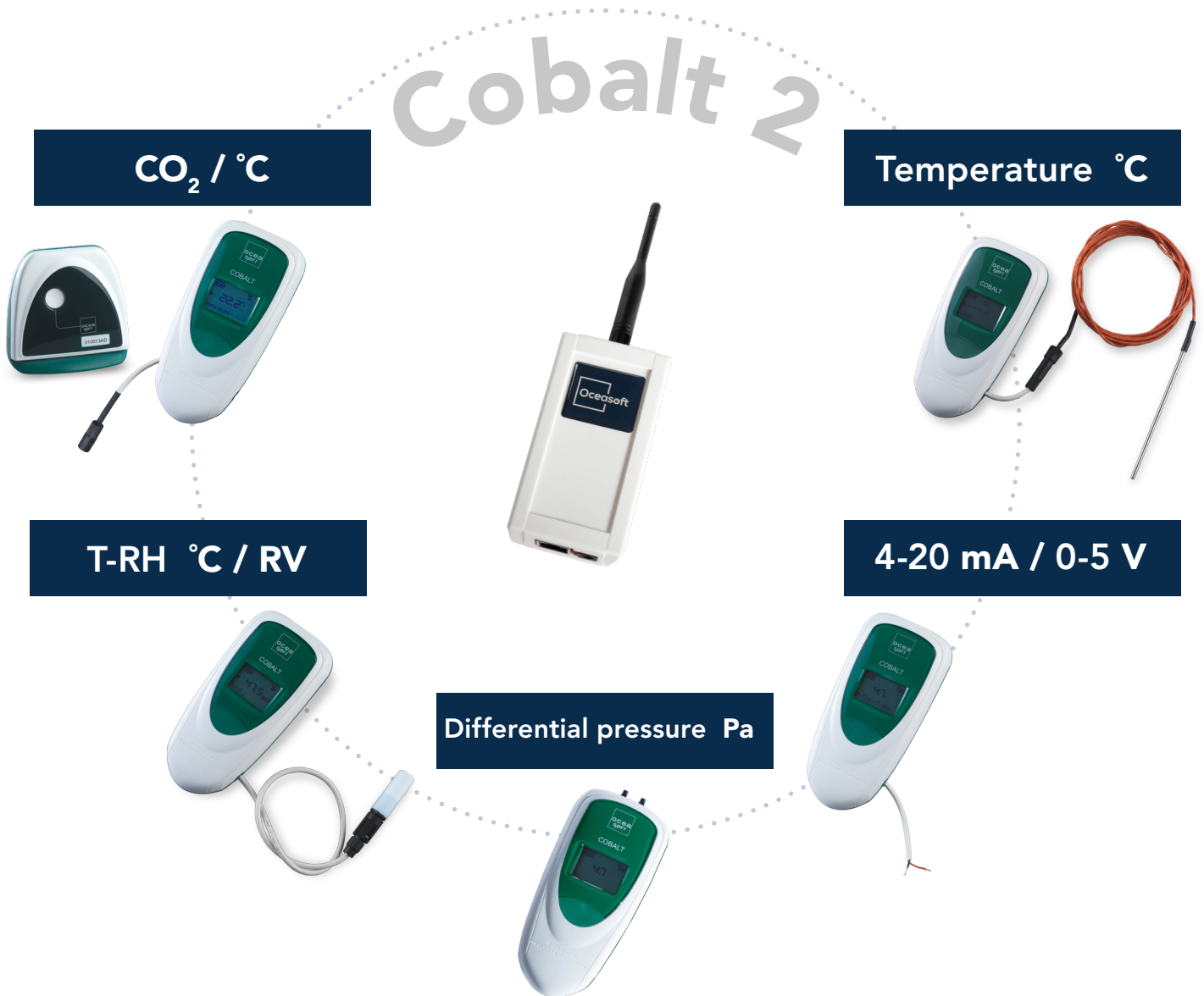
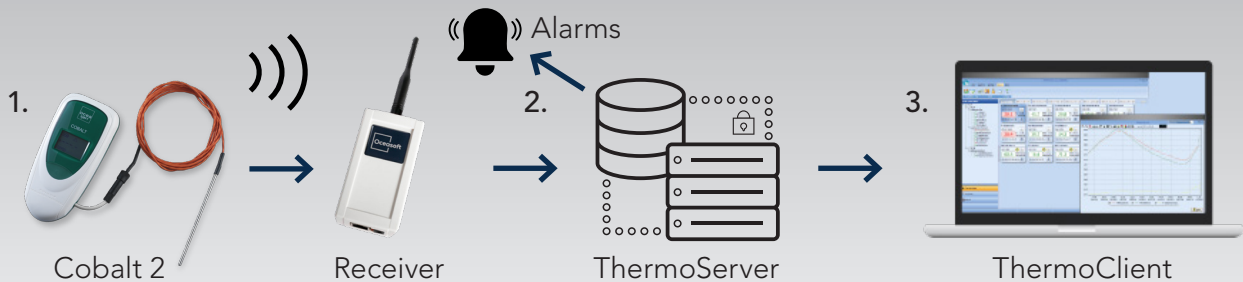




Wireless monitoring system



The operation of the system:



1. The Cobalt 2 with sensor registers and transmits data to the receiver
2. All data is logged on the ThermoServer and alarms are triggered when thresholds are exceeded
3. The data is easily accessible by using the ThermoClient

Wireless monitoring and registration with the Lighthouse system

For wireless monitoring and recording of temperature, humidity, differential pressure, CO₂ and analog input signals of devices, Lighthouse has a system that meets the requirements of the GMP.

The wireless system is based on sensors that can log their measurement data into an internal memory. This data is transmitted via radio communication (with a preset interval) to a receiver that is connected to the customers' network. The measurement data is collected in a secured database and the software allows the corresponding actions such as alarms to be set. This system is especially suitable for laboratories (with different locations) and warehouses.



Key features of the Lighthouse wireless monitoring system:

Easy configuration

- Real-time and historical trend charts and data tables
- Standard reports
- Easy (self) expandable

Alarming possibilities

- E-mail, SMS and voice messages
- Alarm confirmation possible via telephone
- Temperature, humidity, differential pressure and CO₂
- Analogue inputs (4 - 20mA or 0 - 5V)
- Potential free alarm contact modules (e.g. for connection to a building management system)
- Optical alarm signal with acoustic alarm

Security

- 21 CFR Part 11 compliant
- Audit Trail
- Individual user security including password renewal, auto log out after set time and access control

Infrastructure and operating systems

- Installation on (virtual) servers or PC/laptop
- Communication between server and radio receivers based on TCP/IP over the existing network infrastructure
- Wireless transmission frequency 868 MHz
- Support for various operating systems such as Windows 7, and 10, Windows Server 2008, 2012 and 2016

Available Cobalt 2 modules (with sensors)*		
Module + sensor type	Application	Reach
Temperature	refrigerators, freezers, cold rooms and autoclaves	-40 up to +80°C
	ovens, incubators and water baths	-40 up to +120°C
	ultra-low freezers	-100 up to +150°C
	tanks with liquid nitrogen and cryogenic freezers	-200 up to +50°C
	autoclaves, incubators and ovens	+100 up to +350°C
Temperature / humidity	storage in medical and agri-food environments	-40 up to +80°C / 0 up to 99.9%
CO ₂ / temperature	incubators on temperature and CO ₂	0 up to 9.99% / 0 up to +50°C
Differential pressure	differential pressure between two zones	-500 up to +500 Pa
Analog input module	connect 4-20 mA / 0-5 V output to various equipment	
Dry contact input	status open / closed in conjunction with industrial equipment	

* Calibration according to ISO 17025 possible



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