



Innovating  
for a safer  
world





# MONITORING SYSTEM

ARE YOU READY FOR THE  
CHANGE?



# Foreword

Adapting to  
your daily  
challenges



Simplicity



Performance



Compliance and quality



Cost optimization



## Foreword

› Remember how it was...



› Did you think anything could be better?



› Would you be willing to go back?

# Ready for the change?



Cobalt X2 - New-generation monitoring system



## Cobalt X2 - New-generation monitoring system

**Color touch-screen**

**LoRaWAN™ long-range  
wireless communication**

**Wired and/or wireless  
sensors**

**Multi-channel universal  
digital sensors**





# Cobalt X2: main features

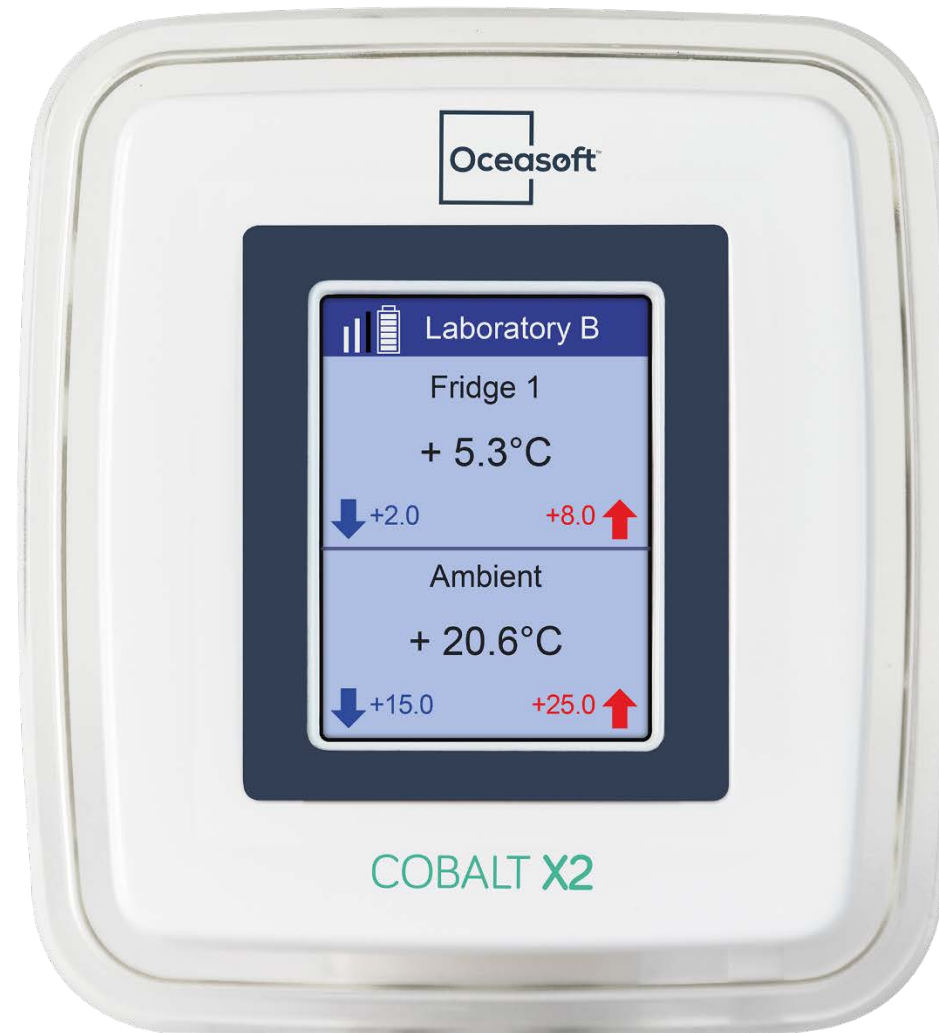
2.4" color touch-screen

LoRaWAN long-range wireless technology



Low power consumption and long battery life

Battery or USB port for AC power



Data collection from up to 4 Bluetooth® modules

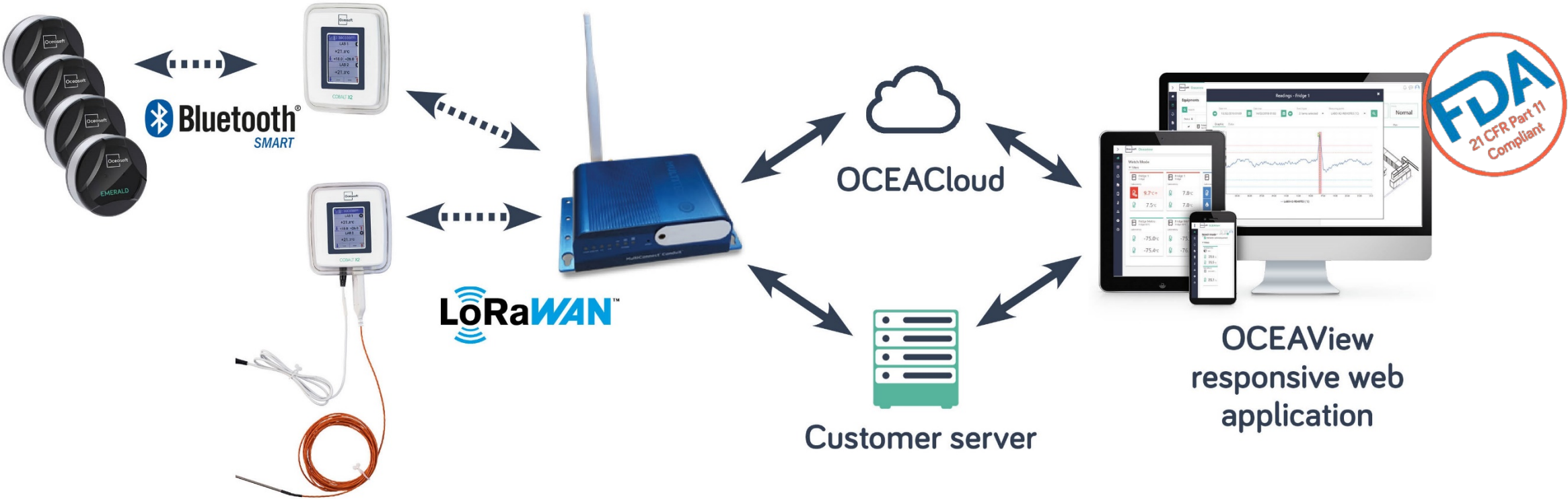


4 digital sensor channels  
Smart-Sensors

Temperature, relative humidity, % CO<sub>2</sub>, 4-20 mA, 0-5V, 0-10V, differential pressure\*, dry contact

\* Available soon

# Solution architecture





## Making people's everyday work easier



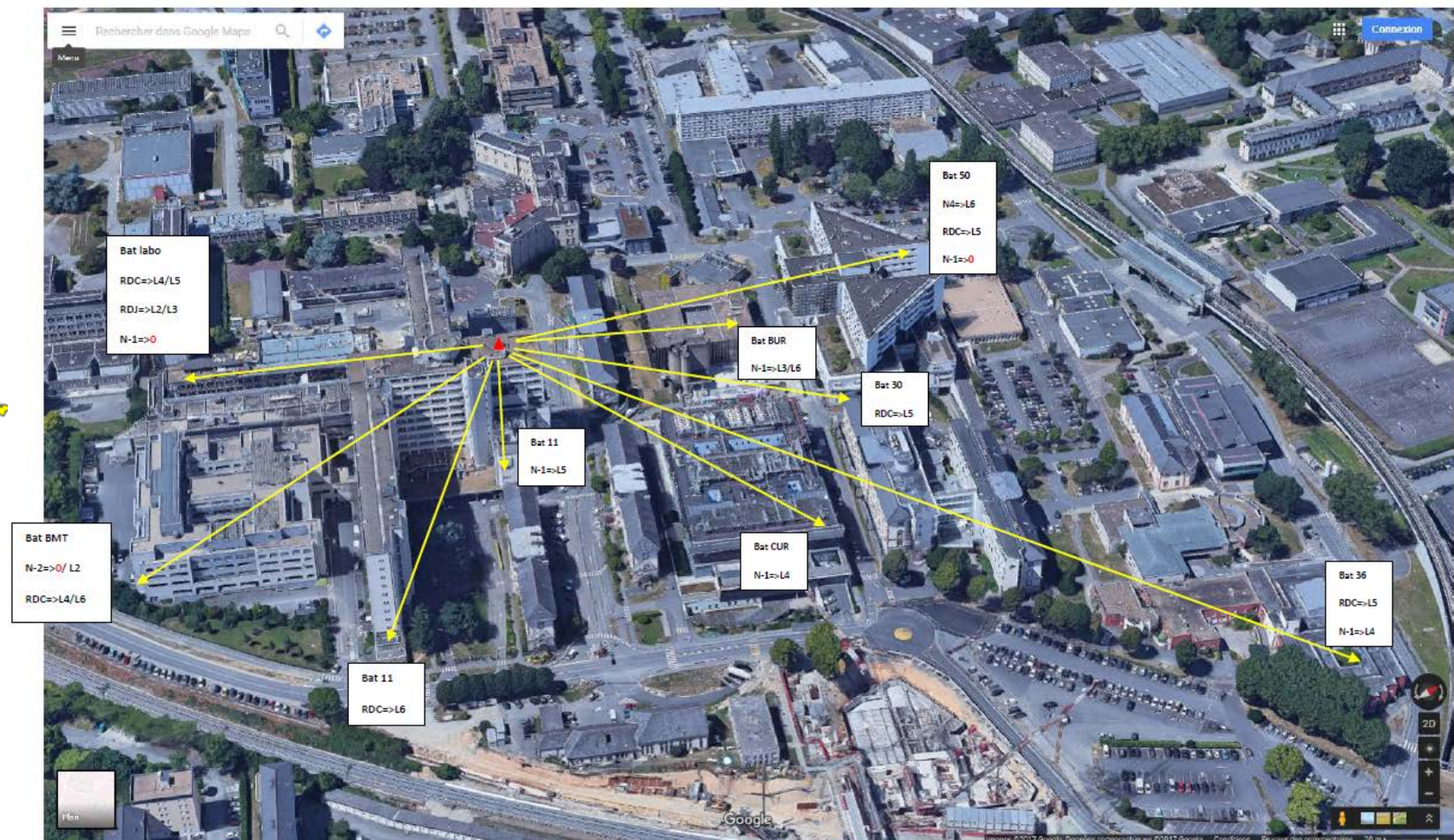
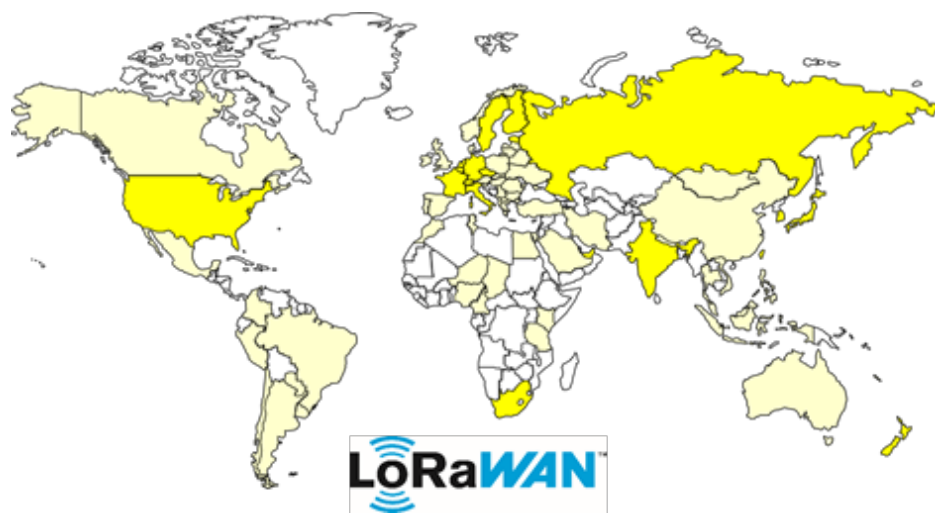
- › Color touch-screen
- › Richer display
- › Control areas
- › Alarm acknowledgment directly on module
- › Automatic sensor detection
- › Wired and/or wireless sensors
- › OCEASOFT Smart-Sensors store correction coefficients to simplify set-up and recalibration
- › Cobalt X2 firmware update via Bluetooth®



# PERFORMANCE: LoRaWAN™ long-range wireless communication



- Wireless range reaching 10 miles (16 km) to cover large sites
- Easy installation
- Low power consumption in modules
- Efficient communication



\* Depending on environmental conditions and receiver antenna performance



# PERFORMANCE: digital Smart-Sensors



- › Multiple parameters
  - Temperature (-200 /+200°C)
  - Temperature and relative humidity
  - % CO<sub>2</sub>
  - 0-5 V / 0-10 V / 4-20 mA
  - Dry contact
  - Differential pressure (available soon)
- › Calibration coefficients stored in sensor memory to simplify recalibration process
- › Data and certificates accessible easily
- › No data loss or down-time for calibration
- › Calibration by OCEASOFT in-house laboratory: ISO 17025 accredited (COFRAC) and NIST-traceable



# PERFORMANCE: OCEAView comprehensive web application



- › Supports OCEASOFT fixed and mobile data loggers
- › Web application (Cloud or customer server)
- › Remote data access



Application web  
OCEAView



# PERFORMANCE: OCEAView comprehensive web application



## Alarms and alerts issued in real-time

- Several configurable alarm limits (3 high + 3 low)
- Alerts by e-mail
- Alerts by SMS and voice calls (OCEALert)



## Auditable and customizable reports

- Organization, site, department, equipment group, module, and sensor
- Customizable reports, audit trail
- MKT (mean kinetic temperature) management
- MKT, TOR, pharma data
- Compliant with 21 CFR Part 11 guidelines

# COMPLIANCE AND QUALITY



ACCREDITATION  
COFRAC  
N° 2-1987  
PORTÉE  
DISPONIBLE SUR  
[www.cofrac.fr](http://www.cofrac.fr)



## Compliance:

- EN 15189
- Designed according to FDA 21 CFR Part 11 guidelines
- GxP

## Quality:

- ISO / IEC 17025 in-house COFRAC-accredited laboratory
- Certified ISO 9001
- IQ / OQ
- Validation Pack



# Cobalt X2, the complete solution for monitoring your equipment



# COST OPTIMIZATION



## › Simplified installation and intuitive use

- Automatic recognition of OCEASOFT Smart-Sensors or fully-wireless sensors (Bluetooth®)
- Alarm acknowledgment directly on module
- Rich information and touch-screen interaction



# COST OPTIMIZATION



## Low up-front costs:

- Long-range communication
- Comprehensive web application
- One Cobalt X2 module can monitor up to 4 pieces of equipment



Application web  
OCEAView

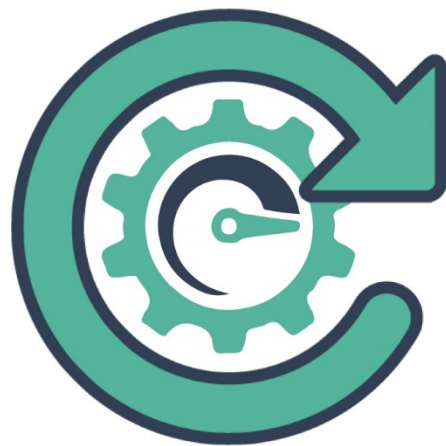


# COST OPTIMIZATION



## › Low operating and maintenance costs

- Simplified set-up and recalibration
- Low power consumption
- Battery or AC power (USB)



# OCEAView



Universal web application: views and features

# OCEAVIEW | Watch Mode

Oceasoftware Oceaview

Watch Mode

Filters

Device	Location	Temp 1	Temp 2	Temp 3	Humidity
Fridge 1 Fridge	Laboratory	9.7°C ↑	7.5°C		
Fridge 1 Fridge	Laboratory	7.8°C	7.8°C		
Fridge OTB Fridge	Laboratory	-3.1°C ↓		43.2%RH ↓	
Fridge OTB Fridge	Laboratory	-2.8°C ↓			
Nitrogen Liquid B Storage tank	Laboratory	--°C	-195.8°C		
Nitrogen Liquid B Storage tank	Laboratory	195.1°C	-195.8°C		
Freezer Metro Fridge	Laboratory	6.4°C	--°C		
Fridge Metro Fridge-80°C	Laboratory	-75.0°C	-75.4°C		
Fridge Metro Fridge-80°C	Laboratory	-75.9°C	-76.0°C		
Nitrogen Liquid A Storage tank	Laboratory	-195.9°C			
Cold Storage Cold storage	Laboratory	1.8°C	2.0°C		
Cold Storage Cold storage	Laboratory	2.5°C	2.1°C		
Cold Storage Cold storage	Laboratory	2.1°C			



# OCEAVIEW | Managing layouts

Oceasoft OCEAVIEW

## Plan view - Dashboard

Filters

Total Equipment(s) 9

Equipment Error(s) 0

ALARMS NOT ACKNOWLEDGED

Alarm type	Equipment	Alarm value	Date
Radio failure	Laboratory Freezer	N/A	01-19-2018 09:53:43 PM
Radio failure	Engineering Incubator	N/A	01-19-2018 09:01:10 PM
Radio failure	Engineering Incubator	N/A	03-19-2018 07:05:30 PM

More...

# OCEAVIEW | Managing equipment

## Devices (11) +

☰ Filters

🔔	Type ▾	Designation ▲	Serial number
	X2	X2-SN1	E40C03000008
	X2	X2-SN2	E40C03000009
	X2	X2-S3	E40C0300000A
🔔 <sup>3</sup>	Cobalt L3	Cobalt L3 - Public Network	RH-L3
🔔 <sup>2</sup>	<i>Emerald M40</i>	<i>EMERALD NJ</i>	<i>US-EMERALD</i>
	X2	X2-SU-BT1-L	E40C03000012
	X2	X2-SIM1	E30CD765EAFC
	X3	METRO	E40C03000001

⏪ ⏩ 1 2 ⏪ ⏩

## ✕ E30CD765EAFC

X2 - SIM1

Version

2.2.0

Last activity

02/12/2018 15:50 AM

Alarms

🔔 0

Battery level

95 %

Mission

▶ Running

## Sensors (4) +

🔔	Designation ▾	Limits	
	▶ LABO-X2-REMOTE1	🌡️ 80 °C -20 °C	✕
	▶ LABO-X2-REMOTE2	🌡️ 80 °C -20 °C	✕
	▶ LABO-X2-REMOTE3	🌡️ 80 °C -20 °C	✕
	▶ LABO-X2-REMOTE4	🌡️ 80 °C -20 °C	✕

⏪ ⏩ 1 ⏪ ⏩

# OCEAVIEW | Reading graphs



# OCEAVIEW | Managing alarms

Oceasoftware **Oceaview**

Equipments

Search

Status	Designation	Type
✓	Freezer Metro INV-FR01-1835	Fridge
🔔	Fridge OTB INV-FR01-1635	Fridge
✓	Fridge Metro INV-FR01-A257	Fridge-80 °C
🔔	Nitrogen Liquid B INV-TK09-0035	Storage tank
✓	Nitrogen Liquid A INV-TK09-0096	Storage tank
✓	Cold Storage INV-CS01-002	Cold storage
🔔	<b>Fridge 1</b> INV-FR01-0153	<b>Fridge</b>

Navigation: ⏪ 1 ⏩

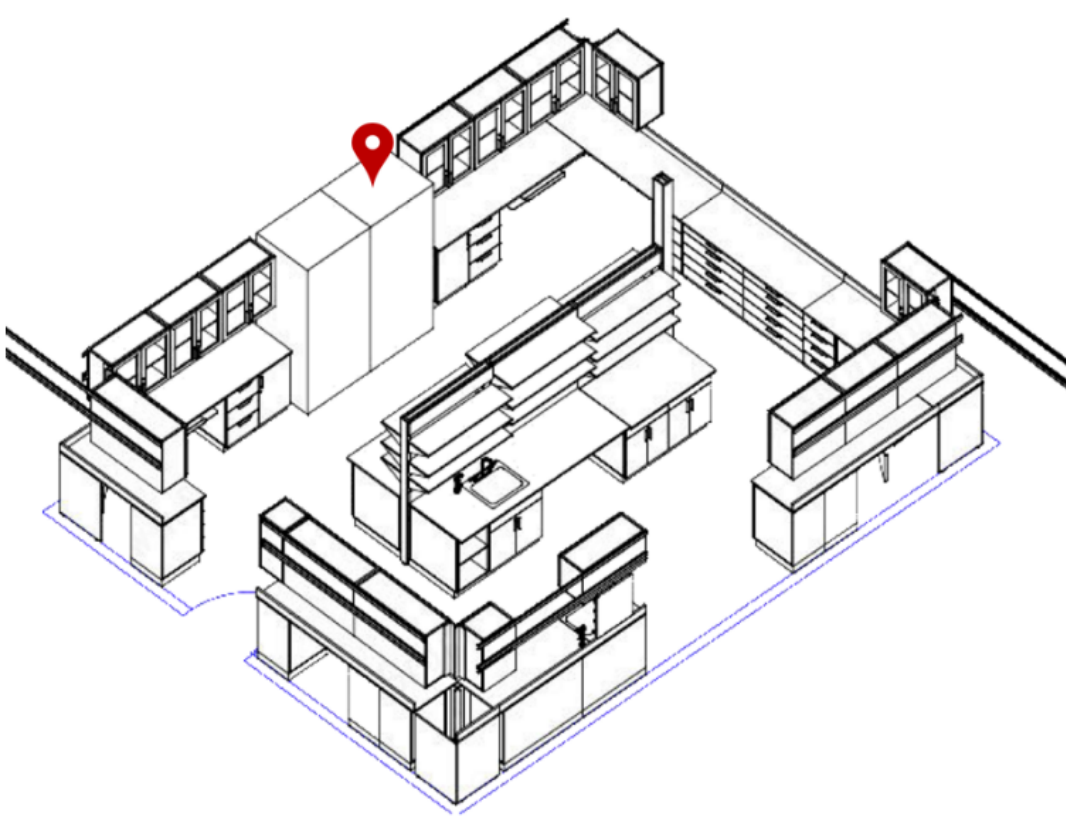
**Fridge 1**  
INV-FR01-0153  
Fridge

Organization: Laboratory A

Alarms: 🔔 1

Criticality: Normal

Sensors (1) | Plan



# OCEAVIEW | Managing alarms

**Readings - Fridge 1**

Date min: 13/02/2018 01:09 | Date max: 14/02/2018 01:02 | Event types: 2 items selected | Measuring points: LABO-X2-REMOTE3 (°C)

Graphic | Data

Temperature

LABO-X2-REMOTE3 (°C)

**High limit alarm**

- Start date: 13/02/2018 16:15
- End date: 13/02/2018 16:50
- Alarm status: stopped
- ACK status: ok
- Start value: 7.5°C
- End value: 6.7°C
- Limit value: 7°C
- Delay value: 0 min

**1** Equipment Error(s)

More Info

Alarm value	Date
7.5 °C	02-13-2018 04:15:43 PM
N/A	01-19-2018 09:53:43 PM
N/A	01-19-2018 09:01:10 PM
N/A	03-19-2018 07:05:30 PM

More...

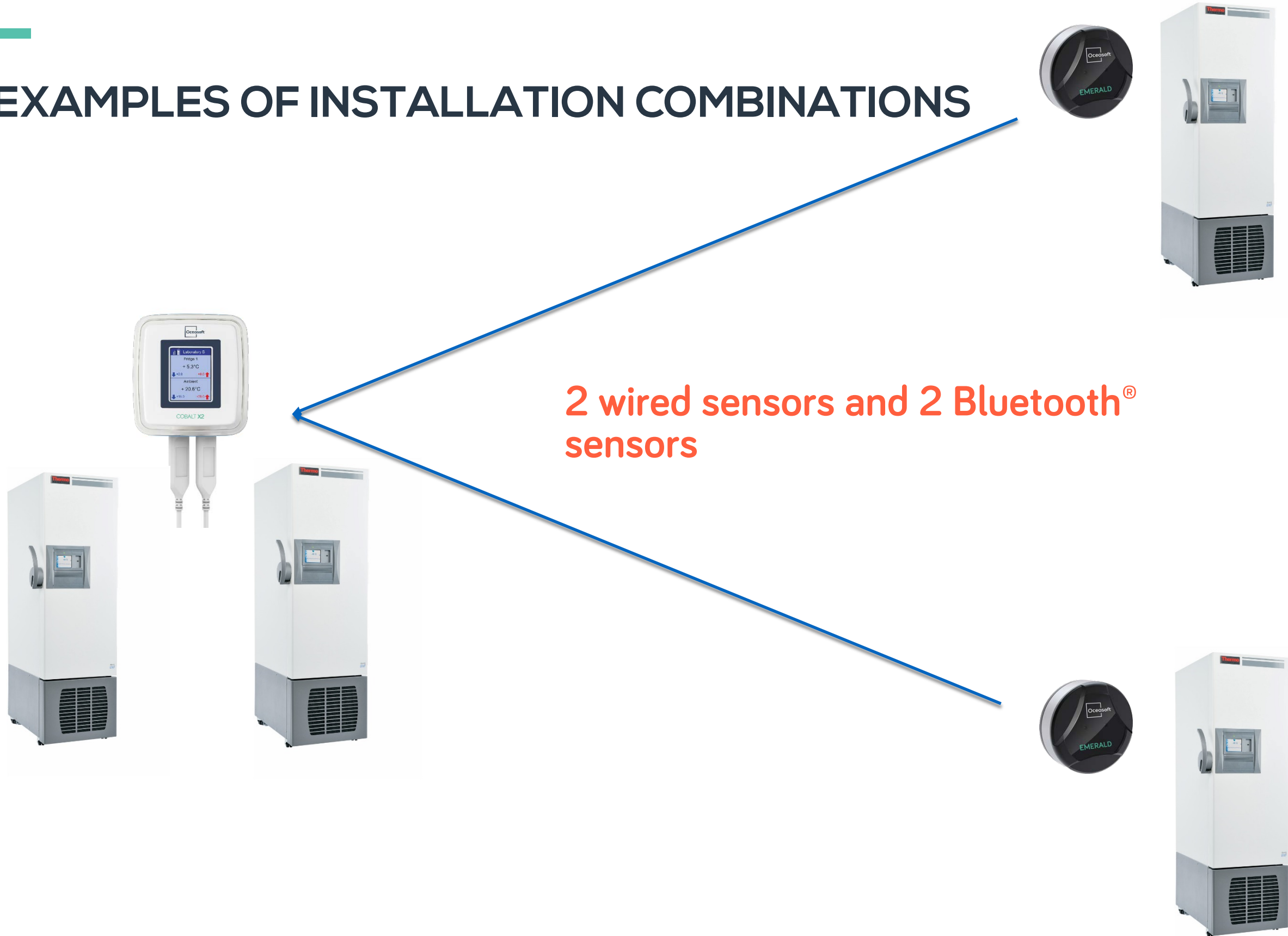


# Examples of installation combinations

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# EXAMPLES OF INSTALLATION COMBINATIONS



2 wired sensors and 2 Bluetooth® sensors

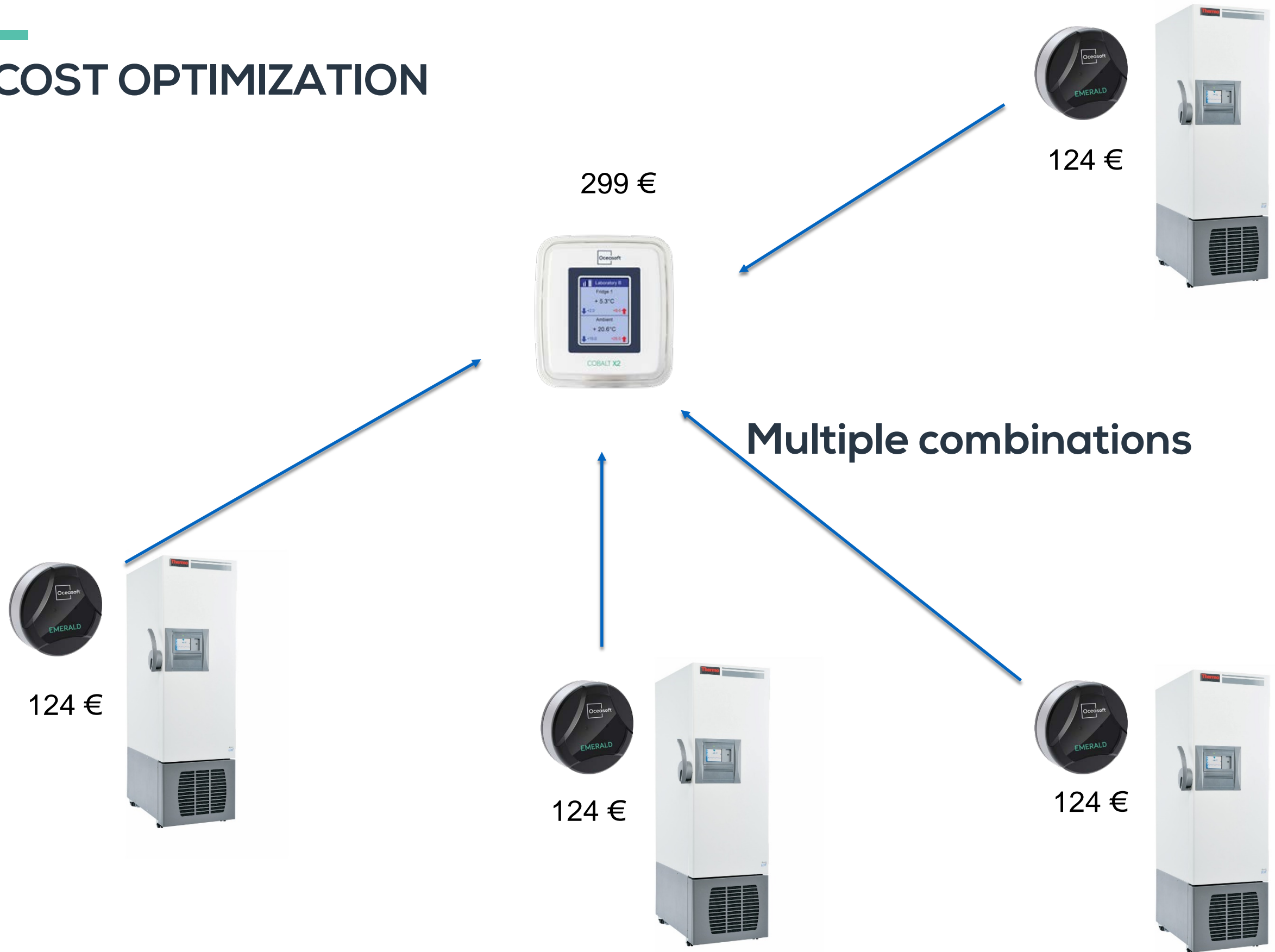
# EXAMPLES OF INSTALLATION COMBINATIONS



1 wired sensor and 3 Bluetooth® sensors



# COST OPTIMIZATION



Total: 795 €, that is: 198.50 €/ equipment

## OTHER CONFIGURATIONS



- › DS18B20 digital temperature probe
  - -40 to +80°C
  - -40 to +120°C
- › PT100 Smart-Sensor
  - -200 to 0°C
  - -100 to +100°C
  - 0 to +200°C
- › Temp/Humidity Smart-Sensor
  - -40 to +100°C
  - 0 to 99% RH
- › Smart-Sensor
  - 4-20 mA
  - 0-5V
  - 0-10V
- › Bluetooth Emerald Sensor
  - -40 to +85°C
  - -200 to 0°C (Pt100 analog)
  - 0 to +200°C (Pt100 analog)



# COMBINATIONS OF WIRED + WIRELESS SENSORS

If sensor 1 is of this type:	Sensor 2, 3, or 4 can be: 0 ou <u>1</u> 0 or 1 of your choice in <b>green</b> (wired sensors) and <u>X</u> sensors in <b>blue</b> (wireless)							
Digital temperature (-40°C to +120°C)	Digital temperature (-40°C to +120°C)	Temperature/Humidity Smart-Sensor	PT100 Smart-Sensor (-200°C to +200°C)	Smart-Sensor 4-20 mA / 0-5V / 0-10V	Emerald x 3 if <u>no</u> other wired sensors	Emerald x 2 if other wired sensor is <u>not dual</u> (humidity)	Emerald x 1 if other wired sensor <u>is dual</u> (humidity)	
Temperature/humidity Smart-Sensor	Digital temperature (-40°C to +120°C)	Temperature/Humidity Smart-Sensor	PT100 Smart-Sensor (-200°C to +200°C)	Smart-Sensor 4-20 mA / 0-5V / 0-10V	Emerald x 2 if <u>no</u> other wired sensors	Emerald x 1 if other wired sensor is <u>not dual</u> (humid.)	-	
PT100 Smart-Sensor (-200°C to +200°C)	Digital temperature (-40°C to +120°C)	Temperature/Humidity Smart-Sensor	PT100 Smart-Sensor (-200°C to +200°C)	Smart-Sensor 4-20 mA / 0-5V / 0-10V	Emerald x 3 if <u>no</u> other wired sensors	Emerald x 2 if other wired sensor is <u>not dual</u> (humidity)	Emerald x 1 if other wired sensor <u>is dual</u> (humidity)	
Smart-Sensor 4-20 mA / 0-5V / 0-10V	Digital temperature (-40°C to +120°C)	Temperature/Humidity Smart-Sensor	PT100 Smart-Sensor (-200°C to +200°C)	Smart-Sensor 4-20 mA / 0-5V / 0-10V	Emerald x 3 if <u>no</u> other wired sensors	Emerald x 2 if other wired sensor is <u>not dual</u> (humidity)	Emerald x 1 if other wired sensor <u>is dual</u> (humidity)	
Emerald temperature	Digital temperature (-40°C to +120°C)	Temperature/Humidity Smart-Sensor	PT100 Smart-Sensor (-200°C to +200°C)	Smart-Sensor 4-20 mA / 0-5V / 0-10V	Emerald x 3 if <u>no</u> other wired sensors	Emerald x 2 if other wired sensor is <u>not dual</u> (humidity)	Emerald x 1 if other wired sensor <u>is dual</u> (humidity)	
Triple CO2, temp, humidity sensor	Digital temperature (-40°C to +120°C)	PT100 Smart-Sensor (-200°C to +200°C)	Smart-Sensor 4-20 mA / 0-5V / 0-10V	-	Emerald x 1	-	-	



# Cobalt X2



Monitoring of tomorrow, today







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