Conter

Direct metering, heating/cooling lines and hot/cold domestic water lines

DESCRIPTION

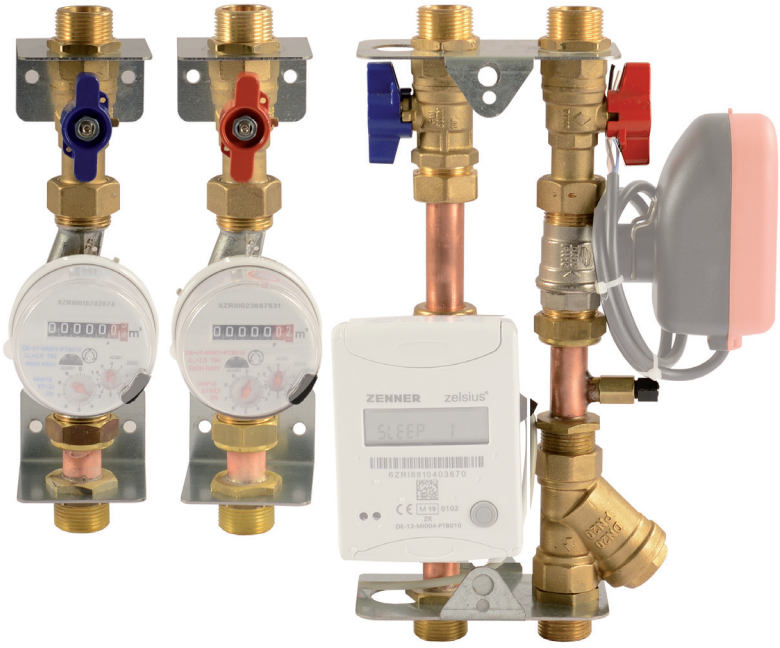
CONTER is an interface unit **for the direct metering and management of heating/cooling plants with centralized DHW production.**

CONTER can be supplied with one or more metering water lines (hot or cold), together with a low temperature control unit (BT) for radiant panels. Wall hanging or in metal sheet box installation.

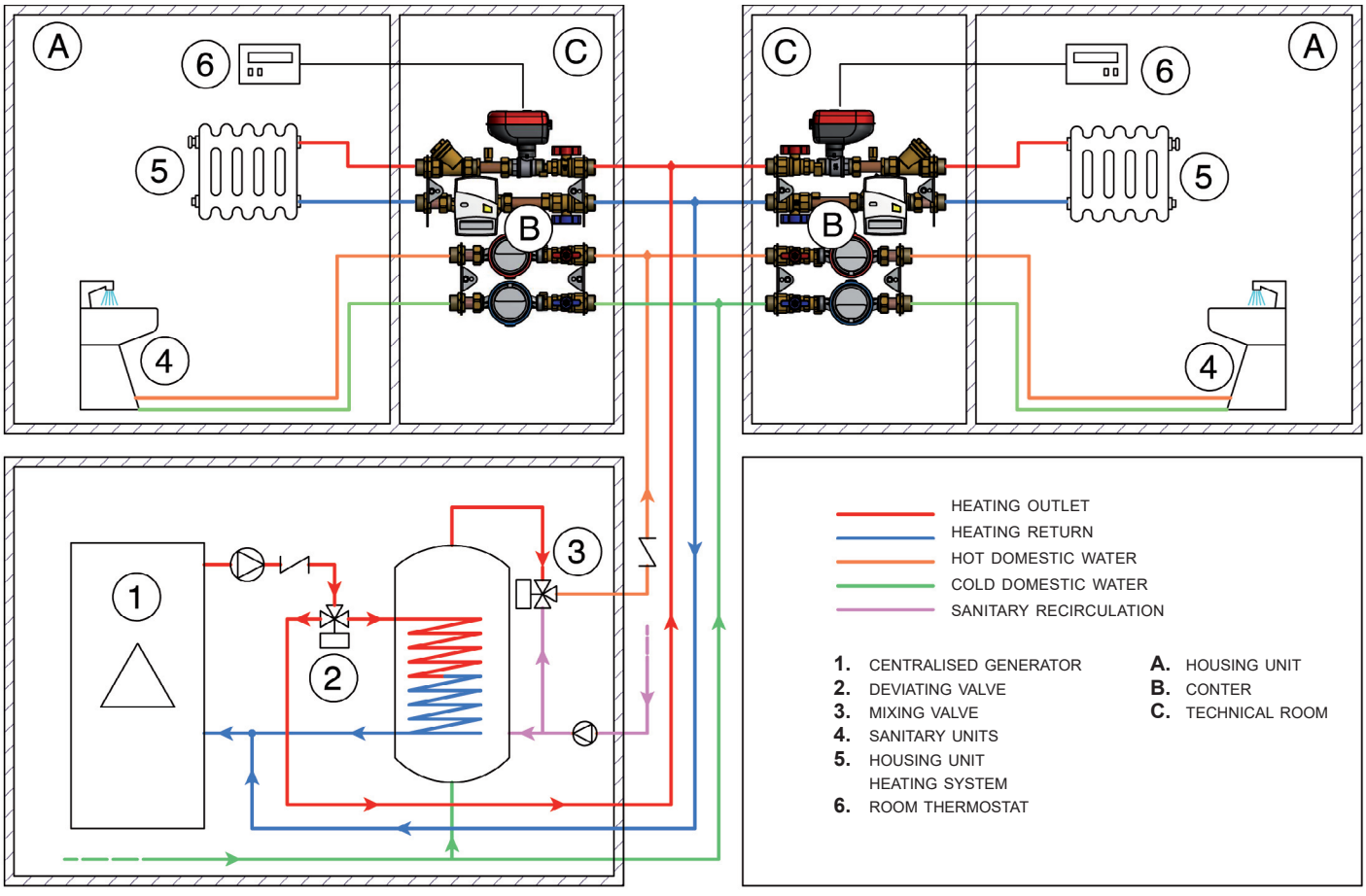
This unit is supplied with stub pieces.

Once the flushing of the system is completed, it is possible to install the **M-Bus metering kit**.

- **Management independence**
- **Costs breakdown according to real consumptions**
- **Total security**
- **Energy saving**
- **Compact size**
- **Installation with right or left inlets**



EXAMPLE OF USE

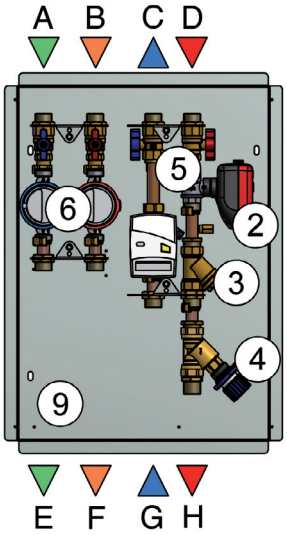


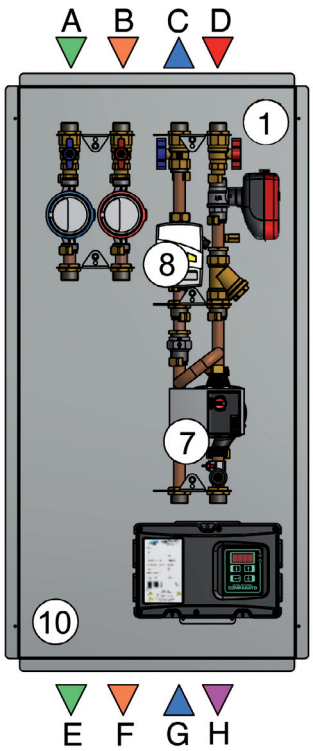
COMPONENTS AND FLOWS

A : Domestic cold water inlet
B : Domestic hot water inlet
C : Return to centralised system
D : Outlet from centralised system
E : Domestic cold water outlet
F : Domestic hot water outlet
G : Heating/cooling return
H : Heating/cooling flow

1 : Manual interception valves
2 : ON/OFF * 230V or 24V AC SINTESI actuator (accessory)
3 : Y-strainer
4 : Flow rate regulation (optional)
5 : 2-way or by-pass SINTESI ball valve (accessory)
6 : Additional lines for domestic water direct metering (accessory)
7 : Low temperature mixing unit with control unit (optional)
8 : Heating/cooling energy meter (accessory)
9 : Small sheet metal box for built-into-wall unit (accessory)
10 : Large sheet metal box for built-into-wall unit (accessory)

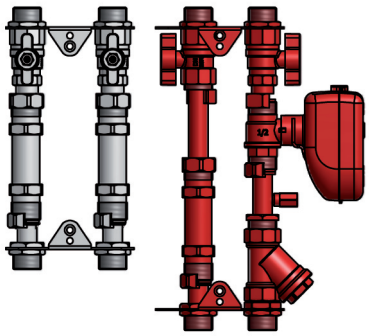
* Modulating in case of mixing unit at low temperature.





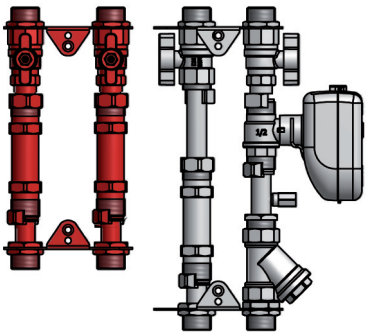
HYDRAULIC FEATURES

kv = flow coefficient [m³/h]
Q = flow rate [m³/h]
Δp = pressure drop = Q^2 / kv^2 [bar]



kv

• with static balancing and energy meter: kv = 2,18 m³/h
• by-pass: kv = 0,79 m³/h



kv

• with water meter: kv = 1,64 m³/h

OPERATION

HEATING / COOLING

CONTER HIUs allow to intercept the heat-transfer fluid flowing to the heating/cooling system of the housing unit by means of a 2-way or by-pass SINTESI motorised valve (option controlled by a room thermostat, not included).

On the heating/cooling line the flow rate of the fluid can be adjusted via the balancing valve or a plant pump; alternatively the delivery temperature can be adjusted in order to manage a plant with radiating panels with a suitable mixing unit (optional).

DOMESTIC WATER

CONTER HIUs can be equipped with a domestic hot water line and/or a domestic cold water line both provided with manual shut-off valves, check valves and volumetric meter with local or pulse reading for data transmission via M-bus cable.

Conter

TECHNICAL FEATURES

HEATING LINE	
Fluid type	non-glycolate water - VDI 2035 (1)
Maximum/minimum temperature	90°C / 5°C
Maximum operating pressure	6 bar (2)
DOMESTIC WATER LINE	
Fluid type	water (3)
Maximum temperature	90°C hot water 30°C cold water
Maximum operating pressure	6 bar (2)
PIPING	
Material	copper
Size	Ø 18 mm
HYDRAULIC CONNECTIONS	
Material	brass
Size	G3/4"M ISO228/1
HYDRAULIC SUPPORT / BOX	
Material	galvanized sheet 10/10
SHELL / FRAME AND DOOR	
Material	black sheet 10/10
Colour	RAL 9010
Painting	epoxy powders
POWER SUPPLY (with actuator installed)	
Voltage	230V - 24V ± 10%
Frequency	50 Hz
Maximum power consumption	5 W (4)
USE	
Installation	indoor environments
Room temperature	5 ÷ 55 °C
Ambient humidity	25 ÷ 85%

1 For glycol solutions please contact the Technical Office.

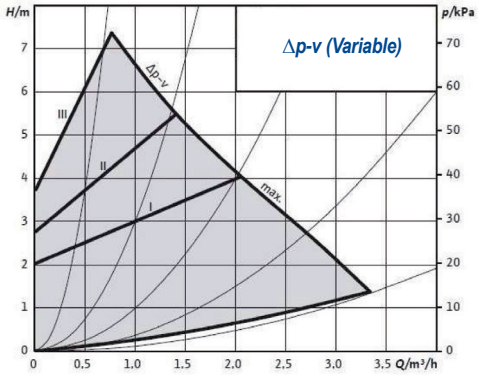
2 For higher pressures please contact the Technical Office.

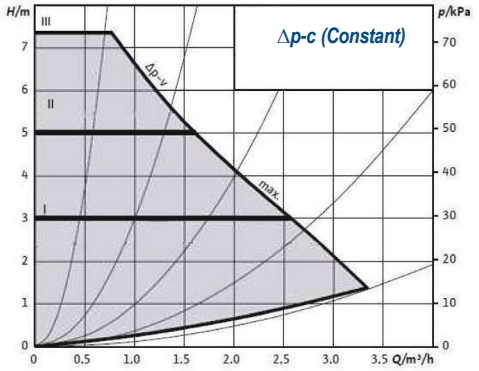
3 In case of water hardness higher than 15°F, water softeners are recommended.

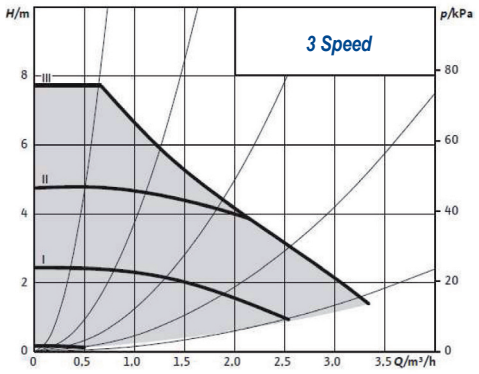
4 50W with raise pump/low-temperature unit.

STATIC FLOW LIMITER	
Type	dual micrometric adjustment
Kvs	1,5 m³/h
STATIC BALANCING VALVE	
Type	manually adjustable
Kvs	6,4 m³/h
DYNAMIC BALANCING VALVE	
Type	automatic, with adjustable pre-setting
Minimum Δp	0,3 bar
Maximum Δp	4 bar
Minimum flow	0,406 m³/h
Maximum flow	1,27 m³/h

INSULATION	
Type	thermoformed shell
Material	expanded polyethylene
PUMPS	
Type	electronic ERP
Features	see graphs







VERSIONS AND CODE BUILDER

E.g.: **CONTER** with by-pass **SINTESI** motorised valve, insulated energy line and static balance

QK | **1** | **S** | **J** | **A**

SERIES

QK = Conter

BALL VALVE

0 = 2-way
1 = by-pass

INSULATION

H = non-insulated energy line
S = insulated energy line

FLOW REGULATION

0 = not required
A = static flow limiter
J = static balancing valve
X = dynamic balancing valve
P = ERP pump

LOW TEMPERATURE MIXING UNIT

A = not required
B = present (including 230V SINTESI actuator and electronics)

*For **OUT-OF-STANDARD CONTER** configurations (Example: 3rd domestic water line or low and high temperature outlets) please contact our Technical Department.*

HIU CONFIGURATION

FLOW REGULATION

ABSENT

STATIC FLOW LIMITER
Balances the flow rates until they meet the design requirements for a proper plant operation

LIMITER

STATIC BALANCING VALVE
Allows the flow rates to be manually balanced using a calibrated knob until they reach the design values which are necessary for a proper plant operation

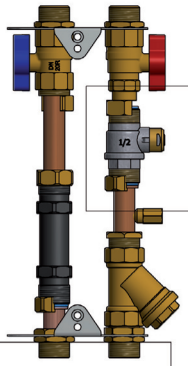
STATIC

DYNAMIC BALANCING VALVE
It allows to automatically keep the flow constant at a predefined value, without any external intervention

DYNAMIC

PUMP
It allows to deliver the primary fluid back in the apartment without using the central heating system pump

PUMP



BALL VALVE

2-WAY

BY-PASS

LOW TEMPERATURE

ABSENT

BT GROUP

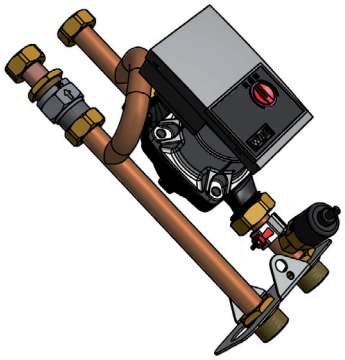
MIXING UNIT LOW TEMPERATURE
It includes the modulating SINTESI motorised valve and the electrical box for temperature management settable on the display

INSULATION
Available for all modular models

LOW TEMPERATURE MIXING UNIT

PRE-SET FEATURES
FOR A QUICK AND EASY INSTALLATION

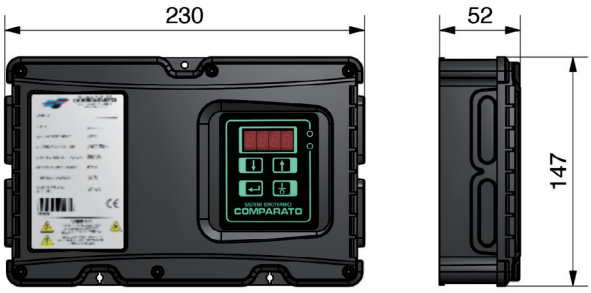
The **"LOW TEMPERATURE MIXING UNIT"** option includes the installation of a kit to regulate the flow temperature to the housing unit. It consists of an ERP electronic system pump, a temperature probe, a safety thermostat, a check valve, pipes and hydraulic support for connection to the control unit and a climate control unit that controls a modulating SINTESI actuator.



The electronic control unit, equipped with display and control keys, is already wired and calibrated with fixed point adjustment: the setpoint temperature for heating is set via keypad and display. The room thermostat is activated by the room thermostat and keeps the outlet temperature constant on the setpoint value. The pump starts and the electronic system, which operates by means of PID algorithm, controls the outlet temperature according to the pre-set values. When the room thermostat sends the signal to cut the power supply to the system, the control unit stops the pump and stops the regulation.

Electronic safety: the limit temperature of the fluid can be set. When this value is exceeded, the control unit enters "safety" mode, stopping the pump. The display shows an alarm message and the system resumes its normal operation only when the temperature returns within the normal operation temperature limits.

Electro-mechanical safety: a safety thermostat stops the pump if the fluid temperature exceeds 55°C, by acting on the power supply.



The electrical wiring provided inside the control unit must be connected by a qualified electrician.

- 230V / 50Hz power supply
- room thermostat.

The management electronics is supplied in a plastic box with wall mounting holes. If a built-in model is supplied, the controller is already arranged inside the unit.

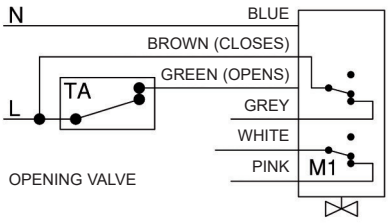
ACCESSORIES

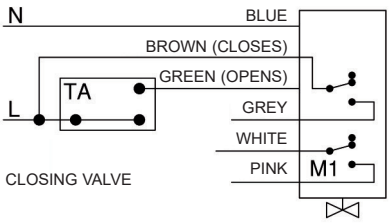
code SR2221U (230V) • SR2421U (24V)

2-point SINTESI actuator

TECHNICAL FEATURES	
Electric control	2-point
Power supply	230V 50/60 Hz 24V 50/60 Hz
Operating times (90° rotation)	45 seconds
Maximum torque	8 Nm
Input power	3,9 VA
Opening auxiliary micro	1A, resistive
Operational room temperature	-10°C ÷ +50°C
Protection degree	IP54
Insulation degree	double insulation
Maintenance	none
Certification	CE

ELECTRICAL DIAGRAM





BLU wire: neutral

BROWN wire: fixed phase

GREEN wire: opening phase

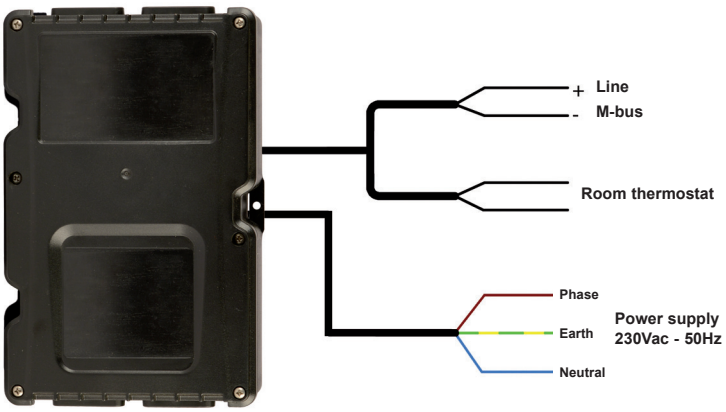
GRAY wire: outlet phase with open valve

TA: room thermostat

M1: extra microswitch free in opening position

Supplying power by means of a phase only across the brown wire causes the valve to close (electrical automatic closing); supplying power across the green wire too, causes the valve to open.

ELECTRICAL SAFETY SYSTEM



code CGQKHT

Room thermostat

Clean contact, i.e. voltage free contact.

Power supply

If the **CONTER** unit is installed in communal areas (for example a stairwell) and supplied with 230V by a second line, the connection of wires to the thermostat inside the apartment could be dangerous because a non-proper high-voltage line is brought inside the housing unit.

This generates a non-safety condition if an operator interrupts the power supply to the apartment, acting on the pre-arranged thermomagnetic switches, and then operates on the thermostat believing that there is no voltage.

The electromechanical safety board allows to “enter” the apartment with low voltage (12V DC) for the connection to the room thermostat.

CONTER is supplied with a plastic stub piece that temporarily replaces the energy meter to allow the system “flushing” before the component is installed.

ENERGY METER

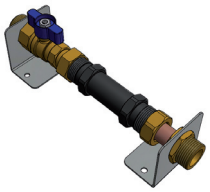
- M-bus hot-only model
- M-bus hot/cold model (three impulsive inputs for domestic water meter management)
- Wireless M-bus models upon request.

code CFCENM34B (hot/cold)

ENERGY METER	
Type	mechanical (*1*)
Flow rate Qp	1,5 m³/h
Minimum flow	0,015 m³/h
Maximum flow	3,0 m³/h
DN	15
PN	16
Power supply	lithium battery
Protection	IP54
Interface	M-bus (*2*)
Certification	MID

1 Ultrasonic upon request • 2 Wireless M-bus on request

ADDITIONAL KIT FOR A WATER LINE

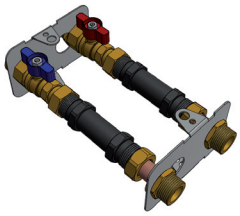


- Galvanised steel hydraulic support
- Manual interception valve
- INTEGRATED NON-RETURN valves
- Hydraulic connections G3/4"M ISO228/1

code KCACST (hot)

code KCAFST (cold)

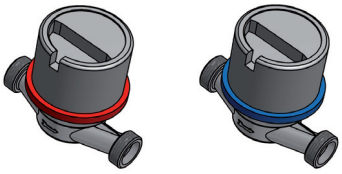
ADDITIONAL KIT FOR TWO WATER LINES



- Galvanised steel hydraulic support
- Manual interception valve
- Integrated non-return valves
- Hydraulic connections G3/4"M ISO228/1

code KCAT (impulsive)

SANITARY WATER METERS



cod. CFCACSI15 (hot)

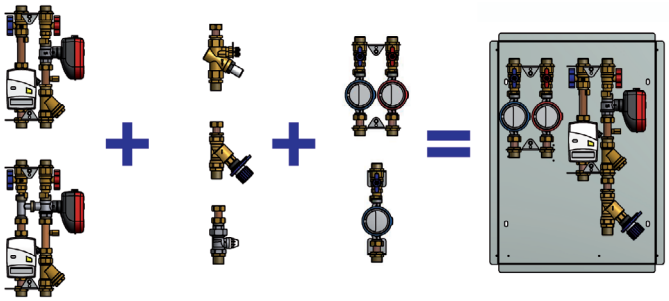
cod. CFCAFSI15 (cold)

VOLUMETRIC METER FOR DOMESTIC WATER	
Type	mechanical
Permanent flow rate	2,5 m³/h
Minimum flow	0,03 m³/h
Maximum flow	3,0 m³/h
DN	15
PN	16
Interface	impulsive output
Certification	MID
Maximum water temperature	30°C for DCW version 90°C for DHW version

SHEET METAL BOX

All the combinations are supplied as wall hanging version for the technical room; if you want to use the **CONTER** sheet-metal box, there are two sizes available, according to the necessary configuration. The deciding factor related to the use of the large box is the presence of the pump. Therefore, the larger set that can be used in the small box consists of a 2-way or by-pass basic unit completed by a balancing system and two domestic water lines. All boxes are equipped with a temporary door.

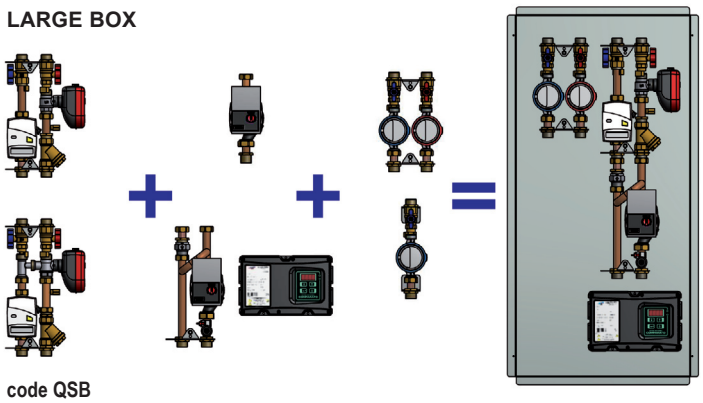
SMALL BOX



code QSA

code QSACS (frame and door)

LARGE BOX



code QSB

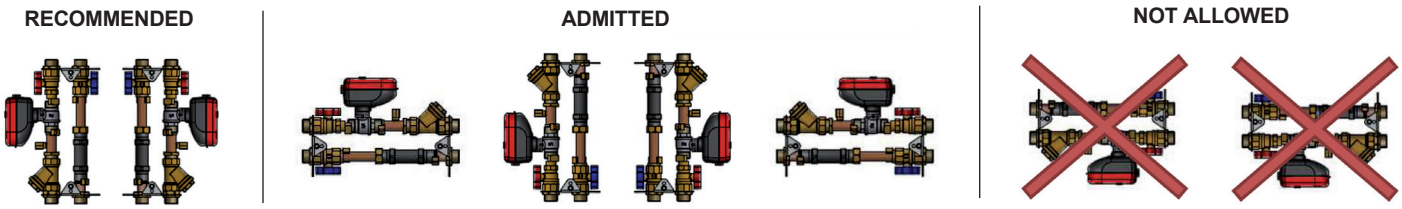
code QSBCS (frame and door)

INSTALLATION

The unit was designed for indoor installation, in a frost-free room. When choosing the installation position, please refer to the following instructions:

- **HANGING:** it must be placed in technical rooms accessible to authorized personnel only. It should be mounted with 2 expansion bolts (not included).
- **BUILT-INTO-WALL:** the **CONTER** can be completed with a sheet metal box suitable for built-into-wall installation; it can be installed in suitable condominium rooms when it has frame and door.

Installation position:



- The unit can be installed in any position but not with the SINTESI motorised valve facing downwards.
- Thanks to the special fixing brackets, the installation can be carried out with right or left inlets.

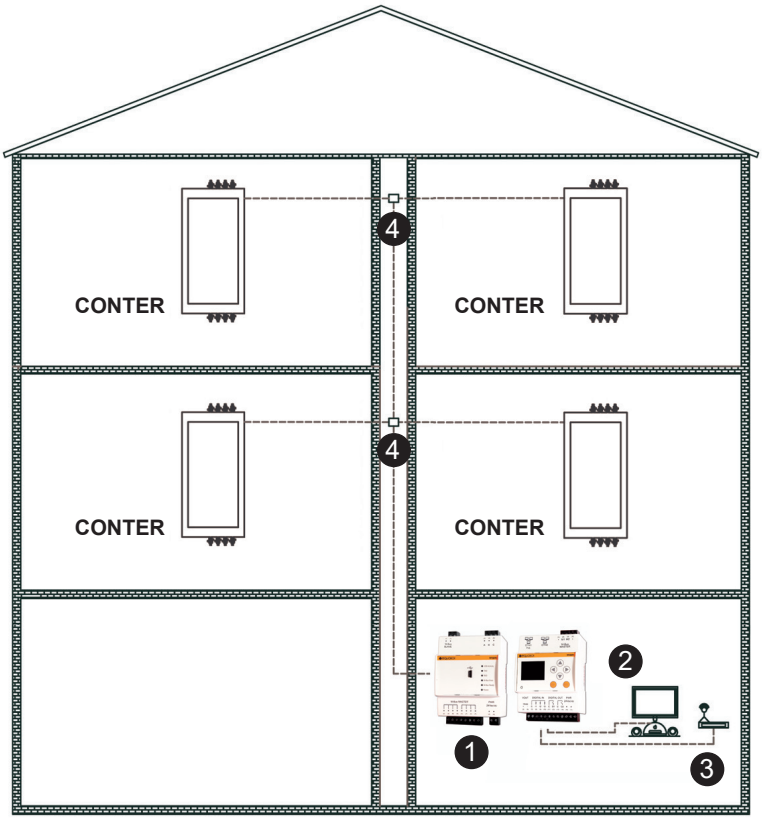
INSTALLATION WARNING

It is advisable to use flexible hydraulic connection in order to compensate for any thermal expansion and possible misalignment between the system connections.

WARRANTY AND FIRST START-UP

The warranty becomes effective on the date of testing, if required, and shall last for 24 months. If testing is not required, the warranty will become effective on the date of purchase.

M-BUS SYSTEM



1 : M-bus data acquisition control unit
2 : Control unit-PC connection
3 : Control unit-modem connection
4 : Concentrator nodes

The **M-bus** system represents a cabled means of communication among the peripheral metering units and a remote control unit which collects the consumption data registered by each peripheral unit.

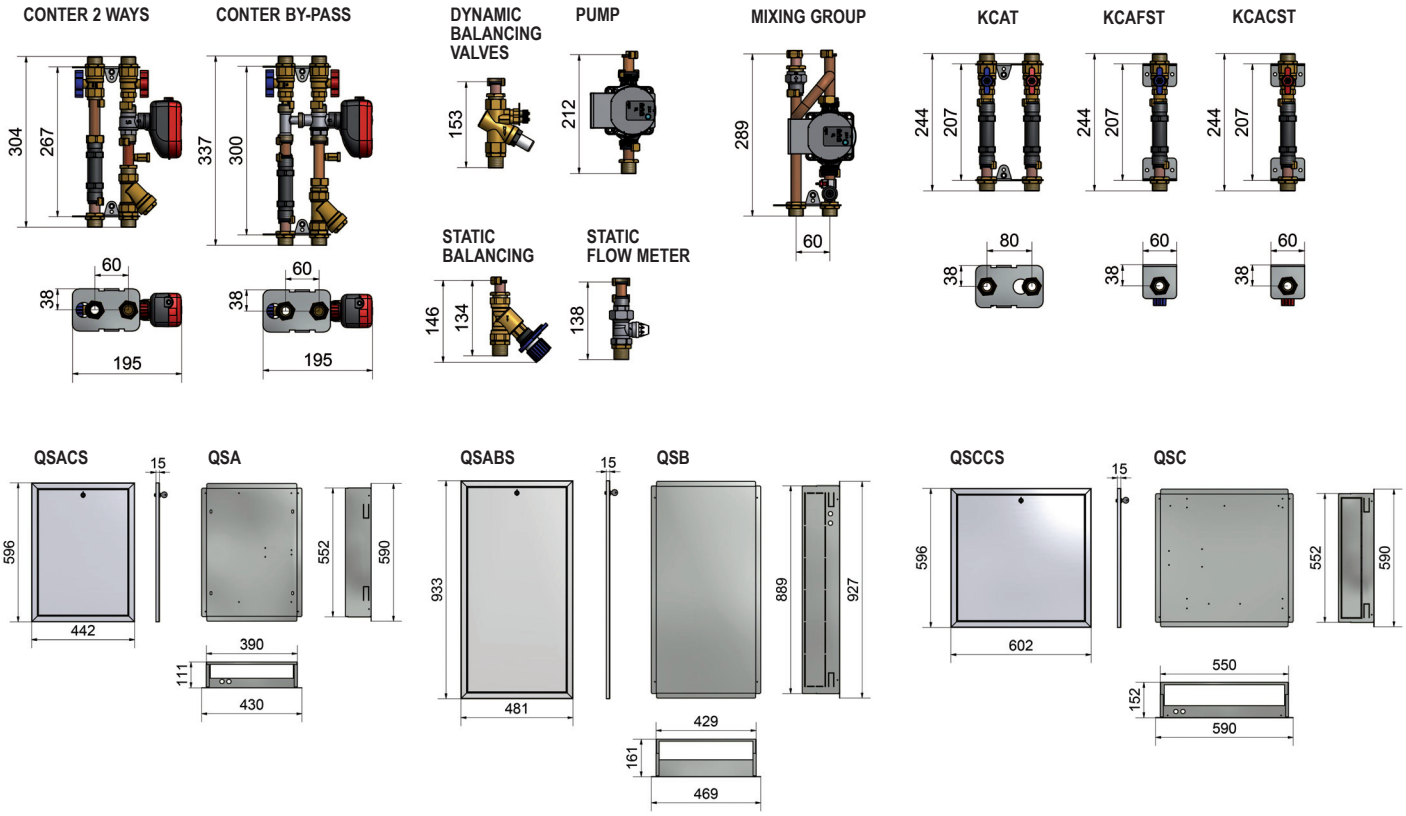
The consumption data can be read directly on the control unit display or by means of a PC connected to the control unit; moreover, it is possible to interface the control unit with a modem in order to be able to query the control unit from a remote position.

For further information please contact our Technical Office.

CERTIFICATIONS

CE Machinery Directive
2006/42/CE.
CE Low Voltage Directive
2014/35/ue: 26/04/2014
CE Electromagnetic Compatibility Directive
2014/30/UE

OVERALL SIZE



EXAMPLE OF SPECIFICATIONS

CONTER HYDRAULIC INTERFACE UNIT for the direct metering and management of heating/cooling systems with centralised production of domestic hot water: • Manual interception valves on the central side with red and blue handwheels • By-pass **SINTESI** ball valve on heating/cooling line • Replacement stub piece for energy meter • Y-strainer • Static balancing valve • Energy line insulation • Galvanised steel brackets for fixing to the wall or container box. Copper pipes Ø18 mm, hydraulic connections G3/4"M (ISO 228/1 standard). Maximum pressure 6 bar, maximum temperature 90°C. Dimensions (HxWxD): 337x147x76 mm

Brand: **COMPARATO** • Code: **QK1SJA**

CONTER BOX FOR BUILT-INTO-WALL UNIT galvanised steel for flush-mounted installation and temporary door. Dimensions (HxWxD): 550x390x110 mm

Brand: **COMPARATO** • Code: **QSA**

FRAME AND DOOR with custom lock, epoxy-powder painted RAL 9010.

Brand: **COMPARATO** • Code: **QSACS**

SINTESI ACTUATOR 2-point control, ON/OFF type, 230V 50Hz.

Brand: **COMPARATO** • Code: **SR2221U**

ENERGY METER M-bus heating and/or cooling, DN15, nominal capacity Qp 1,5 m³/h, MID-approved. Size: 3/4"x110mm.

Brand: **COMPARATO** • Code: **CFCENM34B**

DHW AND DCW METERING LINES: • Manual interception valves on centralised plant side with red and blue handwheels • Galvanised steel brackets for wall or housing mounting • Non-return valves • Replacement stud pieces for DHW and DCW meters. Dimensions (HxWxD): 244x156x111 mm

Brand: **COMPARATO** • Code: **KCAT**

DHW VOLUMETRIC METER impulsive (10 litres/pulse), DN15, permanent flow rate Q 2,5 m³/h, MID-approved. Size: 3/4"x110mm.

Brand: **COMPARATO** • Code: **CFCACSI15**

DCW VOLUMETRIC METER impulsive (10 litres/pulse), DN15, permanent flow rate Q 2,5 m³/h, MID-approved. Size: 3/4"x110mm.

Brand: **COMPARATO** • Code: **CFCAFSI15**.

UPDATED DATA SHEETS AVAILABLE AT www.comparato.com