

WEBPAGE  
INSIDE



M O N I T O R I N G

c o s t e  g r o u p



# MONITORING







## monitoring to know monitoring to optimise monitoring to save

Knowing the consumption of buildings and the value of environmental parameters leads to a conscious use of energy, process optimisation and consequent economic savings.

## reliable data, secure communication

### THE IMPORTANCE OF ANALYSIS, FROM MONITORING TO SUPERVISION

**T**here is a growing need for systems dedicated to consumption metering and environmental parameters in the industrial, tertiary, management and public sectors. **We build systems that meet legal standards** with rigorous metering, accounting and energy allocation. It can be used in every private and public buildings and in public contracts such as in hospitals to monitor air quality, in schools to ensure healthy spaces, in museums to preserve works of art. We offer monitoring of electricity heat, water and all the main environmental parameters necessary for the advanced management of buildings and production processes: temperature, humidity, pressure, CO2 and air quality.

**T**he use of an open communication protocol that can be easily integrated with third-party systems makes our Monitoring solution flexible and user-friendly.

## wireless 868MHz: minimal wiring

**T**he 868 MHz radio technology adopted on Coster radio devices uses reliable encryption and error correction algorithms to enable secure and cost-effective wireless communication even over long distances (up to 5 km in open field). On the environmental parameter acquisition devices, we adopt battery power supply with extremely low power consumption and continuous adaptation.

Our wireless technology is certified 

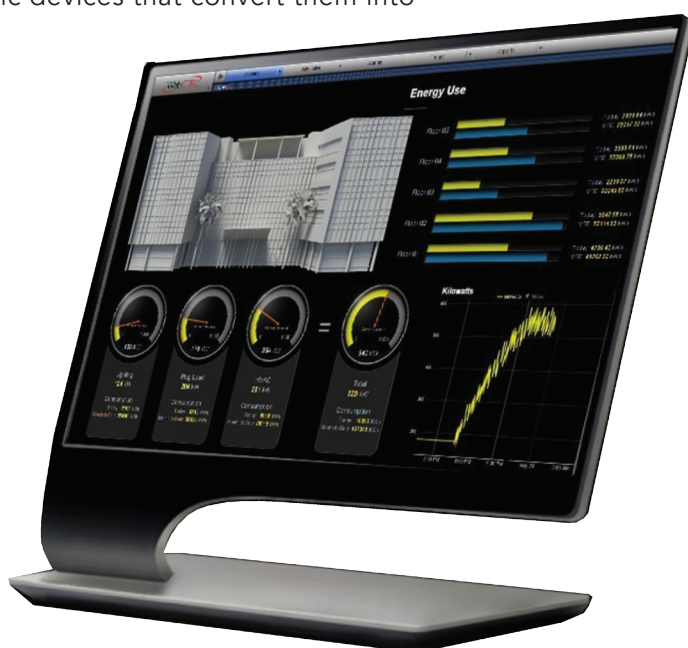
# Monitoring energy and the environment for conscious and efficient use

## Integration

Webgarage is the ideal platform for monitoring consumption and environmental parameters but also for controlling technical plants. Monitoring and adjustment in one integrated system. The Webgarage platform acquires the main communication protocols used in energy monitoring, through specific devices that convert them into ModBus:

- MBus
- Pulses
- ModBus

**Webgarage** by Coster Group makes it possible to collect, control and integrate data from different systems **in order to measure and optimise a building's performance in terms of comfort, productivity, energy efficiency and sustainability.**



**Webgarage** is the ideal platform for monitoring consumption and environmental parameters but also for controlling technical plants.

**Monitoring and adjustment in one integrated system.**







# Cloud Solutions

The Coster Group Cloud (Coster Connect) eliminates infrastructure costs for the customer and guarantees a fast and functional solution for the connection and management of plants.



## Advantages

- Coster Group server with dedicated user access.
- Customised and hierarchical user profile
- Router/Modem + SIM (M2M) installed on the plant and suitable for TCP/IP connection with supervision platform
- Fixed annual fee independent of data traffic

- No investment in IT infrastructure.
- Data historicization on TSDB (Time Series Data Base) enabling quick data query and export
- History management and customised dashboards on request
- Alarm threshold setting

**Advanced system access management with display and action rights attributable to each user**





MONITORING NETWORK







# measuring efficiency and comfort



## YHC 700

### NETWORK MANAGER MODBUS

YYHC 700 is an integral part of the platform for the regulation and control of YLC Series plant and of monitoring systems. It enables data exchange among YLC controllers and alarms forwarding, allowing remote control of the devices via MDM 232 or via Ethernet, using the ModBus/TCP protocol. It can work stand-alone or networked. In 6 DIN module case

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 6 module applicable to DIN bar
1	Ethernet port
2	RS485 expansion bus
1	RS232 pbus
1	Micro-USB port
1	USB port
4	Indicator LEDs

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – 60 (°C)
Storage temperature limits	-10 – +80 (°C)
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	90 x 105 x 71 mm (h x l x p)
Weight	185 g

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC
Maximum Absorption	500 mA
Front protection degree	IP 20
Rear protection degree	IP 20
Radio interference	VDE 0875/0871



## YHC CWE

### NETWORK MANAGER MODBUS EMBEDDED VERSION

WEBGarage supervision system (200-point license, of which 40 historicized) is natively installed on YHC CWE, therefore it offers all the features provided by the platform.

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – 60 (°C)
Storage temperature limits	-10 – +80 (°C)
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	90 x 105 x 71 mm (h x l x p)
Weight	185 g

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC
Maximum Absorption	500 mA
Front protection degree	IP 20
Rear protection degree	IP 20
Radio interference	VDE 0875/0871

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 1 module applicable to DIN bar
1	Digital input to send alarms (SMS and/or email)
1	RS485 serial port
1	Signal level display
1	Slot to insert SIM
1	Antenna connector SMA type

## manage communication



### MNT 485

#### GATEWAY MONITORING 3G

MNT 485 acquires various types of data (temperature, humidity, etc) from the field and sends them to the Cloud/Web Garage.

MNT 485 needs an M2M SIM CARD with an IP address on a public APN and enabled to the GSM & data communications. Antenna included.

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 1 module applicable to DIN bar
1	Digital input to send alarms (SMS and/or email)
1	RS485 serial port
1	Signal level display
1	Slot to insert SIM
1	Antenna connector SMA type

#### ACCESSORIES

APA 500	Antenna extension SMA length 5 meters
ANT 500D	4G directional antenna

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – 45 (°C)
Storage temperature limits	-25 – +60 (°C)
Ambient humidity class	F DIN 40040
Module panel casing class	DIN 43700
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	17.5 x 90 x 62 (mm)
Weight	55 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC
Apparent power	5 (VA)
Front protection degree	IP 20
Radio interference	VDE 0875/0871



### ESP 442

#### EXPANSION MODULE (UI - T° - DO)

ESP 442 is an I/O expansion module that can communicate with the YLC 880 controller and is used to expand the system structure.

The module has an RS485 port for communication using the Modbus RTU485 protocol.

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 4 modules applicable to DIN
4	Relay output 230V, 5A, Surge Protection
4	Digital input
2	Inputs for temperature sensor PT1000
1	Bus RS485 (Modbus)

#### ACCESSORIES

SAB ...	room temperature sensor
STA ...	air channel temperature
SAE ...	outdoor temperature sensor
SIH ...	immersion temperature sensor
STH ...	Immersion high temperature sensor
STF ...	Flue gas temperature sensor
ALM 1210	DIN 12V-10W bar power supply
ALM 1225	DIN 12V-25W bar power supply

#### I/O SPECIFICATIONS

1-wire probes	PT1000 <sup>(2)</sup> probes	UI	T°
0	2	4	non used

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – +45 (°C)
Storage temperature limits	-25 – +60 (°C)
Ambient humidity class	F DIN 40040
Module panel casing class	DIN 43700
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	70 x 120 x 62 (mm)
Weight	175 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC and 24 V AC
Maximum applicable voltage to relays	250V AC (V)
Apparent power	5 (VA)
Maximum capacity	5 (A)
Front protection degree	IP 40
Rear protection degree	IP 20
Radio interference	VDE 0875/0871
Output contacts	Potential-free contacts

<sup>(2)</sup> Type sensor PT1000 (SIH 002 – SAB 002 – SAE 002 – STA 002) are passive elements that must be connected to specific terminals of module PEC 442 or ESP 442 (refer to the wiring diagram)






# measuring efficiency and comfort



## CSW 868

### CONCENTRATOR RADIO SENSOR

The sensor receiver CSW 868 is used to create a wireless connection between a master and one or more wireless sensors (up to 40).

It ensures two-way communication with the wireless sensors  Antenna included.

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 1 module applicable to DIN bar
1	12V DC power supply
1	RS485 serial port for master connection
1	Antenna connector SMA type

#### ACCESSORIES

APA 500	Antenna extension SMA length 5 meters
ANT 868	Upgraded antenna for 868 concentrators
THP 868	Radio temperature-humidity sensor with Data Logger
STT 868 H	Sealed radio sensor
STU 868 H	Sealed humidity-temperature sensor

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – 45 (°C)
Storage temperature limits	-25 – +60 (°C)
Ambient humidity class	F DIN 40040
Module panel casing class	DIN 43700
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	17 x 90 x 62 (mm)
Weight	55 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC
Apparent power	5 (VA)
Front and back protection degree	IP 20
Radio interference	VDE 0875/0871



## THP 868

### RADIO SENSOR

Can be used in monitoring systems and HVAC applications.

Measures the room temperature and humidity and communicates it to the CSW 868 via radio. Used in both control and monitoring applications.

 certified.

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing 80 x 80 (mm)
1	Acquisition button
1	Internal RTC
1	Indicator LED
1	Micro-USB port for download data logger
1	Integrated antenna
1	Wall-mounting plate

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	-1 – +50 (°C)
Storage temperature limits	-25... +50 (°C)
Ambient humidity	-20%-80% non-condensing
Module panel casing class	IP 30
Panel casing material	UL 94 V0 self-extinguishing ABS
Dimensions	80 x 80 x 25 (mm)
Weight	100 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	2 AA lithium batteries
Battery life <sup>(*)</sup>	Approximately 7 years (with transmissions every 15 min)
Transmission frequency	868.0 – 868.6 MHz (Subclass 28) 868.7 869.2 MHz (Subclass 29)
Transmission power	from 1.5 mW to 25 mW
Outdoor distance	5 Km
Temperature measurement precision	± 0,2 °C
Temperature range	- 5 °C / +50 °C
Humidity measurement precision	± 3% RH
Humidity measurement range	0% - 100% RH
Measurement frequency	from 2 minutes to 60 minutes
Front and back protection degree	IP 30

<sup>(\*)</sup> Depending on the difficulty of the radio connection


## measuring efficiency and comfort



### STT 868H

### STU 868H

#### SEALED RADIO SENSORS

Sealed temperature sensors in a 105 x 105 x 55 mm box.  
Used in both control and monitoring applications 

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing 105 x 105 x 55 (mm)
1	Acquisition button
1	Integrated antenna
1	Wall-mounting plate

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	-20 – +50 (°C)
Storage temperature limits	-25... +50 (°C)
Ambient humidity class	-
Module panel casing class	IP 55
Panel casing material	Technopolymer GWT (Halogen Free material)
Dimensions	105 x 105 x 55 (mm)
Weight	205 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	3 AA lithium batteries
Battery life <sup>(*)</sup>	Approximately 7 years (with transmissions every 15 min)
Transmission frequency	Banda ISM 868 Mhz
Transmission power	from 1,5 mW to 25 mW (automatically regulated)
Outdoor distance	5 Km
Humidity measurement precision	± 0,2 °C
Temperature range	-20 °C – +50 °C
Humidity measurement precision	+/- 3% RH
Humidity measurement range	0% - 100% RH
Measurement frequency	from 2 minutes to 60 minutes
Front and back protection degree	IP 55
Radio interference	VDE 0875/0871

<sup>(\*)</sup> Depending on the difficulty of the radio connection





# modularity and expandability



## BRG 868

### WIRELESS BRIDGE MODULE

The bridge module BRG 868 is used to create a wireless connection between the bridge receiver BRG 868C and one or more field devices. The BRG 868 module ensures a two-way connection between the components connected to it. Antenna included.

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 1 module applicable to DIN
1	12V DC power supply
1	RS485 serial port for master connection

#### ACCESSORIES

APA 500  
Antenna extension SMA lenght 5 meters

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – 45 (°C)
Storage temperature limits	-25 – +60 (°C)
Ambient humidity class	F DIN 40040
Module panel casing class	DIN 43700
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	17 x 90 x 62 (mm)
Weight	55 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC
Apparent power	5 (VA)
Front protection degree	IP 20
Rear protection degree	IP 20
Radio interference	VDE 0875/0871
Output contacts	Open Collector (*)



## BRG 868C

### WIRELESS BRIDGE CONCENTRATOR

The concentrator BRG 868C is used to create a wireless connection between a master and one or more BRG 868 devices (up to 16) connected to field devices with an RS485 bus. The concentrator ensures two-way connection between the components connected to it. Antenna included.

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 1 module applicable to DIN
1	12V DC power supply
1	RS485 serial port for master connection
1	Antenna connector SMA type

#### ACCESSORIES

ANT 868  
Upgraded antenna for 868 concentrators

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – 45 (°C)
Storage temperature limits	-25 – +60 (°C)
Ambient humidity class	F DIN 40040
Module panel casing class	DIN 43700
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	17,5 x 90 x 62 (mm)
Weight	55 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC
Apparent power	5 (VA)
Front protection degree	IP 20
Rear protection degree	IP 20
Radio interference	VDE 0875/0871

(\*) The relay must use the same power supply as module BRG 868



## GSP 485

### RS 485 CONVERTER

The GSP 485 module is a device to read pulse meters. The device is made up of three DIN modules. Users can query instruments connected to it, using the RS485 interface.

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 3 DIN modules
2	Meter inputs
2	M-Bus meters (*)
1	RS 232 for connection to a modem or serial converter to Ethernet
1	RS232 for connection YLC 7..
1	RS 232 or connection to third-party devices
	Pulse meter back-up battery

#### ACCESSORIES

ACB 232/S1 conversion cable / C-Bus powered by Coster equipment with auxiliary 12 V- power supply

PCB 332C-Bus amplifier and converter

#### MECHANICAL SPECIFICATIONS

Operating temperature limits	0 – +45 (°C)
Storage temperature limits	-25 – +60 (°C)
Ambient humidity class	F DIN 40040
Module panel casing class	DIN 43700
Panel casing material	Grey plastic type NORYL SE1 GFN2
Dimensions	52,5 x 120 x 62 (mm)
Weight	115 (g)

#### ELECTRICAL SPECIFICATIONS

Power supply	12V DC
Apparent power	5 (VA)
Front protection degree	IP 40
Rear protection degree	IP 20
Radio interference	VDE 0875/0871



## CDP 120

## CDP 180

### MBUS/MODBUS CONVERTER 2 AND 8 DEVICES

Since the data from CDP180/120 converters can be read from any Modbus-Master (automated control, visualisation system etc...) a very broad range of applications becomes possible

**Combinable with MHF ..., UHF ..., and IEF 276**

#### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	Panel casing for 1 module applicable to DIN
1	RS 232 serial port for master connection
1	Indicator LEDs

#### ELECTRICAL SPECIFICATIONS

Power supply	24 V
Apparent power	1 (VA)
Protection	IP 20



# monitoring consumption



### OPTION:

MID certified versions are also available

## MFD 4..

### ELECTRICITY METER

**MFD 448** Multifunction network analyser.  
Possibility of direct AT connection with secondary 1-5A  
Power supply 80...265V CA 100...300VCC  
Modbus RS485 communication protocol

**MFD 438** Multifunction network analyser.  
Power supply 80...265V CA 100...300VCC  
Bacnet MS/TP communication protocol

**MFD 548** Network analysers are available  
Possibility of direct AT connection with secondary 1-5A  
Power supply 80...265V CA 100...300VCC  
Modbus RS485 communication protocol  
MID approval model

### INPUT

#### Connection

Single phase Three phase, balanced load Three phase, unbalanced load

#### Diagnostics, phase sequence corrections

##### Nominal values

Voltage 100 – 400V

Current 1 + 5A

#### Current input

TA dedicated

#### Programmable ratio

TV (kTV) 1 ... 10

TA Ipn 1 ... 9.999

max kTV x kTA 99.990

### DISPLAY

#### Active energy

Precision EN/IEC 61557-12 cl. 0.5

Positive, total and partial, Negative, total

#### Reactive energy

Precision EN/IEC 61557-12 cl. 1

Positive, total, Partial positive, Negative, total

#### Voltage

Phase and linked

#### Current

Phase and neutral (calculated)

Average-maximum average phase demand

#### Power factor

Three phase, Phase

#### Power

Active, reactive, apparent, Average and maximum average, Active and reactive phase

#### Current/voltage harmonic distortion

THD, Analysis



## ADF 485

### MODBUS TCP SLAVE/MODBUS MASTER CONVERTER

ModBus RTU to ModBus TCP level converter.

### HARDWARE SPECIFICATIONS

No.	DESCRIPTION
1	35 mm panel casing for 3 DIN modules
1	RS 232 serial port
1	Indicators LEDs

### ELECTRICAL SPECIFICATIONS

Power supply	8 ... 24 V AC
	12 ...35 V DC
Apparent power	3,5 (VA)



# connectivity kit

## TO FACILITATE OPERABILITY, 4 KITS FOR MONITORING ELECTRICAL THERMAL AND ENVIRONMENTAL PARAMETERS

The communication kits allow connectivity between the monitoring system installed in the field and the Coster Cloud for the collection of measured data.

The proposal consists of three standard kits and a custom kit (for particularly complex system architectures).

**EVO** connectivity kit consisting of:

- Ethernet communication module type YHC 700\*,
- BRG 868C Bridge receiver for radio communication with BRG 868 field components and the acquisition devices connected to them in wired Modbus
- CSW 868 Sensor receiver for radio communication with the temperature/humidity probes located in the field.
- Power supply unit



YHC 700



BRG 868C



CSW 868

Kit **EVO PLUS** adds to the EVO version:

- 4G router equipped with M2M data SIM type RUT 002 for users requiring connectivity via M2M SIM.
- Power supply unit



YHC 700



BRG 868C



CSW 868



RUT 002

**CUSTOM** kit suitable for complex systems:

- Creating dedicated architectures
- Data is stored on a licensed Webgarage platform sized according to the number of variables measured

<sup>(\*)</sup> The MNT 485 and YHC 700 communication devices transmit the measured data to Coster Cloud or Webgarage. On request, it is possible to expose the measured data directly in ModBus protocol and make them available to third party systems.



# Electrical measurement kit

## ELECTRICAL MONITORING KIT



The electrical kit provides data collection from electrical multimeters type MFD 448 which can be installed on single-phase or three-phase electrical loads.

A wide range of openable or closed-window Current Transformers (CTs) allow the acquisition of any low voltage electrical load.

The kit consists of a specific power supply, a BRG 868 radio relay device and MFD 448 electric meters with Modbus communication protocol.

Each kit is expandable up to 10 MFD 448 for each BRG 868.

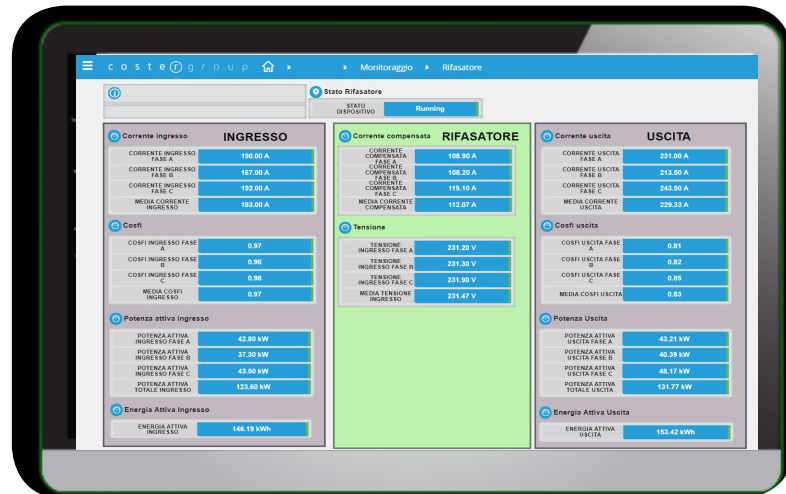


BRG 868

MFD 448

**Dedicated dashboards containing the main electrical multimeters.**

**The display can be in tables or graphical view or with pointer indicators**



# thermal measurement kit

## THERMAL MONITORING KIT



The thermal energy monitoring kit provides the possibility of acquiring data from various energy integrators with M-Bus communication protocol.

The kit consists of specific power supply, BRG 868 radio relay device, CDP 120 / CDP 180 protocol converter (from 2 to 8 M-Bus integrators can be acquired). It is possible to combine the Costergroup MHF or UHF series compact calorie counters, or the measuring tubes combined with the IEF 276 integrator.



BRG 868

CDP 120

MHF... UHF...

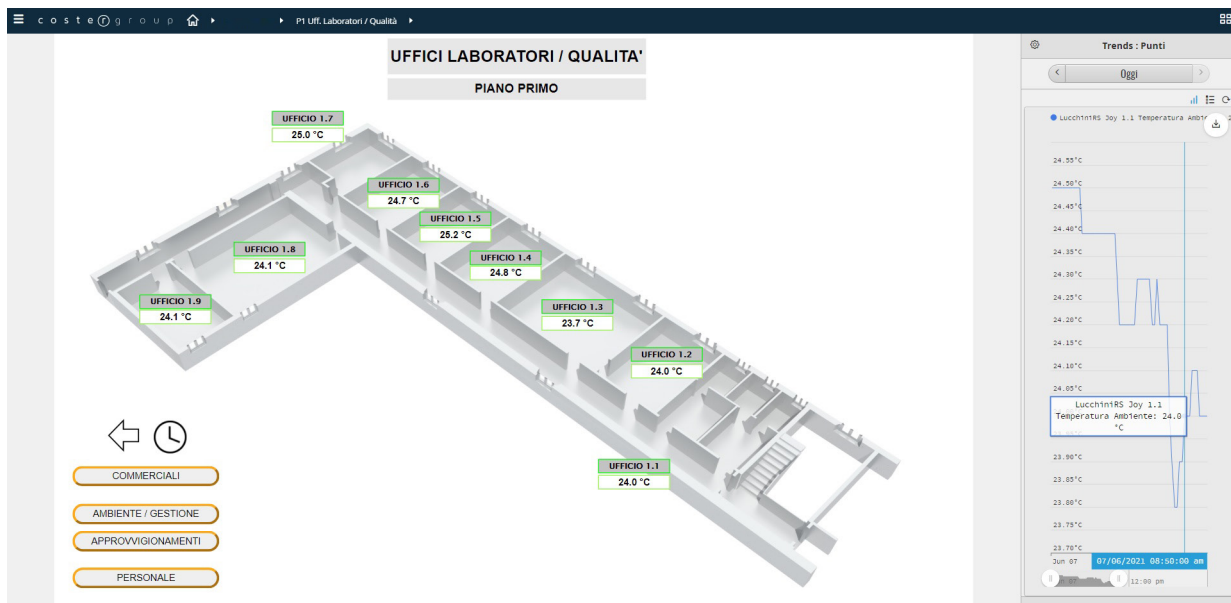
IEF 276

# environmental parameters measurement kit

## ENVIRONMENTAL MONITORING KIT

The Environmental Parameters kit is designed for the acquisition of temperature, humidity and CO<sub>2</sub>, through radio devices for civil, industrial or outdoor application.

The kit consists only of THP 868 and CO2868 sensors that communicate with the CSW 868 radio receiver included in the communication kits.

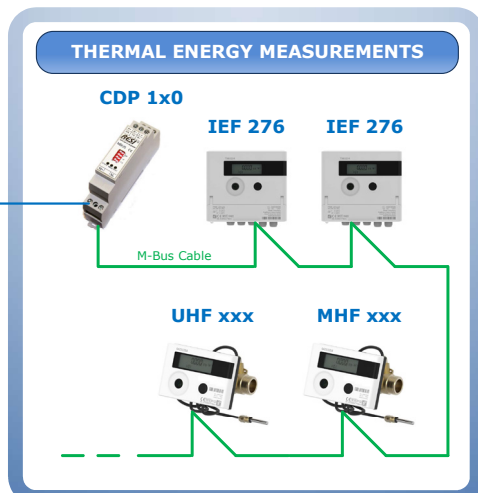
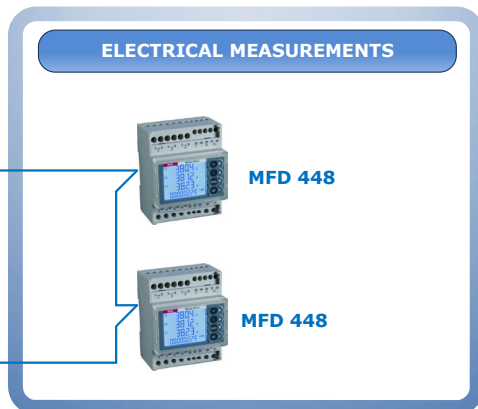
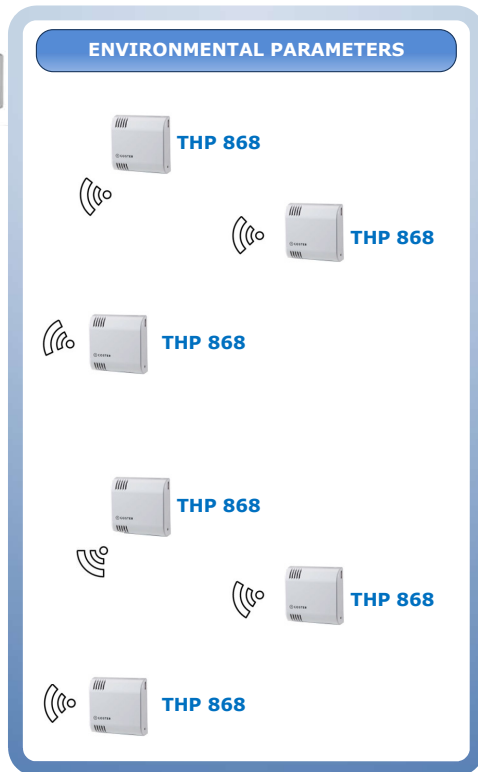
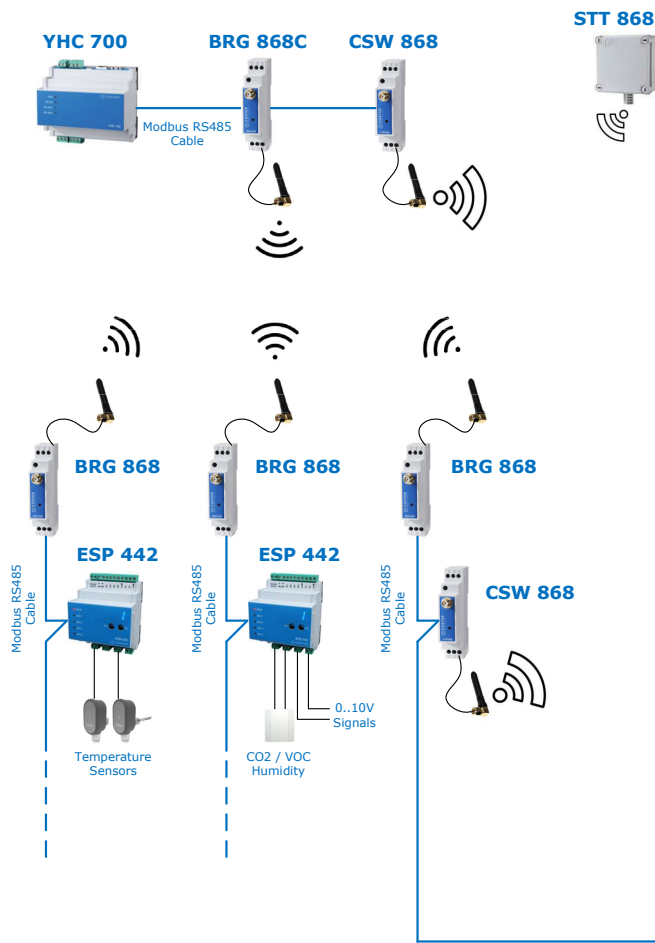


**Dedicated dashboards containing the main information acquired by the ambient sensors. The display can be in tables or with thermographic maps.**






# Examples of system architecture



SYSTEM PERFORMANCE LIMITS		
ENVIRONMENTAL PARAMETERS	0..40	Radio Sensors per CSW 868: - THP 868 for environment - STT 868 for outdoor and/or critical environments
ELECTRICAL MEASUREMENTS	0..30	Multimeters to choose from: - MFD 448 Costergroup - IME Nemo D4 Le Single-phase Three-phase - IME Conto D4 Pr MID - Electrex Atto D4 Single-phase Three-phase - Other integrated multimeters available For further information please consult our sales department
THERMAL ENERGY MEASUREMENTS	0..40	Heat meter to choose from: - M-Bus Costergroup IEF 276 - Costergroup Sensus PolluStat - Isoil IFX F100 Modbus meters
SYSTEM EXPANSIONS		- Up to nr.3 BRG868C for each YHC700 - Up to nr.5 BRG868 for each BRG868C - Up to nr.10 Multimeters for each BRG868
		- Up to nr.3 CSW868 for each BRG868 - Up to nr. 40 THP868/STT868 for each CSW868
		- Up to nr.5 CDP120/180 for each YHC700 - Up to nr.8 devices M-Bus for each CDP180 - Up to nr.2 devices M-Bus for each CDP120
		- Up to nr.10 Expansion modules PEC442/ESP442 For temperature / Humidity / CO2 and other 0..10V Analog signals

**WEBGARAGE**  
OPEN INTEGRATION



**YHC CWE**

**INTEGRATED 200-POINTS WEBGARAGE LICENSE**



**ENVIRONMENTAL PARAMETERS**

**THP 868**

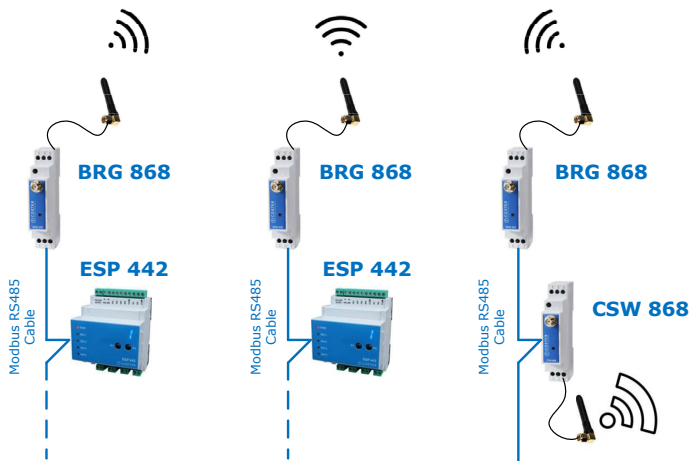
**THP 868**

**THP 868**

**THP 868**

**THP 868**

**THP 868**



**THERMAL ENERGY MEASUREMENTS**

**IEF 276**    **IEF 276**

M-bus Cable

**UHF xxx**    **MHF xxx**

**CDP 1x0**

**ELECTRICAL MEASUREMENTS**

**MFD 448**

**MFD 448**



MNT 485

BRG 868C

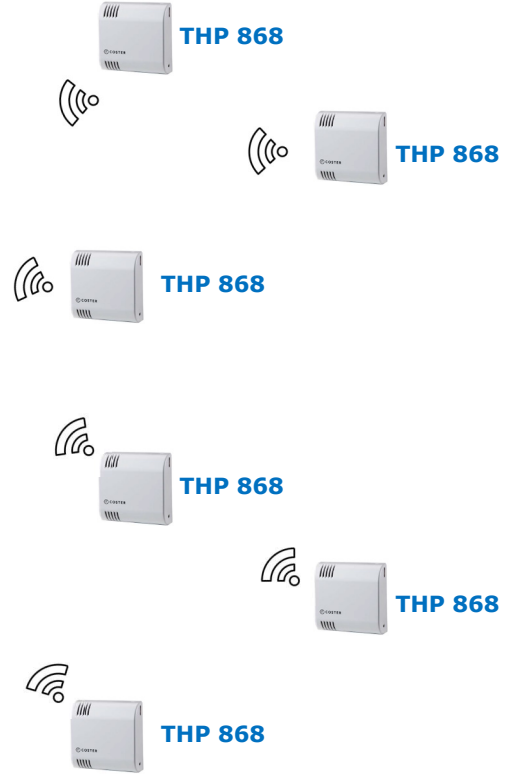
CSW 868

STT 868

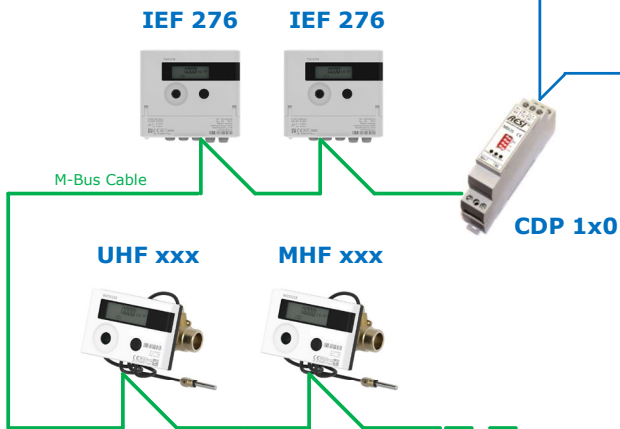
Modbus RS485 Cable



ENVIRONMENTAL PARAMETERS



THERMAL ENERGY MEASUREMENTS



ELECTRICAL MEASUREMENTS



REALIZZATO CON IL SOSTEGNO DI



UNIONE EUROPEA  
Fondo europeo di sviluppo regionale



Regione Lombardia



POR FESR 2014-2020 / INNOVAZIONE E COMPETITIVITÀ



c o s t e  g r o u p

PERSONAL AUTOMATION



**costergroup.eu**

MILAN

Via San G.B. De La Salle, 4/A  
20132 Milano  
tel: +39 022722121  
export.dept@costergroup.eu

DERBY - UK

5 Shaftesbury Street South,  
Sir Francis Ley Industrial Park  
Derby DE23 8YH  
tel: +44 (0) 1332 200555  
ukbranch@costergroup.eu

ABANO TERME  
EDOLO  
NOVI LIGURE

