CONTROLLI

Catalogue #2
Sensors & Controllers
for HVAC systems

ENERGY EFFICIENCY

335

CONTROLLI
SENSORS & CONTROLLERS

2017

CONTROLLI

Controllers & field devices for HVAC

COMPANY PROFILE

CONTROLLI was established in Genoa in 1936 and was the first Italian company to manufacture a complete range of controllers, actuators and control valves for heating and air-conditioning systems.
Since 1950 the product range was improved by widening the range of control equipments and systems for industrial application.
In the 80s CONTROLLI consolidates its position as the most important Italian manufacturer, with special regard to climate controls, thanks to the development of analogue and digital electronic devices.
In the 90s CONTROLLI gains a position also in the Building Automation market.
From 1996 to July 2005 CONTROLLI has been part of the Invensys multinational group.
From 2005 to August 2011 CONTROLLI has been part of Schneider Electric S.A.

CORE BUSINESS

CONTROLLI core business consists of products and systems for the control and supervision of HVAC plants and industrial processes.
CONTROLLI products are the result of mechanical - electric - electronic technology integration, supported by a 75-years experience in HVAC applications.

MADE IN ITALY

SINCE 1936
A LEADING COMPANY
IN HVAC AND BUILDING
AUTOMATION

PRODUCT QUALITY IS CONTROLLI N°1 COMMITMENT.

Controlli is recognised today as an Italian leader in the Building Automation market and a benchmark in the segment of valves and actuators for the HVAC market.
Business with OEMs (Original Equipment Manufacturers) is more than 30% of our turnover. System integration for BMS is part of our business too. Our Building Automation team develops control software for free programmable controllers according to customers' specifications. Since several years we are mainly focusing on cutting-edge solutions aiming at guaranteeing the highest level of comfort but keeping a close eye on energy saving technologies. Some of these technologies refer to: heat metering systems, control devices with wireless communication, circuit balancing and more.

*The port of Genoa

An industrial area of 6,000 m² in Sant'Olcese (Genoa) is CONTROLLI head office. Production is highly automated with robotic devices for the assembly and calibration of mechanical and electronic spare parts and finished products.

It is worth mentioning the robotic plant for processing, mounting and testing of valve bodies and the robotized workcell for assembly, testing and certification of fan-coil valve actuators.

CONTROLLI has adopted the SIX SIGMA procedures, further elevating the quality standard of its products.

CONTROLLI operates under ISO9001-2008 Quality Certificate System. All CONTROLLI valves are PED (Pressure Equipment Directive) compliant.

Products are tested 100%.
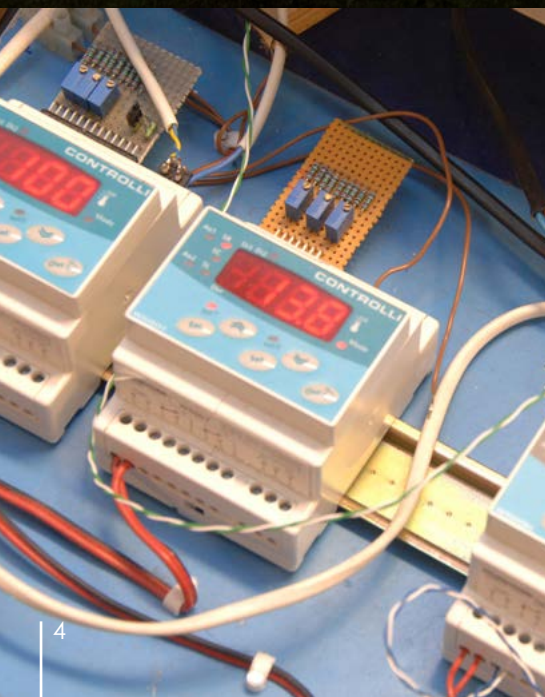
WHERE TO FIND US

Controlli S.p.a.

Via Carlo Levi, 52

16010 Sant'Olcese

Genova - Italy

Controlli is located 10 Km north of Genova.

🚗 take the A7 highway (genova-milano) and exit at Genova Bolzaneto.

📍 44.4862, 8.9223

🚉 Closest Railway Station: Genova Piazza Principe

✈ **GENOA AIRPORT** ▶ **CONTROLLI**

🚗 A7 Highway — **16min** 13,7Km

✈ **LINATE AIRPORT** ▶ **CONTROLLI**

🚗 A7 Highway — **1h e 13min** 149Km

✈ **PISA AIRPORT** ▶ **CONTROLLI**

🚗 A12 Highway + E80 — **1h e 35min** 172Km

✈ **MALPENSA AIRPORT** ▶ **CONTROLLI**

🚗 A7 Highway + E62 — **1h e 53min** 181Km

✈ **BERGAMO AIRPORT** ▶ **CONTROLLI**

🚗 A7+A4 Highway — **2h e 2min** 195Km

✈ **NICE AIRPORT** ▶ **CONTROLLI**

🚗 A10 Highway + E80 — **2h e 5min** 206Km

ITALY

CONTROLLI
GENOA

MALPENSA AIRPORT

MILAN

BERGAMO AIRPORT

LINATE AIRPORT

130 Km

CONTROLLI

15 Km

GENOA

GENOA AIRPORT

NICE AIRPORT

PISA AIRPORT

VALVES & ACTUATORS

CONTROLLERS

SUPERVISORY SYSTEMS

HEAT METERING & MORE

We are proud to offer one of the largest range of valves and actuators in the HVAC market. Valves range from 15mm to 200mm for fluids with temperature from -30°C to +350°C, max. pressure 12bar (steam) or 30bar (water). Linear actuators start at 90N and go up to 3000N. Rotary actuators for butterfly valves and shoes valves and for direct mounting on air dampers up to 2sqm.

PLEASE REFER TO OUR CATALOGUE #1

To start with, we will mention our thermostats for heating and cooling, our fan-coil units controllers, room controllers, ddc controllers with parameter-setting as well as programmable controllers. Not to forget our KX climatic controllers with outside temperature compensation. Controllers are offered either as stand-alone or with ModBus connectivity. Our range includes sensors, transmitters and switches for temperature, humidity, pressure, differential pressure, air quality, etc.

To make matters easy, we propose pre-programmed GT (graphic terminals) touch-screens, with web Server capabilities for remote monitoring through Internet Explorer. GT touch-screens are supplied ready for most of our controllers (W500, OmniaPro, Liberty). One GT is suitable to approx. 40 controllers at one time.

Last but not least, we are continuously improving our range for heat metering systems, variable speed drives, Dynamic Pressure Independent Control Valves, solutions for underfloor systems and more.

ROOM CONTROLLERS

CONTROLLERS FOR ENERGY SAVING VENTILATION UNITS

DIGITAL PID CONTROLLERS

PROGRAMMABLE CONTROLLERS FOR SMALL APPLICATIONS

PROGRAMMABLE CONTROLLERS FOR LARGE APPLICATIONS

REMOTE MONITORING

OTHER DIGITAL CONTROLLERS AND THERMOSTATS

SENSORS AND SWITCHES

HEAT METERS

ENERGON
NR9000

"Innovative digital controller for fan-coil units.
Compact dimensions but powerful and flexible hardware with 20 Inputs/ Outputs."

SENSORS SNTC-L SOAVIS

POWERFUL

The controller can manage up to 20 control points and 2 different communication protocols with a compact hardware.

USER–FRIENDLY

It is field configurable by means of micro switches and it can be supervised through the web without the need of any installed software or App.

FLEXIBLE

It fits all the control strategy of the last generation Fan-Coils with EC motor.

ATTRACTIVE

The room sensor is available in two different colors and is compatible with finishing plates BiTicino and Vimar.

Room controller for FCUs able to manage 2 different control loops. Ideal solution for hotels, hospitals, offices and shopping malls".
ModBus RS-485 communication. Proprietary Bus to connect more controllers to a single room sensor.
Removable terminal plugs for: power supply, high power signal, low power signal.
Analog/Digital Inputs for sensors and remote functions selection. (Winter/Summer change over, Economy mode, Remote power-off [Occupancy Sensor], Windows contact) 2 Analog Outputs (0..10Vdc) for modulating valves and modulating fan speed control.
High Voltage Digital output for valves control and 3 fan-speed control. Digital Outputs for External Relays: Electrical heater, Electrical Power enable. Universal power supply from 85 to 265 Vac.

Control possibilities selectable by DIP switches:

- On/Off Valves and 3 speed fan (fast ventilation mode)
- On/Off valves and 3 speed fan
- 3 point / modulating valves and 3 speed fan
- On/Off valves and 1 speed fan
- 3 point/ modulating valves and 1 speed fan
- On/Off valves and modulating fan
- 0..5Vdc & 6..10Vdc valves in sequence (4-pipe FCU) and 0..10Vdc fan
- 0..10Vdc valve (2-pipe FCU) and 0..10 Vdc fan

For each above configuration are available an electric Heating control output and one auxiliary output for electric load.

Digital room sensor with adjustment for: set point, fan speed (manual or automatic), Economy/Comfort mode.
Room Sensor available in 2 colors (black or white) external frame available in many different colors.
Flush mounting or wall mounting. Functions: On/Off/Economy Mode set, fan speed selection (Auto/3/2/1/0), temperature set point adjustment, multicolor leds (red-green-orange) showing operating mode (Off-Comfort-Economy). User may have full control or limited control or no control.
Free of charge Configuration Tool for setting of all parameters, overview on the plant installation showing the key variables for each individual controller, setting of daily & weekly time schedules. A controller set as master can manage up to 5 slave modules.

Room Sensor

The internally stored parameters used by the controller during operation can be changed using NR9000-RT Remote Sensor The remote sensor has a temperature sensor inside and it has 4 buttons and a 3 digit LCD display.
NR9000-RT is suitable for flush mounting in standard box 503E or for wall mounting. The plastic casing is compatible with BTicino cover plates Living light (square cover) or Living International (round cover) otherwise with Vimar Plana cover plates modifying the supplied plastic casing.

Push Buttons

OPERATIVE MODE:
COMFORT: the controller will control the temperature to satisfy the Comfort Temperature Set.

ECONOMY: the controller will control the temperature to satisfy the Economy Temperature Set.

OFF with FROST PROTECTION: the controller is normally OFF; just during winter operation it works with a set fixed at 8°C and heating function only.

FAN SPEED SELECTION:
It sets the ventilation operative speed

Manual speed (min, med, max speed selected manually)

Automatic speed (driven by controller)
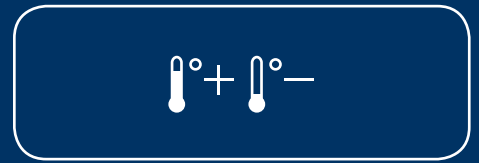
TEMPERATURE SET POINT:
The room set point temperature is modified by +/- (plus & minus) buttons. The required set point can be increased or decreased from 10 to 30°C or +/- 3°C in case only small adjustments are left to the user.

Remote Control Panel

MT-NET-PONR is a panel solution suitable as monitoring system for NR9000 controllers.
It offers high performances in terms of memory, connectivity and user interface. Settings, maintenance and service are very easy.

The panel allows to supervise up to 50 NR9000 using RS485 (Modbus) Bus connection. Through the ethernet port and the web application server, the operator can access from remote on MT-NET-PONR using pcs, smartphones and tablets and he can easily set main parameters of each NR9000.

Remote Control

The remote control is an easy way to control your NR9000 unit. NR9000 can be managed by an infrared remote control (NR9000-TC). The remote control is equipped with a wide display and supplied together with batteries and frame for wall mounting. It allows to set the temperature, the programming for a daily switching on and off and the set of the operation mode (ventilation only, heating only, cooling only and automatic).

Manually ON/Off

Operating Mode

Fan Speeds

Temperature set point

Timer program

Stand Alone

Layout configuration: 1 sensor connected to 1 controller used as Master connected to max 5 controllers (slave).

ROOM SENSOR DISPLAY

LINK BUS

MASTER

SLAVE #1

SLAVE #2

SLAVE #5
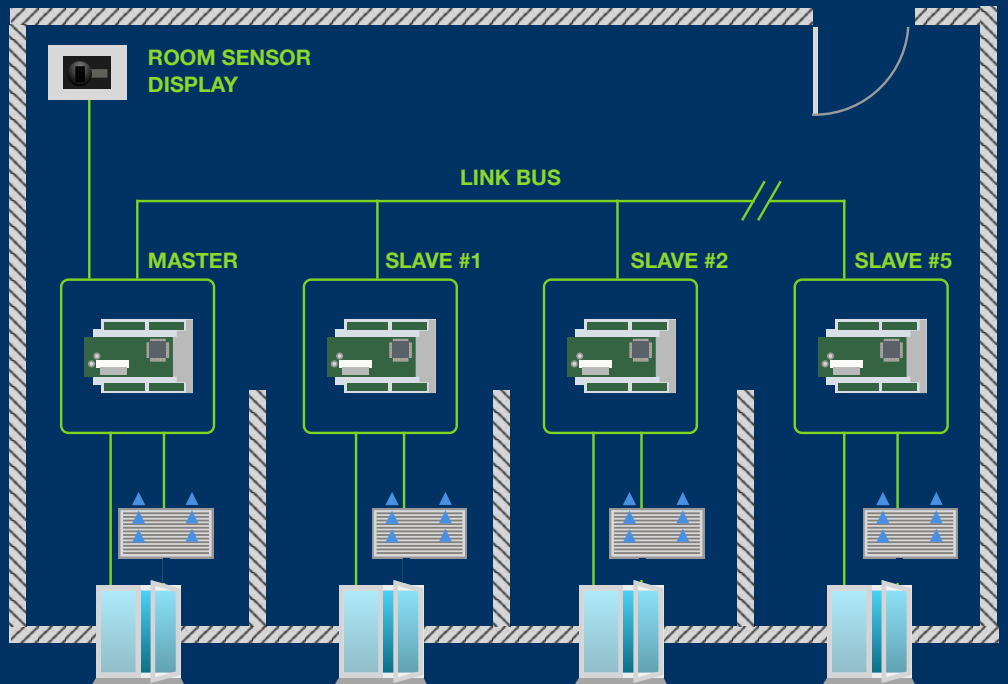
Network mode

MT-NET-PONR allows connection and monitoring up to 50 NR controllers through a remote web server interface on your PC tablet or Smartphone
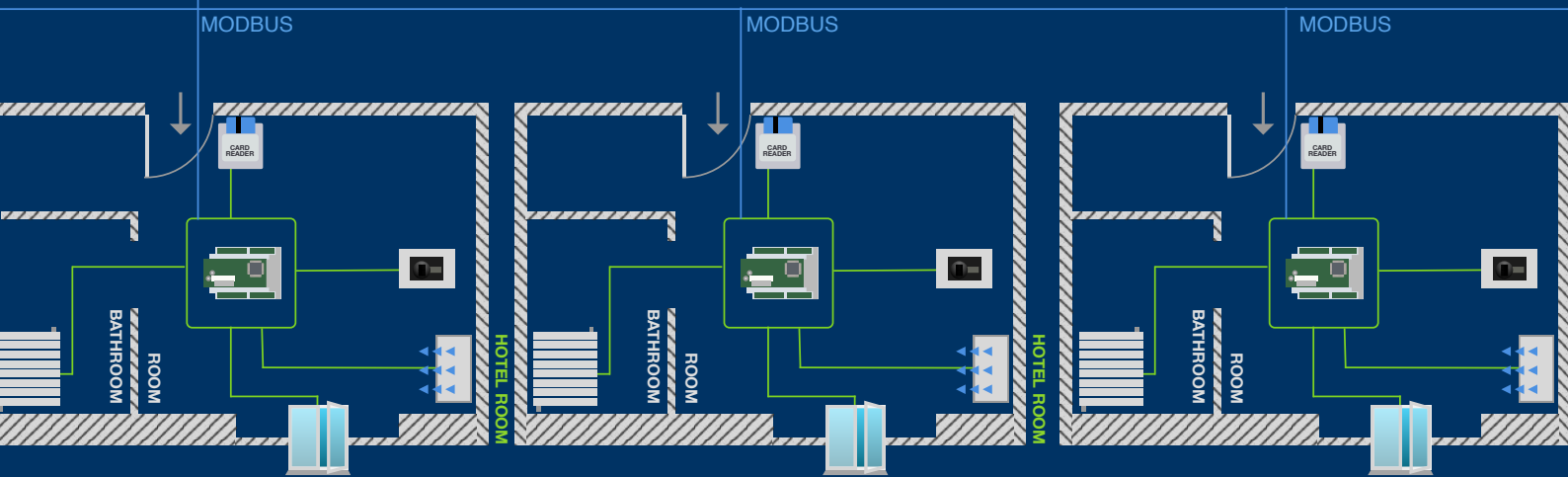
NR9000

MODBUS

MODBUS

MODBUS

CARD READER

CARD READER

CARD READER

ROOM BATHROOM

HOTEL ROOM

ROOM BATHROOM

HOTEL ROOM

ROOM BATHROOM

NR9000 | ENERGON

TECHNICAL SPECIFICATIONS	
POWER SUPPLY NR9000	85-265Vac (isolated)
POWER SUPPLY NR9000-RT	12Vdc (from controller)
DIMENSIONS [MM]	90x106x160mm

CODE	DESCRIPTION
NR9000	FAN COIL DIGITAL CONTROLLER
NR9000-RT1A	FLUSH-MOUNTING REMOTE SENSOR CHARCOAL COLOUR
NR9000-RT1B	FLUSH-MOUNTING REMOTE SENSOR WHITE COLOUR
NR9000-RT2A	WALL MOUNTING REMOTE SENSOR CHARCOAL COLOUR
NR9000-RT2B	WALL MOUNTING REMOTE SENSOR WHITE COLOUR
MT-NET-PONR	OPERATOR PANEL: MT-NET-PONR: IT IS POSSIBLE TO CONNECT UP TO 50 CONTROLLERS.
54609-03	WHITE BTICINO COVER PLATE (ALREADY INCLUDED WITH NR9000 RT2X SENSOR)
4200-2098	ORANGE BTICINO COVER PLATE
4200-2097	LIGHT BLUE BTICINO COVER PLATE
4200-2096	BLACK BTICINO COVER PLATE
4200-2095	FLUSH MOUNTING BOX E503
S431X [S432X]	ROOM TEMP. SENSOR WITHOUT SET POINT ADJUSTMENT FLUSH MOUNTING [WALL MOUNTING]
NR9000-TC	REMOTE CONTROL FOR NR9000
NR9000-RX	INFRARED RECEIVER FOR NR9000
SNTC-SL	DUCT TEMPERATURE SENSOR
37T	SUMMER/WINTER CHANGE-OVER (FOR 2-PIPE FCUS WHEN NR9000 CONTROLLERS ARE USED IN STAND-ALONE APPLICATIONS)
4200-2094	GREY COLOR FRAME
S411X [S412X]	ROOM TEMP. SENSOR WITH SET POINT ADJUSTMENT 10°÷30°C FLUSH MOUNTING [WALL MOUNTING]
S421X [S422X]	ROOM TEMP. SENSOR WITH SET POINT ADJUSTMENT INCREASE-DECREASE FLUSH MOUNTING [WALL MOUNTING]

Inputs / Outputs

INPUTS	FUNCTION	TECHNICAL SPECIFICATIONS
DI1	WINDOW CONTACT	Digital 1 /24vac
DI2	ON/OFF CONTACT	Digital 2 /24vac
DI3	SUMMER / WINTER CONTACT	Digital 3 /24vac
DI4	COMFORT / ECONOMY CONTACT	Digital 4 /24vac
S1	RETURN TEMPERATURE SENSOR	Analogue input NTC10k
S2	REMOTE TEMPERATURE SET	Analogue input NTC10k
S3	AUXILIARY LOOP RETURN TEMPERATURE SENSOR	Analogue input NTC10k
S4	AUXILIARY LOOP REMOTE TEMPERATURE SET	Analogue input NTC10k

OUTPUTS	FUNCTION	TECHNICAL SPECIFICATIONS
HOT_CL/HOT_OP	Hot valve	24-230Vac TRIAC 4A
COLD_CL/ COLD_OP	Cool valve	24-230Vac TRIAC 4A
R1..R3	V1, V2, V3 Fan Speed	24-230Vac RELAY 8A
AO1	Modulating heating valve 1 – sequence	Analogue output 1
AO2	Modulating cooling valve 2 – fan	Analogue output 2
OC1	Open Collector for external RELAY 1	Open Collector 1
OC2	Open Collector for external RELAY 2	Open Collector 2

Control strategy	Heating or Cooling Valve (2 pipes)		Cooling Valve (4 pipes)			Fan			Summer Winter change over
	Proportional [1]	On/Off [2]	Sequence	Proportional [1]	On/Off [2]	Proportional	3 speeds	On/Off	
1	-	●	-	-	●	-	●(3)	-	●(4)
2	-	●	-	-	●	-	●	-	●(4)
3	●	-	-	●	-	-	●	-	●(4)
4	-	●	-	-	●	-	-	●	●(4)
5	●	-	-	●	-	-	-	●	●(4)
6	-	●	-	-	●	●	-	-	●(4)
7a (two pipes)	●	-	-	-	-	●	-	-	●(4)
7b (four pipes)	-	-	●	-	-	●	-	-	-

1) Output valve can be driven using 0..10Vdc or Floating Control
2) Floating and On/Off controls are supplied by means of TRIAC
3) Fan fast insertion
4) Mandatory in case of 2 pipes fan coil units

Inputs/Outputs	NR9000 control strategies									Field devices	
	1, 2, 3, 4, 5, 6			7a			7b				
Multifunction sensor with LCD	-	●	◑	-	●	◑	-	●	◑	NR9000-RT1A/B NR9000-RT2A/B	DISPLAY PANELS
Remote IR control	-	◑	●	-	◑	●	-	◑	●	NR9000-TC / NR9000-RX	
Room setpoint adj. (knob)	○(2)	-	-	○(2)	-	-	○(2)	-	-	S411A/B, S412A/B, S421A/B, S422A/B, S441A/B, S442A/B	INPUTS
Return air temp	●	●	●	●	●	●	●	●	●	S431A/B, S432A/B	
Windows contact	◑	◑	◑	◑	◑	◑	◑	◑	◑	-	
On/Off contact (badge switch)	○(2)	-	-	○(2)	-	-	○(2)	-	-	-	
Eco/Comfort (Unocc/Occ)	◑	◑	◑	◑	◑	◑	◑	◑	◑	-	
Summer winter change over	○(2,3)	○(2,3)	○(2,3)	○(2,3)	○(2,3)	○(2,3)	-	-	-	37T (thermostat) / SNTC-SL (Sensor)	
Aux loop Sensor — Water temp. for fan enabling	⬓	⬓	⬓	⬓	⬓	⬓	⬓	⬓	⬓	S431A/B, S432A/B / SNTC-SL	
Aux loop set point — Water temp. for S/W change over	⬓	⬓	⬓	⬓	⬓	⬓	⬓	⬓	⬓	S411A/B, S412A/B, S421A/B, S422A/B, S441A/B, S442A/B / SNTC-SL	
3 speed fan control	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	-	OUTPUTS
On/off fan control	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	-	
EC fan	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	●(1)	-	
Heating Valve	●	●	●	●	●	●	●	●	●	MVX./MVT.	
Cooling valve	○(4)	○(4)	○(4)	-	-	-	●	●	●	MVX./MVT.	
Aux output OC1 (loop)	●	●	●	●	●	●	●	●	●	MVX./MVT. (ON/OFF ONLY)	
Aux output OC2 (lights)	◑	◑	◑	◑	◑	◑	◑	◑	◑	-	

● - Always Mandatory
◑ - Optional
● - Mandatory when aux loop is used
○ - Mandatory / Optional (see the note)
⬓ - Both configurations are not available at the same time

(1) According to **CONTROL STRATEGY** selection table
(2) Mandatory when FCU is 2 pipes
(3) Set up by hardware input or by BMS
(4) Mandatory when FCU is 4 pipes

Control possibilities

Valves: On/Off or 3 pos. (floating) or Modulating 0..10Vdc (additionally, also valve sequence control 0..5Vdc + 5..10Vdc is achievable using our MVT503 actuators).

Ventilation: manual fan speed control or automatic fan speed control (3 speed fans or Proportional 0..10Vdc control for EC motor fans).

Auxiliary temperature loop: it's an additional control loop to be used for the bathroom or a separate room or for the electric heating of the room: it consists of an input for a temperature sensor (strap-on water sensor or Soavis room sensor with set-point adjustment) and one On/Off output (for the radiator thermostatic head or for the electric heater).

Electric load: NR9000 is provided with an auxiliary Open Collector output, by means of an additional relay it can switch off the power supply (lighting, etc) to the room when unoccupied.

Parameters/Functions avaiable	Multifunction sensor with LCDNR9000-RT1A/B NR9000-RT2A/B	Remote IR control NR9000-TC NR9000-RX	Web monitoring & control interface MT-NET-PONR
Temperature	●	●	●
Setpoint adjustment	●	●	●
Valves status	-	-	●
Fan status selection (Auto/Man speed)	●	●	●
Mode selection (On/Off)	●	●	●
Economy/Comfort (Unocc/Occ)	●	●	●
Summer /winter global change over	-	-	●
Stand Alone Time schedule	-	●	-
Mode selection (On/Off) by group	-	-	●
Time schedule by group	-	-	●
Setpoint adjustment by group	-	-	●
Diagnostic	-	-	●
Real Time clock	-	-	●
Web supervising	-	-	●

Different model of room sensors are available: Only air probe, probe + setpoint adjust, probe + manual setpoint setting, multifunctional sensor display

■ LINKBUS CONNECTION 2 WIRES CABLE
■ MODBUS CONNECTION RS485
■ MODBUS TCP/IP ON ETHERNET
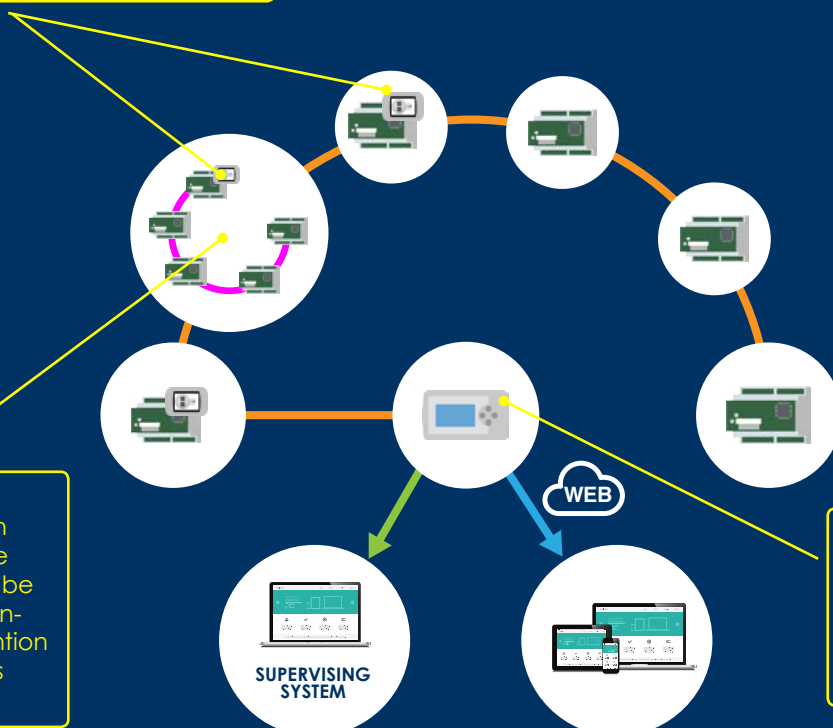
Thanks to link bus connection you can provide: 5 max slave controllers that can be managed with 1 controller and 1 multifuntion room display user as Master.

SUPERVISING SYSTEM

WEB

MT-NET-PONR allows connection and monitoring, up to 50 NR controllers through a remote web server interface on your Pc, tablet and smartphone.

ENERGON
NR9002

According to EPBD Directive all new buildings need to be "Nearly Zero Energy" and heat recovery in ventilation units is a must to achieve this results.
HCRV units are equipped with an high efficiency cross flow heat exchanger reducing the gap between the external fresh air and the internal exhaust air.

SENSORS
SNTC.L
SOAVIS
TUTA
TQ

> *NR9002 is our solution dedicated to Heating/Cooling Recovery Ventilation Units*

Compact controller for DIN rail mounting (6 modules) field configurable with dip-switches setting.
ModBus RTU, Power Supply 85-265Vac.
Suitable to several types of heat recovery ventilation units with different management of intake air / supply air / extract air / exhaust air dampers.
Ventilation unit bypass management for free-cooling or free-heating functions.

Preset configurations:
1: without dampers
2: with intake damper with/without bypass
3: with exhaust damper with/without bypass
4: with return / intake / exhaust dampers.

Analog input for air quality or humidity sensor.

Digital input for flow switch, differential pressure switch and frost protection switch. Fan and valves outputs depend on configuration selected.

Fresh air ventilation control:
Manual or Automatic: the fan speed is automatic driven by air quality or humidity.
Loop can be manually forced

Control speed types are:
- 3 speed powerful outputs relays (max load 8A) can be operated directly connected to the fan
- Variable speed supply and return modulating EC fans can be operated by 2 analogue outputs 0..10Vdc

Temperature control:
- Hot and/or chilled valves are available for 2 pipe or 4 pipe systems (On/Off, 3 position or proportional commands)
- Electric heater output for pre heating or post heating coils.

Parameters setting achieved by means of NR9002-RT remote panel (selected number of parameters only, see below)
Controlli dedicated configuration tool
Supervisory systems with ModBus protocol.

NR9002-RT remote panels available in white or black color (wall or flush mounting)
Functions: Power On / Off, Ventilation enable and fan speed selection, Temperature set-point adjustment, Air quality setting for humidity, Summer/Winter change-over.
Visualization of: supply and return temperature, external temperature, humidity or air quality, alarms, pressure/flow switch anomalies.
Controller can work without NR9002-RT remote panel.

Display Panel

The internally stored parameters used by the controller during operation can be changed using NR9002-RT Remote Sensor
The remote sensor has 4 buttons and a 3 digit LCD display. NR9002-RT allows to set and visualize the following parameters:

• Power On / Off
• Ventilation enabling and fan speed selection
• Temperature set-point adjustment
• Air quality setting
• Summer/Winter change-over
• Visualization of: supply and

return temperature, external temperature, humidity or air quality, alarms, pressure/flow switch anomalies.

NR9002-RT is suitable for flush mounting in standard 503E boxes or for wall mounting. The plastic casing is compatible with BTicino cover plates Livinglight (square cover) or Living International (round cover) otherwise with Vimar Plana cover plates modifying the plastic casing.
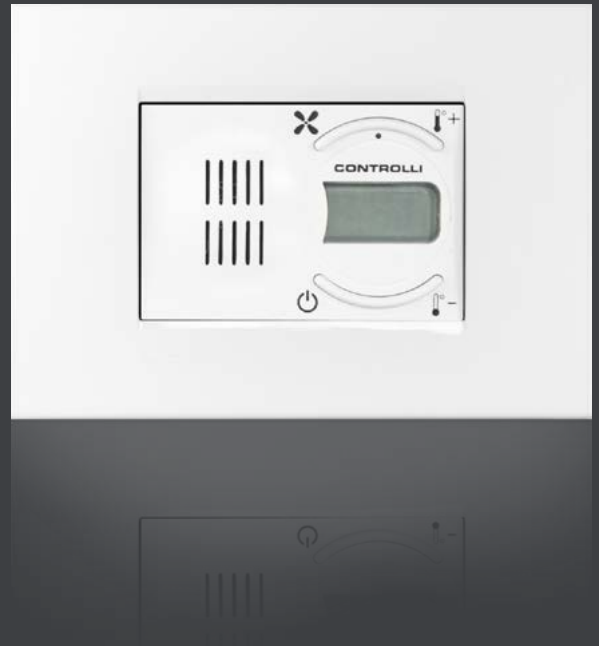
Push Buttons
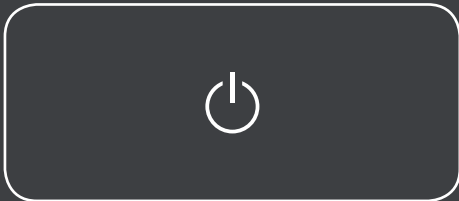
PARAMETERS SELECTION (MODE)

It allows to choose the parameters which will be visualized.
They can be modified using +/- (plus & minus) buttons.

• On/Off
• StP Supply set point
• StH Air quality/humidity set point
• El summer - winter change over
• Tr Return temperature
• tE external temperature
• tP Post heating temperature
• SH Air quality/Humidity % display
• Err Alarm display code
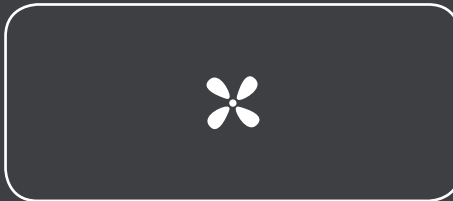
FAN SPEED SET (FAN)

Ventilation can be manged automatically by the controller or manually.
The ventilation control is automatic if the humidity or air quality sensor is connected, otherwise it is manual. Managed supply and return fan work with same speed. The button sets the ventilation operative speed:

• manual speed (min, med, max speed driven manually)
• Automatic speed (by NR)
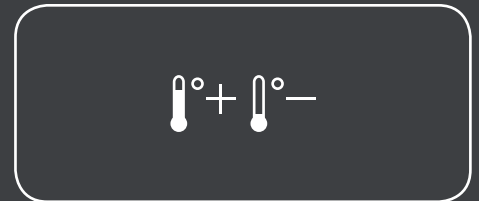
MODIFY PARAMETER VALUE

Set points are modified by +/- (plus & minus) buttons. The required set point is increased or decreased from 0 to 100 for humidity or air quality and from 10 to 30 °C for supply temperature.

Configuration Type 1
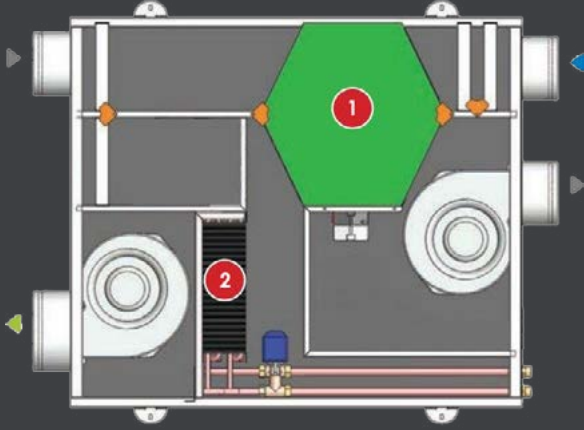
Without dampers

Configuration Type 2
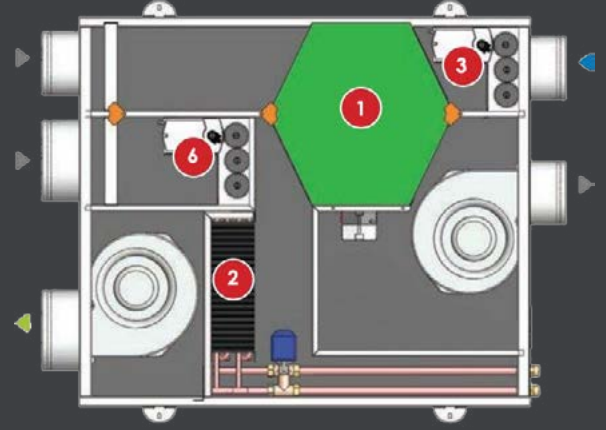
With damper and intake air bypass damper
(heat recovery device is bypassed on air intake side)

Configuration Type 3
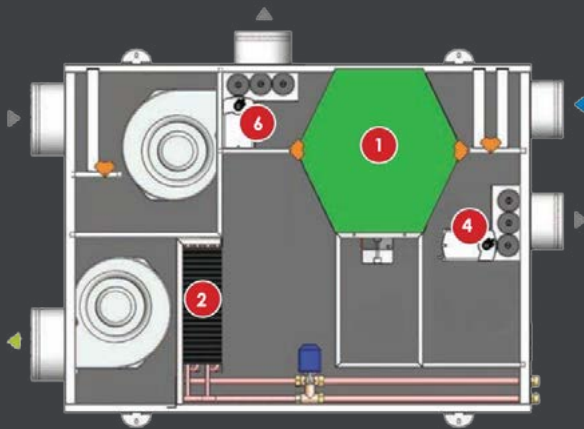
With discharge damper and discharge bypass damper
(Heat recovery device is bypassed on discharge side)

Configuration Type 4
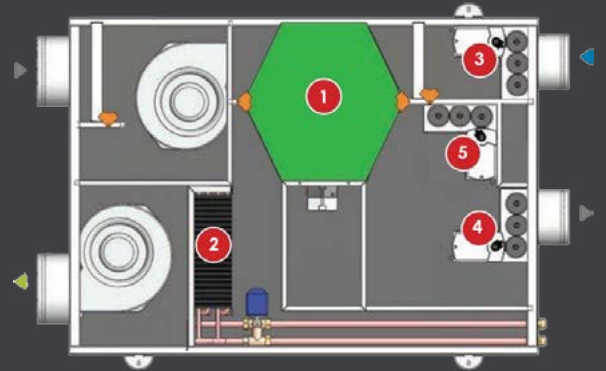
With intake, recirculation and discharge dampers

1. Heat Recovery Device
2. Heating/Cooling water battery
3. Intake damper
4. Discharge damper
5. Return damper
6. Bypass damper

Specifications

CODE	DESCRIPTION
NR9002	Controller
NR9002-RT1A	Charcoal flush-mounting remote sensor
NR9002-RT1B	White flush-mounting remote sensor
NR9002-RT2A	Charcoal wall mounting remote sensor
NR9002-RT2B	White wall mounting remote sensor
TQ-D31	Duct air quality sensor

TECHNICAL SPECIFICATIONS	
POWER SUPPLY NR9000	85-265Vac (isolated)
POWER SUPPLY NR9000-RT	12Vdc (from controller)
PROTECTION DEGREE	IP 20
OPERATION TEMPERATURE	2T45°C
STORAGE TEMPERATURE	-25T65°C
DIMENSIONS [MM]	90x106x160mm

| TAG	SIGNAL	TYPE OF SIGNAL	DESCRIPTION
TRIAC 2	output	24-230Vac TRIAC 4A	bypass damper
TRIAC 1	output	24-230Vac TRIAC 4A	intake bypass
TRIAC 4	output	24-230Vac TRIAC 4A	expulsion bypass
TRIAC 3	output	24-230Vac TRIAC 4A	recirculation damper
R1	output	24-230Vac RELAY 8A	V1 supply fan
R2	output	24-230Vac RELAY 8A	V2 supply fan
R3	output	24-230Vac RELAY 8A	V3 supply fan
R4	not used	24-230Vac RELAY 8A	V1 return fan
R5	not used	24-230Vac RELAY 8A	V2 return fan
R6	not used	24-230Vac RELAY 8A	V3 return fan
DI1	input	digital input 1 (24Vac/dc)	flowmeter status
DI2	input	digital input 2 (24Vac/dc)	pressure switch status
DI3	input	digital input 3 (24Vac/dc)	frost protection status
DI4	input	digital input 4 (24Vac/dc)	ON / OFF status
S1	input	analog input NTC10k	supply temperature sensor
S2	input	analog input NTC10k	external temperature sensor
S3	input	analog input NTC10k	return temperature sensor
S4	input	analog input NTC10k	air H/Q sensor (0-10V)
OC1	output	Open Collector 1	pre/reheating electrical coil
OC2	output	Open Collector 2	alarm lamps
AO1	output	analog output 1	H/C proportional valve (0-10V)
AO2	output	analog output 2	C proportional valve (0-10V)

RETURN

SUPPLY

FRESH AIR

EXHAUST AIR
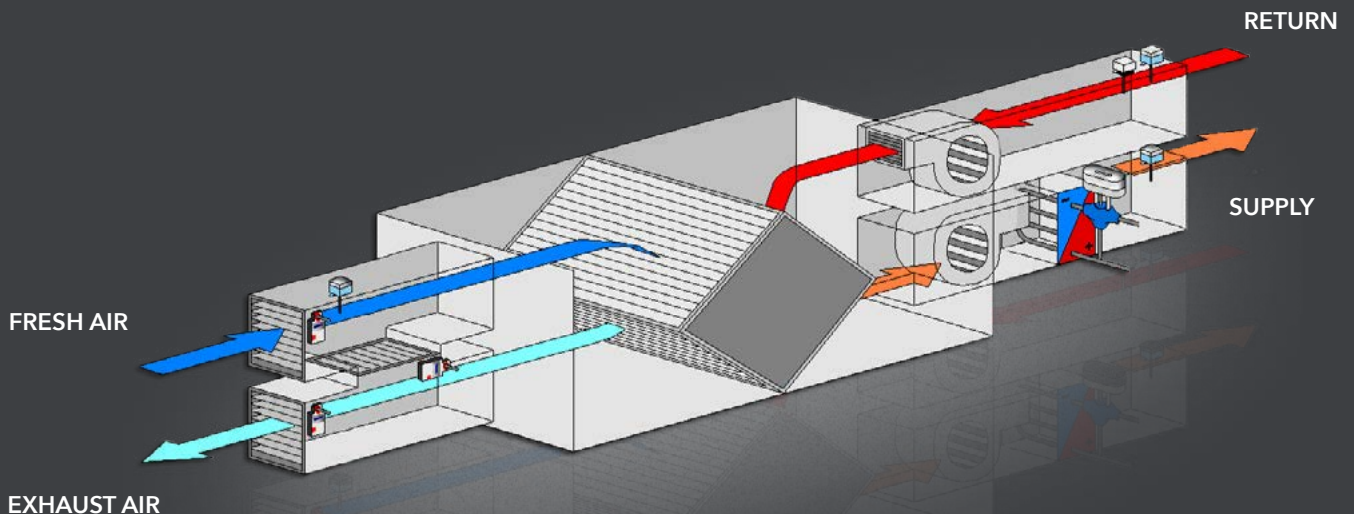
OMNIA®

PID CONTROL

DDC Temperature Controllers

PTC sensing element - Power supply 230 Vac or 24 Vac - Data exchange through LinkBus - ModBus connectivity - IP30 protection - Dimensions 70X85X61 mm. For data reading through Touchscreen.

MODEL	DESCRIPTION
W500T	Digital temperature controller. P, P+I control, limit and compensation functions. 3 analogue inputs+ 2 digital inputs, 2 analogue 0÷10 Vdc outputs + 2 relay outputs. 3 ½-digit display. DIN rail mounting, 230 Vac power supply
W500T4	As above with 24 Vac power supply
W500TMB	As W500T with RTC clock and ModBus connectivity, 230 Vac power supply
W500TMB4	As W500TMB with 24 Vac power supply
W501TMB	As W500TMB with application-specific default values and 3-position output
W500T2	As W500T but with PID control and two independent control loops
W500T2MB	As W500TMB but with PID control and two independent control loops

DDC Controllers for Temperature, Humidity, Pressure

PTC sensing element - Power supply 230 Vac or 24 Vac - Data exchange through LinkBus - ModBus connectivity - IP30 protection - Dimensions 70X85X61 mm.
For data reading through Touchscreen.

MODEL	DESCRIPTION
W500H	Digital temperature and humidity controller. P, P+I control, limit and compensation functions 3 analogue inputs+ 2 digital inputs, 2 analogue 0÷10 Vdc outputs and 2 relay outputs. 3 ½-digit display. DIN rail mounting, 230 Vac power supply
W500H4	As above with 24 Vac power supply
W500HMB	As W500H with RTC clock and ModBus connectivity, 230 Vac power supply
W500HMB4	As W500HMB with 24 Vac power supply
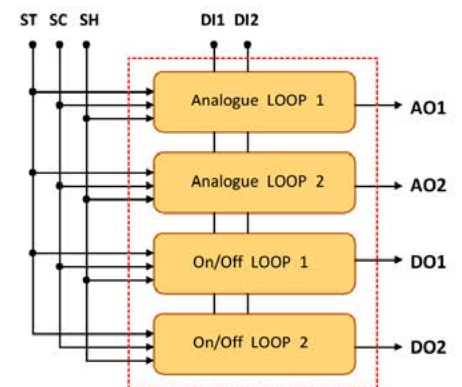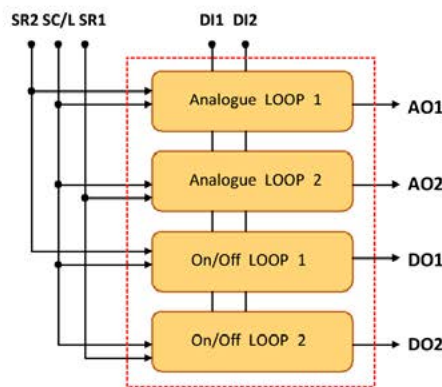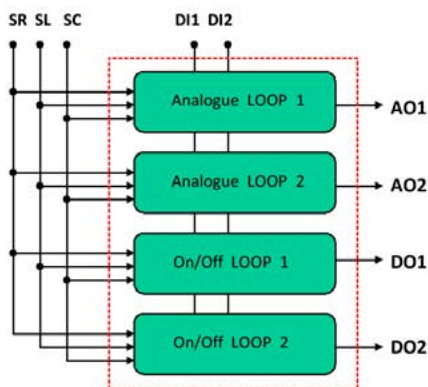
ST = Temperature Sensor;   SC = Compensation Sensor;   SH = Humidity Sensor;
DI = Digital Input;   DO = Digital Output;   AO = Analogue Output

SR1/2 = Regulation Sensor;   SL/C = Limit / Compensation
DI = Digital Input;   DO = Digital Output;   AO = Analogue Output

ST = Temperature Sensor;   SC = Compensation Sensor;   SH = Humidity Sensor;
DI = Digital Input;   DO = Digital Output;   AO = Analogue Output
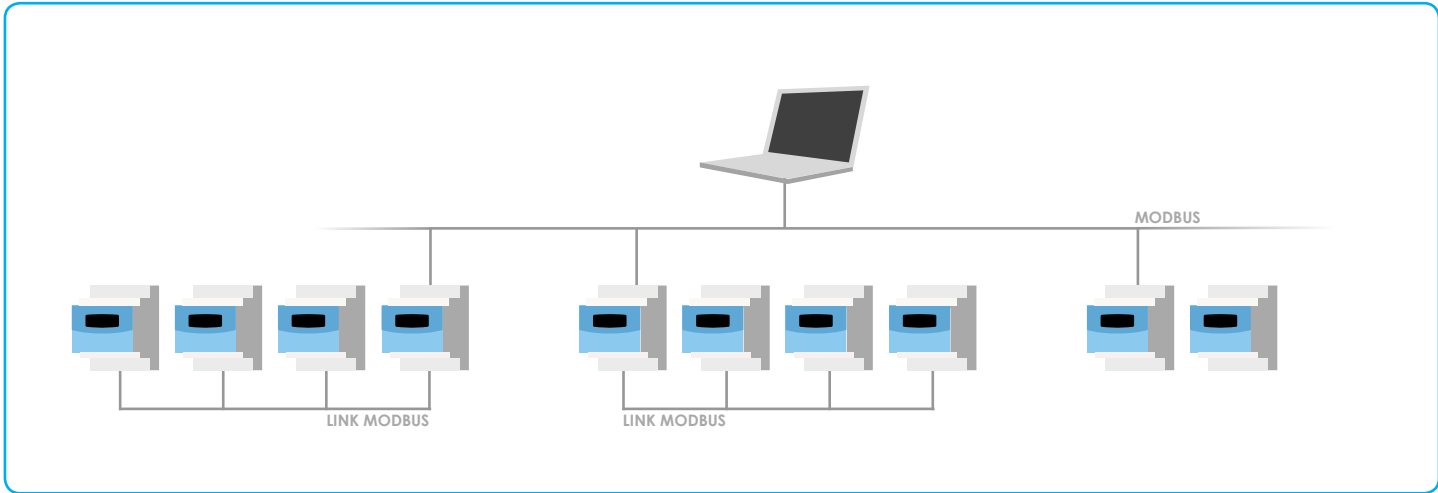
Programming Tool

Programming tool for W500T, W500TMB, W500H, W500HMB controllers. You can set all parameters from your PC or Laptop by simply connecting one or more controllers via either a RS232/485 converter or a USB/ RS485 opto-isolated converter. All configurations can be saved on your PC and downloaded onto other controllers.

Sensors

- SPTC Temperature Sensors (See also pag 32)
- S2XX Temperature Sensors (See also pag 31)
- TU Series Humidity / Temperature Sensors (pag 34)
- TQ Air Quality Transmitters (pag 34)
- TP Pressure Transmitters (Pag 35)

Accessories

MODEL	DESCRIPTION
LIBO-USB	USB-RS485 optically isolated converter
RM500	Remote positioner for Omnia controllers, working range 5÷35 °C

24V	DESCRIPTION	SUPPLY
WPRO-561D	Programmable controller with display, without serial port rs-485	
WPRO-561DS	Programmable controller with display, with serial port rs-485	
WPRO-562D	Programmable controller with dispaly, with double triac, without serial port rs-485	
WPRO-562DS	Programmable controller with display, with double triac, with serial port rs-485	24V
WPRO-561	Programmable controller without display, without serial port rs-485	
WPRO-561S	Programmable controller without display, with serial port rs-485	
WPRO-562	Programmable controller without display, without serial port rs-485, with double triac	
WPRO-562S	Programmable controller without display, with double triac, with serial port rs-485	
WPRO-521D	Programmable controller with display, without serial port rs-485	
WPRO-521DS	Programmable controller with display, with serial port rs-485	
WPRO-521	Programmable controller without display, without serial port rs-485	230V
WPRO-521S	Programmable controller without display, with serial port rs-485	
W560-RT	Remote terminal (white)	-
W521-EXP	I/O expansion for WPRO 521 (max 1 for each controller)	230V
W560-EXP	I/O expansion for WPRO 560 (max 1 for each controller)	24V

22 I/Os

SENSORS **SNTC.L SOAVIS.4**

OmniaPRO programmable controllers are used for small size HVACR installations especially when parametric controllers (W500,NR9000) are not flexible enough to meet certain project specifications.

OmniaPRO are innovative controllers and, despite the compact dimensions, are powerfull enough to achieve a variety of HVACR applications.

Inputs: 6 digital + 5 analogue (3 passive NTC + 2 NTC or Vdc or mA)

Outputs: 5 digital + 3 analogue (0-10Vdc / 4(0)-20mA) + 3 open collector outputs for external relay.

12-24 Vca or 100-240Vac power supply.

Additional devices complete the OMNIA PRO's series:

- programmable combined temperature / humidity room sensor with display, for residential applications (STA6xL).
- I/O expansion module available with 22 I/Os.
- remote display (W560-RT).

OmniaPRO controllers are all equipped with Link Bus connectivity allowing direct connection of one I/O expansion module, one remote display and programmable room sensor with display and up to 5 soavis room sensor with display. (page 27)
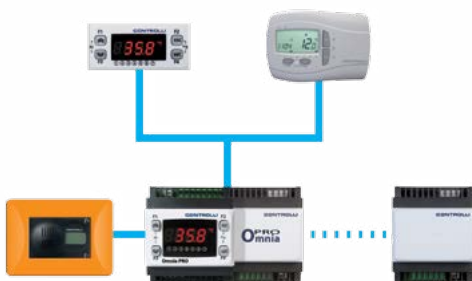
Models with "S are provided with RS485.

Any function can easily be managed by a BMS system or by our GTO Touch Screens series, through RS485 and ModBus protocol.

Up to 40 controllers can be monitored by a single GTO touch screen.

Examples of application: AHUs with heating/ cooling/humidity control, frost protection, compensation, optimization, free cooling, electric heater, heat pump, central heating, hot water service, boilers and chillers sequencing and more.

By 4 buttons and display, the room sensor is able to manage the following parameters:
Manual on/off
4 set-points
weekly program schedule
clock setting

STA60L/61L room sensors are respectively temperature and temperature/humidity sensors which can be used combined with OmniaPRO controllers.
The device is provided with a user's interface composed by:
• 4 buttons on the frontal panel
• a 4-digit number display to visualize hours and labels of menu, parameters and alarms
• a 2-digit and a half number display + a temperature/humidity visualization symbol.
• Several icon with programmable visibility in reason of the application downloaded into the controller

WPRO561/562	
Dimensions:	4 DIN
Max consumption:	6VA / 4W
Power supply:	
WPRO561	12-24Vac/24Vdc ± 10% 50/60Hz
WPRO562	12-24Vac ± 10% 50/60Hz
Seriale RS-485	Only S model

W560-RT	
Frontal protection:	IP65
Dimensions:	74x32x30mm (Lxhxb)
Assembling:	panel mounting with drilling template 71x29mm +0,2/-0,1mm
Max consumption:	30mA
Power supply:	from WPRO561/562

W560-EXP	
Dimensions:	4 DIN
Max consumption:	5VA / 3.5W
Power supply:	12-24Vac/24Vdc ± 10% 50/60Hz

INPUT / OUTPUT	W560-EXP	WPRO561	WPRO562
6 free contact inputs		DI1...DI6	
5 analogue inputs (2 universal) NTC programmable / voltage, current Digital Input		AI3, AI4, AI1, AI2, AI5	
5/3 relay digital outputs, high voltage 2A - 230 Va		5 relay DO1...DO4, DO6	3 relay DO1, DO2, DO3
Open Collector output for external relay, low voltage (SELV)		DO5	DO4, DO5
0/2 digital outputs with high voltage triac 3A 230 Vac		--	TC1, TC2
2 or 3 analogue outputs low voltage (SELV) 0..10 Vcc	AO3, AO4	AO3, AO4, AO5	
1 analogue output low voltage (SELV) 4(0)..20 mA	AO5	-	
"oc" outputs for external relay DGSRMV low voltage (SELV) PWM		AO1, AO2	AO1

WPRO521	
Dimensions:	4 DIN
Max consumption:	4.3W
Power supply:	
WPRO561	100-240Vac ± 10% 50/60Hz
Serial Port RS-485:	Only S model

W521-EXP	
Dimensions:	4 DIN
Max consumption:	4.3W
Power supply:	100-240Vac ± 10% 50/60Hz

The following sensors can be connected to the device:
Analogue:
- passive sensors SNTC-xL series
- active sensors 0..10V/4..20mA
- sensor STA72L/STA76L
Digital room sensor with display:
- 1 temperature sensor or
- 1 temperature and humidity sensor

INPUT / OUTPUT	WPRO521	WPRO521-EXP
3 analogue inputs NTC / Digital Input programmable	AI1, AI2, AI5	AI1, AI2, AI5
2 analogue inputs NTC / current / voltage / Digital Input		AI3, AI4
4 relays digital outputs high voltage 2A-230Va		4 relè DO1...DO4
3 analogue outputs low voltage (SELV) 0..10 Vcc		AO3, AO4, AO5
1 analogue output low voltage (SELV) 4(0)..20 mA		AO5
2 "oc" outputs for external relays DGSRMV low voltage (SELV) PWM		AO1, AO2
2 digital free contact inputs		DI1, DI2

USER FRIENDLY

LIBERTY

Already programmed for specific HVAC applications.
No software needed.
*Same hardware of **OmniaPRO** controllers.*

SENSORS STA60L STA61L SNTC.L

Inputs: 6 digital + 5 analogue (3 passive NTC + 2 NTC or V or mA)
Outputs: 5 digital + 3 analogue (0-10Vdc / 4(0)-20mA)
I/O additional modules available with 11 inputs + 8 outputs

In-built or remote display. 12-24 Vca power supply. DIN rail mounting. Models with "S" (with RS485) can be remotely monitored by GT Touch Screens. Number of controllers that can be connected to one GT touch screen:

from 10 to 40 controllers, depending on the architecture.

Model-number	Description	
W551C	controller without display	
W551C-S	controller without display with RS485	Fresh Air AHU
W551C-D	controller with display	
W551C-DS	controller with display and RS485	
W552C	controller without display	
W552C-S	controller without display with RS485	Constant air volume AHU with heat recovery
W552C-D	controller with display	
W552C-DS	controller with display and RS485	
W553C	controller without display	
W553C-S	controller without display with RS485	Heat pump; Proportional humidification
W553C-D	controller with display	
W553C-DS	controller with display and RS485	
W554C	controller without display	
W554C-S	controller without display with RS485	Fresh Air AHU for swimming pools
W554C-D	controller with display	
W554C-DS	controller with display and RS485	
W560-EXP	additional I/Os module (11 Inputs + 8 Outputs)	
W560-RT	remote display, flush mounting	
STA60L	room temperature sensor with display	
STA61L	room temperature + humidity sensor with display	

SENSORS
STA60L
STA61L
SNTC.L

W562

Configurable controller with display for underfloor heating & cooling systems

6 digital inputs + 5 analogue inputs (3 passive NTC + 2 NTC or V or mA)
5 digital outputs + 3 analogue outputs + 1 analogue output PWM + 2 triac outputs
12-24 Vca power supply
ModBus connectivity RS485 (option).

Model-number	Description
W562D	controller with 3 pos. control
W562DS	controller with 3 pos. control with RS485
W562DM	controller with modulating control
W562DSM	controller with modulating control with RS485
W560-EXP	additional I/Os module (11 Inputs + 8 Outputs)
W560-RT	remote display, flush mounting
STA60L	room temperature sensor with display
STA61L	room temperature + humidity sensor with display

W562 controller will control the 3way mixing valve (0-10V) according to the set-point temperature from the room sensor. Based on the input from the room thermostats, W562 will abilitate the electro-thermal actuators on the manifold. In case of an alarm, thermal actuators will be closed. External temperature and water return temperature will compensate the set-point temperature for energy saving purposes.
Floor temperature sensor is used as a limit. W562 provides deumidification control to avoid condensation. More features: Summer/Winter change-over; remote On/Off activation; Economy mode.

27 I/Os
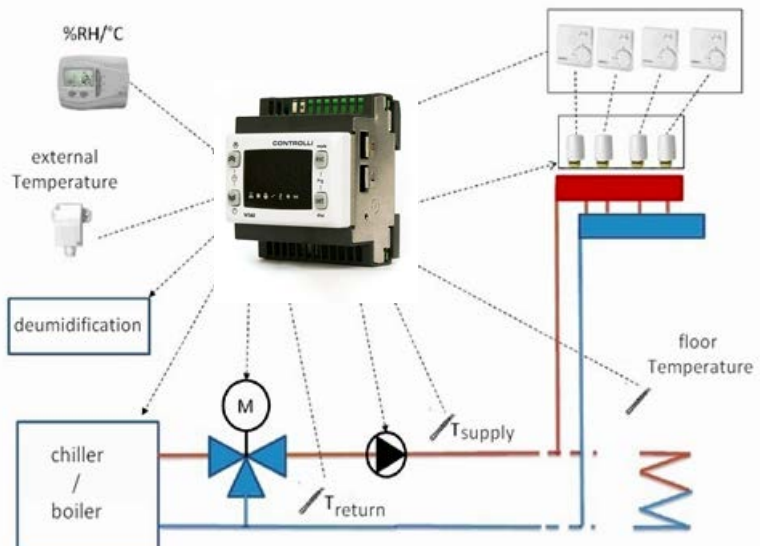
Multinet is the Top Level solution of the Controlli Programmable equipments designed to cope with a wide range of HVAC/R applications.

Multinet grants high level performances in terms of memory, connectivity as well as user-friendly programmable user interface. All models are available for DIN bar installation and removable plug terminals offering a relevant time saving for wiring and installation.

Multinet can be programmed in 5 different programming languages (IEC61131-3) and is equipped with a large integrated I/O that can be expanded up to 350 physical control points with 1 Controller and 12 expansion modules; furthermore Multinet offers a multiple selection of communication protocols thanks to Plug-In modules for ModBus, (RS458 and RS-232) CanOpen, Ethernet and RS-232 in addition to the on-board ModBus and CanOpen communication port. Multinet platform can be supervised by SCADA software MicronetView, by GT Touch Screen Panel and when coupled with Ethernet Plug In Multinet is WebServer and therefore can be supervised by mean of common browser from a lap-top, a tablet and a smartphone.

SENSORS SNTC.L SOAVIS.4 STA6xM

Multinet is suitable for application such as:

- AHU especially if a lot of analogue output are required
- Heating and Cooling plants
- Big plants where the direct data exchange is required
- Remote Control

Plug in modules expand the Multinet MT-NET-BD1 communication capability and they offer more opportunities in terms of connections. Each MT-NET-BD1 can interlock one plug in module.

Using the additional plug-in MT-NET-485, MT-NET-BD1 can read and write parameters from and to a modbus slave devices such as the programmable STA 6XM room terminals. Parameters are acquired using Multinet modbus communication protocol and can be shared into the BMS system. MT-NET-BD1 support up to 12 room terminals.

The STA6XM is also able to:
- read room temperature and humidity
- manages owns time table schedule.
- allows the user to modify temperature and humidity set point

MT-NET-BD1 models are equipped with a ModBus RTU (RS-485) communication port for connecting with other ModBus devices. MT-NET-BD1 is equipped with a CANOpen and Modbus (RS485) integrated connection without the use of any Plug-In module; the expansions (12 max) and the remote keyboard MT-NET-TS1 (2max) are connected on the CANOpen bus; controllers with display can be connected to each other on the 485 bus with a supervisory system.
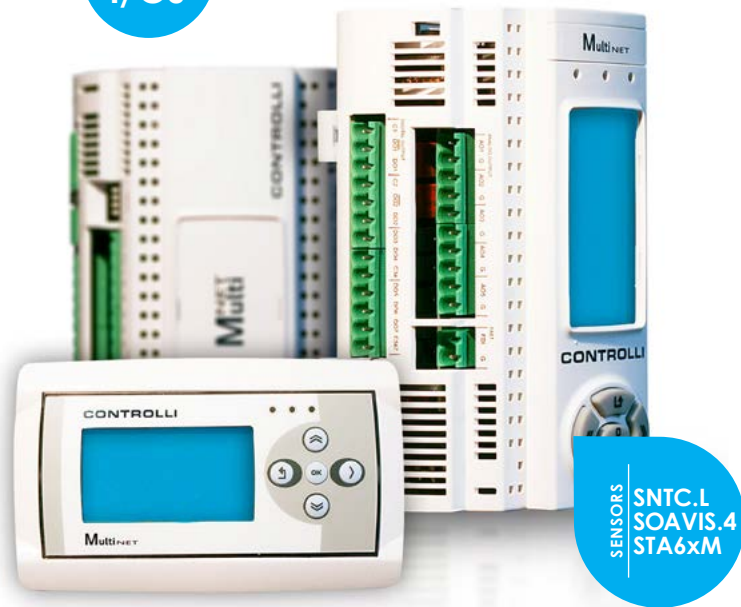
Using a Plug-In module the MT-NET-BD1 can offer an additional communication port for the connection with a supervisory control system or with a gateway (e.g. GSM Modem or 3G Router) for remote control.

Multinet comprises an additional Remote Control Panel MT-NET-PO1 offering the same smart capability and functionality of a Controller MT-NET-BD1 but in a different format and without Inputs and Outputs. MT- NET-PO1is also equipped with 3 integrated communication ports ModBus RTU (RS-485) for other ModBus devices, CanOpen for expansions modules providing the I/O and ModBus IP (Ethernet) offering WebServer capability for a remote control.

RS485 (MODBUS)

BINDING CANOPEN (DIRECT DATA EXCHANGE)

MAX 10 CONTROLLERS MT-NET-BD1

CANOPEN FOR EXPANSIONS AND KEYBOARDS (TS1)

SUPERVISORY SYSTEM OR TOUCHSCREEN

RS485 (MODBUS)

BLINDING MODBUS/IP (DIRECT DATA EXCHANGE)

MAX 10 CONTROLLERS MT-NET-BD1

CANOPEN FOR EXPANSIONS AND KEYBOARDS (TS1)

SUPERVISORY SYSTEM OR TOUCHSCREEN

SUPERVISORY SYSTEM OR TOUCHSCREEN

MULTINET

Model	Description
MT-NET-BD1	Programmable Controller with display
MT-NET-ES1	CANBus I/O expansion 27 points
MT-NET-ES2	CANBus I/O expansion 14 points
MT-NET-TS1	Local keyboard
MT-NET-P01	Remote control panel
MT-NET-232	Plug-in RS232
MT-NET-ETH	Plug-in Ethernet
MT-NET-CAN	Plug-in CanOpen
MT-NET-485	Plug-in RS485

NEW I/O EXPANSION

- Smaller Dimension
- For CanOpen bus
- 14 input/Outputs
- Up to 4 expansions connected to one Mt-NET-BD1 controller

MT-NET-BD1, MT-NET-ES1

Tag	Q.TY	Description
low voltage Digital Inputs **DI1..DI8**	8	8 digital voltage inputs optoisolated (SELV). Operating voltage 24Vac/dc ±20% or 48Vdc ±20%; consumption max 5mA
Digital Input **FAST DI**	1	Free digital input (pulses calculation + frequency reading)
high voltage relays Digital Outputs **DO1, DO2**	7	relays digital outputs 8A - 250Vac
high voltage relays Digital Outputs **DO3...DO7**		relays Digital Outputs 5A - 250Vac
Analogue inputs **AI1, AI2**	2	2 configurable inputs: a) temperature NTC 103@ 10KΩ, reading range -50T110°C; b) temperature NTC NK103 10 kΩ, reading range - 40°CT150°C; c) free digital input.
Analogue inputs **AI3, AI4 AI5, AI6**	4	4 configurable inputs: a) temperature NTC 103AT 10kΩ, reading range -50T110°C; b) temperature NTC NK103 10kΩ, reading range -40T150°C; c) free digital input; d) temperature Pt1000 reading range -200T800°C; e) current input 4-20mA/voltage input 0-10V, 0-5V; f) hΩ(NTC); g) daΩ (PT1000);
Low voltage Analogue Outputs **AO1…AO5**	5	5 configurable outputs 0-10V/4-20mA / ON-OFF (SELV): a)0-10V: 2% f.s. min load 500Ω; 1% f.s. if load is higher that 5KΩ b)4-20mA: 2% f.s. max load 400Ω c)ON/OFF with external relay (DGSRMV CONTROLLI CODE) maxload of coil 400Ω

MT-NET-ES2

Tag	Q.TY	Description
Low voltage Digital Inputs **DI1_DI4**	4	4 digital inputs. Operating voltage 24 Vac
Hight voltage relays Digital outputs **Do1...Do4**	3	Relays digital outputs 5A - 250 Vac SPST
	1	Relay digital output 8A-250Vac SPDT
Analogue Inputs **AI1..AI4**	4	4 configurable inputs: a) temperature NTC 103AT 10kΩ, reading range -50T110°C; b) temperature NTC NK103 10kΩ, reading range -40T150°C; c) free digital input; d) temperature Pt1000 reading range -200T800°C; e) current input 4-20mA/voltage input 0-10V, 0-5V; f) hΩ(NTC); g) daΩ (PT1000);
Low Voltage Analogue Outputs **Ao1..Ao2**	2	0-10Vac Max current 2mA

New Room Display Panel for temperature & humidity.

For residential solutions.

With Modbus connectivity.

STA6xM is a room display panel that allows the user to control temperature and humidity in residential applications.

It communicates through the ModBus protocol and can be connected to Multinet programmable controllers, properly setted, as master devices. Depending on the model, STA6XM display panel is fitted with a temperature probe or temperature and humidity probe, and power supply may be 230Vac or 24Vac/Vdc.

All models are wall mounting and compatible with the main flush mounting electrical boxes available in the market.

4 functional buttons allow to move through the internal menu.

Using the encoder knob, parameters change becomes very easy: turn it to change the value and press it to confirm.

Different passwords can be set to grant safe access. The information are showed using graphic icons and digits.

If room terminals work coupled with multinet controllers you can connect up to 12 of them using a Modbus connection.

Modbus communication is achieved using a 3 wires cable AWG 20/22 (RS485) maximum length 500 mt.

Flexible speed communication: you can choose communication baude rate between 4800 bps, 9600 bps and 19200 bps.

Functions:

Displaying of room temperature and humidity
Setting of mainly parameters of the regulation.
Handling of time program schedule Alarm displaying
Changing of the On/Off regulation status
Managing of fan status (if present)

MODBUS

ETHERNET
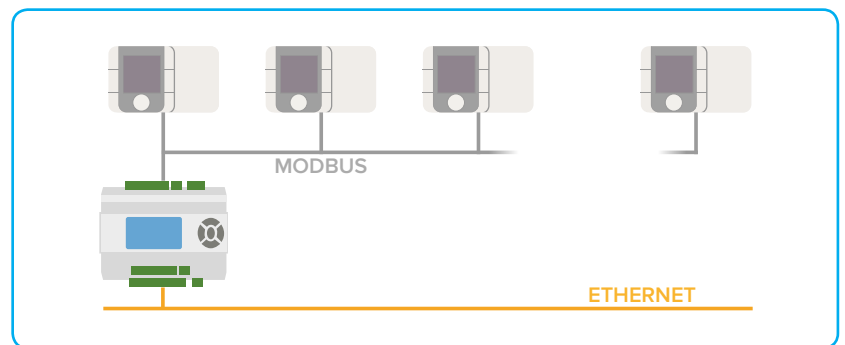
Model	Description
STA60M	24Vac/Vdc ModBus temperature sensor
STA61M	24Vac/Vdc ModBus temperature and humidity sensor
STA60M-2	230Vac ModBus temperature sensor
STA61M-2	230Vac ModBus temperature and humidity sensor

Power supply:	STA6xM: 24Vac (+10/-15%), 22-35Vdc; STA6xM-2: 230Vac (+10/-15%) 50/60Hz; 2VA;
maximum current: temperature:	
- operation:	-10T60°C, 10-90% U.R. non condensing;
- storage:	-20T70°C, 10-90% U.R. non condensing;
connections:	
- 485 serial:	AWG 20-22, shielded cable Lmax=500m;
- power supply:	wires cross-section: 0,5mm^2-1,5mm^2;

MODBUS FREE

READY TO GO

WEB GATE

ALARM MANAGER

TREND LOG MANAGER

PROGRAMMABLE TOUCH SCREEN

Graphic terminals suitable to the following Controlli devices:
W500TMB/W500HMB digital controllers
AXCU22/WMB fan-coil controllers
ENERGON room controllers
OmniaPro controllers & Multinet controllers.
65536 colours touchscreens available in 3 different sizes: 5.7'' – 7.5'' – 10.4''
ModBus protocol, Ethernet port.

Web server capabilities: a plant can be monitored remotely via internet explorer browser.
html pages browser.
Automatic email sending upon specific events.

Hight speed with RISC 64 bit processor
40 fonts for various foreingh languages supported.
Library with 4000 editable objects.
USB flash drive for applications downloading
Compact flash card (4Gb) for storing of all applications/instructions files/images/logs etc..
Application memory capacity from 64MB to 96MB. (EPROM Memory)

Available with 2 independent serial ports RS485.

Different controllers – e.g. W500 and AXCU22/WMB – can be simultanely connected to a single touch screen.

Alarms and log management.
220/24Vcc transformer included.

MODEL	DIMENSIONS	SCREEN SIZE	SCREEN TYPE	RESOLUTION PIXEL	ETHERNET PORT
GTO2300	169x137x59,5	5,7''	65536 colours	320x240	NO
GTO2310	169x137x59,5	5,7''	65536 colours	320x240	YES
GTO4310	218x173x60	7.5''	65536 colours	320x240	YES
GTO5310	272,5x214,5x57	10.4''	65536 colours	320x240	YES
GTO2300WW			[1]GTO2300 with preset application		
GTO2310WW			[1]GTO2310 with preset application		
GTO4310WW			[1]GTO4310 with preset application		
GTO5310WW			[1]GTO5310 with preset application		
GTDB9CAV			RS232 SUB-D 9 cable		
GTRJ45CAV			RS485 cable		
54780			SD CARD 4Gb		

1) max 20 W500TMB/W500HMB

MULTINET

MULTINET

INTERNET EXPLORER

ETHERNET

MULTINET

AXCU22/WMB

OMNIA

RS485

OMNIA PRO

ENERGON - NR9000

ENERGON - NR9002
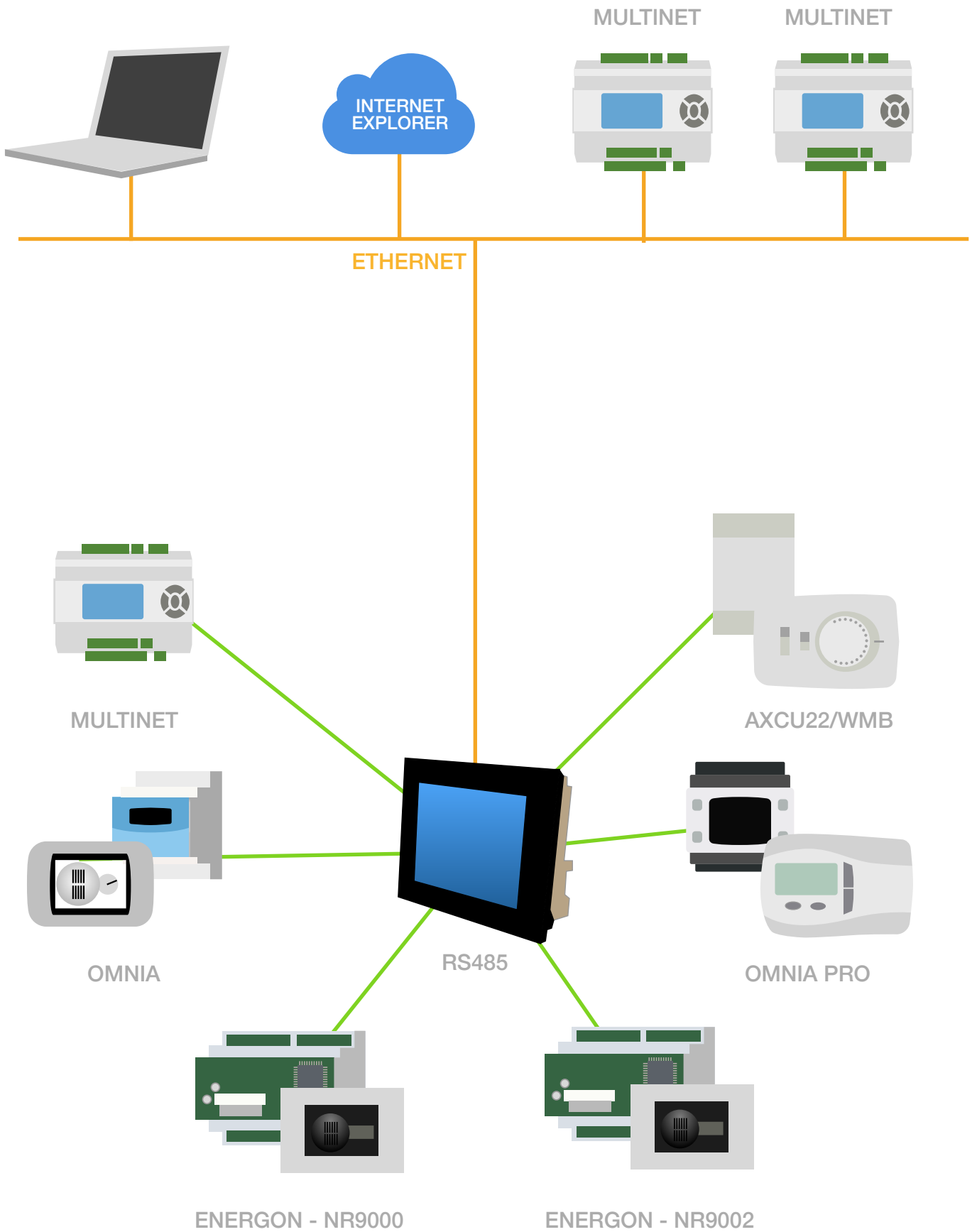
Room Thermostats With Bimetal element.

MODEL	RANGE °C	DIFFERENTIAL K	OTHER FEATURES
AS206	5 to 30	0.5	SPDT. Power supply 230 Vac
AS207	5 to 30	0.5	SPST for summer/winter changeover. Power supply 230 Vac

With Thermistor sensing element - Supply 230 V ac.

MODEL	RANGE °C	OTHER FEATURES
AX236	5 ÷ 30	on/off, 3 fan speed control, s/w change-over.
4200-588	5 ÷ 30	Fan coil controller, 2-pipe/4-pipe, SPDT contact, 3 speed fan control, S/W changeover, on/off switch
4200-662	5 ÷ 30	Fan coil controller, 4-pipe, SPDT contact, 3 speed fan control, S/W changeover, on/off switch
4200-953	5 ÷ 30	Fan coil controller with **LCD** display, 2-pipe, SPDT contact, 3 speed fan control, on/off switch heat/cool/off/fan selection
4200-577	5 ÷ 30	Fan coil controller with **LCD** display, 4-pipe, SPDT contact, 3 speed fan control, on/off switch

Room Chronothermostat

MODEL	RANGE [°C]	DIFFERENTIAL [K]	OTHER FEATURES
DGTOUCH	2÷33	0,5	Touch screen chronothermostat for heating and cooling programmable with 3 temperature levels with daily and weekly programme. Battery powered. Dimension 125x85x26 cm

Room Controllers

Series AX500 - Built-in NTC sensing element - Power supply 24 Vac - IP30 protection - Optional external temperature sensor STR73.

MODEL	RANGE °C	PROPORTIONAL BAND K	OTHER FEATURES
AX526	5 to 30	1.5	2 outputs 0 to 10 Vdc
AX527	5 to 30	3	As AX526 with on/off switch and 3 fan speed control
AX536	5 to 30	1.5	2 outputs 0 to 10 Vdc with on/off electric heater output and LCD display
AX537	5 to 30	1.5	As AX536 with on/off switch and 3 fan speed control

Electronic Controllers for FCUs

AXC series - Periodic ventilation, valve protection, set point limit, led indication (Heating/Cooling/On), hot start (timer), periodic valve opening, Economy switch (on request), 3 fan speed selector, water sensor input, window contact input, automatic changeover, electric heater. IP30 protection, power supply 230Vac, 50/60Hz.
Suitable to remote monitoring from GT TouchScreen.

MODEL	DESCRIPTION
AXCU22/W	Controller for 2/4-pipe fan coils
AXCU22/WMB	Controller for 2/4-pipe fan coils with ModBus connectivity

Accessories for ModBus version connectivity

MODEL	DESCRIPTION
AXCU/BA	Bus Adapter for AXCU22/WMB
MT-NET-POAXC	Web server supervisor up to 50 AXCU22/WMB controllers

Temperature Controllers

Series CTY - DDC controllers with analogue or digital output and PD or PID action. Dimensions 72x72x102mm, panel mounting (cut-out 67x67mm). SPTC sensors. (see page 28)
More features: off-set, copy card, password, alarms, duty-cycle.
When pressure or humidity transmitters are connected (4-20 mA) CTY will become pressure or humidity controllers (0-100% range). Available units: °C, °F, bar, %RH, Pa, psi.

MODEL	OUTPUT	INPUT	POWER SUPPLY Vac
CTY231	2 relay+1 alarm	PTC	230
CTY232	2 relay+1 alarm	Pt100 and 4-20mA	230
CTY241	2 relay+1 alarm	PTC	24
CTY242	2 relay+1 alarm	Pt100 and 4-20mA	24
CTY541	0 to 10 V+1 relay+1 alarm	PTC	24/230
CTY542	0 to 10 V+1 relay+1 alarm	Pt100 and 4-20mA	24/230

Copy card

Temperature Controllers for Industrial Applications, Heat Exchangers, etc.

Series TX500 - P, PD and Proportional - Integral - Derivative action (PID) - Power supply 230 or 24 Vac - Configurable as heating or cooling loop - Supervision by ModBus protocol - Sensing element: see SP-TP below or SPTX-U - Flush mounting with 67x67 mm panel cut-out - IP54 protection.

MODEL	POWER SUP-PLY Vac	OUTPUTS	INPUT
TX542	24/230	1 alarm relay output 1 configurable analogue output[1]	Pt100

1. *Max load controlled by analogue output: 0-1V = 20mA with 50 Ohm min. load resistance; 0-5V = 20mA with 250 Ohm min. load resistance; 0-10V = 20mA with 500 Ohm min. load resistance; 0-20 mA or 4-20 mA = 350 Ohm.*

Accessories for CTY-TX

MODEL	DESCRIPTION
ARAD9672	Hole adapter (96x96 to 72x 72mm) for front panel mounting to replace analogue TX and RX series having 96x96 mm drilling templalte
4200-1322	COPY CARD for data storage and upload/download of parameter settings on CTY and TX

Sensors

Temperature sensors for TX and CTYxx2 with Platinum (100 Ohm at 0°C) sensing element.

MODEL	DESCRIPTION
SPTX-U	Universal sensor, Pt100 sensing element, cable length 3 m, sensor material AISI316 steel, max fluid temperature: 350 °C
SPC	Immersion, AISI 304 well, 1/2'' gas connection, conduit opening Ø 10 mm, 113 mm long, max fluid temperature: 150 °C, IP44 protection
TPC	Immersion, 1/2''gas connection, AISI 304 well, conduit opening Ø 10 mm 200 mm long, max fluid temperature: 500 °C - IP55 protection
421	Option for SPC: AISI 304 stainless steel sheath and connection

Temperature sensors Soavis are used in heating and air conditioning systems for both commercial and residential purposes. Connected to the relevant controllers, they allow detecting and controlling the room temperature. They can be equipped with a potentiometer in order to change the set point.
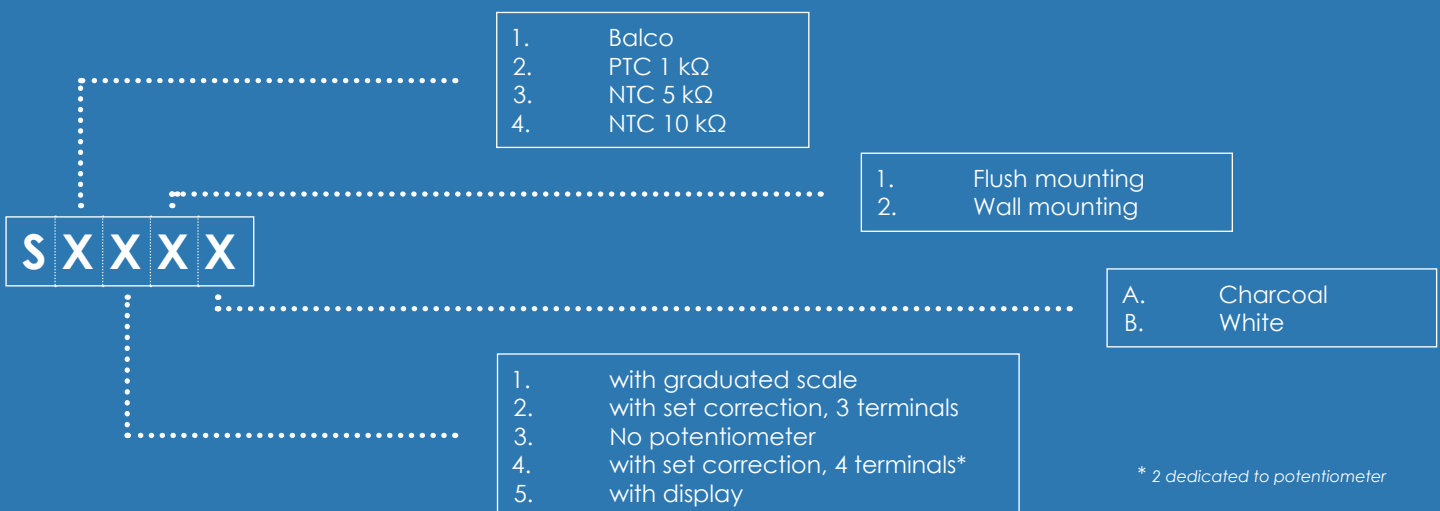
Room sensors Soavis can have two different type of installation: flush-mounting using 503 box 503 or wall mounting with relevant back-plate. They are composed by a removable front part where you have the electronics, a supporting frame and the back plate if required. The removable front part is compatible with BTicino supporting frame (included) for Living or Light cover plates and with Vimar supporting frames for Plana or Idea cover plates. SOAVIS sensors can be equipped with different thermistor: NTC 5kOhm, NTC 10 kOhm, Balco or PTC 1kOhm for controllers line NR OmniaPRO, Multinet, Omnia and old CX serie.

New sensors S45X are equipped with a LCD display (3 digit and decimal point). They allow to show room temperature and to do set point adjustament.

S45XA/B can be used for Multinet and OmniaPRO controllers only.

CONTROLLERS
OMNIA
OMNIAPRO
MULTINET
ENERGON

MODEL	DESCRIPTION	CONTROLLER
S1XXA/B	Room sensor with or without set correction; available white or char- coal, wall or flush-mounting; sen- sing element NTC 5K	SERIES CX AND RX
S2XXA/B	Room sensor with or without set correction; available white or char- coal, wall or flush-mounting; sen- sing element Balco	SERIES W500
S3XXA/B	Room sensor with or without set correction or with graduated scale; available white or charcoal, wall or flush-mounting; sensing element PTC 1K	SERIES NR7XXX
S4XXA/B	Room sensor with or without set correction or with graduated scale; available white or charcoal, wall or flush-mounting; sensing element NTC 10K	SERIES OMNIAPRO, MULTINET AND NR9XXX
S45XA/B	Room sensor with digital display and set correction, available white or charcoal. wall or flush mounting.	SERIES OMNIAPRO, MULTINET

1. Balco
2. PTC 1 kΩ
3. NTC 5 kΩ
4. NTC 10 kΩ

1. Flush mounting
2. Wall mounting

S X X X X

A. Charcoal
B. White

1. with graduated scale
2. with set correction, 3 terminals
3. No potentiometer
4. with set correction, 4 terminals*
5. with display

2 dedicated to potentiometer

Temperature Sensors

NTC10k Ohm (β=3435 AT 25°C) sensing element for OmniaPRO, Liberty, w562 and Multinet controllers.

MODEL	DESCRIPTION
SNTC-CL	Immersion sensor with plastic case
SNTC-EL	Outside sensor
SNTC-FL	Strap-on sensor
SNTC-L	Duct sensor (cable and sensing element)
SNTC-SL	Immersion sensor (cable and sensing element)
SNTC-VL	Duct sensor, fast detection
S4xxA/B	Room sensor With/without set point adjustment, white or charcoal color, wall mounting or flush mounting

PTC 1K (SPTC) and PT100 (SPTX-U only) sensing element for Omnia, w500t/w500H and CTY, TX controllers.

MODEL	DESCRIPTION
SPTC-C	Immersion sensor for CTYxx1 and Omnia cable type, 1.5 m silicone cable
SPTC-CR	Immersion sensor for CTYxx1 and Omnia with case and stick enclosed - supplied with brass pocket
SPTC-D	Duct sensor for CTYxx1 and Omnia, cable type, 1.5 m silicone cable
SPTC-E	Outside sensor for Omnia with PG9 cable sleeve - IP44
SPTC-F	Strap-on pipe sensor for Omnia - IP44
SPTC-V	Same as SPTC-D but with case and stick enclosed for Omnia and CTYxx1 - length 315 mm - max temperature 65 °C - IP44 Not suitable for applications with possible condensation
SPTX-U	Universal sensor for CTYxx2, PT100 sensing element, cable type, 3 m cable

NTC sensing element : STA/STR, 5 K Ohm at 25°C, STR72 10 Kohm at 25 °C, STR73 33 Kohm at 25°C - Application range 0 to 50 °C.

MODEL	DESCRIPTION
STR72	Return air or pipe-contact sensor without mounting kit for RA735 - IP30
STR73	Return air or pipe-contact sensor without mounting kit for AX526/527/536/537 - IP30

Temperature Transmitters

Output signal 0 to 10 Vd.c. or 4 to 20 mA.

MODEL	RANGE °C	OUTPUT SIGNAL	APPLICATION
TT-A21	0 to 50	4 to 20 mA	room - dimensions 115 x 85 x 32 mm. IP30
TT-A31	0 to 50	0 to 10 Vdc	
TT-C21	0 to 100	4 to 20 mA	immersion - 113 mm stainless steel well - AISI 304 stainless steel 1/2" connection - IP55
TT-C22	-50 to 50	4 to 20 mA	
TT-C23	0 to 300	4 to 20 mA	immersion - length 175 mm - 1/2" stainless steel connection without well, Pt100 Ohm at 0 °C sensing element
TT-C24	0 to 500	4 to 20 mA	
TT-C31	0 to 100	0 to 10 Vdc	as TT-C21
TT-D21	-50 to 50	4 to 20 mA	duct, 300 max stem length, with wall mounting kit. IP55
TT-D31	-50 to 50	0 to 10 Vdc	
TT-E21	-50 to 50	4 to 20 mA	outside - IP55

Pipe mounting thermostat for Automatic Summer/Winter Change-over

MODEL	DESCRIPTION
37T	For water temperature in the pipe of 30°C or more, this thermostat will enable Heating mode, for water temperature 18°C or less, it will enable Cooling mode.

Immersion Thermostats

Series YTC3 - Liquid-filled sensing element - SPDT 16 (4) A-250 V a.c. - IP43 protection.

MODEL	RANGE °C	DIFFERENTIAL K	OTHER FEATURES
YTC3	0 to 90	6 ± 2	copper well gas 3/4" - 100 mm long
YTCRM	90 (fixed)	±4	

Fan-coil Thermostat

Series YZB - Liquid-filled sensing element - Copper bulb and capillary 1 m long.
SPDT 16 (4) A-250 V a.c. - IP00 protection.

MODEL	RANGE °C	DIFFERENTIAL K	OTHER FEATURES
YZB	0 to 40	2 ± 1	setting knob and lock nut

Frost- protection Switches

Series Y111 - Steam- filled sensing element - 6 m long capillary. SPDT contact 16 (16) A 250 V a.c. - IP43 protection.
Note: For correct operation, the bulb must have a lower temperature with respect to the controller.

MODEL	RANGE °C	DIFFERENTIAL K	OTHER FEATURES
Y111	-18 to 13	3	max safety temperature 200 °C with external set
Y111RM	-18 to 13	-	as above with manual reset

Humidity and Humidity + Temperature Transmitters

TU Series - H and H + T combined sensors for duct and room installation

MODEL	HUMIDITY	TEMPERATURE	APPLICATION
TU-D22	4÷20 mA (2 wire)	x	Duct, lenght 200 mm, IP55
TU-D32	0-10 Vdc (3 wire)	x	
TUTD32	0-10 Vdc (3 wire)	Ohm (Balco)	
TUTD32N10	0-10 Vdc (3 wire)	Ohm (NTC 10K)	
TUTD32P1	0-10 Vdc (3 wire)	Ohm (PTC 1K)	
TU-D33	4÷20 mA or 0-10 Vdc (config.)	Ohm (NTC 5K)	Duct, lenght 230 mm, IP65
TUTD34	4÷20 mA or 0-10 Vdc (config.)	Ohm (NTC 5K)	
TUTA32N1A	0-10 Vdc (3 wire)	Ohm (NTC 10K)	Flush mounting, black
TUTA32N1B	0-10 Vdc (3 wire)	Ohm (NTC 10K)	Flush mounting, white
TUTA32N2A	0-10 Vdc (3 wire)	Ohm (NTC 10K)	Wall mounting, black
TUTA32N2B	0-10 Vdc (3 wire)	Ohm (NTC 10K)	Wall mounting, white
TUTA32P2A	0-10 Vdc (3 wire)	Ohm (PTC 1K)	Wall mounting, black
TUTA32P2B	0-10 Vdc (3 wire)	Ohm (PTC 1K)	Wall mounting, white
TU-A32-1A	0-10 Vdc (3 wire)	x	Flush mounting, black
TU-A32-1B	0-10 Vdc (3 wire)	x	Flush mounting, white
TU-A32-2A	0-10 Vdc (3 wire)	x	Wall mounting, black
TU-A32-2B	0-10 Vdc (3 wire)	x	Wall mounting, white
TUTA22N1A	4÷20 mA (2 wire)	Ohm (NTC 10K)	Flush mounting, black
TUTA22N1B	4÷20 mA (2 wire)	Ohm (NTC 10K)	Flush mounting, white
TUTA22N2A	4÷20 mA (2 wire)	Ohm (NTC 10K)	Wall mounting, black
TUTA22N2B	4÷20 mA (2 wire)	Ohm (NTC 10K)	Wall mounting, white
TU-A22-1A	4÷20 mA (2 wire)	x	Flush mounting, black
TU-A22-1B	4÷20 mA (2 wire)	x	Flush mounting, white
TU-A22-2A	4÷20 mA (2 wire)	x	Wall mounting, black
TU-A22-2B	4÷20 mA (2 wire)	x	Wall mounting, white

Room sensors: dimensions 80x115x28,5 mm, protection degree IP30

Humidity Switches

Series UF200 - Synthetic fibre sensing element - UF215 room type - UF217 duct type with 228 mm immersion pipe.

MODEL	RANGE % R.H.	DIFFERENTIAL % R.H.	OTHER FEATURES
UF215	35 to 100	4	SPDT 2 (2) A-240 V a.c.- IP30 protection
UF217	30 to 100	3 to 6	SPDT 15 (2) A - 250 Va.c. - IP64 protection

Room Air Quality Transmitters

Series TQ - Output signal 0 to 10 V dc - Power supply 24 Vac.

MODEL	DESCRIPTION
TQ-A31	Room type - range 1 to 100% (dimensions 115 x 85 x 32 mm) - IP20
TQ-D31	As above, duct type

Differential Pressure Switches

Series BD200 - Differential pressure switch for signalling dirty air filter - Silver contacts - Membrane sensing element - IP54 protection.

MODEL	RANGE Pa	MAX SAFETY PRESSURE bar	OTHER FEATURES
BD297	40 to 400	0.1	- connections Ø 5 mm for PVC pipe - with 2m tube and bracket for wall mounting

Pressure Switches

Series B300 - Metal bellows sensing element - 165 Ohm potentiometer - Die-cast aluminium case - IP55 protection.

MOD.	RANGE [kPa]	DIFFERENTIAL [kPa]	MAX SAFETY PRESSURE [kPa]	OTHER FEATURES
B302	100÷600	15÷120	900	
B303	200÷1400	60÷400	2200	
B304	500÷3000	80÷400	3800	copper alloy bellows
B353	200÷1400	150÷900	2200	
B354	500÷3000	120÷900	3800	
B301X	10÷200	7÷30	600	
B302X	100÷600	15÷120	900	
B303X	200÷1400	60÷400	2200	AISI 316 stinless steel bellows inox
B304X	500÷3000	80÷400	3800	
B353X	200÷1400	150÷900	2200	
B354X	500÷3000	12÷900	3800	

Pressure and Differential Pressure Transmitters

Series TP - Output signal 0 to 10 V d.c. , except TP-D333-MA and TP-D334-MA (4÷20 mA) 24 Vac power supply - For CTYxx2 (4-20mA-version) controllers.

MODEL	RANGE	MAX PRESSURE	APPLICATION
TP-C34	0-500/1000/2000 kPa	+300%	pressure of not aggressive gas and liquids - G 1/8" - IP65
TP-C351	0 to 600 kPa	12 bar	differential pressure of not aggressive gas and liquids G 1/8" connections - IP65 - 0 to 10 Vdc output
TP-C361	0 to 1000 kPa	12 bar	
TP-D333	0-312.5/625/1250 Pa adjustable with central "0"	0.68 bar	differential pressure of air and not aggressive gas PVC internal Ø 6 mm connections - IP65 - 0 to 10 Vdc output
TP-D333-MA			as above with 4 to 20 mA output
TP-D334	0-62.5/125/250 Pa adjustable with central "0"	0.68 bar	differential pressure of air and not aggressive gas PVC internal Ø 6 mm connections - IP65 - 0 to 10 Vdc output
TP-D334-MA			as above with 4 to 20 mA output

Flow Switches

Series Y100 - Paddle type - Protection degree: Y106 IP55, Y107 IP65. SPDT contact 15 (8) A-230 V a.c.

MODEL	RANGE	OTHER FEATURES
Y106	1 to 85 m³/h	for liquids - 1" screwed connections for pipes Ø 1" to 8"
Y107	1 to 10 m/ s	for air - with paddle 175 x 80 mm

SHARE 2.0

SHARE is an innovative system for wireless remote readout of consumption values for radiators.

This is the first heat cost allocator compliant to EN834 directly measuring the water temperature regardless of the radiator type.

A very sensitive mechanism detects any movement, also the smallest, of the radiator valve and estimates the actual consumption of hot water from the heating station.

There is no need of installation kits specific for each radiator. SHARE can be mounted between the valve and the thermostatic head.

No mistakes are possible in the Heat Cost Allocator Installation Point
No influence from external heating source; if the valve is closed the bill is zero !

No need of including coefficients specific to the radiator type, SHARE only needs one parameter i.e. the nominal power of the radiator.

Remote Readout

Data are periodically and automatically transmitted to central data stations installed in a common area of the building.

The system can be equipped with a GPRS modem in order to send e-mails with consumption readouts directly to the plant manager.

Emails and alarms are sent in the event of an anomaly or in case a cost allocator unit has been tampered.
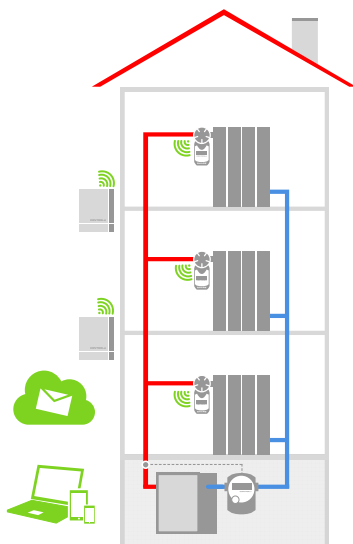
Wireless Proximity Readout

No need of data collector installed in the common area of the building.

SHARE can be fully programmed Wireless (868 MHz) without entering the flat by a Radio-USB Dongle and a Lap-Top with our Software

Using the same Radio-USB Dongle and the same software all the radiators energy consumption can be downloaded simply walking by the building without the need of entering the flat.

Errors or alarms in case an heat cost allocator has been tamperd are shown immediately on the device display and detailed in the readout file when the download is performed.
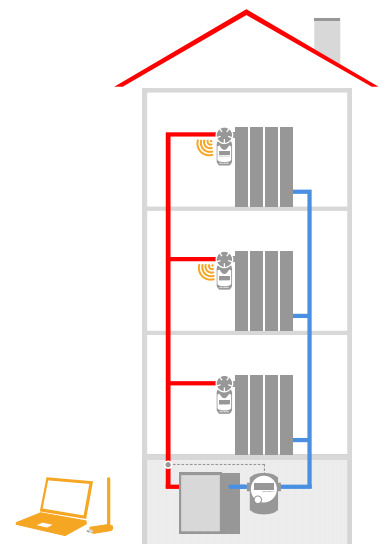
ControlBOX systems from Controlli are turn-the-key panels, ready to be installed in the wall. Fluid can either be hot or chilled water. Each ConBOX panel includes an heat meter , PT500 temperature sensors, 2way or 3way zone valve, 2 flow meters (for hot and for chilled water), electrical pull box, pipes, gaskets, strainers and all the necessary fittings and accessories.

Room temperature can be controlled by a thermostat or a chronothermostat. Our heat meters consist of a microprocessor-controlled calculator, two fixed attached temperature sensors for the forward and return flows, and a flow sensor. A large display constantly shows the energy consumption. Additional data can be easily displayed by scanning three display loops. The integrated E²PROM automatically stores all data several times a day. Consumptions can be read locally on the meters or transmitted to a remote data station (via M-Bus connectivity). ConBOX modules include AQUACON (compact sizes), MULTICON (multijet), WOLTCON (Woltmann) or ULTRACON (ultrasonic) heat meters, all compliant to MID (Measuring Instruments Directive) European Directive 2004/22/CE. CONCxxx data stations allow reading of up to 250 heat meters, data stations can be connected to PC via USB port and reading is achieved thanks to STCU Reader software.

ControlBOX *is our innovative solution of metering systems for heating and cooling.*

CB001	0,6 to 1,5 m3/h	400x500x110mm	size; ¾" connections	COMPACT DIMENSIONS suitable to residential buildings. Includes static balancing valve on by-pass line.
CB002	0,6 to 1,5 m3/h	400x500x110mm	size; ¾" connections	same as CB001 with static balancing valve also on supply line
CB003	0,6 to 1,5 m3/h	550x550x130mm	size; ¾" connections	larger box dimensions suitable to customizations.
CB004	2,5 m3/h	550x550x130mm	size; ¾" connections	larger box dimensions suitable to customizations.
CB005	0,6 to 1,5 m3/h	550x550x130mm	size; ¾" connections	Includes a supply line for decorative towels radiators
CB006	2,5 m3/h	550x550x130mm	size; ¾" connections	Includes a supply line for decorative towels radiators
CB007	1,5 m3/h	500x400x110mm	size; ¾" connections	COMPACT DIMENSIONS and dynamic balancing.

Heat meters are all compliant ENI434:2007 according to MID (Measuring Instruments Directive) European Directive 2004/22/EC 2006/95/EC EN1434:2007

AQUACON

MULTICON & WOLTCON

ULTRACON

FLOW METERS

Compact heat-meter
Volumetric flow meter, max. water temperature: 90°C
Flow rates: 0,6-1,5-2,5m3/h (3.5m3/h: only ultrasonic electronic with 8 digits diplay + special symbols
18 months data storage IP65.
Electronic can be separate from the flow meter (cable length 30cm).
5 years battery (10 years when connected to Bus)
PT500 sensor (x2): Cable length.
Read-out data is possible through M-Bus or wireless protocol.

Multicon (multi-jet flow meter) and Woltcon (Woltmann) are suitable to water / superheated water up to 120°C.
Flow meters with 0.6 to 10m3/h with threaded connections, up to 1000m3/h with flanged connections.
PN16.
IP65.
Suitable from 100W to 100MW.
Reed switch pulse emitter.
MBus connectivity.
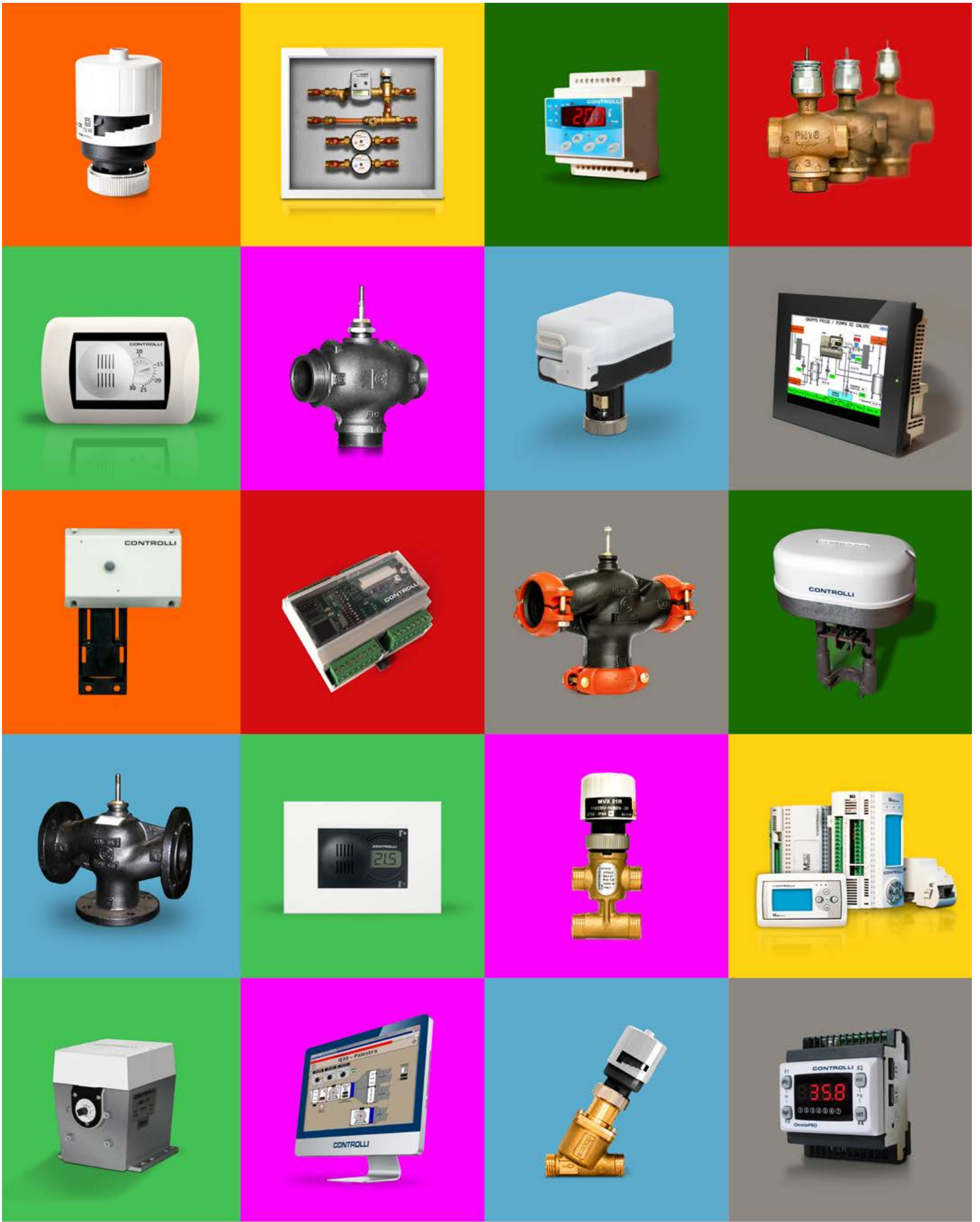Read-out data is possible through M-Bus or wireless protocol.

Ultrasonic volumetric water flow meter.
Flow rate from 0,6 m³/h to 60 m³/h.
8 digits display.
Connectivity: IrDA (default)
On request: M-Bus VS or pulses (energy/flow)
5 years battery
IP65.
Read-out data is possible through M-Bus or wireless protocol.

Sanitary water: DN 15÷50 up to 15m3/h.
Hot water 90°C: DN 15÷40 up to 10m3/h.
Hot water 120°C: DN 15÷40 up to 10m3/h.
Hot water 120°C: DN 50 flanged 15m3/h.
Read-out data is possible through BTU-Meters, M-Bus or Wireless protocol.

CONTROLLI

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