DICKSON
Environmental Monitoring + Compliance Experts

2022
2023

OCEAView™

Products & Services

One less thing to worry about

ABOUT US

Who is Dickson and what is OCEAView™?

Cobalt X™

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

Cobalt X data loggers support up to four external sensors simultaneously to monitor your invaluable equipment. Readings are recorded in on-board memory, then transmitted to the OCEAView™ remote monitoring solution via LoRaWAN or Bluetooth Low Energy connectivity. Cobalt X offers interactive touch screen controls and highly visible alert indicators, with support for a wide variety of environmental sensors, including Dickson's Bluetooth enabled remote sensors.

- Numerous wired and wireless sensors for monitoring critical environmental parameters (up to 4 at a time)
- Ideal for the life sciences sector, including labs, hospitals, storage facilities, and manufacturing
- Interactive touch-screen for fast access to setup, information, and alarm acknowledgement
- Fully integrated with OCEAView Cloud or on-premises monitoring solution with LoRaWAN or Bluetooth wireless connectivity

LoRaWAN® Bluetooth®

RELATED PRODUCTS

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Atlas p. 19
Sensors p. 22
Gateways p. 28
OCEAView p. 34
Alerts p. 38

KEY FEATURES

- Monitoring applications: refrigerators, freezers, ULT freezers, nitrogen tanks, water baths, ovens, CO_2 incubators, autoclaves, cold rooms, cleanrooms, warehouses
- Physical parameters: temperature, humidity, CO_2, differential pressure, 4-20 mA, 0-5 V, 0-10 V, dry contact input, light
- Supported sensors: all Smart-Sensors™, digital temperature sensors, Atlas/Emerald Bluetooth wireless sensors
- Calibration options: ISO/IEC 17025 accredited (COFRAC); certified (non-accredited); or NIST-traceable; recalibration via sensor exchange
- Cobalt X1: up to 2 measurement points, includes 1 x 1.5 m (4 ft) flat cable
  Cobalt X2: up to 4 measurement points, Includes 2 x 1.5 m (4 ft) flat cables
- 2.4" (6.1 cm) glove-compatible, color touch-screen for setup, synchronization with server, latest readings, alarm status, alarm acknowledgment with PIN code
- Alarms indicated by flashing lights and buzzer (sound only when on AC power), and transmitted to OCEAView platform for fast user notification
- 3 high & 3 low alarm limits with programmable delay for each limit and on-board alarm management
- Temperature displayed in °C or °F
- Full integration with OCEAView monitoring platform (Cloud or on-premises); data logging configuration handled via OCEAView; sensor reading interval adjustable for each measurement point

Connectivity

- LoRaWAN long-range wireless technology, free-field range up to about 15 km/10 miles[1]
- LoRaWAN regional channel plans in ISM radio spectrum: EU868, US915, AS923-1, AS923-2, AS923-3, AS923-4, AU915, IN865, KR920
- Bluetooth Low Energy
- Omnidirectional antenna

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
  Standard data logger: 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)
- 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)
- Power: 2 x Li-SOCl2 (LS17500) 3.6 V user-replaceable lithium batteries; at least 1 year battery life (standard usage); 5V power adapter (optional)
- ABS / ABC-PC casing
- Dimensions: 100.8 x 110.8 x 29.6 mm (4.0 x 4.4 x 1.2 in.); weight with batteries: 180 g (6.4 oz.)
- Mounting kit for use with screws, magnet, or Velcro®; optional locking with padlock
- IP30 standard; optional IP67 external case for protection against shocks, vibrations, cleaning operations
- Certifications: CE, FCC, IC, ACMA, ICASA

PART NUMBER[2]	DESCRIPTION	SENSORS
Cobalt X1 / X2 data logger *(sensors not included)*		
ENR.CX1.P001 • ENR.CX1.R001	Cobalt X1 - Multi MHz	up to 2
ENR.CX1.9001 *(915 MHz)*	Cobalt X1 - North America	
ENR.CX1.8001 *(868 MHz)*	Cobalt X1 - Europe	
ENR.CX2.P001 • ENR.CX2.R001	Cobalt X2 - Multi MHz	up to 4
ENR.CX2.9001 *(915 MHz)*	Cobalt X2 - North America	
ENR.CX2.8001 *(868 MHz)*	Cobalt X2 - Europe	
Accessory		
ACH.ALM.0008	Universal power adapter for Cobalt X data logger • 5V/110-240V • 3 m (10 ft) USB cable	n/a

[1] Actual range depends on environment and datalogger/gateway antenna orientation.
[2] Contact us if you need to order without batteries.

SENSORS

Standard or with embedded intelligence

Smart-Sensors™

Pt100 Smart-Sensor (-100 °C / +200 °C)

APPLICATIONS
-80 °C freezers, industrial applications

RESOLUTION
0.03 °C

EXPANDED UNCERTAINTY
± 0.08 °C to 0.3 °C

- -100 °C to +200 °C
- Dimensions: Ø 3 mm, L: 100 mm
- Stainless steel
- Class B
- 3-wire PTFE cable
- Cable length: 350 cm (w/connector)
- IP66

COMPATIBILITY
Cobalt X1, Cobalt X2, Cobalt L3

PART NUMBER
SON.TPT.0009

Pt100 Smart-Sensor (-200 °C / +50 °C)

APPLICATIONS
Cryogenic freezers, liquid nitrogen tanks

RESOLUTION
0.03 °C

EXPANDED UNCERTAINTY
± 0.08 °C to 0.3 °C

- -200 °C to +50 °C
- Dimensions: Ø 3 mm, L: 100 mm; junction Ø 6 mm
- Stainless steel
- Class B
- 3-wire PTFE cable
- Cable length: 140 cm (w/connector)
- IP66

COMPATIBILITY
Cobalt X1, Cobalt X2, Cobalt L3

PART NUMBER
SON.TPT.0010

Temperature and humidity Smart-Sensor

APPLICATIONS
Storage facilities, stability chambers

RESOLUTION
0.01 °C
0.05% RH

EXPANDED UNCERTAINTY
± 0.3 °C to ± 0.5 °C
± 4% RH

- -40 °C to +100 °C
- 0 to 99.9% RH
- Dimensions: 33 x 11.6 mm
- PTFE filter
- Standard cable: 100 cm (w/connector)
- Protection index: IP65

COMPATIBILITY
Cobalt X1, Cobalt X2, Cobalt L3

PART NUMBER
SON.HYG.0003

CO_2 , Temperature, and humidity Smart-Sensor

APPLICATIONS
Incubators

RESOLUTION
0.1% CO_2
0.01 °C
0.05% RH

EXPANDED UNCERTAINTY
± 0.3% CO_2
± 0.3 °C to ± 0.5 °C
± 4% RH

- 0 to 9.99% CO_2
- 0 °C to +50 °C
- 0 to 99.9% RH
- Dimensions: 79.5 x 76.5 x 45.5 mm
- ABS plastic and polycarbonate casing, PTFE filter
- Operating range: 0 °C to 50 °C, 0 to 99.9% relative humidity (non-condensing)
- Flat cable length: 240 cm (w/connector)
- Protection index: IP44

COMPATIBILITY
Cobalt X1, Cobalt X2

PART NUMBER
SON.CO2.0009

Smart-Sensors™

Universal Smart-Sensor (4-20 mA / 0-5 V / 0-10 V)

APPLICATIONS
Current levels, industry standard equipment with 4-20 mA, 0-5 V, or 0-10 V output

RESOLUTION
0.01 mA or 0.01 V

EXPANDED UNCERTAINTY
Depends on connected device

- 4-20 mA, 0-5 V, or 0-10 V
- 2-wire cable
- Cable length: 290 cm

COMPATIBILITY
Cobalt X1, Cobalt X2

SENSOR PART NUMBER
SON.420.0001

Single differential pressure Smart-Sensor

APPLICATIONS
Laboratories, pressure difference between "clean" and "dirty" areas

RESOLUTION
0.015625 Pa

EXPANDED UNCERTAINTY
± 4 Pa*

- One sensor
- -500 to +500 Pa (-2.0 to +2.0 inches H_2O)
- Tube: L: 50 cm, Ø 4 mm (4-5 mm adapter included)
- Full compatibility: air, Nitrogen
- Limited compatibility: O_2
- Supported overpressure: 1 bar (100 kPa, 400 inches H_2O)

COMPATIBILITY
Cobalt X1, Cobalt X2

SENSOR PART NUMBER
SON.PRE.0002

Dual differential pressure Smart-Sensor

APPLICATIONS
Laboratories, pressure difference between "clean" and "dirty" areas

RESOLUTION
0.015625 Pa

EXPANDED UNCERTAINTY
± 4 Pa*

- Two independent sensors
- -500 to +500 Pa (-2.0 to +2.0 inches H_2O)
- Tube (x2): L: 50 cm, Ø 4 mm (4-5 mm adapter included)
- Full compatibility: air, Nitrogen
- Limited compatibility: O_2
- Supported overpressure: 1 bar (100 kPa, 400 inches H_2O)

COMPATIBILITY
Cobalt X2

SENSOR PART NUMBER
SON.PRE.0003

Single differential pressure Smart-Sensor + additional Binder connector

APPLICATIONS
Laboratories, pressure difference between "clean" and "dirty" areas

RESOLUTION
0.015625 Pa

EXPANDED UNCERTAINTY
± 4 Pa*

- One sensor, additional 50 cm Binder connector cable
- -500 to +500 Pa (-2.0 to +2.0 inches H_2O)
- Tube: L: 50 cm, Ø 4 mm (4-5 mm adapter included)
- Full compatibility: air, Nitrogen
- Limited compatibility: O_2
- Supported overpressure: 1 bar (100 kPa, 400 inches H_2O)

COMPATIBILITY
Cobalt X2

SENSOR PART NUMBER
SON.PRE.0004

* 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 down-time
- Automatic recognition by supported data loggers
- All-digital technology for maximum reliability

Standard sensors

Digital temperature sensor (-40 °C / +80 °C)

APPLICATIONS
Refrigerators, cold rooms, freezers, ovens, incubators; optional metal pipe contact tip for monitoring Legionella conditions

RESOLUTION
0.0625 °C

EXPANDED UNCERTAINTY
± 0.06 °C to ± 0.25 °C

- -40 °C to +80 °C
- Dimensions: Ø 6 mm, L: 30 mm
- Stainless steel
- Cable lengths: 27, 100, or 350 cm (w/connector)
- Protection index: IP67
- Optional contact tip (ACC.SON.0001)

COMPATIBILITY
Cobalt X1, Cobalt X2, Cobalt ML3, Cobalt L3

SENSOR PART NUMBERS
SON.TNU.0001 (27 cm cable)
SON.TNU.0002 (1 m cable)
SON.TNU.0003 (3.5 m cable)

Digital temperature sensor (-40 °C / +120 °C)

APPLICATIONS
Ovens, incubators, water baths

RESOLUTION
0.0625 °C

EXPANDED UNCERTAINTY
± 0.06 °C to ± 0.25 °C

- -40 °C to +120 °C
- Dimensions: Ø 6 mm, L: 30 mm
- Stainless steel
- Cable length: 100 cm (w/connector)
- Protection index: IP67

SUBMERSIBLE VERSION
- Dimensions: Ø 6 mm, L: 46 mm; cable length: 150 cm (w/connector)

COMPATIBILITY
Cobalt X1, Cobalt X2, Cobalt ML3, Cobalt L3

SENSOR PART NUMBERS
SON.TNU.0005
Submersible version: SON.TNU.0011

Digital temperature sensor - Insertion probe (-40 °C / +120 °C)

APPLICATIONS
Food products

RESOLUTION
0.0625 °C

EXPANDED UNCERTAINTY
± 0.06 °C to ± 0.25 °C

- -40 °C to +120 °C
- Dimensions: Ø 6 mm, L: 150 mm
- Handle length 100 mm
- Stainless steel
- Cable length: 200 cm (w/connector)
- Protection index: IP67

COMPATIBILITY
Cobalt X1, Cobalt X2, Cobalt ML3, Cobalt L3

SENSOR PART NUMBER
SON.TNU.0009

Standard sensors

Pt100 sensor (-200 °C / +50 °C)

APPLICATIONS
Cryogenic freezers, liquid nitrogen tanks, transport

RESOLUTION
Emerald: 0.03 °C

EXPANDED UNCERTAINTY
± 0.08 °C to ± 0.25 °C

- -200 °C to +50 °C
- Analog sensor
- Dimensions: Ø 4 mm, L: 50 mm
- Stainless steel
- Class B
- 3-wire PTFE cable
- Cable length: 100 cm (w/connector)
- Protection index: IP66

COMPATIBILITY
Emerald

SENSOR PART NUMBER
SON.TPT.0006

Pt100 sensor (-50 °C / +200 °C)

APPLICATIONS
Incubators, ovens, transport

RESOLUTION
Emerald: 0.03 °C

EXPANDED UNCERTAINTY
± 0.08 °C to ± 0.25 °C

- -50 °C to +200 °C
- Analog sensor
- Dimensions: Ø 4 mm, L: 50 mm
- Stainless steel
- Class B
- 3-wire PTFE cable
- Cable length: 100 cm (w/connector)
- Protection index: IP66

COMPATIBILITY
Emerald

SENSOR PART NUMBER
SON.TPT.0012

Dry contact input sensor cable for Cobalt X

APPLICATIONS
Monitoring door opening-closing, uninterruptable power supplies, air conditioning units, ultra-low-temperature freezers

RESOLUTION
n/a

EXPANDED UNCERTAINTY
n/a

- 2-wire cable with 2.5 mm jack
- Cable lengths: 9.5 ft (2.9 m), 11.5 ft (3.5 m), 16.4 ft (5 m)

Note: Cobalt X memory capacity for the dry contact sensor channel is 1,800 events (state-change with date & time stamp)

COMPATIBILITY
Cobalt X1, Cobalt X2

SENSOR PART NUMBERS
ACC.ENR.0045 (2.9 m cable)
ACC.ENR.0058 (3.5 m cable)
ACC.ENR.0059 (5 m cable)

GATEWAYS

Cutting-edge wireless
communication protocols

LoRa® gateways

End-to-end connectivity for your OCEAView™ solution 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[1].

- Collects and forwards data between Dickson LoRaWAN equipped data loggers and the OCEAView Cloud or on-premises server
- Long LoRaWAN wireless range
- WiFi, Ethernet, or cellular Internet connectivity
- Two models to meet your needs and technical constraints
- Very low interference with other nearby wireless devices

KEY FEATURES

- Compatible with Dickson LoRaWAN-enabled Cobalt X™, Cobalt L3™, and Cobalt ML3™ data loggers
- Low energy technology preserves data logger battery
- LED status indicators
- Configuration and update via integrated web interface

Data management

- Collects and forwards data from data loggers to OCEAView Cloud or on-premises server

Connectivity

- LoRaWAN long-range and low-interference technology
- Range up to about 15 km/10 miles[1]
- Automatic data logger detection
- LoRaWAN channel plans in ISM spectrum: EU868, US915, AS923-1, AS923-2, AS923-3, AS923-4, AU915, IN865, KR920
- Options: Ethernet; Wi-Fi (2.4 GHz / 100mW: IEEE 802.11 b/g/n); and/or 4G-LTE cellular

Hardware details

- Antenna (+3dBi default; +5dBi or +8dBi optional)
- External power supply (110-240V AC adapter)
- ARM9 400MHz; 16 MB DDR RAM; 256 MB Flash
- Storage conditions: -40 °C to +85 °C (-40 °F to +185 °F); 20 to 90% RH (non-condensing)
- Wall-mount, screw attachment
- Certifications: CE, FCC, IC, ACMA, ICASA

Advanced model (blue)

- 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.)

Pro model (gray)

- 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.)

PART NUMBER	DESCRIPTION
LoRa Advanced Gateway	
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
LoRa Pro Gateway	
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[3]
GSR.REC.8009 *(865/868 MHz)* GSR.REC.5009 *(915/923 MHz)* GSR.REC.5010 *(915/923 MHz)*[2]	Ethernet / 4G-LTE
Antenna options	
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.)

[1] Line-of-Sight range based on environmental conditions & antenna orientation.
[2] Embedded 4G modem for Australia, New Zealand, and Israel.
[3] Draws power from Ethernet network cable.

RELATED PRODUCTS

Cobalt X p. 12
Cobalt L3 p. 14
Cobalt ML3 p. 16
OCEAView p. 34

LoRaWAN®

OCEABridge™ gateway

End-to-end Bluetooth® connectivity for your OCEAView™ platform and Cobalt X™ 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.

- **Collects and forwards data between Dickson Cobalt X data loggers in Bluetooth mode and your OCEAView platform**
- **Bluetooth Low Energy technology**
- **Ethernet or 4G-LTE Internet connectivity**

Bluetooth®

PART NUMBER	DESCRIPTION
OCEABridge Bluetooth gateway	
GSR.REC.X001	OCEABridge 3 (Ethernet)
GSR.REC.XAU1	OCEABridge 3 (Ethernet, 4G) - Australia
GSR.REC.XEA1	OCEABridge 3 (Ethernet, 4G) - EMEA/APAC
GSR.REC.XJA1	OCEABridge 3 (Ethernet, 4G) - Japan
GSR.REC.XLA1	OCEABridge 3 (Ethernet, 4G) - Latin America
GSR.REC.XUS1	OCEABridge 3 (Ethernet, 4G) - USA Verizon
GSR.REC.XUS2	OCEABridge 3 (Ethernet, 4G) - USA AT&T

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 et/ou 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

RELATED PRODUCTS

Cobalt X p. 12
OCEAView p. 34

SOFTWARE

Class-leading environmental monitoring platforms

OCEAView™

Complete monitoring, traceability, and alert platform for Cloud or on-premises use, 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 and synchronizing your Dickson Bluetooth data loggers.

- Centralized sensor readings, alarms, and other information from data loggers
- Live dashboard to see system health and latest readings at a glance, with complete details, graphs, and audit trail
- Manages your entire solution, including wired and wireless sensors, data logging settings, alarm limits, alert notifications, equipment, configuration, users, reports, and more
- Secure Cloud platform or entirely on-premises installation at your own site

On-premises license and Cloud subscription models

	Subscription	License
Hosting • Web and mobile applications • Unlimited number of users • Interactive visual dashboard	Secure Cloud	On-premises *(local)*
24/7 alert notifications • E-mail, SMS/text messages, voice call • Alarm acknowledgment using PIN code • Alerts in all supported languages	Included	Optional* **E-mail notification always included by default*
Support • Hotline • Technical assistance • Troubleshooting	Included	Optional
Pricing	Based on the number of data loggers	Tier-based fee according to the number of measurement points *(sensors)*

- Developed in accordance with 21 CFR Part 11, GxP, HACCP & FSMA guidelines
- Audit trail, user-level security compliant with FDA 21 CFR Part 11
- Cloud or on-premises hosting
- Auditable, customizable, and schedulable reports
- Data logging with intuitive focus on your equipment being monitored
- LDAP support for user authentication

RELATED PRODUCTS

Data loggers p. 10
Sensors p. 22
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Alerts p. 38

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, LDAP authentication, roles, access control
- Regional preferences
- Sensor management with focus on monitored equipment
- Sensor calibration, reminders, import/export

OCEAView Mobile for iOS and Android

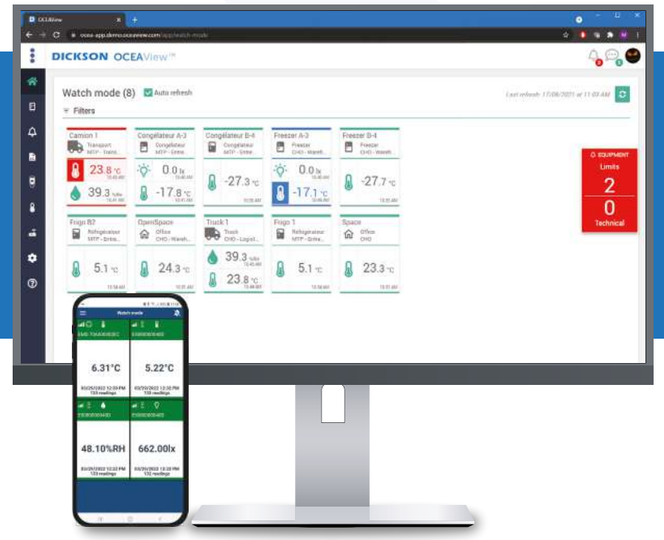
- Manage Dickson Bluetooth data logger
- Monitor data loggers with Watch Mode
- Ideal for monitoring during transport

Data management

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

Alarms and alerts

- Programmable excursion management with:
  3 high/3 low limits for Cobalt X;
  1 high/1 low for Cobalt L3, Cobalt ML3, Emerald, and Atlas
- Technical, sensor, communication, and power alarms
- Alarms immediately visible on dashboard and sent by OCEAView via e-mail, SMS/text and voice message alerts *(sent sequentially to contact list)*
- Flexible alert scheduling for workdays, weekends, nights, and holidays



FDA 21 CFR Part 11

OCEACal™

Complete in-house calibration process for Dickson Smart-Sensors™ or digital temperature sensors, with convenient connection for up to 40 temperature, humidity, or CO_2 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 own 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 CO_2 Smart-Sensors; digital temperature sensors
- Loads calibration parameters onto Smart-Sensors
- Produces reports and certificates

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 and enter readings directly into the interface, or automatic mode using a connected Dickson reference sensor
4. Launch the calibration process
5. A report and calibration certificate are generated automatically
6. You may then proceed with sensor adjustment

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

RELATED PRODUCTS

Sensors
p. 22

KEY FEATURES

- Supports Dickson temperature, humidity, and CO_2 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
- 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)
- 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.)
- Indoor use only

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.

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[1]

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-SOCl2 (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, FC, IC

- **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**

LoRaWAN®

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.

RELATED PRODUCTS

Data loggers p. 10

LoRa gateways p. 30

OCEAView p. 34

LoRa® Alert Relay

LoRaWAN® enabled dry contact 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 alert management system. If an alarm is detected by OCEAView, the dry contact device can trigger two different alert devices with standard inputs.

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[1]

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-SOCl2 (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.)

- **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**

LoRaWAN®

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.

RELATED PRODUCTS

Data loggers p. 10

LoRa gateways p. 30

OCEAView p. 34

SERVICES

Get the help you need at every step

Calibration and metrology

Accredited in-house laboratory

Dickson has an advanced in-house metrology laboratory to calibrate sensors for all your target ranges and applications. Meeting the highest industry standards, our in-house laboratory (OCEASOFT, a Dickson company) is accredited by the COFRAC[1] certification body in compliance with the rigorous ISO/IEC 17025 international standard.

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

- **ISO/IEC 17025 accredited (COFRAC)**[2]
  (for customers with specific quality system requirements)
- **Certified — non-accredited**
  (using a COFRAC-calibrated reference chain)
- **NIST-traceable**[3]
  (using a NIST-calibrated reference chain)

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

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[4].

That means connecting a new calibrated sensor (provided by Dickson) to your data logger and then, safely removing the old sensor (which one you return to Dickson[5]).

Dealing with your standard Pt100 sensors, we propose on-site recalibration and/or verification[6] by a qualified technician. Sensor drift may also be calculated (upon request) to establish consistency over time.

- In-house laboratory (OCEASOFT, a Dickson company) COFRAC-accredited in accordance with the ISO/IEC 17025 standard
- Calibration certificates provided for each sensor
- Digital sensors and Dickson Smart-Sensors recalibrated by sensor exchange
- Metrology training offered by expert Dickson technicians

[1] French National Accreditation Committee, France.
[2] COFRAC accreditation for OCEASOFT, a Dickson company.
[3] National Institute of Standards and Technology, federal technology agency, United States.
[4] Only available for external digital sensors and Dickson Smart Sensors
[5] A decontamination certificate is required.
[6] Service available for Pt100 Smart-Sensors if sensor exchange is not desired.

COLLÈGE FRANÇAIS DE METROLOGIE

cofrac ETALONNAGE COFRAC ACCREDITATION No. 2-1987 COVERAGE AVAILABLE ON www.cofrac.fr

ISO 9001 CERTIFICATION Intertek cofrac CERTIFICATION DE SYSTÈMES DE MANAGEMENT COFRAC ACCREDITATION No. 4-0001 COVERAGE AVAILABLE ON www.cofrac.fr

Technical support

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

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 setup 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

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

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

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

Customer support and after-sales services

Do you need any assistance?

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.

- Userguides at your disposal
- Assistance and troubleshooting via email and phone call
- Warranty repair
- Remote maintenance

- Assistance via email and phone call
- Individual support

Training

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
- Prerequisites generally start with basic computer knowledge for "User" level training, with more proficient system knowledge recommended for "Administrator" and "Metrology" level training
- Training courses vary in length from 1/2 day to a full day

LoRa® solution

This course focuses on administration for OCEAView monitoring solutions using LoRaWAN® technology. 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
- Configuring user accounts
- Adding equipment, data loggers, and sensors
- Accessing sensor data
- Managing alarms, alerts, and technical issues
- Using map view
- Troubleshooting

LoRaWAN®

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

Bluetooth® solution

This course teaches you how to use the OCEAView solution based on Bluetooth wireless technology. You will learn how to program data loggers, collect recorded data, generate reports using web and mobile applications.

- Solution architecture and hardware
- 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

Bluetooth®

- Course materials, practical exercises
- For users and administrators of OCEAView Bluetooth solution
- 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 reports
- Calibration certificates
- Calibration process
- Using results
- Managing sensors over time

- Course materials
- For all audiences
- Prerequisites: Metrology basics or equivalent metrology knowledge
- Duration: 1 day

APPENDIX

Contact, warranties, 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.
- All Dickson solutions and software components are tested thoroughly. However, it is not feasible or realistic to test and qualify all computers, devices, operating systems, and configurations. Our experience has shown that computer and mobile device operating systems are subject to frequent evolution. It is therefore important for users to avoid unnecessary risk by testing the products and validating processes internally to ensure stability and reliability of both wired and wireless communications in their environment.

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, repeaters, 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 products' 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 (please contact your sales representative).
- 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 known sensor measurement effect 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 16 km (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.

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

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

Network — Computers, data loggers, and infrastructure equipment such as gateways connected with servers. Networks can be "local" (LAN) within a specific area or building, or "wide area" (WAN), covering geographically separated locations as well as Cloud platforms.

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.

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_2 levels, electrical current, etc.

Server — Computer that collects data from data loggers.

Stability profile monitoring — Provides evidence regarding the quality of a drug substance or drug product temperature conditions as related to recommended storage conditions.

Web application — Solution and browser interface based on web services and architecture running on the Cloud or a local server

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