Knowing
your environment

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**Monitoring
and data logging**

Products
& solutions 2012

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Introduction

Don't leave your lab unattended

Labs, cold-rooms, and storage facilities of all kinds can easily be equipped with a variety of sensors to monitor specific conditions that are important to you. Many types of sensors are at your disposal for projects, products, or research that require stable conditions. Combined with automatic data-logging systems, you can keep track of these conditions even when you are not around. With Oceasoft monitoring solutions, from standalone dataloggers to networked wireless sensor modules, there's no reason to leave your critical parameters without 24-hour a day surveillance.

- **Temperature**
- **Relative humidity**
- **CO2 levels**
- **Differential pressure**
- **4-20 mA / 0-5 V output**
- **Dry contact**

Monitoring on the move

With the right mounting kit it's easy to place sensors where they need to be, where they can monitor your permanent installations, equipment, and facilities. Other sensors can simply be set on a shelf, such as inside an incubator. In some cases data from these sensors can be downloaded manually. In others, the data is transmitted wirelessly back to a server at preprogrammed intervals.

But how can you keep track of temperature when your products or samples are being transported? It's a slightly different situation, also one that Oceasoft products are designed to handle. For shipments of blood or food, not only is a timely alert essential in case of temperature change, but delivery services need to be able to document the fact that proper storage conditions were respected on the trip from point A to point B to point C.

- **Biological samples**
- **Blood**
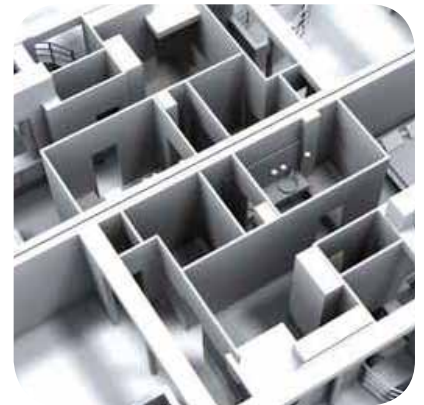- **Pharmaceutical products**
- **Food**

"You can't keep an eye on all your refrigerators, incubators, cold-rooms, and storage facilities all the time, all by yourself, so let us help you do it."

Don't worry, we'll let you know if there's a problem

Monitoring systems are only as good as the information they provide you. Accuracy, reliability, and long battery life are all important factors for logging sensor data. An alert system that is responsive to unexpected changes can bridge the gap between your equipment and yourself, wherever you may be, whenever the anomaly occurs. The Oceasoft Alarm Management System (AMS) is an integral part of the Cobalt software solution. AMS keeps a constant watch over your data to make sure it stays within range. If not, it knows how to reach you by phone, fax, e-mail or instant message.

- ▶ **Automated alerts**
- ▶ **Wireless sirens**
- ▶ **Emergency contact groups**
- ▶ **Audit trails**

"Not only do we help protect your products, but Oceasoft solutions generate regulatory-compliant audit trails to protect your liability."

Peace of mind starts early, and stays with you for the long-term

Oceasoft has many years experience helping customers get the most out of their monitoring solutions. Whether you choose a Cobalt-based wireless solution or one of our standalone monitoring products, Oceasoft offers a complete range of services to get you started efficiently and to ensure your satisfaction over time. From initial site evaluations to installation, calibration, and maintenance, Oceasoft technical staff is ready to provide the help you need. We also work closely with a network of qualified partners who offer services locally around the world.

- ▶ **Personalized pre- and post-sales service**
- ▶ **IQ/OQ site validation assistance**
- ▶ **Sensor calibration by accredited Oceasoft laboratory**
- ▶ **Hotline, support contracts and training**

OCEASOFT SENSOR - DATALOGGING APPLICATIONS

Oceasoft datalogging solutions help protect your critical samples, materials, and products by monitoring critical parameters in a wide range of situations. Our Cobalt, ThermoTracer, and LogTag products are adapted to various uses, applications, and industry sectors as summarized below:

		Wireless solutions											Standalone solutions		
		Cobalt 2 (1)								Cobalt M	Cobalt 1 (1)		Thermo-Tracer	LogTag (1)	
		Temperature (internal sensor)	Temperature (external sensor)	PT100	Humidity + Temperature	CO2 + Temperature	Differential pressure	4-20 mA / 0-5 V	Dry contact	Temperature (internal sensor)	Temperature	Humidity + Temperature	Temperature	Temperature	Humidity + Temperature
	See page:	#	#	#	#	#	#	#	#	#	#	#	#	#	#
Environments	Ambient temp.	x			x					x	x	x			x
	Cold rooms		x	x						x	x	x	x	x	
	Refrigerators		x	x						x					
	Freezers		x	x						x					
	Water baths		x	x							x				
	Incubators			x	x	x									x
	Ovens			x											
	Clean rooms						x								
	Active sensors							x							
	Detection systems								x						
Sectors	Life science, health, medical	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Food	x	x	x	x			x	x	x	x	x	x	x	x
	Transport	x	x							x	x		x	x	
Parameters	Temperature	x	x	x	x	x				x	x	x	x	x	x
	Humidity				x							x			x
	Differential pressure						x								
	Voltage							x							
	CO2					x									
	Light									x					
	Binary on/off								x						
Features	Visual alarm on module				x					x					x
	Alert system				x					x	x	x			
	Real-time alerts				x					x	x	x			
	Datalogging				x					x	x	x	x		x
	Wireless monitoring				x					x	x	x			
	Replaceable battery				x					x	x	x			x
	USB cradle												x		x
	Companion software	ThermoServer - ThermoClient											Thermo-Tracer	LogTag	

Oceasoft monitoring solutions and their applications. (1) Modules sold separately

ABOUT THIS CATALOG

The reference numbers provided in this catalogue are for modules with sensors.

Please contact Oceasoft directly for ordering sensors and/or modules separately.
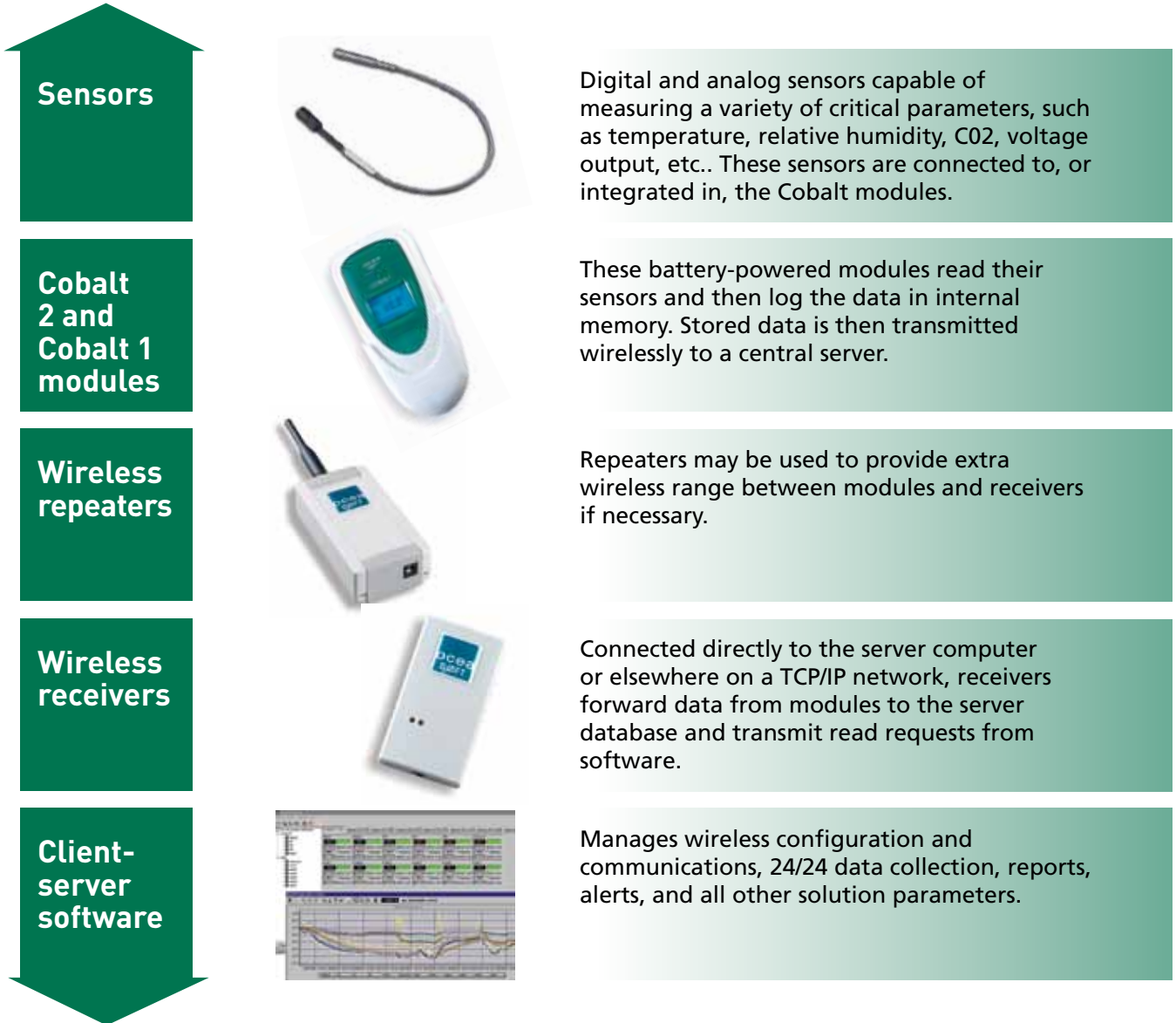
In product references, replace the "#" symbol for your geographical zone:
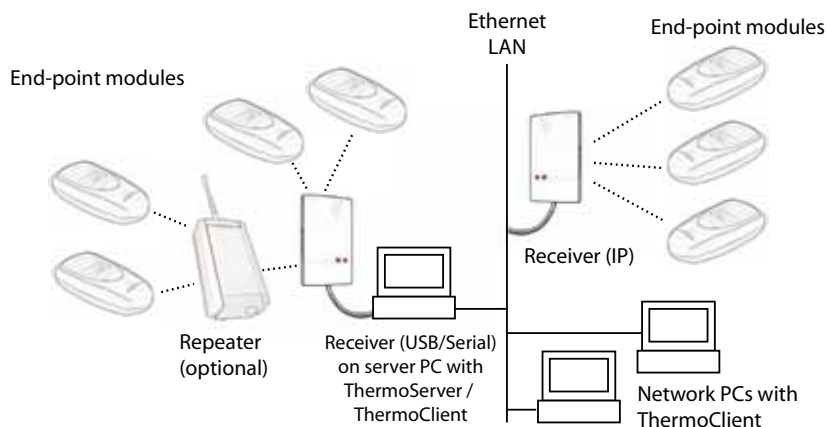1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

Measurement precision depends on target ranges. Please see Calibration section for more details.

ARCHITECTURE OVERVIEW

The Cobalt wireless monitoring system is a fully integrated wireless sensor network solution that is comprised of:

Sensors

Digital and analog sensors capable of measuring a variety of critical parameters, such as temperature, relative humidity, C02, voltage output, etc.. These sensors are connected to, or integrated in, the Cobalt modules.

Cobalt 2 and Cobalt 1 modules

These battery-powered modules read their sensors and then log the data in internal memory. Stored data is then transmitted wirelessly to a central server.

Wireless repeaters

Repeaters may be used to provide extra wireless range between modules and receivers if necessary.

Wireless receivers

Connected directly to the server computer or elsewhere on a TCP/IP network, receivers forward data from modules to the server database and transmit read requests from software.

Client-server software

Manages wireless configuration and communications, 24/24 data collection, reports, alerts, and all other solution parameters.

The diagram below shows how these components fit together in a typical layout:

Ethernet LAN

End-point modules

End-point modules

Receiver (IP)

Repeater (optional)

Receiver (USB/Serial) on server PC with ThermoServer / ThermoClient

Network PCs with ThermoClient

Sample Cobalt solution

Cobalt 2
Advanced wireless monitoring

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Oceasoft's second-generation environment monitoring system with one-touch setup, LCD displays, unparalleled wireless range and battery life.

Cobalt 2
Advanced wireless monitoring

COBALT 2 WIRELESS MODULE OVERVIEW

Cobalt 2 is a highly reliable wireless datalogger that reads connected sensors at programmable intervals, stores the data locally, and then transfers it wirelessly to the ThermoServer database, as described in the previous section. This product is the technological evolution of Oceasoft's flagship Cobalt 1 module (see page 27), now also featuring:

- **Informative LCD display with latest reading, module details, signal strength, and remaining battery level**
- **One-touch wireless configuration**
- **A wide range of supported sensors**

Did you know?
The wireless range of Cobalt modules is equal to about 1/3 that of a cell phone, but with 80 times less output power!

Easy to change battery (non-proprietary)
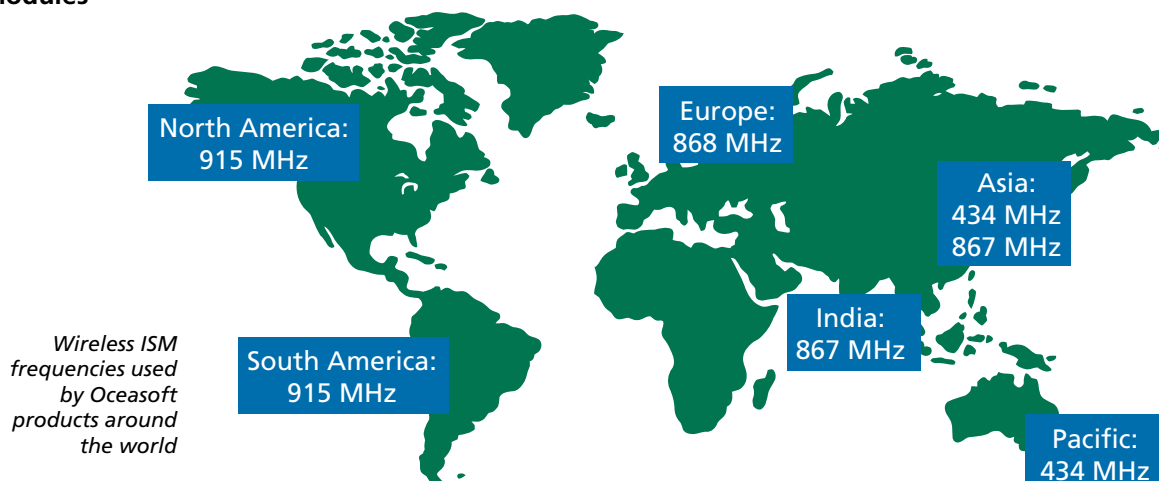
Common Cobalt 2 features

All Cobalt 2 products offer the following features:

- **Configurable data-logging, transmission cycles and upper/lower limits**

- **Automatic alarms for out-of-bounds conditions and technical problems**

- **Easy-to-read LCD display with latest reading, alerts, signal strength, and battery level**

- **On-board memory for up to 3,000 readings (1,500 + 1,500 for dual modules)**

- **3.6V Lithium battery (3600 mA) providing 3-4 years service on average**

- **Plastic ABS casing with IP65 protection for indoor use (some models available with IP67 casing)**

- **Wireless module operating conditions**
  - -0°C to +50°C (standard)
  - -30°C to +50°C (with IP67 option)
  - 0 to 90% RH, non-condensing

- **Mounting kit with plastic holder, magnet, screws, cable ties, plastic cable holders and Velcro®**

- **Size: 132.7 x 64.2 x 34 mm (5.2 x 2.5 x 1.3 in.)**

- **Weight (depending on model):**
  - ± 150 g (5.3 oz.)

- **Fully integrated with ThermoClient / ThermoServer software suite (which includes installation guides for all Cobalt 2 products)**

- **Type approvals: CE EN 300-220-1, FCC, EN12830, IC (Industry Canada), WPF (India), CMIIT (China)**

Wireless specifications

Oceasoft products integrate a robust wireless module that offers industry-leading range, robustness and efficient power usage:

- **One-touch configuration using Service Discovery Protocol, with automatic reconnection**

- **ISM (Industrial Scientific Medical) band with four frequencies: US/CAN 915 MHz; Europe 868 MHz; APAC 434 MHz; India and other countries 867 MHz**

- **Indoor wireless range:**
  - 25-100 meters (82-328 ft.); up to 400 meters (1,312 ft.) with 3 repeaters

- **Line-of-sight range: approximately 700 meters (2,300 ft.)**

- **Integrated repeater functionality to extend range of other modules**

- **Channel width: 50 kHz**

- **Frequency deflection: 16 KHz**

- **Transmission speed: 9600 Baud in NRZ mode**

- **Modulation type: GFSK**

- **Driven receiver sensitivity for BER = 1%: -107 dbm to -110 dBm**

- **Driven transmission: 8 dBm to 10 dBm**

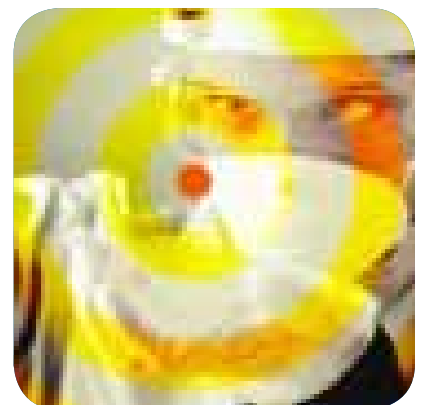- **Power output: 10 mW (434 MHz) or 25 mW (867/868/915 MHz)**

North America: 915 MHz

Europe: 868 MHz

Asia: 434 MHz 867 MHz

India: 867 MHz

South America: 915 MHz

Pacific: 434 MHz

Wireless ISM frequencies used by Oceasoft products around the world

Cobalt 2 modules can be equipped with a variety of digital temperature sensor types. Internal and external sensor options are available, depending on the target application, such as monitoring ambient temperatures, food products, incubators, or freezers. Digital sensors are read directly by the Cobalt 2 signal processor to ensure consistent accuracy over time. Data is logged locally in Cobalt 2 memory and transmitted wirelessly to a host computer at programmable intervals. Alerts can be sent automatically in case these readings indicate alarm conditions as configured in the software.

Simple recalibration of digital sensors via standard exchange

Common features

- **Digital temperature sensors**

- **Temperature ranges to match various application needs**

- **Cobalt 2 wireless module with LCD and battery (3.6V Lithium, 3600 mA)**

- **ISO 17025 (COFRAC) certified calibration(1) available, please contact us**

- **Mounting kit**

- **Fully integrated with ThermoServer / Thermo Client software solution**

- **Automatic alert transmission for out-of-bounds conditions and technical issues**

- **On-board memory for 3,000 measurements in case of power outage**

- **Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point; up to 400 meters (1,312 ft.) with 3 repeaters**

Cobalt 2 module options	Specific details
Cobalt 2 with one internal temperature sensor for measuring ambient temperature	• **+10° to +50°C** • **Self-contained module**
External temperature sensor for refrigerators, cold rooms, freezers	• **-40° to + 80°C** • **Up to 2 sensors per Cobalt module** • **Sensor : Ø 6 mm, L 30 mm** • **Module cable 1.5 m + sensor cable 1 m (including connector)**
Waterproof with extended range external temperature sensor for ovens, incubators and water baths	• **-40° to + 120°C** • **Up to 2 sensors per Cobalt module** • **Sensor: Ø 6 mm, L 30 mm** • **Module cable 1.5 m + sensor cable 27 cm (incl. connector)**
External contact sensor for monitoring water pipes, Legionella conditionswater baths	• **-40° to + 120°C** • **L 40 mm, W 16 mm, H 8.5 mm** • **Module cable 1.5 m + sensor cable 27 cm (incl. connector)**
Insertion probe, typically for sampling temperature in food products.	• **-40° to + 120°C** • **L 40 mm, W 16 mm, H 8.5 mm** • **Module cable 1.5 m + sensor cable 1 m (incl. connector)**

References *(Cobalt 2 module + digital sensor)*

Cobalt 2 module			Standard module	Module with options[2]		
Sensor type	# sensors	Range °C		IP67 casing (transparent)	1 m extended cable	External power option
Internal temp.	1	+10 to +50°C	COB#0119122	COB#0220132		
External temp.	1	-40 to + 80°C		COB#0201132 Also available with opaque casing: COB#0201152	COB#0201122	COB#0201322
		-40 to + 120°C	COB#0202122	COB#0202132	COB#0203122	COB20202322
	2	-40 to + 80°C	COB#0302122		COB#0301122	COB20301322
		-40 to + 120°C			COB#0303122	COB20302322
					COB#0303322	
Contact	1	-40 to +120°C	COB#0204122			
Insertion	1	-40° to +120°C	COB#0205122	COB#0205132		

(1) Accuracy depends on target temperature. Please see Calibration section for more details. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

PRECISION TEMPERATURE SENSORS (PT100)

Cobalt 2 modules are available with three types of precision PT100 sensors to cover a wide range of applications, from liquid nitrogen tanks to high-temperature kilns. Each external analog sensor is connected to the Cobalt 2 module via a robust cable designed for the target temperature range. Data is logged locally on the Cobalt 2 module and transmitted wirelessly to a host computer at programmable intervals. Alerts can be sent automatically in case these readings indicate alarm conditions as configured in the software.

Common features

- ⊙ **3-wire, Class B PT100 sensors** [1]
- ⊙ **Temperature ranges to match various application needs**
- ⊙ **Cobalt 2 wireless module with LCD and battery (3.6V Lithium, 3600 mA)**
- ⊙ **ISO 17025 (COFRAC) certified calibration**[2] **available, please contact us**
- ⊙ **Mounting kit**

- ⊙ **Fully integrated with ThermoServer / Thermo Client software solution**
- ⊙ **Automatic alert transmission for out-of-bounds conditions and technical issues**
- ⊙ **On-board memory for 3,000 measurements in case of power outage**
- ⊙ **Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point; up to 400 meters (1,312 ft.) with 3 repeaters**

Cobalt 2 PT100 module options	Specific details
	• -100 to +150°C for ultra-low-temperature freezers • Ø 3 mm, L 100 mm • Module cable 1.5 m + sensor cable 3.5 m
	• -200 to +50°C for LN2 and cryogenic freezers • Ø 3 mm + 5 mm, L 150 mm • Module cable 1.5 m + 1.4 meter cable
	• +100 to +350°C for ovens, incubators, kilns • Ø 3 mm + 5 mm, L 150 mm • Module cable 1.5 m + 1 meter cable

References *(Cobalt 2 module + PT100 sensor)*

Cobalt 2 module			Standard module	Module with options[3]
Sensor type	# sensors	Range °C		IP67 casing (transparent)
External	1	-100°C to +150°C	COB#0506122	COB#0506132
		-200°C to +50°C	COB#3807122	COB#3807132
		+100°C to +350°C	COB#3908122	COB#3908132

Industry-leading high precision temperature measurement

(1) 4-wire and Class A sensors are also available. Please contact your sales representative. (2) Accuracy depends on target temperature. Please see Calibration section for more details. (3) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

DUAL HUMIDITY & TEMPERATURE SENSOR

The Cobalt 2 wireless humidity / temperature module includes is a dual-function device that logs both relative humidity levels and temperature. This module is generally used in various types of storage, medical and tracking applications. The Cobalt 2 module collects and stores humidity (RH) and temperature readings from the connected sensor module at regular intervals and transmits them to a computer running the ThermoServer / ThermoClient system management software.

Features

- **Digital temperature / relative humidity sensor (4-wire connector)**
- **Range -40°C to +100°C and 0% to 100% RH**
- **Cobalt 2 wireless module with LCD and battery (3.6V Lithium, 3600 mA)**
- **ISO 17025 (COFRAC) certified calibration[1] available, please contact us**
- **Mounting kit**

- **Fully integrated with ThermoServer / Thermo Client software solution**
- **Automatic alert transmission for out-of-bounds conditions and technical issues**
- **On-board memory for 3,000 measurements in case of power outage**
- **Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point; up to 400 meters (1,312 ft.) with 3 repeaters**

Dual Humidity & Temp. Sensor for Cobalt 2

Cobalt 2 with combination digital temperature and relative humidity sensor for monitoring ambient room environments and stabilization cabinets.

Specific details

- **Sensor: IP67 protection**
  33 x 11.6 mm plastic casing with PTFE filter
- **Standard cable length:**
  80 cm ribbon cable (for door gaskets) IP40 protection
- **Extension cable: 1 m**
  IP67 protection for connectors (for total length of 1.8 m)

References *(Cobalt 2 module + dual sensor)*

Cobalt 2 module		Standard module	Module with options[2]		
Sensor type	# sensors		IP67 casing (transparent)	External power	IP 67 extension cable
External T + RH	1	COB#0413122	COB#0413132	COB#0413322	NEW PART NO.

(1) Accuracy depends on target temperature. Please see Calibration section for more details. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

Measure 2 parameters with one sensor!

The Cobalt 2 CO2 wireless module is a dual-function device that monitors both CO2 concentration and temperature. The sensor module is placed upright inside the incubator and connected to the Cobalt 2 module outside the incubator via a flat ribbon cable.

Features

- Single external module with both digital temperature and CO2 sensors
- Cobalt 2 wireless module with LCD and battery (3.6V Lithium, 3600 mA)
- ISO 17025 (COFRAC) certified calibration[1] available, please contact us
- Mounting kit
- 4-wire flat ribbon cable, 1 m

- Fully integrated with ThermoServer / Thermo Client software solution
- Automatic alert transmission for out-of-bounds conditions and technical issues
- On-board memory for 3,000 measurements in case of power outage
- Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point; up to 400 meters (1,312 ft.) with 3 repeaters

Dual CO2 & Temp. Sensor for Cobalt 2

Cobalt 2 with external module containing both CO2 and digital temperature sensor for use inside incubators.

Specific details

- Measures temperature: 0°C to +50°C, CO2: 0 to 9.99%
- Sensor powered by external AC adapter
- Dimensions: 79.5 x 76.5 x 45.5 mm (3.1 x 3.0 x 1.8 in.)
- External sensor unit with IP44 protection, plastic casing (ABS, polycarbonate) with PTFE filter; operation 0 - 50°C and 0 to 95% RH non condensing for indoor use

References *(Cobalt 2 module + CO2 / temperature sensor)*

Cobalt 2 module			Standard module[2]
Sensor type	# sensors	Range °C	
Internal	1	CO2: 0% / 9.99% Temp: 0° to +50°C	COB#1014222

Measure 2 parameters with one sensor!

(1) Accuracy depends on target temperature. Please see Calibration section for more details. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

DIFFERENTIAL PRESSURE SENSOR

The Cobalt differential pressure module contains two pressure sensors, enabling you to compare the relative pressure between two zones, such as physically separated rooms. This module is typically placed in the room in which the ambient pressure is considered as "normal." A tube is placed on one of the module's inputs to measure the pressure in another room. The Cobalt differential pressure module is particularly suitable for use in monitoring "clean" and "dirty" laboratory areas.

Features

- ▢ **Cobalt 2 wireless module with LCD and battery (3.6V Lithium, 3600 mA)**

- ▢ **Internal digital differential pressure sensor**

- ▢ **Calibration traceable to COFRAC[1] available, please contact us**

- ▢ **Mounting kit**

- ▢ **Fully integrated with ThermoServer / Thermo Client software solution**

- ▢ **Automatic alert transmission for out-of-bounds conditions and technical issues**

- ▢ **On-board memory for 3,000 measurements in case of power outage**

- ▢ **Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point; up to 400 meters (1,312 ft.) with 3 repeaters**

Differential Pressure Sensor for Cobalt 2

Cobalt 2 with internal differential pressure sensor for use in monitoring "clean" and "dirty" laboratory areas.

Specific details

- • **Pressure measurable from -500 Pa to +500 Pa (– 2.0 to + 2.0 in H2O)**
- • **Tube length: 50 cm Diameter: 4 mm (4-5 mm adapter included)**
- • **Full compatibility: Air, N2**
- • **Limited compatibility: O2**
- • **Allowable overpressure: 1 bar (100 kPa, 400 inches H2O)**

References *(Cobalt 2 module + integrated sensor)*

Cobalt 2 module			Standard module[2]
Sensor type	# sensors	Range	
Internal	1	-500 / +500 Pa	COB#1216122

(1) Accuracy depends on target temperature. Please see Calibration section for more details. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

Battery-powered module stores up to 3,000 readings in on-board memory

4-20 MA OR 0-5 V ACTIVE OUTPUT SENSOR

The Cobalt 2 4-20 mA or 0-5 V wireless monitor can be connected to any industry-standard device that generates an active output current of 4-20 mA or 0-5 V, which can be measured to provide status information in a variety of applications, ranging from speed and wind monitors to angle and position devices to particle counters and ultra-low-temperature (ULT) freezers, and more. These modules are typically installed in a convenient location at room temperature. Read values are converted into useful information by the ThermoServer-ThermoClient application and displayed on the Cobalt end-point module.

Features

- **Internal 4-20 mA or 0-5 V input sensor**
- **Cobalt 2 wireless module with LCD and battery (3.6V Lithium, 3600 mA)**
- **ISO 17025 (COFRAC) certified calibration[1] available for 4-20 mA module only, please contact us**
- **Mounting kit**

- **Fully integrated with ThermoServer / Thermo Client software solution**
- **Automatic alert transmission for out-of-bounds conditions and technical issues**
- **On-board memory for 3,000 measurements in case of power outage**
- **Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point; up to 400 meters (1,312 ft.) with 3 repeaters**

Cobalt 2 with 4-20 mA or 0-5 V sensor

For logging levels of electrical current in industry-standard devices

Specific details

- **Cable length 2.9 m**
- **2-wire cable to connect to a device that generates 4-20 mA or 0-5 V current**

References *(Cobalt 2 module + integrated sensor)*

Cobalt 2 module			Standard module[2]	Options
Sensor type	# sensors	Range		IP67 casing (transparent)
Internal	1	4 - 20 mA input	COB#0700122	COB#0700132
Internal	1	0 - 5 V input	COB#0800122	COB#0800132

(1) Accuracy depends on target currents. Please see Calibration section for more details. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

Converts current data into useful values for easy reading

DRY CONTACT INPUT SENSOR

The Cobalt dry contact wireless module can be connected to any industry-standard device with a dry contact output. Dry contact devices do not generate any power. The Cobalt module emits a low current to detect whether the switch on the other device is open or closed.

Typical devices that provide a dry contact output include alarm units, door open/close sensors, and switches. The Cobalt module can be configured to detect either a "normally closed" or "normally open" state to correspond with the device to monitor. The Cobalt module indicates open or closed status in large characters on its LCD display.

Features

- **Internal dry contact input sensor**
- **Cobalt 2 wireless module with LCD and battery (3.6V Lithium, 3600 mA)**
- **Mounting kit**

- **Fully integrated with ThermoServer / Thermo Client software solution**
- **Automatic alert transmission for out-of-bounds conditions and technical issues**
- **On-board memory for 3,000 measurements in case of power outage**
- **Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point; up to 400 meters (1,312 ft.) with 3 repeaters**

Cobalt 2 with dry contact sensor

Cobalt 2 with internal dry contact sensor for logging binary (on/off, open/closed) states.

Specific details

- **Cable length 2.9 m**
- **2-wire cable to connect to a device that generates dry contact signal**

References *(Cobalt 2 module + integrated dry contact sensor)*

Cobalt 2 module			Standard module[1]	Options
Sensor type	# sensors	Range		IP67 casing (transparent)
Internal	1	On / off	COB#1014222	COB#0900132

(1) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

Displays remote sensor's open/close status at all times

Cobalt M

Monitoring on the move

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Smart datalogging and wireless connectivity for transport and delivery applications

Cobalt M
Monitoring on the move

Designed for use inside refrigerated trucks and containers, Cobalt M monitors and records air temperature to protect temperature-sensitive products and provide tracking details to prove conditions during transit. Drivers can be alerted via a wireless siren if the temperature inside the refrigerated chamber changes unexpectedly.

The module, which also operates submersed in liquid, transmits stored data wirelessly and provides a complete audit trail to analyze refrigeration system performance. The module integrates a light sensor with patented door open/close detection, offering wireless range up to 400 meters and battery life of at least one year. Cobalt M memorizes delivery locations for viewing with Google Maps.

Features

- **Internal temperature sensor, light detector**
- **Cobalt M wireless module with inclined LCD, battery (3.6V Lithium, 2600 mA)**
- **ISO 17025 (COFRAC) certified calibration[1] available, please contact us**
- **Lockable mounting kit**
- **Documentation CD-ROM**

- **Completely integrated with ThermoServer solution (software may be launched from ThermoClient or separately)**
- **Automatic alert transmission for out-of-bounds conditions and technical issues**
- **On-board memory for 3,000 total measurements**
- **Wireless range indoors: 25-100 meters (82-328 ft.) point-to-point[2]**

Specially designed for datalogging in mobile scenarios
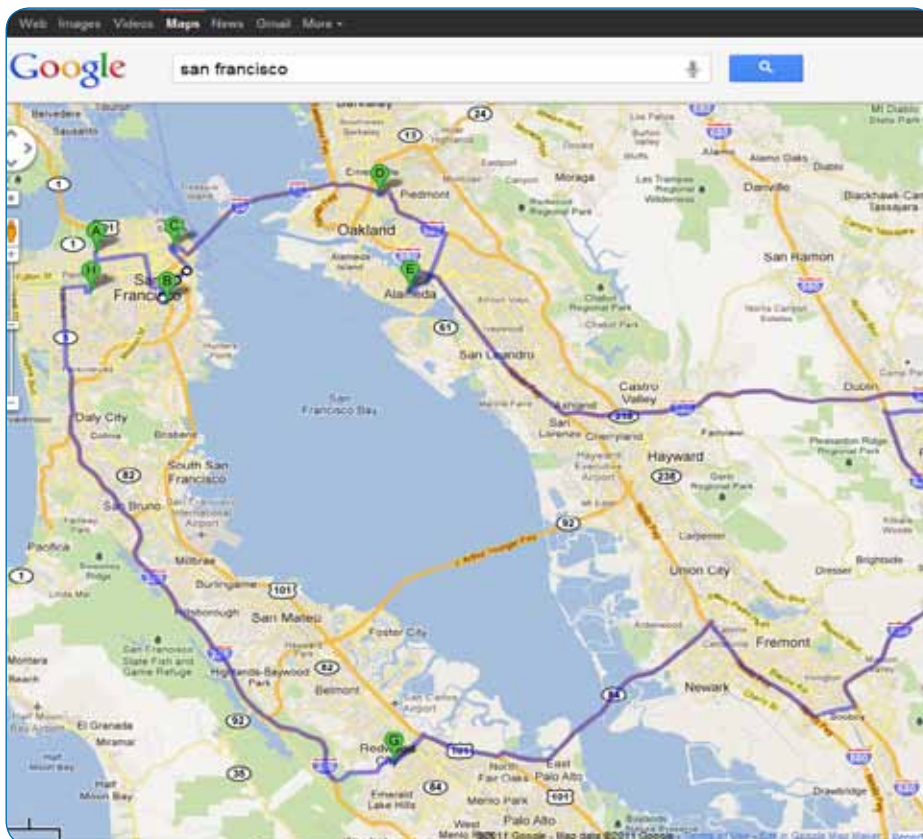
Cobalt M with temperature and light sensor

Cobalt M for transport applications in food, health, and life science sectors

Specific details

- **Temperature range: -30°C to +50°C**
- **Dimensions: 86 x 64 x 29.6 mm (3.4 x 2.5 x 1.2 inches)**
- **IP 67 protection, submersible**
- **Battery life 1 year or more, depending on use (user-changeable battery)**

References *(Cobalt M module + integrated temperature and light sensor)*

Sensor type	# sensors	Range	Standard module
Internal	1	-30°C to +50°C	COB#2521122

(1) Accuracy depends on target currents. Please contact us for more details. (2) Same wireless specifications as Cobalt 2 module on page 13.

Wireless receivers & repeaters

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Simple and robust network infrastructure to build your wireless monitoring solution

TCP/IP RECEIVER

Plugged into your local Ethernet network, TCP/IP receivers collect data wirelessly from your Cobalt monitoring modules and transfer it to the ThermoServer data monitoring software.

Network receivers are particularly useful when you need to read large groups of Cobalt modules that are located remotely from the ThermoServer computer receiving the data.

Features

- Includes antenna, 10/100BT RJ-45 connector, mounting kit, and AC adapter
- Compatible with Cobalt 2 (including automatic wireless configuration using Service Discovery Protocol) and Cobalt 1
- Supports a nearly unlimited number of end-point modules
- Windows 32- and 64-bit drivers, documentation CD-ROM

- Wireless range from 25-100 meters (65-325 ft.) indoors; up to about 700 meters (2,300 ft.) in line of sight
- Dimensions: 190 x 52 x 30 mm (7.4 x 2 x 1.2 in.)
- Output power:[1]
  - 25 mW in 867 / 868 / 915 MHz regions
  - 10 mW in 434 MHz regions

Wireless receivers (TCP/IP connection)	Specific details
Standard external power device	• 110/240 V AC Adapter with 4 international plug formats • Option: 25/500 mW automatic switching for use with 500 mW repeaters in 867 / 868 / 915 MHz regions
Power-over-Ethernet device	• Power supplied by Ethernet network (must be enabled by your router)

References

Type	Power output	Models[2]
Standard 110/240V AC	25 mW	COB#1800242
	10 mW	COB41800242
	25 / 500 mW	COB#1900242
Power-over-Ethernet (PoE)	25 mW	COB#2000242
	10 mW	COB42000242

Supports automatic network configuration (see us on Youtube®: "OCEASOFT New Wireless datalogger")

(1) Cobalt modules all communicate with 25 mW or 10 mW, depending on the region. Some repeaters support automatic 25/500 mW switching for extra range to reach a 25/500 mW receiver. Please check with us for more details on defining network topology. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

USB RECEIVERS

Plugged directly into your ThermoServer host computer, USB receivers collect data wirelessly from your Cobalt monitoring modules and transfer it to the ThermoServer data monitoring software.

USB receivers are generally used when your Cobalt modules are within about 100[1] meters from the ThermoServer computer receiving the data.

Features

- Includes antenna and mounting kit
- Wireless range from 25-100 meters (65-325 ft.) indoors; up to about 700 meters (2,300 ft.) in line of sight
- Compatible with Cobalt 2 and Cobalt 1
- Supports a nearly unlimited number of end-point modules

- Windows 32- and 64-bit drivers, documentation CD-ROM
- Dimensions: 190 x 52 x 30 mm (7.4 x 2 x 1.2 in.)
- Output power:
  - 25 mW in 867 / 868 / 915 MHz regions
  - 10 mW in 434 MHz regions

USB receiver for ThermoServer computer

Specific details

Standard USB-powered device

- USB connection
- Automatically detected by ThermoServer installation wizard

References

Product	Output power	Models[2]
USB Receiver	25 mW	COB#1500002
	10 mW	COB41500002

(1) This range can be extended by using wireless repeater modules. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

No external power supply required - directly powered via USB.

REPEATERS

A repeater extends the range between wireless nodes in the Cobalt monitoring system, such as between far-away Cobalt modules and a receiver on your ThermoServer computer.

While Cobalt modules and receivers offer best-in-class wireless range, it is sometimes necessary to use repeaters to improve overall signal strength and to cover hard-to-reach locations reliably.

Features

- ○ **Includes antenna, mounting kit, 110/240 V AC adapter, documentation CD-ROM**

- ○ **Line-of-sight: appr. 700 meters (2,300 ft.)**

- ○ **Compatible with Cobalt 2 and Cobalt 1**

- ○ **Indoor wireless range:**
  - 25-100 meters (82-328 ft.)
  - Up to 400 meters (1,312 ft.) with 3 repeaters (up to 3 repeaters may be cascaded in a given network branch)

Wireless repeaters (range extenders)	Specific details
Standard repeater module	• **10 or 25/500 mW operation and automatic switching[1] for optional use with 500 mW repeaters** • **110/240 V AC adapter** • **Dimensions: 190 x 52 x 30 mm (7.4 x 2 x 1.2 in.)**
Cobalt 2 module with integrated repeater feature	• **10 or 25 mW standard output power** • **Internal +10 to + 50°C temperature sensor, power outage detection** • **Battery or 110/240 V AC adapter**
Cobalt 1 module with integrated repeater feature	• **10 or 25 mW standard output power** • **Internal +10 to + 50°C temperature sensor, power outage detection** • **Battery or 110/240 V AC adapter**

References

Type	Power output	Models[2]
Standard	25/500 mW	COB#1900242
	25 mW	COB#1800242
	10 mW	COB42400242
Cobalt 2	25 mW	COB#1319322
	10 mW	COB41319322
Cobalt 1	25 mW	COB#1319301
	10 mW	COB41319301

(1) Cobalt sensor modules all communicate with 25 mW; repeaters support automatic 25/500 mW switching for extra range to reach a 25/500 mW receiver. Please check with us for more details on defining network topology. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz; 3 = 915 MHz, 4 = 434 MHz

> Supports up to 3 repeaters in a row for maximum range!

Alert solutions

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Keeping you aware of anomalies that may occur in the environments you monitor

Oceasoft wireless sirens are used to raise alerts if alarm conditions are detected on the modules in your Cobalt wireless monitoring system.

For example, you could configure a Cobalt temperature module to trigger an alarm if the temperature exceeds an upper limit, or drops below a lower limit. The siren is triggered when an alarm sent by the Cobalt module is detected by the software.

Features

- **Siren volume output from 60 to 100 dBA (± 10%)**

- **Wireless range up to 200 meters (650 ft) in open space, from 8 meters (26 ft) to 30 meters (98 ft) indoors, and up to 120 meters (390 ft) indoors with 3 repeaters**

- **Plastic enclosure: ABS and polycarbonate with IP54 protection**

- **110/240V AC power adapter AC power adapter and mounting kit**

- **Optional car cigarette lighter adapter available for in-vehicle use with Cobalt M**

- **Operating temperature range: 0°C to +50°C**

- **Size: 160 x 80 x 83 mm (1.6 x 3.1 x 3.3 in.)**

- **Weight: 400 g (14.1 oz.)**

References

Product	Reference[1]
Wireless siren	COB#2600202

(1) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

Sound and light grab your attention fast!

DRY CONTACT ALARM CONTROLLER (IP)

As part of your Cobalt Alarm Management System, the Oceasoft TCP/IP Dry Contact alarm controller triggers alerts on one or two external dry contact devices when the system detects alarms from end-point modules. Configure a Cobalt temperature monitoring module to trigger an alarm if the temperature exceeds, or drops below, a specified limit. The TCP/IP Dry Contact device receives the alarm signal over the TCP/IP (Ethernet) network and triggers the alarm on a connected dry contact device(s).

Features

- 100/240 V AC power adapter with international plugs and 1 meter (3.3 ft.) cable
- Output: 24V DC - 0.4 A
- RJ-45 Ethernet cable (2 meters / 6.5 feet)
- Size: 102 x 54 x 30 mm

References

Product	Models [1]
Dry contact IP	COB#8100201

(1) Please indicate the desired IP address, gateway, and network mask for your network when you place your order. (2) Replace # for your geographical zone in product references: 1 = 867 MHz; 2 = 868 MHz, 3 = 915 MHz, 4 = 434 MHz

USB TELEPHONE MODEM

The Oceasoft USB modem is a key part of your Cobalt Alarm Management System. The modem is connected to a dedicated analog phone line to notify users in case anomalies are detected by Cobalt modules. The modem, designed by US Robotics, has been optimized in cooperation with Oceasoft to properly support the alert types required by the ThermoServer software.

Features

- Sends alerts via voice call and fax
- Power and data transmission LED indicators
- USB plug and RJ-11 phone socket
- 32 and 64-bit drivers on CD-ROM

References

Product	Models
USB alert modem	COB03600000

Compatible with ThermoServer 4.2 and higher. Requires analog/PSTN telephone line (not a digital line).

Your ThermoServer alarm management system can use the Oceavoice[1] service to send alert notifications via the Internet using Push Voice XML technology.

Replacing a dial-up modem and associated analog telephone line, this solution is a highly reliable, hassle-free and cost-effective way to send voice messages, SMS texts and fax alerts from your Cobalt wireless monitoring solution.

Features

- **Secure transmission for voice, SMS and fax messages**

- **Telephone service handles key-press acknowledgement, busy signals, and no answer**

- **Uses the Internet without any modem, dedicated phone line, or specific installation**

- **Worldwide coverage with 99.7% reliability, 24/7/365 service**

- **Redundant infrastructure, fully compliant with Disaster Recovery Plan requirements**

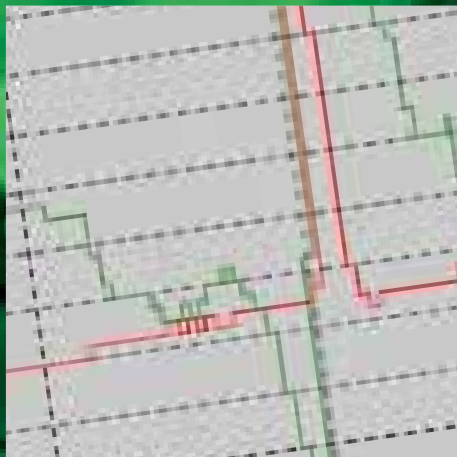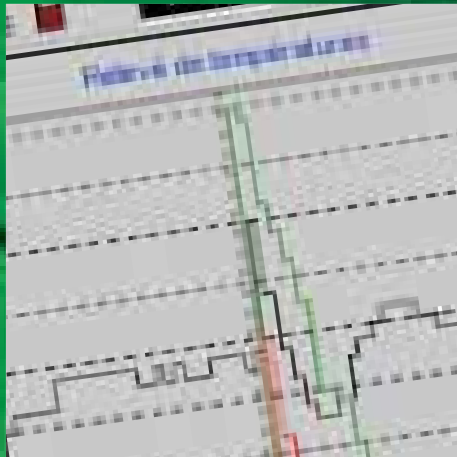- **Easily modifiable, high quality voice messages**

References

Type	References
Annual service for 1,000 alerts	PRE10000000
Additional alerts	PRE11000000

(1) Requires ThermoServer 4.2 or higher.

No installation required!

Software

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Management,
calibration, and
control over
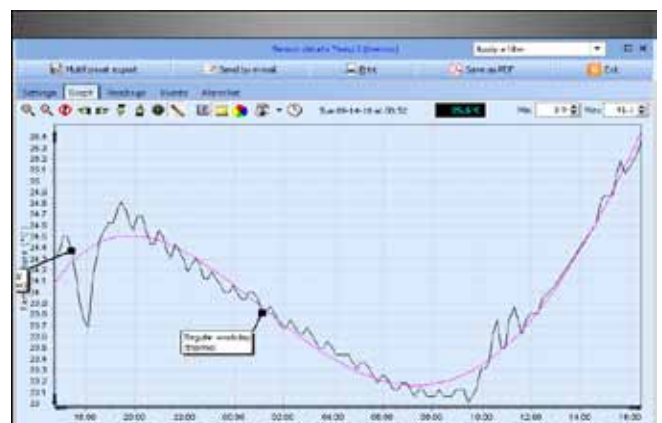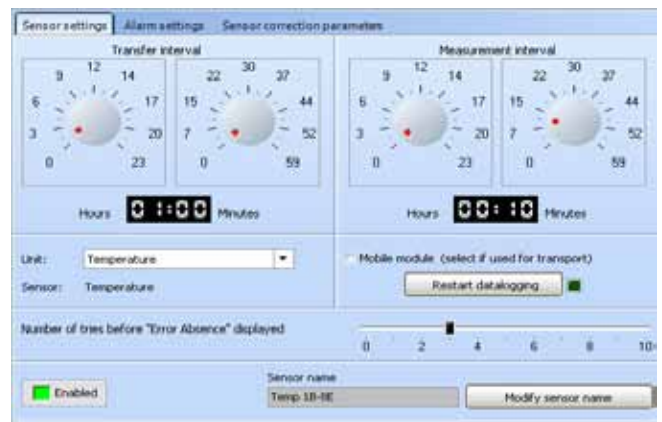your monitoring
modules.

The ThermoServer-ThermoClient software suite[1] is the cornerstone of the Cobalt wireless monitoring system. With the included Alert Management System, these applications enable you to manage all aspects of your installation, from configuring the wireless sensor network and collecting sensor data automatically to generating reports and audit trails.

An easy-to-use interface displays a visual dashboard so you can see the status of your sensors at all times. The solution's advanced alert management system to notify you 24/24 if sensor readings exceed the limits you define or if a technical problem occurs anywhere in the system.

The complete companion software suite for your Cobalt systems

ThermoClient

- **Provides visual dashboard to monitor sensor status and run on-demand reads**

- **Configures sensor measurement and data transmission cycles**

- **Manages users, passwords, and access rights (compliant with FDA 21 CFR Part 11)**

- **Controls alert management system with call-groups and day/night/weekend/holiday settings**

- **Generates reports, graphs, and audit trail (complies with FDA 21 CFR Part 11)**

- **Simple executable file to run on unlimited number of PCs**

ThermoServer

- **Core services for the Cobalt monitoring system**
- **Collects data from Cobalt modules wirelessly and automatically**
- **Includes SQL database and archive features (complies with FDA 21 CFR Part 11)**

- **Transmits alerts in case of technical or limit alarms**
- **Scalable solution handles nearly unlimited number of sensor end-points**
- **Client-server architecture supports local network and Internet access**

Alert Management System

- **Watchdog software monitors all incoming sensor data**
- **Issues alerts in case measurements exceed configured limits**
- **Supports automated voice call, e-mail, SMS, printer, fax, dry contact alarm devices, and wireless siren**
- **Completely compatible with Oceavoice Internet-based alert solution**
- **Monitors proper operation of ThermoServer and alert media**
- **Handles alert acknowledgement by users**

References

Product	PC system requirements[2]	Sensors in system	Reference
ThermoServer 4.x ThermoClient 4.x Alert Management System	One the following Microsoft® Windows® 32- or 64-bit operating systems: • Windows® XP Professional SP2 or later • Windows® Vista Home, Business, Ultimate, or Enterprise • Windows® Server 2003 or 2008 • Windows® 7 Professional, Ultimate, or Enterprise	1-20	LOG01042010
		20-49	LOG01042020
		50-99	LOG01042030
		Unlimited	LOG01042040

(1) Software provided in English and French (2) Please contact us for more details regarding server capacity

FDA 21 CFR Part 11 Compliant

THERMOCALIBRATION: SENSOR CALIBRATION KIT

This kit enables you to calibrate up to ten external digital or analog temperature sensors simultaneously using Oceasoft's specialized ThermoCalibration software and a reference sensor that you may choose to have calibrated by our COFRAC (ISO 17025) accredited laboratory.

ThermoCalibration software automatically reads connected sensors to calculate sensor uncertainty and determine compliance using your own measurement points and preferred calculation methods (normal, uniform).

Features and options

- **Calibrated PT100 reference sensor and Cobalt 1 wireless module: high-precision P100 (-100°C to +150°C; 0.05°C uncertainty), 4-wire, class A**
- **USB wireless receiver to read reference sensor**
- **10-sensor octopus cable with USB connector (1.5 m)**

- **ThermoCalibration software[1] based on digital standard interface API**
  - Calculates correction coefficients and uncertainty
  - Creates customizable calibration reports
  - Automated control via RS-232 of Julabo baths

References

Product	References
Thermo-Calibration software and interface kit Requires Windows XP® SP2 or higher	LOG06021000
10-sensor octopus cable	ACC_BTC_ETAL
PT100 Reference sensor	COB#0512101
USB wireless receiver	COB#1500002

(1) Software available in French only.

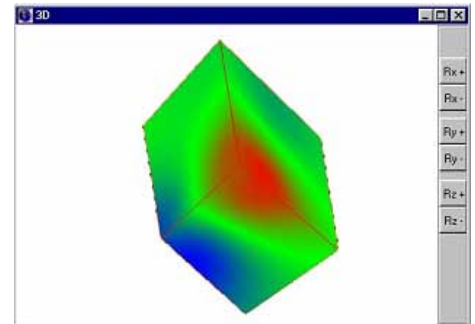Complete toolkit for calibrating your own temperature sensors

Compatible with the NF X 15-140 standard, this unique thermal mapping system[1] enables you to characterize and qualify temperature behavior within climate-controlled chambers such as pharmaceutical freezers, refrigerators, and cold rooms. Simply place the provided sensors inside the chamber and let the software create a 3-D map for you.

Thermal mapping enables you to determine the regularity and stability of temperature-controlled enclosures so that you can manage storage zones in compliance with your requirements concerning maximum permissible error. Among other things, this enables you to identify temperature zones that are compatible with your products, and to adjust equipment settings accordingly.

Most clients prefer to set up Thermal Mapping independently from their regular Cobalt wireless monitoring solution, though the software may be used with your existing equipment. A turnkey solution is available, complete with laptop computer, wireless receiver, all required software, and configured wireless modules/sensors. Please contact Oceasoft for details on available options.

You don't have time to do it yourself ?

If you don't have time to deal with thermal mapping yourself, Oceasoft will be pleased to take care of it for you. Please contact us for more information regarding 9- or 15-point mapping services, with or without Cofrac-accredited calibration, as well as quantity discounts.

Features and options

- **Thermal Mapping software (supports up to 15 sensors)**
- **NF X 15-140 compliant (reports, targets, deviation, displays, control values, max. regularity, max. stability, graphs, etc)**
- **9 or 15 temperature sensors and wireless Cobalt digital or analog data-loggers with optional calibration (COFRAC / ISO 17025)**

- **Wireless receiver (ref. COB#1500002)**
- **ThermoServer (ref. LOG01042010)**
- **Carrying case**
- **Optional: 2 hours telephone assistance for training and getting started**

References

Product	Options	References
Thermal Mapping	Please contact us	LOG05020000

(1) Software available in French only. Please contact us if you have specific thermal mapping needs.

Qualify temperature behavior in climate-controlled chambers