compliance declarations
- Hands-on practice and case study

- Course materials
- Users involved with thermal mapping
- Prerequisites: basic metrology/software knowledge
- Duration: 1 day

OCEAView training

This course teaches you how to use the OCEAView solution using LoRaWAN® and Bluetooth® wireless technologies. After taking this course, you will be able to deploy Dickson monitoring solutions and use related web and mobile applications.

- Solution architecture and hardware
- LoRaWAN connectivity and gateway
- Bluetooth connectivity and OCEABridge gateway (for Cobalt X)
- Configuring user accounts; adding equipment, data loggers, and sensors; accessing sensor data
- Managing alarms, alerts, and technical issues
- Using map view
- Troubleshooting



- Course materials, practical exercises
- For users and administrators of the OCEAView solutions (Bluetooth and LoRa)
- Prerequisites: basic computer knowledge
- Duration: 1 day (1/2 day for theory only)

Metrology basics

This training course is presented by experts from Dickson’s metrology laboratory. You will learn the foundations of temperature metrology and understand calibration certificates and thermal enclosure characterization reports to make your laboratory life easier. Course content focuses on standardized and internationally accepted Quality methods.

- Various sensor technologies
- International Temperature Scale of 1990 (ITS-90)
- Standards related to temperature metrology
- Metrology terms (International Vocabulary of Metrology)
- Introduction to uncertainty
- Calibration certificates and verification certificates
- Climatic chamber characterization
- For staff and sub-contractors

- Course materials
- For all audiences
- Prerequisites: basic computer knowledge
- Duration: 1 day



Calibration

Presented by experts from Dickson’s metrology laboratory, this course teaches you how to calibrate temperature sensors and apply the results. For sessions taking place at our site, the course features hands-on exercises using professional calibration equipment such as reference probes and temperature-controlled baths.

- Determining needs
- Overview of the main standards
- Prerequisites before calibration
- Establishing uncertainty budgets
- Calibration certificates
- Calibration process
- Using results
- Managing sensors over time

- Course materials
- For all audience
- Prerequisites: metrology basics or general knowledge
- Duration: 1 day





# Appendix

| Contact, warranty,  
and notices

# Contact, warranties, notices

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## Notices

- Do not use Dickson solutions for protection or as part of an automated emergency system or for any other application that involves protecting the lives of people and/or the security and/or safety of property. Customers and users of Dickson solutions are responsible for making sure that said solutions are fit for the intended usage.
- Do not open the product casing and do not disassemble or modify internal components in any manner.
- Dickson solutions do not contain any internal components that require user intervention or repair. If the device shows signs of improper operation, disconnect it immediately from its power source, or remove the battery, and contact Dickson technical services.

## Dickson warranty information

- Dickson products are covered by a Limited Warranty. Warranty service for eligible repairs is available at no charge during the warranty period, excluding shipping costs, starting from the invoice date. Products under warranty must be returned to Dickson for repair.

## Hardware warranties

- Cobalt™ data loggers, gateways, alert devices, and sensors are covered by the Limited Warranty for a period of two years.
- Emerald™ data loggers are covered by the Limited Warranty for a period of one year.
- Atlas™ data loggers are covered by the Limited Warranty for a period of one year (based on the product's intended battery life).

## Accessory warranties

- Accessory products such as cables and casing are covered by the Limited Warranty for a period of one year.
- Please do not hesitate to contact Dickson for more information on Warranty coverage, out-of-warranty repairs, and replacement parts.

## Delivery

- Dickson solutions can be shipped nearly anywhere
- We keep a large quantity of products in stock in order to meet your needs as quickly as possible. Products that require assembly and calibration may take longer to deliver.

## Exclusions

- Dickson assumes no liability for any loss or claims by third parties arising through the use of the products or services described in this catalog. This document is non-contractual, and the contents and images contained herein are subject to change without notice.
- Dickson and its distributors shall not be held liable either directly or indirectly for cost, damage, expenses and legal fees, or personal injury related to the use of Dickson solutions, even in the case of faulty design or manufacturing of said solutions. Dickson solutions, including accessories and replacement parts, are provided as-is without any additional warranty, explicit or implied, with respect to files, their suitability for a particular application, their quality, their commercialization, or any other related aspect.
- The liability of the seller and/or creator with respect to the solution warranty is strictly limited to the amount paid by the client for said solution. Under no circumstances shall the seller or creator assume responsibility for any damage or prejudice whatsoever, direct or indirect, specific or consequential, particularly with respect to any down-time, loss of data, or any other financial loss resulting from the use or impossibility to use the solutions, even if Dickson is aware of the potential occurrence of said prejudice. The product seller and creator advise each solution user to verify the results of using these products and files, and neither the seller nor the creator shall be held liable for any damage related to using the delivered solution. Dickson informs all future buyers and users of its solutions that Dickson solutions would not be able to exist without the above limitations.

# Glossary

**21 CFR Part 11 (FDA)** — Food and Drug Administration guidelines establishing regulations regarding electronic records and electronic signatures to ensure that those records and signatures are considered trustworthy, reliable, and equivalent to paper records.

**ABS plastic** — Acrylonitrile Butadiene Styrene, a highly shock-resistant thermoplastic polymer.

**Alarm (condition)** — An alarm is a state that occurs when the system observes a sensor reading that is out-of-bounds, such as a temperature reading that is too high or too low with respect to programmed range limits. The system can notify users when alarms occur by sending alerts.

**Alert (action)** — An alert is a notification issued by the system and sent to users when the system observes an alarm condition or potential problem.

**Bluetooth®** — A short-range wireless communication technology that allows devices such as data loggers, smartphones, computers, and peripherals to transmit data wirelessly over a short distance. Bluetooth offers a range of about 50 m (about 160 ft).

**Cloud** — A global network of remote servers accessed via the Internet. Cloud platforms store and manage data and host software applications.

**Correction** — Compensation of a systematic sensor measurement error through mathematical adjustment.

**Data logger** — Wireless device that logs sensor data on a regular basis and transmits it to the server.

**Data logging** — The process of using an electronic device to record data from a built-in or external sensor over time.

**Drift (sensor)** — Variation over time of sensor readings due to variations in the metrology properties of measurement instruments.

**Equipment** — The material or space being monitored with a data logger

**Expanded uncertainty** — Expression of uncertainty of measurement results with a confidence level of 95% (K=2).

**Gateway** — Device that forwards information from data loggers to a server or Cloud platform.

**Installation Qualification (IQ)** — The first step in qualifying new equipment. A documented process that verifies that all aspects that affect product quality with respect to approved design specifications, and that the piece of equipment or instrument has been delivered, installed, and configured correctly.

**IP Protection Index** — Classifies the degree of protection provided against intrusion, dust, accidental contact, and water by mechanical casings and electrical enclosures.

**ISM bands** — License-free wireless frequencies for Industrial Medical Scientific applications around the world.

**Line-of-sight (LOS) / Free field** — An indication of the maximum wireless range between two points without any obstacles.

**LoRa® (LoRaWAN®)** — A long-range, low-power networking protocol designed to wirelessly connect devices, offering line-of-sight range up to nearly 15 km (about 10 miles).

**Measurement chain** — All the elements in a data logger device comprising the path taken by the signal from the sensor to its wireless transmission.

**MKT (Mean Kinetic Temperature)** — Simplified expression of the overall effect of temperature fluctuations during storage or transit of perishable goods.

**OCEAlert™** — Internet-based platform that delivers alerts via voice message and SMS/text messages.

**Operational Qualification (OQ)** — The testing of every component in the system. Once the equipment has passed the IQ phase the operational requirements, as well as the operational consistency of the equipment, must be put to the test.

**PTFE** — Polytetrafluorethylene: Polymer with remarkable insulation properties (temperatures up to +380 °C) and protection from humidity.

**Reading interval** — Time period between two sensor readings by the data logger.

**Reference (calibration)** — Reliable and stable measurement chain that can be used to calibrate other measurement chains (sensors).

**Resolution (sensor)** — Smallest change in quantity being measured that causes a perceptible change in the corresponding indication.

**Sensor** — Device that measures physical parameters such as temperature, humidity, CO<sub>2</sub> levels, electrical current, etc.



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