

# Catalogue

**COSTER**

Tecnologie Elettroniche

made in Italy



## WARRANTY

1. Coster warrants that its products are free from faults and defects. The warranty is strictly limited to devices constructed by COSTER T.E. and does not cover the overall functioning of the system.
2. The warranty is valid for 3 (three) years following the year of construction, as impressed on each device.
3. With no compromise to the contents of point 4 below, Coster undertakes to repair, and when this is not possible, to replace the products acknowledged as defective and under warranty. In any case, the choice whether to repair or replace the products is at the sole discretion of Coster.
4. With regards to volume meters and LGU sensors under warranty, Coster undertakes only to repair defective devices, explicitly excluding their replacement.
5. Work covered by warranty to be carried out in the Coster laboratories is free of charge. The cost of all external technical assistance work will be charged to the Client. Expenses will be charged in the amount and in the manner decided in each case by Coster.

The warranty is not valid.

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  - b) – if the devices have been tampered with, without authorisation;
  - c) – if devices have been used in ways not compatible with the performance features indicated in the product's Technical Specifications;
  - d) – if the original plaques have in any case been modified, removed or replaced;
  - e) – if, in case of complaints, the Client has not suspended installation of the material the complaint is about.
6. Coster does not guarantee the suitability of its products for particular uses if not to the extent that such characteristics have been explicitly agreed in writing in the contract or documents referred to, to this end, in the contract;
  7. Coster does not guarantee the correspondence of its products to particular standards and regulations in force in the Client's country;
  8. Client loses warranty rights if Client fails to notify Seller of faults (hidden faults), specifying their nature by means of registered mail or fax within eight days of detection of the fault.  
In any case, action is limited to within the warranty's terms of validity

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Description	Code	Communication	Page
<b>AUTOMATION OF BOILERS &amp; BURNERSI</b>			
<b>COMPENSATING CONTROLLER FOR SEQUENCING TWO BOILERS WITH OR WITHOUT SHUT-OFF VALVES</b> <b>OPTIONAL TELEMAGEMENT</b> SEQUENCING OF TWO SINGLE-OR TWO-STAGE BOILERS WITH SHUT-OFF VALVES.	<b>XCC 602</b>	OPTIONAL (C ↔ BUS) (C ↔ RING)	<b>1.4</b>
<b>CONTROL SYSTEM FOR SEQUENCING 3 ... 24 BOILERS WITH OR WITHOUT SHUT-OFF VALVESE</b> SEQUENCING OF SERVERAL SINGLE- OR TWO-STAGE BOILERS WITH OR WITHOUT SHUT-OFF VALVES COMPRISING: - 1 COMPENSATING CONTROLLER FOR SEQUENCING BOILERS - 1 ... 3 RELAY CONTROL MODULES FOR SINGLE- OR TWO-STAGE BURNERS & SHUT-OFF VALVES.	<b>DTC 648</b> <b>ISC 648</b>	(C ↔ BUS) (C ↔ RING)	<b>1.5</b> <b>1.5</b>
<b>COMPENSASTING OPTIMISER FOR BURNERS OF ANY TYPE INCLUDING SEQUENCING, OF SEVERAL BOILERS</b>	<b>XTC 638</b>	OPTIONAL (C ↔ BUS) (C ↔ RING)	<b>1.6</b>
<b>CONTROLLER FOR 1, 2-STAGE BURNERS, MODULATING OR WITH 0...10 V– INPUT</b>	<b>XCC 618</b>	OPTIONAL (C ↔ BUS) (C ↔ RING)	<b>1.8</b>
<b>COMPENSATING OPTIMISER FOR 1, 2-STAGE MODULATING BURNERS WITH 0...10 V– INPUT</b>	<b>XCC 638</b>	OPTIONAL (C ↔ BUS) (C ↔ RING)	<b>1.7</b>

(C ↔ BUS) = communication with telemangement (OPTIONAL C ↔ BUS) = optional telemangement (C ↔ RING) = data exchange between controllers

FEATURES					
		XCC 602	DTC 648 + 1 ISC 648	DTC 648 + 2 ISC 648	DTC 648 + 3 ISC 648
Controls	boilers without valves & 1-stage burners	2	2 ... 8	9 ... 16	17 ... 24
	boilers with valves & 1-stage burners	2	2 ... 4	5 ... 8	9 ... 12
	boilers without valves & 2-stage burners	2	2 ... 4	5 ... 8	9 ... 12
	boilers with valves & 2-stage burners	2	2 ... 4	5 ... 8	9 ... 12
	heating pump	–	1	1	1
	DHW pump	–	1	1	1
Type of control	compensated	Yes	Yes	Yes	Yes
	fixed point	Yes	Yes	Yes	Yes
	according thermal demand (C-Ring)	Yes	Yes	Yes	Yes
Sensor	heating flow temperature	–	1	1	1
	boiler manifold temperature	1	1	1	1
	boiler temperature	2	–	–	–
	outside temperature	1	1	1	1
	ambient temperature	–	–	–	–
	DHW temperature	–	1	1	1
	flue gases temperature	2	–	–	–
	with 4 ... 20 mA output signal	–	1	1	1
Remote controls	modification of programme in use	–	–	–	–
	switch on by external contact	Yes	Yes	Yes	Yes
	reduce number boilers On by external contact	–	Yes	Yes	Yes
Programmes	24-hour	7	7	7	7
	7-day	2	2	2	2
	emergency	1	–	–	–
Periods with date setting	holidays	25	25	25	25
	special	1	1	1	1
	heating season	Yes	Yes	Yes	Yes
	GMT - BST	Yes	Yes	Yes	Yes
Functions	choice number of boilers to sequence	–	Yes	Yes	Yes
	boiler sequence automatic changeover	Yes	Yes	Yes	Yes
	delay closure of boiler valves	Yes	Yes	Yes	Yes
	burner start / stop differential temperature	Yes	Yes	Yes	Yes
	boiler start differential temperature	Yes	Yes	Yes	Yes
	integral time	–	Yes	Yes	Yes
	minimum burner(s) run and/or stop time	Yes	Yes	Yes	Yes
	correction heating curve origin (t <sup>o</sup> = 20°C)	Yes	Yes	Yes	Yes
	maximum & minimum limits flow temperature	Yes	Yes	Yes	Yes
	ambient authority over compensated control	–	–	–	–
	Eco Off	–	Yes	Yes	Yes
	delayed stop heating pump	–	Yes	Yes	Yes
	DHW dedicated boilers (with 3-way diverting valve)	–	Yes	Yes	Yes
	DHW priority	–	–	–	–
	antibacteria DHW	–	Yes	Yes	Yes
	summer plant exercise	–	Yes	Si	Yes
Alarms	On-Off contacts	5	1	1	1
	functional	8	5	5	5
	short or open sensor circuits	6	3	3	3
Transmission Data	C-Bus for telemanagement from local and/or remote PC	Yes	Yes	Yes	Yes
	C-Ring for data exchange among controllers	Yes	Yes	Yes	Yes

□ : alternative

FEATURES		MODELS		
		XCC 618	XCC 638	XTC 638
Various controls	boilers with or without valves and with any burner	1	1	1
	heating pump	1	1	1
	DHW pump	–	1	1
Boiler control	type	Secondary	Secondary	Primary
Boilers sequence	control	–	–	2...7
Controls	compensated	–	Yes	Yes
	fixed point	Yes	Yes	Yes
	according thermal demand (C-Ring)	Yes	Yes	Yes
Sensor	heating flow temperature	–	1	1
	boiler manifold temperature	–	1	1
	boiler temperature	1	–	–
	outside temperature	1	1	1
	ambient temperature	–	1	1
	flue gases temperature	1	1	1
	DHW temperature	–	1	1
	with 4 ... 20 mA output signal	–	–	–
Remote control	boiler on manual control	–	Yes	Yes
	switch on by external contact	–	–	–
	reduce number boilers On by external contact	–	–	–
Programmes	24-hour	–	4	4
	7-day	–	1	1
	emergency	–	Yes	Yes
Periods with date setting	holiday	–	–	–
	special	–	1	1
	heating season	Yes	Yes	Yes
	GMT - BST	Yes	Yes	Yes
Functions	choice number of boilers to sequence	–	–	Yes
	boiler sequence automatic changeover	–	–	Yes
	delay closure of boiler valves	Yes	Yes	Yes
	burner start / stop differential temperature	Yes	Yes	Yes
	boiler start differential temperature	Yes	Yes	Yes
	integral time	Yes	Yes	Yes
	minimum burner(s) run and/or stop time	Yes	Yes	Yes
	correction heating curve origin (t <sup>e</sup> = 20°C)	–	Yes	Yes
	maximum & minimum limits flow temperature	Yes	Yes	Yes
	ambient authority over compensated control	–	Yes	Yes
	Eco Off	Yes	Yes	Yes
	delayed stop heating pump	–	Yes	Yes
	DHW dedicated boilers (with 3-way diverting valve)	–	Yes	Yes
	DHW priority	–	Yes	Yes
	antibacteria DHW	–	Yes	Yes
	summer plant exercise	Yes	Yes	Yes
Alarms	On-Off contacts	1	1	1
	functional	4	7	7
	short or open sensor circuits	4	6	6
Transmission data	C-Bus for telemanagement from local and/or remote PC	Yes	Yes	Yes
	C-Ring for data exchange among controllers	Yes	Yes	Yes

– : alternative \* : one for each XTC installed (up to a maximum of 7).

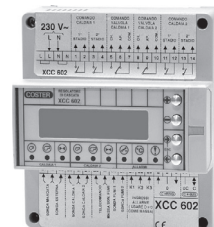
# CONTROLLER FOR SEQUENCING TWO SINGLE- OR TWO-STAGE BOILERS WITH OR WITHOUT SHUT-OFF VALVES OPTIONAL TELEMAGEMENT

## XCC 602

TELEMAGEMENT C-Bus: Enabled using ACB 400 accessory..

OPTIONAL  
C ← BUS

C ← RING



### APPLICATION

Designed for sequencing two boilers with one- or two-stage burners and shut-off valves.

Control of primary manifold temperature with temperature measurement by means of a sensor on manifold or two sensors on the boilers.

Communication with other controllers via serial C-Ring protocol..

**Essential sensors: 1 temperature sensor on manifold or 2 boiler sensors**

**Optional sensors: 1 outside sensor..**

### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 X 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four keys and alphanumeric display.
- Setting dates of heating season and automatic switching GMT – BST.
- Seven 24hour periods and two 7day programs.
- 25 holiday programs and one special period with dates.
- Control of zone temperature:
  - Fixed point;
  - Variable in relation to outside temperature;
  - Variable in relation to temperature requested by consumer zones.
- Sequencing: manual switching from display or timed automatic.
- Automatic inversion of sequence in event of lockout of lead boiler.
- Enabling of lag boiler according to mean temperature of zone.
- Digital control of burners and of valves with adjustable delay closure.
- Theoretical metering of burner operating hours.
- Two inputs for measurement and alarms for flue gas temperature and for lockout burners.
- Three digital alarm inputs.
- Alarms for plant faults and for open or short sensor circuit.

Code	Description	Data sheet
<b>XCC 602</b>	Controller for sequencing two boilers with N.C. relay lag boiler.	A 312

### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensor	Data sheet
<b>ACB 400</b>	Plug-in for C-Bus communication.	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>STF 001</b>	Flue gases temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 710

## CONTROL SYSTEM FOR 3 ... 24 BOILER SEQUENCING

The system consists of:

- 1 compensator for sequencing boilers DTC 648.
- 1, 2 or 3 relay control modules ISC 648.

Electronic devices	Boilers with isolation valves 1-stage burners	Boilers without isolation valves 1-stage burners	Boilers with isolation valves 2-stage burners	Boilers without isolation valves 2-stage burners
<b>1 DTC 648 + 1 ISC 648</b>	<b>up to 4</b>	<b>up to 8</b>	<b>up to 4</b>	<b>up to 4</b>
<b>1 DTC 648 + 2 ISC 648</b>	<b>up to 8</b>	<b>up to 16</b>	<b>up to 8</b>	<b>up to 8</b>
<b>1 DTC 648 + 3 ISC 648</b>	<b>up to 12</b>	<b>up to 24</b>	<b>up to 12</b>	<b>up to 12</b>

1

## COMPENSATOR FOR BOILER SEQUENCING

### DTC 648

#### APPLICATION

In combination with 1, 2 or 3 relay control modules ISC 648, DTC 648 can sequence two or more one- or two-stage boilers, with or without shut-off valves, for the control of the primary manifold or flow temperature in a heating plant, and control the temperature of a DHW plant.

C-Bus compatible.

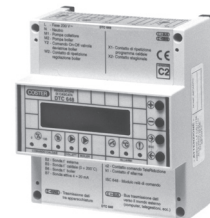
C-Ring compatible..

**Essential accessories:** 1 detector on manifold or heating flow.

**Optional accessories:** 1 outside detector, 1 DHW detector.

#### FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operating keys and alphanumeric display.
- Setting dates for heating season and automatic switching GMT- BST.
- Seven 24-hour programmes, two 7-day programmes, 25 holiday periods and one special period with date setting.
- Control temperature primary manifold or heating plant flow:
  - Fixed point;
  - Variable in relation to outside temperature or to temperature requested by heating zones with min. and max. flow temperature.
- Timed On-Off control of primary manifold or heating plant pump.
- Minimum and maximum limits flow temperature.
- Manual correction heating curve origin to compensate for seasonal weather changes.
- Eco Off function.
- Summer plant exercise.
- Sequence: Manual inversion from display or timed automatic.
- Control calorifier for production DHW: – On-Off control calorifier pump with timed events programmes independent of heating.
  - Antibacteria function: once a week at 70 °C for 90 minutes.
- One On-Off alarm input, one measurement input 4 ... 20 mA (with ASA 420).
- Alarms for controller fault and for short or open detector circuits.



C ←BUS

C ←RING

Code	Description	Data sheet
<b>DTC 648</b>	Compensator for boiler sequencing.	A 410

## SENSORS AND ACCESSORIES

Code	Description	Application range	Sensor	Data sheet
<b>SIH 010</b>	Immersion temperature sensor.	0...99 °C	NTC 10 kΩ	N 140
<b>STH 010</b>	Immersion high temperature sensor.	0...300 °C	Pt 1 kΩ	N 140
<b>SAE 001</b>	Outside temperature sensor..	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>ASA 420</b>	Accessoy for connection active detector 4 ... 20 mA..	–	–	–

## RELAY MODULE

### ISC 648

#### APPLICATION

When connected with temperature controller DTC 648, converts the control signal of the controller in On-Off signals for sequencing two or more one- or two-stage boilers with or without shut-off valves. Up to a maximum of three ISC 648 can be used.

#### FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- 4 SPDT output relays, 8 SPST output relays, max. switching voltage 250 V ~, 5 (1) A.



Code	Description	Data Sheet
<b>ISC 648</b>	Relay module	A 450

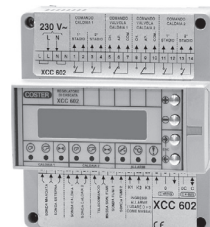
# COMPENSATING OPTIMISER FOR BURNERS OF ANY TYPE INCLUDING SEQUENCING, OF SEVERAL BOILERS

## XTC 638

TELEMANAGEMENT C-Bus: Enabled using ACB 460 accessory..

OPTIONAL  
C ← BUS

C ← RING



### APPLICATION

Designed for temperature control of a normal burner or a 3-point or 0...10 V modulating burner, with normal or condensation boilers.

Using one controller for each boiler (max. 7) you can obtain a sequence of several boilers and of the shut-off valves where these exist.

Control of the criteria of setting the boiler in sequence, in order to optimise the seasonal energy production:

– wide adaptability to all types of burner and boiler..

Data exchange with other boilers and other controllers by means of C-Ring.

**Essential sensors:** 1 boiler sensor, 1 single external sensor for the boiler(s),  
1 sensor for manifold if there are several boilers.

**Optional sensors:** 1 heating flow sensor, 1 room or flue gases sensor, 1 DHW sensor.

### FEATURES

- Power supply: 230 V-; Consumption: 5 VA; Modular housing DIN 105 x 115; Protection: IP 40.
- Digital programming by means of 4 operating keys and alphanumeric display.
- Control of site:
  - Single boiler + heating with pump or with or without mixing valve + DHW.
  - Boilers in sequence (max. 7) + heating with pump and with or without mixing valve + DHW.
  - Boilers in sequence (max. 7) + C-Ring connection with other COSTER controllers + DHW
  - Compensated: according to outside temperature with desired room temperature Normal, Setback.
  - Fixed Point with desired flow temperature.
  - Minimum and maximum limits boiler and flow temperatures.
- **WARNING!** The mixing valve and the storage tank control are not available on all the configurations of boiler sequence. Always refer to the Technical Data Sheet.
- Control of modulating 3-point burner (common – increase – decrease). 0...10 V or On-Off in 1 stage or On-Of in 2 stages.
- On-Off control of boiler shut-off valve.
- On-Off control of pump (boiler, manifold, heating site).
- Timed programming with four 24hour programs and one 7day program.
- Programming with dates with one Special period and heating season.
- Automatic change GMT/BST.
- Eco Off™ function: heating off with outside temperature above desired value.
- Three On-Off inputs and two On-Off outputs for services and various automations (e.g. burner lockout).
- Three On-Off inputs and two On-Off outputs for services and various automations (e.g. burner lockout).
- One input for measuring temperature flue gases (as alternative to room temperature).
- Functional alarms for site and alarms for short or open circuit sensors.

Code	Description	Data sheet
<b>XTC 638</b>	Temperature controller for a modulating boiler, for several boiler in sequence and other functions.	A 612

### SENSORS AND ACCESSORIES

Sigla	Description	Application range	Sensing element	Data sheet
<b>ACB 460</b>	Plug-in for C-Bus communication.	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STF 001</b>	Flue gases temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165

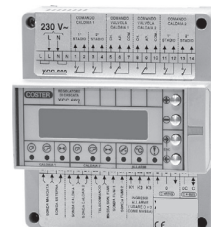
## COMPENSATING OPTIMISER FOR 1, 2-STAGE MODULATING BURNERS WITH 0...10 V- INPUT

### XCC 638

TELEMANAGEMENT C-Bus: Enabled by ACB 400 accessory.

OPTIONAL  
C ← BUS

C ← RING



#### APPLICATION

Designed for the compensated control of winter heating in centralised sites, with power supply directly from the boiler (without mixing valve), whether condensation or not.

The burner with 1, 2 stages or modulating can be controlled by switches or by means of the 0...10 V input...

**By equipping all the boilers on site with XCC 638, with a single boiler provided with XTC 638, you can set up a sophisticated sequence among the various 1, 2-stage or MODULATING BURNERS and thereby achieve the maximum SEASONAL OUTPUT.**

**The whole system has been especially designed also for CONDENSATION BOILERS.**

Data exchange with other boilers and other controllers by means of C-Ring.

**Essential sensors: 1 boiler sensor, 1 outside sensor.**

**Optional sensors: 1 anticondensing sensor, 1 room or flue gases sensor, 1 storage tank sensor.**

#### FEATURES

- Power supply: 230 V~; Consumption: 5 VA; Modular enclosure DIN 105 x 115; Protection: IP 40.
- Digital programming by means of 4 operating keys and alphanumeric display.
- Control of boiler temperature at fixed point or variable in relation to outside temperature or to the demand of the various users (if the controllers are COSTER).
- Control of 1, 2-stage or modulating burner.
- Option of sequence under control of XTC 638.
- Compensated control of boiler temperature
  - all the optimum starts and stops of heating and of the site circulation pump
  - complete range of choices for room temperature,
  - 24hour and 7day clock (four 24hour programs, one 7day program)
- Control of temperature of DHW storage tank (one for each site)
  - own independent clock; 24hour, 7day (four 24hour programs, one 7day program).
  - priority and antibacterial functions
- Automatic switching GMT/BST.
- Periodic operation of summer plant exercise of valves and pumps.
- Metering of degree-days, of burner operating hours and or number of starts.
- Alarms for short and open sensor circuits and for abnormal operation of site and devices.
- C-Ring connection for local transmission of data to other COSTER controllers.
- Optional C-Bus connection for transmitting data to local PCs or remote Telemanagement PC..

**XCC 638 is already provided with 0...10 V output adaptable to any generator provided with this input.**

Code	Description	Data sheet
<b>XCC 638</b>	Optimising compensator for modulating burners.	A 620

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>ACB 400</b>	Plug-in for C-Bus communication	—	—	T 433
<b>SAE 001</b>	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STF 001</b>	Flue gases temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165



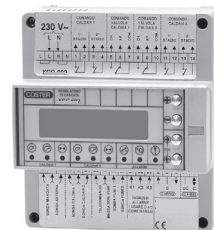
## COMPENSATING OPTIMISER FOR 1, 2-STAGE MODULATING BURNERS WITH 0...10 V- INPUT

### XCC 618

TELEMANAGEMENT C-Bus: Enabled by ACB 400 accessory.

OPTIONAL  
C ← BUS

C ← RING



#### APPLICATION

Designed for the total control of burner/boiler (condensation or not).

The 1, 2-stage or modulating burner can be controlled by switches or via the 0...10 V input.

**By equipping all the boilers present on site with XCC 618, and a single boiler with XTC 638, you can achieve a sophisticated sequence with 1, 2-stage or MODULATING BURNERS and so obtain the maximum SEASONAL OUTPUT. The whole system is especially suitable also for CONDENSATION BOILERS.**

Data communication with other boilers and other controllers via C-Ring connection..

**Essential sensors: 1 boiler sensor..**

**Optional sensor: 1 anticondensing sensor, 1 flue gases sensor, 1 outside sensor...**

#### FEATURES

- Power supply: 230 V~: Consumption: 5 VA; Modular housing DIN 105 x 115; Protection: IP 40
- Digital programming by means of 4 keys and alphanumeric display.
- Control of boiler temperature at set point or according to the request of the various users via C-Ring (if the controllers are COSTER) or by a 0...10 V- signal.
- Control of a 1- or 2-stage or modulating burner.
- Option of sequence under control of XTC 638.
- Automatic change GMT/BST
- Periodic operation of summer site exercise of valves and pumpse.
- Metering of degree-days, of burner operating hours and of number of starts.
- Alarms for short or open circuits to sensors and for functional faults site and devices.
- C-Ring connection for local exchange of data with other COSTER controllers.
- Option of C-Bus connection for exchange data with local PC or remote Telemangement PC..

**XCC 618 is provided with a 0...10 V output adaptable to any generator fitted with this input.**

**XCC 618 is also provided with a 0...10 V input for control AS POWER or AS TEMPERATURE.**

Code	Description	Data sheet
<b>XCC 618</b>	Controller for modulating burners, slaves of XTC 638	A 621

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensor	Data sheet
<b>ACB 400</b>	Plug-in for C-Bus communication.	—	—	T 433
<b>SAE 001</b>	Outside temperature detector.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>STF 001</b>	Flue gases temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165



Description	Code	Communication	Page
<b>CONDENSATED CONTRLLER</b>			
<b>COMPENSATING CONTROLLER WITH AUXILIARY OUTPUT</b>	<b>RTE 643</b>		<b>2.4</b>
<b>ANALOGUE COMPENSATED CONTROLLER FOR CONTROLOF MIXING VALVE OR BURNER</b> COMPENSATED CONTROL OF 1 CENTRAL HEATING PLANT	<b>RTE 98.</b>		<b>2.5</b>
<b>DIGITAL WEATHER WITH OPTIMUM START FUNCTION.</b>	<b>RTE 955</b>		<b>2.5</b>
<b>OPTIMISING COMPENSATOR</b>			
<b>OPTIMISING COMPENSATOR WITH AUXILIARY CONTROL</b> <b>OPTIONAL TELEMAGEMENT</b> OPTIMISING COMPENSATION ONE CENTRAL PLANT ROOM CONTROL OF ONE DHW STORAGE TANK.	<b>XTE 600</b>	OPTIONAL C ← BUS C → RING	<b>2.6</b>
<b>DUAL OPTIMISING COMPENSATOR OPTIONAL TELEMAGEMENT</b> OPTIMISING COMPENSATION OF TWO CENTRALISED PLANTS..	<b>XTE 602</b>	OPTIONAL C ← BUS C → RING	<b>2.7</b>
<b>OPTIMISING COMPENSATOR CENTRALISED PLANT ROOM</b> <b>OPTIONAL TELEMAGEMENTE</b> OPTIMISATION OF CENTRALISED PLANT ROOM COMPRISING: 1 BOILER - 1 HEATING ZONE – 1 AUXILIARY (e.g. DHW STORAGE).	<b>XTE 611</b>	OPTIONAL C ← BUS C → RING	<b>2.8</b>
<b>COMPENSATING OPTIMISER FOR TEMPERATURE &amp; FLOW</b> SUITABLE FOR COMPENSATED CONTROL OF ONE CENTRAL HEATING SITE. OPTIMISES THE USE OF CONDENSATION BOILERS.	<b>XTP 600</b>	OPTIONAL C ← BUS C → RING	<b>2.9</b>
<b>COMPENSASTING OPTIMISER FOR BURNERS OF ANY TYPE</b> <b>INCLUDING SEQUENCING, OF SEVERAL BOILERS</b>	<b>XTC 638</b>	OPTIONAL C ← BUS C → RING	<b>2.10</b>
<b>OCOMPENSATING OPTIMISER FOR 1, 2-STAGE MODULATING</b> <b>BURNERS WITH 0...10 V– INPUT</b>	<b>XCC 638</b>	OPTIONAL C ← BUS C → RING	<b>2.11</b>
<b>OPTIMISING COMPENSATOR WITH SEASON SWITCHING</b> <b>OPTIONAL TELEMAGEMENTE</b> DESIGN FOR COMPENSATED OR FIXED POINT CONTROL, WINTER AND SUMMER, OF FLOW WATER TEMPERATURE IN A FAN COIL OR UNDERFLOOR PANELS INSTALLATION	<b>XCS 633</b>	PREDISPOSTO C ← BUS C → RING	<b>2.12</b>
<b>“MULTICOSTER” MULTIPLE OPTIMISING COMPENSATED SYSTEM</b> THE SYSTEM COMPRISES 1 “MASTER” (e.g. XCC 602 or XTE 611) & 1 OR MORE “SLAVES” CONNECTED IN C-RING			
<b>OPTIMISING COMPENSATOR “SLAVE” OPTIONAL TELEMAGEMENT</b> OPTIMISING COMPENSATION OF 1 CENTRALISED PLANT ROOM CONTROL OF 1 DHW STORAGE TANK..	<b>XSE 600</b>	OPTIONAL C ← BUS C → RING	<b>2.13</b>
<b>DUAL OPTIMISING COMPENSATOR “SLAVE”</b> <b>OPTIONAL TELEMAGEMENT</b> OPTIMISING COMPENSATION OF TWO CENTRALISED PLANT ROOMS.	<b>XSE 602</b>	OPTIONAL C ← BUS C → RING	<b>2.13</b>
<b>“DISTRICT HEATING”</b> INCLUDES ALL THE COMPONENTS NECESSARY FOR A DISTRICT HEATING PLANT			
<b>CONTROLLER FOR DISTRICT HEATING SUBSTATIONS</b> REGOLAZIONE A PUNTO FISSO DELLA TEMPERATURA SECONDARIA DELLE SOTTOSTAZIONI DI Teleriscaldamento COMPOSTA DA: 1 SCAMBIATORE CON VALVOLA MISCELATRICE SUL PRIMARIO.	<b>DTT 318</b>	C ← BUS	<b>2.15</b>
<b>CONTROLLER FOR DISTRICT HEATING SUBSTATIONS</b> <b>WITH ONE HEAT EXCHANGER</b> CONTROL OF A DISTRICT HEATING SUBSTATION COMPRISING1 1 HEAT EXCHANGER WITH VALVE & SECONDARY CIRCUIT PUMP..	<b>XTT 618</b>	OPTIONAL C ← BUS C → RING	<b>2.15</b>
<b>COMPENSATING CONTROLLER FOR DISTRICT HEATING</b> <b>SUB-STATIONS WITH TWO HEAT EXCHANGERS.</b>	<b>XTT 608</b>	OPTIONAL C ← BUS C → RING	<b>2.16</b>

C ← BUS = telemagement    OPTIONAL C ← BUS = optional telemagement    C → RING = data exchange between controllers    **CODE** = news

Description	code	Communication	Page
<b>CONTROL SYSTEM FOR ROOM TEMPERATURE “MULTIZONE”</b> SYSTEM OF CONTROLLERS FOR AIR TREATMENT AND OTHER SERVICES FOR INDEPENDENT ZONES			
<b>CENTRAL (MASTER) CONTROL UNIT WITH REMOTE CONTROL VIA SMS</b> MASTER OF BUS COMMUNICATION WITH REMOTE UNITS..	<b>MRL 608</b>	OPTIONAL C ← BUS P ← LOC	<b>2.17</b>
<b>AUXILIARY POWER SUPPLY FOR 50 ZONES FIELD</b> AMPLIFIER TO PERMIT MANAGING MORE THAN 20 ZONES FROM MASTER..	<b>ALC 318</b>		<b>2.18</b>
<b>AUXILIARY POWER SUPPLY FOR MULTIZONE SYSTEM WITH AMPLIFYING &amp; GALVANIC INSULATION OF THE P-LOC BUS.</b>	<b>ALP 418</b>	P ← LOC	<b>2.18</b>
<b>LOCAL (SLAVE) UNIT WITH RELAY OUTPUT</b> SLAVE UNIT FOR HEAT CONTROL. AND OTHER ZONED FUNCTIONS..	<b>RTL 110</b> <b>RTL 510</b>	P ← LOC	<b>2.19</b>
<b>LOCAL (SLAVE) UNIT WITH RELAY OUTPUT FOR CONTROL</b> EXPANDER SLAVE UNIT FOR THERMAL CONTROL & OTHER ZONED FUNCTIONS..	<b>RTL 111</b> <b>RTL 511</b>	P ← LOC	<b>2.20</b>
<b>OUTPUTS EXPANDER FOR RTL X11</b> INCREASES THE NUMBER OF OUTPUTS FOR CONTROL OF ELECTRICAL DEVICES SUCH AS FANS	<b>DEP 658</b>		<b>2.20</b>
<b>LOCAL UNIT (SLAVE) WITH RELAY OUTPUT AND 1 ...10 V- OUTPUT</b>	<b>RTL 120</b> <b>RTL 520</b>	P ← LOC	<b>2.21</b>
<b>UNIT FOR CONTROLLING PUMPS, BURNERS, CHILLERS, ETC FOR MULTIZONE SYSTEMS</b>	<b>UPM 678</b>	OPTIONAL C ← BUS P ← LOC	<b>2.21</b>
<b>“COSTERZONE” MULTIZONE ROOM TEMPERATURE CONTROLLER SYSTEM</b> THE SYSTEM, POWERED BY 24 V~, CONSIST OF UP TO 239 REMOTE ROOM TEMPERATURE CONTROLLERS CONNECTED VIA THE C-BUS INTERFACE TO A CENTRAL DISPLAY UNIT AND/OR COMPUTER			
<b>CENTRAL DISPLAY UNIT FOR “COSTERZONE” CONTROL SYSTEMS</b> MASTER OF BUS COMMUNICATION WITH THE REMOTE UNITS.	<b>UMT 704</b>	C ← BUS	<b>2.22</b>
<b>PUMPS CONTROL UNIT</b> <b>OPTIONAL TELEMAGEMENT</b> CENTRAL UNIT FOR CONTROL OF PUMPS (MAX. 6) OF HEATING AND/OR COOLING : CIRCUITS IN RELATION TO THERMAL DEMAND OF THE ZONE CONNECTED.	<b>UCP 664</b>		<b>2.22</b>
<b>ELECTRONIC ROOM TEMPERATURE CONTROLLERS</b> FOR HEATING AND/OR CONDITIONING (2 OR 4 PIPES) PLANTS CENTRALIZZATO CONTROL OF MODULATING OR ON-OFF VALVES, FANS, PUMPS, ETC.	<b>RTB ...</b>		<b>2.23</b>
<b>ELECTRONIC ROOM TEMPERATURE CONTROLLERS WITH ROOM OCCUPIED SERVICE</b> DESIGNED FOR REMOTE CONTROLLED BY A FIXED OR CELLULAR TELEPHONE.	<b>RTB .44S1</b>		<b>2.23</b>
<b>ELECTRONIC ROOM TEMPERATURE CONTROLLERS WITH TELEPHONE REMOTE CONTROL</b> DESIGNED FOR REMOTE CONTROLLED BY A FIXED OR CELLULAR TELEPHONE.	<b>RTB 540</b>		<b>2.23</b>
<b>ELECTRONIC ROOM TEMPERATURE CONTROLLERS</b> FOR CONTROL OF ROOM TEMPERATURE IN HEATING AND AIR CONDITIONING PLANTS	<b>RTB 645</b>		<b>2.23</b>
<b>SUMMER TEMPERATURE COMPENSATOR FOR RTB 645 CONTROLLER</b> KEEPS CONSTANT TEMPERATURE DIFFERENCE BETWEEN ROOM AND OUTSIDE IN SUMMER PERIOD.	<b>CTB 334</b>		<b>2.23</b>
<b>CHRONOTHERMOSTATS</b>			
<b>WEEKLY DIGITAL CHRONOTHERMOSTAT</b>	<b>TED 913</b>		<b>2.24</b>

(C ← BUS) = communication with telemanagement   
 (OPTIONAL C ← BUS) = optional telemanagement   
 (C ← RING) = data exchange between controllers  
**CODE** = news

FEATURES		MODELS						
		RTE 982	RTE 983	X.E 600	X.E 602	XTE 611	XTP 600	XCS 633
Elettronic	analogue	Yes	Yes	–	–	–	–	–
	digital	–	–	Yes	Yes	Yes	Yes	Yes
Control	modulating valve	1	1	1	2	1	1	1
	burner	1	1	–	–	1	1	–
	heating pump	1	1	2	2	1	1	1
	DHW or auxiliary circuit pump	–	–	–	–	1	1	–
Heating control.	compensated	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	fixed point	–	–	Yes	Yes	Yes	Yes	Yes
Flow control	compensated						Yes	
	fixed point						Yes	
Cooling control	compensated	–	–	–	–	–	–	Yes
	fixed point	–	–	–	–	–	–	Yes
Boiler control	fixed point	–	–	–	–	Yes	Yes	–
	Compensation according to thermal demand (via C-Ring)	–	–	–	–	Yes	Yes	–
Sensors	flow temperature	1	1	2	2	1	1	1
	outside temperature	1	1	1	1	1	1	1
	room temperature	–	–	2	2	1	1	1
	boiler temperature	–	–	–	–	1	1	–
	anticondensing boiler temperature	–	–	1	1	–	–	1
	room humidity (summer time dew point control)	–	–	–	–	–	–	1
	DHW or auxiliary circuit temperature	–	–	–	–	1	1	–
Remote controls	setpoint adjuster	1	1	–	–	–	–	–
	modification of programme in use	–	–	1	2	1	1	1
	season switching (by external contact)	–	–	–	–	–	–	Yes
Programmes	24-hour	1	–	7	7	7	7	3 + 3
	7-day	–	1	2	2	2	2	1 + 1
Periods with dates	GMT-BST	–	–	Yes	Yes	Yes	Yes	Yes
Functions	K heating curve setting	Yes	Yes	–	–	–	–	–
	design outside and flow temperature setting	–	–	Yes	Yes	Yes	Yes	Yes
	correction heating curve origin (t°e = 20 °C)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	max & min flow temperature limits	–	–	Yes	Yes	Yes	Yes	Yes
	ambient authority over compensated control	–	–	Yes	Yes	Yes	Yes	Yes
	Eco Off	–	–	Yes	Yes	Yes	Yes	Yes
	heating pump delay Off	–	–	Yes	Yes	Yes	Yes	Yes
	anticondensing boiler (heating Off)	–	–	Yes	Yes	Yes	Yes	Yes
	DHW priority	–	–	–	–	Yes	Yes	–
	antibacterial DHW	–	–	–	–	Yes	Yes	–
	boiler differential	–	–	–	–	Yes	Yes	–
	increase temp. boiler on heating and/or DHW demand.	–	–	–	–	Yes	Yes	–
	max & min boiler temperature limits	–	–	–	–	Yes	Yes	–
Data transmission	C-Ring for data exchange among controllers	–	–	Yes	Yes	Yes	Yes	Yes
	C-Bus for telemanagement from local and/or remote PC	–	–	Yes	Yes	Yes	Yes	Yes

 : alternative

## COMPENSATING CONTROLLER WITH AUXILIARY OUTPUT

## RTE 643

C ←RING

## APPLICATION

Designed for compensated control of one heating zone and for On-Off control of a DHW calorifier.  
C-Ring compatible.

**Essential accessories:** 1 outside sensor, 1 heating flow sensor.

**Optional accessories:** 1 room sensor, 1 sensor auxiliary plant, 1 anticondensing sensor,  
1 remote control.



## FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operating keys and alphanumeric display.
- Automatic changeover GMT - BST.
- Seven 24-hour programmes, two 7-day programmes.
- Compensated control of heating zone:
  - Modulating control of valve by three-wire reversible actuator or On-Off burner in two stages.
  - Control heating pump in relation to timed events and thermal demand.
  - Minimum and maximum limits flow temperature.
  - Manual correction of heating curve origin to compensate for seasonal weather changes.
  - Ambient authority.
  - Eco Off.
  - Control boiler anticondensing temperature (closure heating valve).
  - Remote control for modifying timed programme in use (as alternative to input flue gases temperature and On-Off alarm).
- On-Off control temperature of auxiliary zone (eg : production DHW) or timed On-Off control:
  - On-Off control with programme timed events independent of heating.
  - DHW priority function (closure heating valve so as to give precedence to DHW production).
  - Antibacteria function : once a week at 70 °C for 90 minutes (for production DHW in storage tank).

Code		Description	Data sheet
<b>RTE 643</b>		Compensating controller and DHW production controller	B 222

## SENSORS AND ACCESSORIES

Code		Description	Application range	Sensing element	Data sheet
<b>SAE 001</b>		Outside temperature sensor.	- 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>		Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>		Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>		Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>CDB 300</b>		Remote control to modify program in use.	—	—	N 710

## ANALOGUE COMPENSATOR FOR CONTROL OF VALVE OR BURNER

### RTE 982 - 983

#### APPLICATION

For compensated control of 1 central heating plant. Suitable for all climates and any type of heat emitters, including radiating panels, radiators, convectors and unit heaters. The device is designed to control mixing or switching valves driven by electric reversible actuators, or to control the boiler burner directly.

**Essential sensors:** 1 outside sensor, 1 plant flow sensor.

**Optional accessories:** 1 remote control.

#### FEATURES

- Power supply: 230 V ~; Consumption: 4 VA; Case: DIN 144 x 144; Protection: IP 40.
- Voltage-free output contacts: rating: 250 V ~, 5 (1) A.
- PI control action with valve position memorisation.
- Setting of heating curve by means of K factor calculated in relation to climatic zone.
- Correction of heating curve to compensate for seasonal weather changes.
- Possibility of adjusting value of room temperature by means of remote control.
- Time switch for selecting "Normal" and "Setback" room temperature.
- Auxiliary control (plant pump) in relation to programme times.



2

Code	Description	Data sheet
<b>RTE 982</b>	Analogue compensator with 24-hour time switch.	B 217
<b>RTE 983</b>	Analogue compensator with 7-day time switch.	B 217

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>SAE 001</b>	Outside temperature sensor.	-40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>CDB 340</b>	Temperature setpoint adjuster	-5 ... +5 °C	—	—

## DIGITAL WEATHER COMPENSATOR WITH OPTIMUM START FUNCTION

### RTE 955

#### APPLICATION

Dor compensated control of 1 variable temperature (VT) heating circuit. Suitable for all types of heat emitters, such as panel heaters, radiators or fan convectors. The device controls the mixed water temperature in the heating circuit via proportional or on/off control. There are timed outputs for a single stage boiler and heating pump (with a programmable delay off function)..

**Essential accessories:** 1 outside sensor, 1 heating flow sensor, 1 ambient space sensor and 1 boiler return temperature sensor.

**Optional accessories:** 1 remote control.

#### FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; Case: DIN 144 x 144; Protection: IP 40.
- Voltage-free output contacts: rating: 250 V ~, 10 (2.5) A.
- Setting of heating curve by means designed outside and flow temperatures.
- Remote override for permanent frost protection or day temperature.
- Fully adjustable Normal and Setback room temperatures.
- 2 x auxiliary control outputs (heating pump and boiler) in relation to program times.

C ←RING



Code	Description	Data sheet
<b>RTE 955</b>	Digital optimising compensator with ECO OFF	B 226

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>SAE 001</b>	Outside temperature sensor.	-40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>CDB 340</b>	Temperature setpoint adjuster.	-5 ... +5 °C	—	—

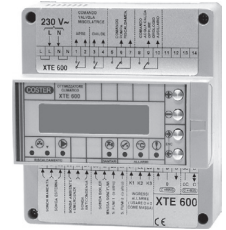
## OPTIMISING COMPENSATOR OPTIONAL TELEMAGEMENT

### XTE 600

**TELEMAGEMENT C-Bus: Enabled with ACB 468 accessory.**

OPTIONAL  
**C ← BUS**

**C ← RING**



#### APPLICATION

Designed for compensated control of one centralized heating plant room and for On-Off control of a calorifier for DHW production,  
Exchange of data with other controllers by means of C-Ring serial connection.

**Essential sensors: 1 outside sensor, 1 heating flow sensor.**

**Optional sensors: 1 room sensor, 1 DHW sensor, 1 flue gases sensor, one 4 ... 20 mA sensor, 1 remote control.**

#### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Entering dates of heating season and automatic switching BST - GMT.
- Seven 24hour programs, two 7day programs, 25 holiday periods and one special period with dates.
- Compensated control of heating plant room:
  - Modulating control of valve with 3-wire reversible actuator or On-Off burner in two stages.
  - Control heating pump according to times and demand for heat.
  - Optimisation switching on and off times.
  - Minimum and maximum limits flow temperature.
  - Manual correction heating curve origin (compensation intermediate seasons).
  - Automatic correction of heating curve in relation to room temperature (ambient authority).
  - Eco Off function: shutdown of plant when weather mild.
  - Control boiler anticondensing temperature (closure heating valve).
  - Summer plant exercise valve and pump.
  - Remote control for changing timed program in use (as alternative to input flue gases temperature and On-Off alarm).
- Control DHW production:
  - On-Off control DHW loading pump with timed programs independent of heating.
  - “Priority DHW” function (closure heating valve).
  - “Antibacteria” function: once a week 70° for 90 minutes.
- Three On-Off alarm inputs.
- One 4 ... 20 mA measurement input.
- One configurable input: remote control or temperature flue gases Pt 1 kΩ and On-Off alarm.
- Alarms for plant faults and for open or short sensor circuit.
- Metering degree-days.

Code		Description	Data sheet
<b>XTE 600</b>		Optimising compensator.	B 241

#### SENSORS AND ACCESSORIES

Code		Description	Application range	Sensing element	Data sheet
<b>ACB 468</b>		Plug-in for communication via C-Bus.	–	–	T 433
<b>SAE 001</b>		Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>		Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>		Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>		Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STF 001</b>		Flue gases temperature sensor..	0 ... 500 °C	Pt 1 kΩ	N 165
<b>CDB 300</b>		Remote control to modify program in use.	–	–	N 710

## DUAL OPTIMISING COMPENSATOR OPTIONAL TELEMAGEMENT

### XTE 602

TELEMAGEMENT C-Bus: Enabled with ACB 468 accessory.

#### APPLICATION

Designed for the compensating control of two central heating sites.  
Exchange of data with other controllers by means of C-Ring serial connection.

**Essential sensors: 1 outside sensor, 2 heating flow sensors.**

**Optional sensors: 1 or 2 room sensors, 1 remote control.**

#### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Entering dates of heating season and automatic switching GMT – BST.
- Seven 24hour programs, two 7day programs, 25 holiday periods and one special period with dates.
- Two compensated controls of plant rooms:
  - Modulating control of valves with 3-wire reversible actuator.
  - Control heating pumps according to times and demand for heat.
  - Optimisation switching on and off times.
  - Minimum and maximum limits flow temperature.
  - Manual correction heating curve origin (compensation intermediate seasons).
  - Automatic correction of heating curve in relation to room temperature (ambient authority).
  - Eco Off function: shutdown of site when weather mild
  - Control anticondensing temperature boiler (closure heating valve).
  - Summer plant exercise valves and pumps.
  - One remote control for adjusting from a distance the timed program in use (one for control 1 or 2 or for both).
- Three On-Off alarm inputs.
- Alarms for plant faults and for open or short sensor circuit.
- Metering degree-days.

OPTIONAL  
**C ←BUS**

**C ←RING**



2

Code	Description	Data sheet
<b>XTE 602</b>	Dual optimising compensator.	B 242

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>ACB 468</b>	Plug-in for communication via C-Bus.	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>CDB 300</b>	Remote control to modify program in use.	–	–	N 710



## OPTIMISING COMPENSATOR FOR HEATING PLANT ROOM OPTIONAL TELEMAGEMENT

### XTE 611

TELEMAGEMENT C-Bus: Enabled with ACB 468 accessory.

OPTIONAL  
C ← BUS

C ← RING



#### APPLICATION

Designed for control of small and medium-size heating plant rooms comprising:

- 1 single- or two-stage boiler, or double furnace (two single-stage burners).
- 1 centralised heating plant room.
- 1 calorifier for DHW.

Communications with other controllers via C-Ring serial connection.

**Essential sensors: 1 outside sensor, 1 heating flow sensor, 1 boiler sensor.**

**Optional accessories: 1 room sensor, 1 DHW sensor, 1 or 2 flue gas sensors, 1 remote control.**

#### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Setting dates for heating season and automatic switching between GMT – BST.
- Seven 24-hour programs, two 7-day programs, 25 holiday periods and one special period with dates.
- Fixed point or variable control of boiler according to max. temperature requested by heating, etc zones:
  - On-Off control of one single- or two-stage burner or 2 single-stage burners.
  - Control boiler anticondensing (closure of heating valve).
  - Theoretical metering of operating hours of the two burner stages.
- Compensated control of centralised heating plant room:
  - Modulating control of valve by 3-wire reversible actuator.
  - Control of heating pump in relation to times and demand for heat.
  - Optimisation of start and stop times.
  - Minimum and maximum limits of flow temperature.
  - Manual correction heating curve point of origin (compensation for intermediate seasons).
  - Automatic adjustment of heating curve in relation to room temperature (ambient authority).
  - Eco Off function: switching off heating zones when weather mild.
  - Remote control for changing program in use (as alternative to temperature flue gases & On-Off alarm).
- Control production of DHW:
  - On-Off control of calorifier pump by timed programs independent of heating.
  - “DHW priority” (closure heating valve).
  - Antibacteria function: once a week at 70°C for 90 minutes.
- Summer exercise function for valves and pumps.
- Three inputs On-Off alarms.
- One configurable input: remote control or flue gases temperature Pt 1kΩ and On-Off alarm.
- One configurable input: measurement 4 ... 20mA or flue gases temperature Pt 1 kΩ and On-Off alarm.
- Alarms for plant malfunctioning and for open or short sensor circuit.
- Degree-days metering.

Code	Description	Data sheet
<b>XTE 611</b>	Optimising compensator with N.C. relay for control boiler.	B 252

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>ACB 468</b>	Plug-in for communication via C-Bus.	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STF 001</b>	Flue gases temperature sensor..	0 ... 500 °C	Pt 1 kΩ	N 165
<b>CDB 300</b>	Remote control to modify program in use.	–	–	N 710



# COSTER "TEM-PO" TEMPERATURE & FLOW

**OBTAIN THE MAXIMUM SEASONAL OUTPUT FROM CONDENSATION BOILERS BY MEANS OF A COMPENSATED CONTROL WHICH MINIMISES THE RETURN TEMPERATURE**

"COSTER "TEM-PO" is a new family of optimising climatic controllers which, besides programming the temperature of the heat emitters (PANELS, RADIATORS, CONVECTORS & FAN COILS), also programs the flow in the compensated mode. This dual control aims to maximise the thermal head between flow and return of the heating site:

- without compromising a comfortable temperature,
- causing the heat emitters to provide the correct thermal power,
- reducing as much as possible the return-to-site temperature..

## OPTIMISING COMPENSATOR OF TEMPERATURE & FLOW OPTIONAL TELEMAGEMENT

### XTP 600

**TELEMAGEMENT C-Bus: Enabled using ACB 468 accessory.**

#### APPLICATION

Designed for the compensated control of one central heating site and for the On-Off control of a water heater for the production of DHW.

Optimises the performance of condensation boilers.

Data exchange with other controllers by means of C-Ring serial connection.

**Essential sensors: 1 external sensor, 1 heating flow sensor.**

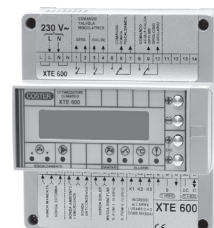
**Optional accessories: 1 room sensor, 1 water heater sensor, 1 flue gases sensor, 1 remote control, 1 return site sensor.**

#### FEATURES

- Power supply: 230 V~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 operating keys and alphanumeric display.
- Setting dates of heating season and automatic switching GMT – BST.
- Seven 24hour programs, two 7day programs, 25 holiday periods and one Special period with dates.
- Compensated control of heating site:
  - Modulating control valve with 3-wire reversible actuator.
  - Modulating control of variable-speed pump (compensated control of the flow)
  - On-Off control of heating pump in relation to times and thermal demand..
  - Optimisation of start and stop times.
  - Minimum and maximum limits of flow temperature.
  - Manual adjustment of origin of heating curve (compensation for intermediate seasons)..
  - Automatic adjustment of heating curve in relation to room temperature (Ambient Authority).
  - "Eco Off" function: closure of site when outside temperature mild.
  - Summer Site Exercise of valve and pump.
  - Remote control for adjusting timed program in use (as alternative to input flue gases temperature and On-Off alarm).
- Control water heater for production DHW:
  - On-Off control water heater pump by timed programs independent of heating.
  - "Priority water heater" function (closure heating valve).
  - Antibacteria function: once a week 70°C for 90 minutes.
- Three On-Off alarm inputs.
- 1 configurable input: remote control or flue gases temperature Pt 1 kΩ and On-Off alarm.
- Alarms for operation site and for short- or open- sensor circuits.
- Metering degree-days..

OPTIONAL  
C ← BUS

C ← RING



2

Code	Description	Data sheet
XTP 600	Compensating optimiser	B 243

## SENSORS AND ACCESSORIES

Code	Description	Setting range	Sensing element	Data sheet
ACB 468	Plug-in for C-Bus communication.	–	–	T 433
SAE 001	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
SIH 010	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
SCH 010	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
SAB 010	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
SAI 010	Room temperature sensor – irradiation.	0 ... 40 °C	NTC 10 kΩ	N 111
STF 001	Flue gases temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165
CDB 300	Remote control for adjusting programs in use.	–	–	N 710

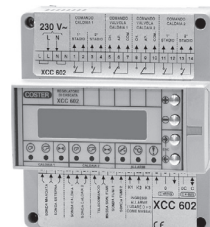
# COMPENSATING OPTIMISER FOR BURNERS OF ANY TYPE INCLUDING SEQUENCING, OF SEVERAL BOILERS

## XTC 638

TELEMANAGEMENT C-Bus: Enabled using ACB 460 accessory..

OPTIONAL  
C ← BUS

C ← RING



### APPLICATION

Designed for temperature control of a normal burner or a 3-point or 0...10 V modulating burner, with normal or condensation boilers.

Using one controller for each boiler (max. 7) you can obtain a sequence of several boilers and of the shut-off valves where these exist.

Control of the criteria of setting the boiler in sequence, in order to optimise the seasonal energy production:

– wide adaptability to all types of burner and boiler..

Data exchange with other boilers and other controllers by means of C-Ring.

**Essential sensors: 1 boiler sensor, 1 single external sensor for the boiler(s),**

**1 sensor for manifold if there are several boilers.**

**Optional sensors: 1 heating flow sensor, 1 room or flue gases sensor, 1 DHW sensor.**

### FEATURES

- Power supply: 230 V-; Consumption: 5 VA; Modular housing DIN 105 x 115; Protection: IP 40.
- Digital programming by means of 4 operating keys and alphanumeric display.
- Control of site:
  - Single boiler + heating with pump or with or without mixing valve + DHW.
  - Boilers in sequence (max. 7) + heating with pump and with or without mixing valve + DHW.
  - Boilers in sequence (max. 7) + C-Ring connection with other COSTER controllers + DHW
  - Compensated: according to outside temperature with desired room temperature Normal, Setback.
  - Fixed Point with desired flow temperature.
  - Minimum and maximum limits boiler and flow temperatures.
- **WARNING!** The mixing valve and the storage tank control are not available on all the configurations of boiler sequence. Always refer to the Technical Data Sheet.
- Control of modulating 3-point burner (common – increase – decrease). 0...10 V or On-Off in 1 stage or On-Of in 2 stages.
- On-Off control of boiler shut-off valve.
- On-Off control of pump (boiler, manifold, heating site).
- Timed programming with four 24hour programs and one 7day program.
- Programming with dates with one Special period and heating season.
- Automatic change GMT/BST.
- Eco Off™ function: heating off with outside temperature above desired value.
- Three On-Off inputs and two On-Off outputs for services and various automations (e.g. burner lockout).
- Three On-Off inputs and two On-Off outputs for services and various automations (e.g. burner lockout).
- One input for measuring temperature flue gases (as alternative to room temperature).
- Functional alarms for site and alarms for short or open circuit sensors.

Code	Description	Data sheet
<b>XTC 638</b>	Temperature controller for a modulating boiler, for several boiler in sequence and other functions.	A 612

### SENSORS AND ACCESSORIES

Sigla	Description	Application range	Sensing element	Data sheet
<b>ACB 460</b>	Plug-in for C-Bus communication.	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STF 001</b>	Flue gases temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165

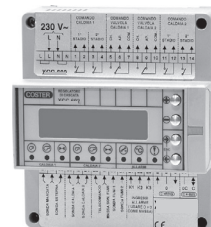
# COMPENSATING OPTIMISER FOR 1, 2-STAGE MODULATING BURNERS WITH 0...10 V- INPUT

## XCC 638

TELEMANAGEMENT C-Bus: Enabled by ACB 400 accessory.

OPTIONAL  
C ← BUS

C ← RING



### APPLICATION

Designed for the compensated control of winter heating in centralised sites, with power supply directly from the boiler (without mixing valve), whether condensation or not.

The burner with 1, 2 stages or modulating can be controlled by switches or by means of the 0...10 V input.

**By equipping all the boilers on site with XCC 638, with a single boiler provided with XTC 638, you can set up a sophisticated sequence among the various 1, 2-stage or MODULATING BURNERS and thereby achieve the maximum SEASONAL OUTPUT.**

**The whole system has been especially designed also for CONDENSATION BOILERS.**

Data exchange with other boilers and other controllers by means of C-Ring.

**Essential sensors: 1 boiler sensor, 1 outside sensor.**

**Optional sensors: 1 anticondensing sensor, 1 room or flue gases sensor, 1 storage tank sensor.**

### FEATURES

- Power supply: 230 V~; Consumption: 5 VA; Modular enclosure DIN 105 x 115; Protection: IP 40.
- Digital programming by means of 4 operating keys and alphanumeric display.
- Control of boiler temperature at fixed point or variable in relation to outside temperature or to the demand of the various users (if the controllers are COSTER).
- Control of 1, 2-stage or modulating burner.
- Option of sequence under control of XTC 638.
- Compensated control of boiler temperature
  - all the optimum starts and stops of heating and of the site circulation pump
  - complete range of choices for room temperature,
  - 24hour and 7day clock (four 24hour programs, one 7day program)
- Control of temperature of DHW storage tank (one for each site)
  - own independent clock; 24hour, 7day (four 24hour programs, one 7day program).
  - priority and antibacterial functions
- Automatic switching GMT/BST.
- Periodic operation of summer plant exercise of valves and pumps.
- Metering of degree-days, of burner operating hours and or number of starts.
- Alarms for short and open sensor circuits and for abnormal operation of site and devices.
- C-Ring connection for local transmission of data to other COSTER controllers.
- Optional C-Bus connection for transmitting data to local PCs or remote Telemanagement PC..

**XCC 638 is already provided with 0...10 V output adaptable to any generator provided with this input.**

Code	Description	Data sheet
<b>XCC 638</b>	Optimising compensator for modulating burners.	A 620

### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>ACB 400</b>	Plug-in for C-Bus communication	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor.	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STF 001</b>	Flue gases temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165

## COMPENSATING CONTROLLER WITH SEASON SWITCHING OPTIONAL TELEMAGEMENT

### XCS 633

Telemagement C-Bus: Enabled with ACB 468 accessory.

OPTIONAL  
**C ← BUS**

**C ← RING**



#### APPLICATION

For compensated or fixed point winter & summer control of flow temperature in a fan-coil or underfloor panels i  
Exchange data with other Coster controllers by means of C-Ring serial connection.

**Essential sensors: 1 outside sensor, 1 flow sensor.**

**Optional accessories: 1 room temperature or temperature & humidity sensor, 1 remote control.**

#### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four keys and alphanumeric display.
- Seven 24hour programs, two 7day programs, 25 holiday periods & one special period with dates.
- Manual or automatic season switching with dates or by external switch (as alternative to two digital alarm inputs).
- Automatic switching BST - GMT.
- Compensated or fixed point control summer and winter flow temperature:
  - Modulating control of valve by 3-wire reversible actuator or On-Off control in two stages.
  - Control of heating pump in relation to times and demand for heat.
  - Minimum & maximum limits for flow temperature.
  - Manual correction of heating curve point of origin (compensation intermediate seasons).
  - Automatic correction of heating curve in relation to room temperature (Ambient Authority).
  - Control of ambient dew-point for summer cooling plants with underfloor panels.
  - Control boiler anticondensing temperature (closure heating valve).
  - Remote control for adjusting program in use.
- Relay output for centralized season switching.
- Two On-Off alarm inputs (as alternative to external switch for season switching).
- Alarms for plant faults and for open or short sensor circuit.

Code	Description	Data sheet
<b>XCS 633</b>	Compensating controller with season switching.	B 232

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>ACB 468</b>	Plug-in for communication via C-Bus..	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor..	– 40 ... 40 °C	NTC 1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAB 010</b>	Room temperature sensor..	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SAU 914</b>	Relative humidity & temperature sensor.	10 ... 90 % 0 ... 40 °C	0 ... 10 V– NTC 10 kΩ	N 227
<b>CDB 333</b>	Remote control for adjusting program in use.	–	–	N 710

## SYSTEM FOR MULTIPLE OPTIMISING COMPENSATORS "MULTICOSTER"

The system comprises one "Master" controller and one or more "Slave" controllers connected together via the C-Ring serial connection.

As "Master" any controller with C-Ring which can be configured as "Primary" can be used (e.g. XCC 602, DTC 648, XTE 611, XTE 600, XTE 602, XCS 633, XTR 628).

The slave controllers (XSE 600 and XSE 602) are automatically configured only as "Secondary" and can operate only if connected to a Master controller.

Each controller carries out independently its own functions and can be connected, via the C-Bus parallel connection, to a Telemangement system.

### OPTIMISING COMPENSATOR "SLAVE" OPTIONAL TELEMAGEMENT

#### XSE 600

TELEMAGEMENT C-Bus: Enabled with ACB 400 accessory.

#### APPLICATION

Operates only if connected via C-Ring to a "PRIMARY" controller.

Suitable for compensated control of one centralised heating plant room and for the On-Off control of a DHW calorifier.

Essential sensors: 1 outside sensor, 1 flow sensor.

Optional accessories: 1 room sensor, 1 measurement 4 ... 20 mA sensor, 1 remote control.

TECHNICAL & FUNCTIONAL FEATURES SAME AS THOSE OF XTE 600.

OPTIONAL  
C ← BUS

C ← RING



2

Code	Description	Data sheet
XSE 600	Optimising compensator.	A 620

### DUAL OPTIMISING COMPENSATOR "SLAVE" OPTIONAL TELEMAGEMENT

#### XSE 602

TELEMAGEMENT C-Bus: Enabled with ACB 400 accessory.

#### APPLICATION

Operates only if connected via C-Ring to a "PRIMARY" controller.

Suitable for compensated control of two central heating zones.

Essential sensors: 1 outside sensor, 2 flow sensors.

Optional accessories: 1 or 2 room sensors, 1 remote control.

TECHNICAL & FUNCTIONAL FEATURES SAME AS THOSE OF XTE 602.

OPTIONAL  
C ← BUS

C ← RING



Code	Description	Data sheet
XSE 602	Dual optimising compensator.	A 620

#### SENSORS AND ACCESSORIES FOR XSE 600 AND XSE 602

Code	Description	Application range	Sensing element	Data sheet
ACB 400	Plug-in for C-Bus communication	—	—	T 433
SAE 001	Outside temperature sensor.	− 40 ... 40 °C	NTC 1 kΩ	N 120
SIH 010	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
SCH 010	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
SAB 010	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
STF 001	Flue gases temperature sensor only for XSE 600)	0 ... 500 °C	Pt 1 kΩ	N 165
CDB 300	Remote control to modify program in use.	—	—	N 710

FEATURES		MODELS		
		DTT 318	XTT 618	XTT 608
Controls	3-wire modulating control of primary heating valve	1	1	1
	On-Off heating pump	1	1	1
	3-wire modulating control or on-off primary DHW valve	–	–	1
	3-wire modulating control DHW distribution valve	1	–	1
	storage tank pump on-off control	1	–	1
	timed on-off DHW circulation pump	–	–	1
Heating control	compensated	–	Yes	Yes
	fixed point	Yes	Yes	Yes
	systems (C-Ring)	–	Yes	Yes
DHW control	fixed point		–	Yes
Sensors	primary flow temperature (reading only)	–	1	–
	primary return temperature	1	1	1
	outside temperature	–	1	1
	heating flow temperature	1	1	1
	heating return temperature	–	1	1
	room temperature	–	–	1
	DHW storage temperature	–	–	1
	DHW distribution temperature	–	–	1
Remote control	modification of heating programme in use	–	1	1
	outside contact for program switching	1	–	1
Programs	24-hour	–	–	7
	7-day	–	–	2
	emergency	–	–	1
Periods with dates	holidays (from-to)	–	–	25
	special	–	–	1
	heating season	–	–	Yes
	GMT / BST	–	–	Yes
Functions	set default outside and flow temperature	–	Yes	Yes
	correct heating curve origin (t°e = 20°C)	–	Yes	Yes
	max. & min. flow temperature limits	–	Yes	Yes
	ambient authority over compensated controls	–	–	Yes
	optimization (system on and off)	–	–	Yes
	Eco Off based on outside temperature	–	–	Yes
	frost protection	–	–	Yes
	heating pump off delay	–	Yes	Yes
	DHW priority	–	–	Yes
	hot water antibacterial action	–	–	Yes
	summer plant exercise	–	–	Yes
TRL functions	max. primary return temperature	Yes	Yes	Yes
	max. difference between primary and secondary return temp. (peak reduction)	–	Yes	Yes
	max. primary rate or power	–	Yes	Yes
	max. valve opening	–	Yes	Yes
Alarms	On-Off contacts	–	3	2
	functional	–	5	7
	short and open sensor circuits	–	7	7
Transmission data	C-Bus for remote management from local and/or remote PC	Yes	Yes	Yes
	C-Ring for data exchange between controllers	–	Yes	Yes

 : alternative



## FIXED POINT CONTROLLER FOR DISTRICT HEATING

### DTT 318

**C ←BUS**

#### APPLICATION

Designed for fixed point control of secondary temperature in district heating sub-stations comprising one heat exchanger with mixing valve on primary.

Communication with telemanagement systems via C-Bus parallel connection.

**Essential sensors: 1 sensor secondary flow.**

**Optional accessories: 1 sensor primary return.**

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operating keys and 3-figure display.
- Control secondary flow temperature at fixed point.
  - Modulating control (3-wire) or On-Off in two stages or On-Off proportional in one stage.
  - Valve opening limitation for maximum limit return temperature primary return circuit.
- Season switching by external switch.



Code	Description	Data sheet
<b>DTT 318</b>	Fixed point controller for district heating sub-stations.	B 282

## CONTROLLER FOR DISTRICT HEATING SUB-STATIONS WITH A SINGLE HEAT EXCHANGER OPTIONAL TELEMANAGEMENT

### XTT 618

**TELEMANAGEMENT C-Bus: Enabled with ACB 400 accessory.**

OPTIONAL  
**C ←BUS**

**C ←RING**

#### APPLICATION

Suitable for the control of district heating sub-stations comprising one heat exchanger with valve and secondary circuit pump.

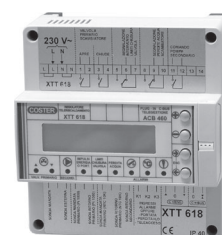
Data communication with other controllers via C-Ring connection.

**Essential sensors: 1 secondary flow sensor.**

**Optional accessories: 1 outside sensor, 1 primary flow sensor, 1 primary return sensor, 1 secondary return sensor.**

#### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Control of secondary flow temperature:
  - At fixed point.
  - Compensated with correction of origin of heating curve.
  - Variable in relation to desired temp. pf heating zones (C Ring).
- Modulating control (3-wire) of control valve of primary circuit heat exchanger.
- Forced valve closure for:
  - Minimum opening limit.
  - Minimum flow or heat limit in primary circuit (from heat meter).
- Limited valve opening for:
  - Maximum opening limit.
  - Maximum flow or heat limit in the primary circuit (from heat meter).
  - Maximum limit temperature return primary circuit.
- Minimum and maximum limit of secondary flow temperature.
- On-Off control of secondary pump in relation to demand for heat.
- Input for metering flow or energy for limits or On-Off alarm.
- Input for measuring water loss or On-Off alarm.
- Input for TeleOn or On-Off alarm.
- Alarms for plant faults and for open or short sensor circuit.
- Data recorder.



Code	Description	Data sheet
<b>XTT 618</b>	Controller for district heating sub-stations.	B 283
<b>XTT 618/S1</b>	Controller for high temperature in district heating sub-stations.	B 283

## SENSORS AND ACCESSORIES FOR DTT 318 E XTT 618

Code	Description	Application range	Sensing element	Data sheet
<b>ACB 400</b>	Plug-in for communicating via C-Bus.	–	–	T 433
<b>SAE 001</b>	Outside temperature sensor (only for XTT 618).	–40 ... 40 °C	NTC1 kΩ	N 120
<b>SIH 010</b>	Immersion temperature sensor (secondary flow, primary return).	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAF 010</b>	or cable-type (only for DTT 318).	0 ... 99 °C	NTC 10 kΩ	N 145
<b>STH 001</b>	Immersion temperature sensor(primary flow, primary return) (only for XTT 618).	0 ... 300 °C	Pt 1 kΩ	N 140
<b>SHF 001</b>	Cable-type temperature sensor (primary flow & return) (only for XTT 618).	0 ... 180 °C	Pt 1 kΩ	N 145
<b>CDB 100</b>	Set-point adjuster (only for DTT 318).	–20...+20°C	–	N 710

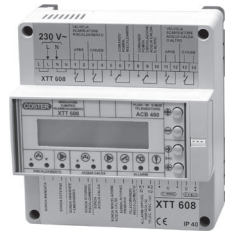
# COMPENSATING CONTROLLER FOR DISTRICT HEATING SUB-STATIONS WITH TWO HEAT EXCHANGERS OPTIONAL TELEMAGEMENT

## XTT 608

TELEMAGEMENT C-Bus: Enabled with ACB 460 accessory.

OPTIONAL  
C ← BUS

C ← RING



### APPLICATION

Designed for the control of district heating substations comprising one heat exchanger Heating (modulating control) and one DHW heat exchanger (On-Off or modulating).  
Data communication with other controllers via serial C-Ring connection.

**Essential sensors: 1 heating flow sensor, 1 DHW storage tank sensor.**

**Optional accessories: 1 outside sensor, 1 room sensor, 1 primary return sensor, 1 heating return sensor, 1 DHW distribution sensor.**

### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Control of heating flow temperature:
  - At fixed point with desired flow temperatures Fixed Point 1-2.
  - Compensated with desired room temp. Normal 1...5, Setback 1-2, Frosprot.
  - Variable in relation to temperature requested by heating zones (C-Ring).
- Modulating control (3-wire) of control valve of primary circuit exchanger Heating.
- Forced closure of valve for:
  - minimum opening limit.
  - minimum limit primary circuit flow.
- Valve opening limits for:
  - maximum opening limit.
  - maximum limit primary circuit return temperature.
  - maximum limit primary circuit flow.
  - maximum limit temperature difference between primary and secondary returns.
- On-Off control heating pump in relation to demand for heat.
- Timed programming with seven 24hour programs and two 7day programs.
- Functions:
  - optimized start and stop; Eco off; Frosprot.
- Control of temperature DHW at fixed point (storage or distribution or storage & distribution):
  - Three-wire modulating control or On-Off valve primary circuit heat exchanger DHW.
  - Timed control DHW circulation pump.
  - Timed programming with seven 24hour programs and two 7day programs.
  - Antibacteria function.
- 25 annual periods with dates and separate programming for heating and DHW.
- Summer exercise function for valves and pumps.
- Automatic switching GMT – BST and summer/winter switching.
- Metering degree-days.
- Input for measurement flow or input for On-Off alarm
- Input for program changing switch or input for On-Off alarm.
- Alarms for plant faults and for open or short sensor circuit.
- Data recorder.

Code		Description	Data Sheet
<b>XTT 608</b>		Optimising compensator for district heating..	B 284

### SENSORS AND ACCESSORIES

Code		Description	Application range	Sensing element	Data sheet
<b>ACB 460</b>		Plug-in for C-Bus communication.	—	—	T 433
<b>SAE 001</b>		Outside temperature sensor.	–40 ... 40 °C	NTC 1 k	N 120
<b>SIH 010</b>		Immersion temperature sensor (heating flow & return, DHW storage & distribution).	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SHF 001</b>		Immersion temperature sensor (primary return).	0 ... 180 °C	Pt 1 kΩ	N 145
<b>SAB 010</b>		Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>CDB 300</b>		Remote control for changing program in use.	—	—	N 710



## CONTROL SYSTEM FOR ROOM TEMPERATURE "MULTIZONE"

SYSTEM OF CONTROLLERS FOR AIR TREATMENT AND OTHER SERVICES FOR INDEPENDENT ZONES..

- Control of room temperature for heating and/or conditioning of several zones  
Each zone is controlled for temperature by a local unit which communicates with a central unit for further functions
- Option of controlling many types of local thermal units.
- Three service inputs for each local unit  
Each local unit is provided with three service inputs (electronic or mechanical switches) which can be dedicated to any function, such as :
  - Alarm or call for help
  - Occupation or not of the room to control special conditioning programs (e.g.: presence or not of persons)
  - Special requirements for the zone with special programs (e.g. windows open)
  - Centralised electric control by a zone switch (e.g. lights in a common corridor)
  - General alarm (e.g. flooding of zone, gas escape)
- Personalised functions for each local unit  
Each local unit can be personalised independently to adapt it to the user requirements (e.g. choice of programs)
- MASTER centralised unit  
The centralised unit can control up to 239 remote units:
  - choice of functions to assign to each remote unit
  - control of common site devices
  - control of common site devices
  - contact with and supervision of all the 239 units
  - powering of up to 20 units; over this number an external power supply is used
  - dialogue with PC and/or modem

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### CENTRAL (MASTER) CONTROL UNIT WITH REMOTE CONTROL VIA SMS

#### MRL 608

TELEMANAGEMENT C-Bus: Activated using ACB 400 accessory.

#### APPLICATION

- MRL 608 is the central unit of the MULTIZONE system.
- Controls up to 239 local units type RTL 110/510, RTL 111/511 and RTL 120/520
- On its own powers up to 20 local units (RTL 120/520 use a dedicated power supply)
- For over 20 units power supply ALC 318 is required for every further 50 units
- Controls all the functions to harmonise the zone units:
  - communication with Bus P-Loc up to a maximum of 239 zones
  - transmission exact time to local clock so as to put all the zones in step
  - transmission of outside temperature to be used and read by zones
  - remote control of all the functions of the zones
  - reception and centralising of all the alarms of the zones
  - remote configuration of all the zones
  - capacity of dialogue at levels single zone, groups of zones or all the zones.
  - centralised control of common electric and/or thermal organs of the site
  - communicates to the individual zone whether it must provide heating or conditioning
  - dialogue with modem or PC via C-Bus using accessory Plug-in C-Bus ACB 400
  - dialogue with local PC via Test Plug-in ACX 232
- Manages communication via "SMS" with the zones for :
  - Sending to an enabled cellular phone the zone status (alarm or other) up to a maximum of 48 zones
  - Remote control via SMS of the operating programs for the zone (timed or other programs) up to a maximum of 239 zones
  - Remote control via SMS of the operating programs for groups of zones (timed or other programs) up to a maximum of 9 groups
- Power supply 230 V~; mounting on DIN 6 unit rail

P ← LOC

OPTIONAL  
C ← BUS



Code	Description	Data sheet
<b>MRL 608</b>	System Master.	B 551

#### ACCESSORY FOR TELEMANAGEMENT

Code	Description	Data sheet
<b>ACB 400</b>	Plug-in for C-Bus communication.	–

## AUXILIARY POWER SUPPLY FOR MULTIZONE SYSTEM

### ALC 318

#### APPLICATION

When there are more than 20 zones it is necessary to use an external power supply, since the Master MRL 608 can power only up to a maximum of 20.

This auxiliary power supply can power:

- 50 zones with local units RTL 110, RTL 510, RTL 111, RTL 511, RTL 120, RTL 520..



Code	Description	Data sheet
ALC 318	Auxiliary power supply for 50 zones	B 554

## AUXILIARY POWER SUPPLY FOR MULTIZONE SYSTEM WITH AMPLIFICATION & GALVANIC INSULATION FROM P-LOC BUS

### ALP 418

P ← LOC

#### APPLICATION

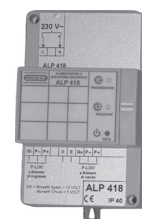
When there are more than 20 zones it is necessary to use an external power supply since the Master MRL 608 can power only up to a maximum of 20.

The ALP 418 power supply can supply power to :

- 50 zones with local units RTL 110, RTL 510, RTL 111, RTL 511, RTL 120, RTL 520.

**ALP 418 is also able to amplify and insulate galvanically the communication Bus P-Loc between Master MRL 608 and the local units.**

The galvanic insulation is a security measure when the sites are very large, with long communication lines and so exposed to errors or short-circuits.



Code	Description	Data sheet
ALP 418	Auxiliary power supply for 50 zones. With amplification and galvanic insulation of Bus P-Loc	B 555

## LOCAL UNIT (SLAVE) WITH RELAY OUTPUT

## RTL 110 - 510

P ←LOC



## APPLICATION

- RTL x10 is the unit (SLAVE) for the control of heating and other functions in a single zone. This unit can be housed in a standard built-in 503 enclosure or mounted on the wall. It is compatible with the switchboards and plates commonly on sale.
- receives power from the Master or from an auxiliary power supply
- controls the local thermal unit by the control of:
  - On-Off zone valve with 230 V~ motor
  - On-Off zone valve with 24 V~ (or other voltages) motor
  - zone valve with 24 V~ (or other voltages) thermal motor
  - zone circulation pump
  - zone burner or small boiler
  - On-Off control of a fan-coil fan (manual choice of speed)
  - any other device controllable by three-point relay.
- Room sensor (internal or external)
- complete configuration of the limits and method of use permitted to user
- three On-Off inputs to program as required
- large display with simplified readout for less expert users
- three operational push-button switches with “intuitive” use, again for the less expert users
- ability to function in event of breakdown of centralised conversation

Code		Description	Data sheet
<b>RTL 110</b>		Local unit with relay output – flush mounting	B 552
<b>RTL 510</b>		Local unit with relay output – wall-mounting (standard white colour)	B 552

## SPECIAL VERSION

Sigla		Description	Data sheet
<b>RTL 510/AG</b>		Local unit with relay output, wall-mounting; enclosure silver finish	–
<b>RTL 510/AL</b>		Local unit with relay output, wall-mounting; enclosure aluminium finish	–
<b>RTL 510/B</b>		Local unit with relay output, wall-mounting; enclosure black finish	–
<b>RTL 510/GY</b>		Local unit with relay output, wall-mounting; enclosure grey finish	–

## ACCESSORIES

Code		Description	Data sheet
<b>ASA 2418</b>		Cable for powering RTL110 & RTL 510 directly with 24 V~	B 552

**FOR SPECIAL VERSIONS MINIMUM BATCH 10 PIECES  
FOR AVAILABILITY & DELIVERY TIMES ASK COMMERCIAL NETWORK**

## LOCAL UNIT (SLAVE) FOR CONTROL EXPANDER

### RTL 111 - RTL 511

P ← LOC



#### APPLICATION

- RTL 111 has all the features of RTL X10 except that instead of having a relay output it has the capacity to control an expander unit (DEP 658) which permits the control of more complex thermal units:
  - zone fan-coil with On-Off valve and three-speed fan
  - zone fan-coil with modulating valve and three-speed fan
  - simple local unit for air treatment with a battery and fan
- All the functions are similar to those of RTL X10 but with the addition of :
  - local control of maximum or desired speed of fan

Code		Description	Data sheet
<b>RTL 111</b>		Local unit for control of built-in expander	B 553
<b>RTL 511</b>		Local unit for control of wall-mounted expander.	B 553

#### SPECIAL VERSION

Code		Description	Data sheet
<b>RTL 511/AG</b>		Local unit for control of wall-mounted expander; enclosure silver fi nish	–
<b>RTL 511/AL</b>		Local unit for control of wall-mounted expander; enclosure aluminium fi nish	–
<b>RTL 511/B</b>		Local unit for control of wall-mounted expander; enclosure black fi nish	–
<b>RTL 511/GY</b>		Local unit for control of wall-mounted expander; enclosure grey fi nish	–

**FOR SPECIAL VERSIONS MINIMUM BATCH 10 PIECES  
FOR AVAILABILITY & DELIVERY TIMES ASK COMMERCIAL NETWORK**

## OUTPUTS EXPANDER FOR RTL 111 - RTL 511

### DEP 658

#### APPLICATION

- The main functions are:
  - dialogue with local unit via a dedicated Bus
  - can power its local unit
  - has On-Off or modulating output for control of valve or other
  - control fan at up to three speeds
  - provided with test for local connections



Code		Description	Scheda tecnica
<b>DEP 658</b>		Outputs expander for RTL 111-511.	B 553

## LOCAL UNIT (SLAVE) WITH RELAY OUTPUT AND 1 ...10 V- OUTPUT

### RTL 120 - RTL 520

P ← LOC



#### APPLICATION

- RTL 120 is the unit (SLAVE) for heating control and other functions of the single zone. This unit can be housed in a standard 503 built-in enclosure.
- It is compatible with switchboard frames and plates readily available on the market
  - receives power from the auxiliary power supply ALC 318 or ALP 418
  - controls the local thermal unit by the control of: :
    - On-Off zone valve with 230 V~ motor and modulation unit with 0 ...10V- input
    - On-Off zone valve with 24 V~ motor, or other voltages and modulation unit with 0 ...10V- input
    - zone valve with 24 V~ thermal motor, or other voltages and modulation unit with 0 ...10V- input
    - zone circulation pump with fixed or variable number of revolutions
    - burner or small zone boiler with 0...10 V- input as POWER or TEMPERATURE
    - On-Off control of the valve and of the fan of a fan-coil with 0...10 V- input
  - Any other device controllable with three-contacts relay and with 0 ...10V- input
- internal room sensor or external sensor
- complete configuration of the limits and of mode of use permitted to user
- three On-Off inputs to be programmed as required
- large display with simplified readout for less expert users
- three push-button switches with "intuitive" use, again for less-expert users
- Ability to function in event of breakdown of centralised communication

Code	Description	Data sheet
<b>RTL 120</b>	Built-in local unit with 0...10 V- relay output	B 556
<b>RTL 520</b>	Wall-mounted local unit with 0...10 V- relay output	B 556

#### SPECIAL VERSION

Code	Description	Data sheet
<b>RTL 520/AG</b>	Wall-mounted local unit with 0...10 V- relay output; enclosure silver finish	–
<b>RTL 520/AL</b>	Wall-mounted local unit with 0...10 V- relay output; enclosure aluminium finish	–
<b>RTL 520/B</b>	Wall-mounted local unit with 0...10 V- relay output; enclosure black finish	–
<b>RTL 520/GY</b>	Wall-mounted local unit with 0...10 V- relay output; enclosure grey finish	–

#### ACCESSORY

Code	Description	Data sheet
<b>ASA 2418</b>	Cable for powering RTL120 & RTL 520 directly with 24 V~	B 556

**FOR SPECIAL VERSIONS MINIMUM BATCH 10 PIECES  
FOR AVAILABILITY & DELIVERY TIMES ASK COMMERCIAL NETWORK**

## UNIT FOR CONTROLLING PUMPS, BURNERS, CHILLERS, ETC FOR MULTIZONE SYSTEMS

### UPM 678

OPTIONAL  
C ← BUS

P ← LOC



TELEMANAGEMENT C-Bus: Enabled using ACB 400 accessory.

#### APPLICATION

- Central unit for control of pumps, burners, chillers or other devices according to thermal and/or refrigerating load of the various zones.
- Several units can be connected on the same P-Loc line in order to serve any number of end uses
- 7 relay outputs controlled according to the thermal or refrigeration load of the zones
  - Seven 0...10V analogue outputs according to thermal or refrigeration load of the zones
  - Can serve up to 239 zones
  - Communication with the zones and the Master MRL 608: Bus P-Loc (local Bus between Master and zones)
  - Communication with modem or local PC:
    - dialogue with modem or PC via C-Bus using accessory Plug-in C-Bus ACB 400.
    - dialogue with local PC via Plug-in Test ACX 232
  - Power supply 230 V~; installation on DIN 6 rail

Code	Description	Data sheet
<b>UPM 678</b>	Central unit for controlling pumps or other devices for MULTIZONE system .	B 557

#### ACCESSORY FOR TELEMANAGEMENT

Code	Description	Data sheet
<b>ACB 400</b>	Plug-in for C-Bus communication	–

## MULTIPLE HEATING ZONE ROOM TEMPERATURE CONTROL SYSTEM

### "COSTERZONE"

This system, powered by 24 V~, permits connecting up to 239 remote ambient temperature controllers to a central display unit and/or to a computer, by means of the CosterBus interface. The system comprises:

- 1 or more 230/24 V ~ transformers to power the system.
- 1 room temperature controller for each zone.
- 1 central display unit

## CENTRAL DISPLAY UNIT FOR "COSTERZONE" CONTROL SYSTEMS

### UMT 704

C ←BUS



#### APPLICATION

"Costerzone" control supervisor for:

- Displaying temperature values measured by room sensors.
- Modifying settings and operating programmes for each single controller.
- Controlling the remote RTB ... units by DTMF signals from digital telephones.

#### FEATURES

- Power supply: 24 V~; Consumption: 10 VA; Case: DIN 144 x 144; Protection: IP 40.
- 1 CosterBus output for connection to remote controllers (max 239).
- 1 RS232 output for connection with a computer or modem.
- 1 C-Bus output for connection with a central bus or modem.
- 1 Relay output for external alarm and 2 relay outputs for On-Off controls in relation to thermal demands.

Code	Description	Data sheet
UMT 704	Central display unit for "Costerzone" control system.	B 510

## PUMP CONTROL UNIT

### UCP 664

#### APPLICATION

Central control unit for heating and/or cooling circuit pumps (max 6), in relation to thermal demand of the zones concerned.

Several units may be connected to the same C-Bus interface.



#### FEATURES

- Power supply: 24 V~; Consumption: 10 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- 1 CosterBus output for connection to remote controllers.
- 6 relay outputs for control pumps.

Code	Description	Data sheet
UCP 664	Pump control unit.	B 515

## ROOM TEMPERATURE CONTROLLERS

### RTB ...

#### APPLICATION

Room temperature controllers for heating/cooling coils or for zone heating, supplied with an NTC 10 kΩ internal sensing element. Designed for On-Off control of fans and zone valves or for modulating control of reversible control valves with 3-wire electric control.

Individual or centralised season switching.

C-Bus compatible.

RTB 040 can be used as a time switch for 24-hour or 7-day programming.

RTB 540 is provided with a display for modifying programme in use and desired temperature.

**Optional sensors: 1 room temperature sensor for fan coils or air duct.**

#### FEATURES

- Power supply: 24 V ~; Consumption: 4 VA; Protection: IP 30.
- Setting range: - From central unit: 0 ... 40 °C; - From local setpoint adjuster:  $\pm 5$  ( $\pm 15$ ) °C.
- On-Off output: Voltage-free contacts: rating 250 V ~, 5 (3) A.  
P control action; Proportional Band:  $\pm 1$  °C (adjustable from central unit).
- Modulating outputs: Triac type 24 V ~, rating 300 mA (7W).  
PI control action; Proportional Band:  $\pm 1$  °C (adjustable from central unit).  
Control of actuators with run time: 100 seconds (adjustable from central unit).

RTB ...



RTB 540



RTB 645



2

Code	Control outputs	Setpoint adjuster	Data sheet
<b>RTB 040</b>	1 On-Off hot or cold (fan or 2-3 wire valve).	—	B 520
<b>RTB 140</b>	1 On-Off hot or cold (fan or 2-3 wire valve).	$\pm 15$ °C	B 520
<b>RTB 540</b>	1 On-Off hot or cold (fan or 2-3 wire valve).	$\pm 15$ °C	B 522
<b>RTB 044</b>	4 On-Off hot or cold (3 fan speeds plus 2-3 wire valve).	—	B 521
<b>RTB 044S1</b>	As RTB 044 with room occupied service (without sensor control).	$\pm 15$ °C	B 521
<b>RTB 144</b>	4 On-Off hot or cold (3 fan speeds plus 2-3 wire valve).	$\pm 15$ °C	B 521
<b>RTB 144S1</b>	As RTB 144 with room occupied service (without sensor control).	$\pm 15$ °C	B 521
<b>RTB 041</b>	1 modulating hot or cold (3-wire valve) + 1 On-Off (fan).	—	B 520
<b>RTB 141</b>	1 modulating hot or cold (3-wire valve) + 1 On-Off (fan).	$\pm 15$ °C	B 520
<b>RTB 042</b>	2 modulating hot and cold (2 3-wire valve).	—	B 520
<b>RTB 142</b>	2 modulating hot and cold (2 3-wire valve).	$\pm 15$ °C	B 520
<b>RTB 045</b>	4 simultaneous On-Off hot or cold (4 2-wire valves).	—	B 520
<b>RTB 145</b>	4 simultaneous On-Off hot or cold (4 2-wire valves).	$\pm 15$ °C	B 520
<b>RTB 645</b>	3 On-Off hot or cold (3 fan speeds). + 2 modulating hot and cold (2 3-wire valve).	$\pm 15$ °C	B 523

## SUMMER TEMPERATURE COMPENSATOR FOR RTB 645 CONTROLLERS

### CTB 334

#### APPLICATION

Maintains a constant difference between room and outside temperatures in the summer period.

#### FEATURES

- Power supply: 24 V ~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Can compensate up to maximum 30 RTB 645 controllers connected in parallel.



Code	Description	Data sheet
<b>CTB 334</b>	Summer temperature compensator for RTB 645 controllers.	B 524

## SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SAB 210</b>	Room temperature sensor with +1 hour key.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SAA 010</b>	Industrial type temperature sensor (used as outside temperature sensor. Only for CTB 334)	0 ... 100 °C	NTC 10 kΩ	N 115
<b>SCB 110</b>	Room temperature sensor with setpoint adjuster.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SCB 210</b>	Room temperature sensor with +1 hour key and setpoint adjuster.	-5 ... +5 °C	—	N 111
<b>STT 010</b>	Temperature sensor for fan coils.	0 ... 40 °C	NTC 10 kΩ	N 155
<b>STA 010</b>	Air duct temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 150
<b>AIC 240</b>	Inverts status of window switch.	—	—	D 615





## WEEKLY DIGITAL CHRONOTHERMOSTAT

### TED 913

- Differential / Proportional P action digital controller, with ON-OFF switch
- Control of burners, pumps, fan coil units
- Control of 2- or 3-point zone valves

#### FUNZIONI

- Hourly, daily, weekly + holidays programming
- Anti-frost" function
- Season switch (Summer – Winter)
- Remote switch-on ready (by telephone + UCS 919)

#### TECHNICAL DATA




- Power supply 2 AA - 1,5V DC alkaline batteries
- Battery life approx. 2 years
- Potential-free contact rating 250V AC, 8(2)A
- Adjustment range 5...39°C
- Digital output 1 SPDT switch



Code	Description	Data sheet
<b>TED 913</b>	Weekly digital chronothermostat	B 325



Description	Code	Communication	Page
<b>COMPACT DHW MIXERS</b>			
<b>ELECTRONIC MIXERS FOR DHW</b> COMPACT UNIT FOR FIXED-POINT TEMPERATURE CONTROL IN DHW DISTRIBUTION CIRCUITS.	<b>MAS ...</b>		<b>3.2</b>
<b>ELECTRONIC MIXERS FOR DHW WITH ANTILEGIONNAIRE FUNCTION</b> COMPACT UNITS FOR CONTROL OF TEMPERATURE AT FIXED POINT IN DHW DISTRIBUTION CIRCUITS. THE ANTILEGIONNAIRE FUNCTION COMES INTO OPERATION ONCE A WEEK (ADJUSTABLE DAY & TIME).	<b>MAS .../AL</b>		<b>3.2</b>

 = communication via telemanagement  
 PREDISPOSTO  = optional telemanagement  
  = data exchange between controllers

## ELECTRONIC MIXING VALVES FOR DHW

### MAS 6.. - 7..

#### APPLICATION

Compact units for maintaining a constant temperature in DHW distribution circuits.

Consist of: a three-port ball valve, a reversible electric actuator with an electronic controller and a temperature detector with an NTC 10 k $\Omega$  sensing element incorporated in the valve.

#### FEATURES

- Power supply: 230 V~; Protection: IP 55; Consumption: MAS 6.. = 6 VA; MAS 7.. = 9 VA.
- Working pressure and maximum differential: 6 bar.
- Proportional band:  $\pm 5 \dots \pm 20$  °C.



Code		DN		Flow rate l/min. <sup>(1)</sup>	Kvs <sup>(2)</sup> m <sup>3</sup> /h	Setting range	Data sheet
		inches	mm.				
<b>MAS 615</b>		1/2"	15	40	2.5	30 ... 70 °C	C 511
<b>MAS 620</b>		3/4"	20	70	5	30 ... 70 °C	C 511
<b>MAS 625</b>		1"	25	130	9	30 ... 70 °C	C 511
<b>MAS 632</b>		1 1/4"	32	180	13.5	30 ... 70 °C	C 511
<b>MAS 740</b>		1 1/2"	40	270	19.2	30 ... 70 °C	C 511
<b>MAS 750</b>		2"	50	390	28.9	30 ... 70 °C	C 511

(1) – Flow rate based on 4 bar average pressure and pressure drop of about 20%.

(2) – Flow rate coefficient: flow in m<sup>3</sup> with valve open and pressure drop of 100 kPa.

## ELECTRONIC MIXERS FOR DHW WITH ANTILEGIONNAIRE FUNCTION

### MAS 6.. - 7.. / AL

#### APPLICATION

Compact units for control of temperature at fixed point in DHW distribution circuits, provided with recycle pump.

The Antilegionnaire function comes into operation once a week (adjustable day and time).

Increases the temperature of the distribution circuit (valve completely open) for a period of time proportional to the temperature itself: high temperature (> 65 °C) = short period (30 min.); low temperature (< 55 °C) = long period (7 hours).

Comprises : three-port ball valve, a reversible electric actuator with electronic controller and a temperature detector with an NTC 10 k $\Omega$  sensing element incorporated in the valve.

#### FEATURES

- Power supply: 230 V~; Protection: IP 55; Consumption: MAS 6.. = 6 VA; MAS 7.. = 9 VA.
- Working pressure and maximum differential: 6 bar.
- Proportional band:  $\pm 5 \dots \pm 20$  °C.













Code		DN		Flow rate l/min. <sup>(1)</sup>	Kvs <sup>(2)</sup> m <sup>3</sup> /h	Setting range	Data sheet
		inches	mm.				
<b>MAS 615/AL</b>		1/2"	15	40	2.5	30 ... 70 °C	C 512
<b>MAS 620/AL</b>		3/4"	20	70	5	30 ... 70 °C	C 512
<b>MAS 625/AL</b>		1"	25	130	9	30 ... 70 °C	C 512
<b>MAS 632/AL</b>		1 1/4"	32	180	13.5	30 ... 70 °C	C 512
<b>MAS 740/AL</b>		1 1/2"	40	270	19.2	30 ... 70 °C	C 512
<b>MAS 750/AL</b>		2"	50	390	28.9	30 ... 70 °C	C 512

(1) – Flow rate based on 4 bar average pressure and pressure drop of about 20%.

(2) – Flow rate coefficient: flow in m<sup>3</sup> with valve open and pressure drop of 100 kPa.

Description	Code	Communication	Page
<b>DEVICES FOR VARIOUS USES</b>			
<b>UNIT FOR PROGRAMMING CONTROLS AND RECORDING MEASUREMENTS, ALARMS &amp; STATUS</b> 5 ON-OFF CONTROLS WITH TIMED PROGRAMMES & INDEPENDENT ANNUAL PERIODS. 7 INPUTS FOR MEASUREMENTS OR ON-OFF ALARMS	<b>DAM 675</b>	<b>C ← BUS</b>	<b>4.3</b>
<b>MULTIPLE UNIT FOR LOGICAL &amp; TIMED PROGRAMMING OF ELECTRICAL OR HEATING PLANTS</b> 6 ON-OFF CONTROLS WITH TIMED PROGRAMMING & LOGIC FUNCTIONS (PLC).	<b>PLE 608</b>	<b>C ← BUS</b>	<b>4.3</b>
<b>PROGRAMMING UNIT FOR PLANTS &amp; BOILER</b> ON-OFF CONTROL OF 5 HEATING PLANTS WITH TIMED PROGRAMMING OR WITH TEMP. CONTROL & CONTROL BOILER ACCORDING CALL FROM HEATING ZONE.	<b>XPT 678</b>	<b>C ← BUS</b> <b>C ← RING</b>	<b>4.4</b>
<b>TIMED PROGRAMMER WITH 2 OUTPUTS &amp; 2 ALARM INPUTS</b> <b>OPTIONAL TELEMAGEMENT</b> FOR ON-OFF CONTROL OF TWO ELECTRICAL DEVICESRE DUE SEGNALAZIONI & RECEIVING TWO ALARM SIGNALS.	<b>XCO 428</b>	OPTIONAL <b>C ← BUS</b> <b>RS 232</b>	<b>4.4</b>
<b>MINI TELEMAGEMENT KIT INCLUDING GSM MODEM (SINGLE PACKAGE)</b> TELEMAGEMENT RS232: ALREADY ENABLED BY THE KIT TELEMAGEMENT C-BUS: CAN BE ENABLED WITH ACB 400 ACCESSORY.	<b>XCO 428 + GSM 723</b>	OPTIONAL <b>C ← BUS</b> <b>RS 232</b>	<b>4.4</b>
<b>TWIN PUMP STEP CONTROLLER</b> ADAPTS THE ON-OFF PUMP SIGNAL FROM A CONTROLLER TO CONTROL TWIN PUMPS.	<b>IPG 318</b>	<b>C ← BUS</b>	<b>4.5</b>
<b>SEQUENCER FOR 5 PUMPS OR ELECTRIC LOADS</b> DESIGNED FOR SEQUENCING MAX. 5 PUMPS BY AN ON-OFF OR 0 ... 10 V–, MAX. 5 ELECTRIC LOADS ACCORDING TO TOTAL ENERGY CONSUMPTION.	<b>IPG 658</b>		<b>4.5</b>
<b>SIGNAL SELECTOR 0 ... 10 V–</b> SELECTS THE MINIMUM, ARITHMETIC MEAN & MAXIMUM VALUES FROM 2 ... 6 SIGNALS (0 ... 10 V–) COMING FROM ACTIVE DETECTORS.	<b>CSA 344</b>		<b>4.5</b>
<b>CONVERTOR OF 0 ... 10 V– OR 4 ... 20 mA SIGNALS</b> <b>OR TEMPERATURE MEASUREMENT INTO RELAYS CONTROLS</b> CONVERTS ONE 0 ... 10 V– OR 4 ... 20 mA OR SIGNAL OR TEMPERATURE INTO 3-WIRE MODULATING OR MINIMUM & MAXIMUM LIMIT INSTRUCTION.	<b>CSV 328</b>	<b>C ← BUS</b>	<b>4.7</b>
<b>CONVERTOR OF 3-WIRE OR 0 ... 10 V– OR 4 ... 20 mA IN TWO 0 ... 10 V– SIGNALS</b> CONVERTS ONE 3-WIRE MODULATING OR ONE 0 ... 10 V– OR 4 ... 20 mA SIGNAL INTO TWO 0 ... 10 V– SIGNALS WITH VARIOUS DEGREES OF AMPLIFICATION.	<b>CSC 328</b>	<b>C ← BUS</b>	<b>4.7</b>
<b>CONVERTOR OF ACTIVE &amp; PASSIVE TEMPERATURE DETECTORS</b> CONVERTS TEMPERATURE MEASUREMENTS OF 1 ACTIVE 0 ... 10 V– OR 4 ... 20 mA ACTIVE DETECTOR OR 1 PASSIVE DETECTOR (NTC 1 KΩ OR NTC 10 KΩ) INTO 2 MEASUREMENTS OF PASSIVE DETECTORS (NTC 1 KΩ OR NTC 10 KΩ). PERMITS CONNECTING 1 DETECTOR TO SERVAL DEVICES.	<b>CAP 328</b>		<b>4.7</b>

**C ← BUS** = telemagement    **OPTIONAL C ← BUS** = optional telemagement    **C ← RING** = data exchange between controllers

Description	Code	Communication	Page
<b>C-RING ACCESSORIES</b>			
<b>C-RING AMPLIFIER</b> AMPLIFIER THE C-RING SIGNAL AND PERMITS INCREASING THE DISTANCE BETWEEN THE CONTROLLERS CONNECTED.	<b>PCR 308</b>		<b>4.5</b>
<b>C-RING TEMPERATURE STEP CONTROLLER</b> CONVERTS A THRESHOLD (CAN BE SET FROM 0 TO 80°C IN 5°C STEPS) OF THE DESIRED ZONES FLOW TEMPERATURE COMING FROM C-RING INTO A SINGLE SPDT RELAY CONTROL 5(1) A AND IN ONE 0...10V- OUTPUT..	<b>LCR 348</b>		<b>4.6</b>
<b>CONNECTOR IN C-RING OF VARIOUS COMMANDS</b> FOR CONTROLLING ONE OR MORE BOILERS.	<b>OCR 34.</b>		<b>4.6</b>
<b>CONTROLLERS FOR VARIOUS USES</b>			
<b>UNIVERSAL CONTROLLER</b> CONTROL OF TEMPERATUREZ AT FIXED POINT (NTC 10 KΩ) OR SIZE (PRESSURE, LEVEL, UMIDITY, ETC.) MEASURED BY A 0 ... 10 - ACTIVE DETECTOR 3-WIRE MODULATING CONTROL OR ON-OFF IN 2 STAGES OR 0 ... 10 V-	<b>DRU 41.</b>		<b>4.12</b>
<b>UNIVERSAL CONTROLLER</b> CONTROL OF TEMPERATURE AT FIXED POINT (NTC 10 KΩ O NTC 1 KΩ O PT 1 KΩ) OR SIZE (PRESSURE, LEVEL, HUMIDITY, ETC.) MEASURED BY A 0 ... 10 V- OR 4 ... 20 MA ACTIVE DETECTOR 3-WIRE MODULATING CONTROL IN 2... 4 STEPS	<b>DRU 61.</b>		<b>4.12</b>
<b>ON-OFF CONTROLLER FOR TEMPERATURE OR DIFFERENCE BETWEEN 2 TEMPERATURES</b>	<b>RTP 318</b>		<b>4.8</b>
<b>TELEMANAGED DIFFERENTIAL CONTROLLER OF TWO TEMPERATURES OR TWO 0 ... 10 V- SIGNALS</b>	<b>DDM 328</b>		<b>4.8</b>
<b>TELEMANAGED MODULATING OR TWO-STAGE ON-OFF TEMPERATURE CONTROLLERI</b>	<b>DTF 31.</b>		<b>4.9</b>
<b>MODULATING TEMPERATURE CONTROLLER OR ON-OFF IN 2 STAGES WITHOUT C-BUS</b>	<b>RTF 31.</b>		<b>4.9</b>
<b>TEMPERATURE CONTROLLER WITH TIMED PROGRAMMING OPTIONAL TELEMANAGEMENT</b> DISTRIBUTION DHW & CALORIFIER STORAGE ROOM WITH OR WITHOUT FLOW LIMITS SWIMMING POOL WATER WITH OR WITHOUT FLOW LIMITS FLOW UNDERFLOOR PANELS & FAN COILS HORTICULTURAL BEDS WITH FLOW LIMITS.	<b>XTR 628</b>	OPTIONAL  	<b>4.10</b>
<b>CONTROLLER FOR SOLAR PANELS</b>			
<b>CONTROLLER FOR SOLAR PANEL INSTALLATIONS</b> AUTOMATION SOLAR PANEL PLANTS WITH MAX. 3 STORAGE TANKS: - ON-OFF CONTROL INTEGRATION CIRCUIT - MODULATING CONTROL DHW DISTRIBUTION TEMPERATURE.	<b>DPS 638</b>	 	<b>4.11</b>
<b>UNIVERSAL CONTROLLER</b> CONTROL OF TEMPERATURE AT FIXED POINT (NTC 10 KΩ OR NTC 1 KΩ O PT1 KΩ) OR SIZE (PRESSURE, LEVEL, HUMIDITY, ETC.) MEASURED BY A 0 ... 10 V- OR 4 ... 20 MA ACTIVE DETECTOR 3-WIRE MODULATING CONTROL IN 2 ... 4 STEPS.	<b>RPS 638</b>		<b>4.11</b>

 = telemanagement     = optional telemanagement     = data exchange between controllers

## UNIT FOR PROGRAMMING CONTROLS AND RECORDING MEASUREMENTS, ALARMS & STATUS

### DAM 675

C ← BUS



#### APPLICATION

On-Off control of five digital outputs with timed programmes or with independent dates. Permits acquiring signals of measurements with alarm potential and On-Off signals of alarms or status or metering. C-Bus compatible.

#### FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operational keys and alphanumeric display.
- Setting with dates of heating season and automatic switching GMT - BST.
- Seven 24-hour programmes, five 7-day programmes, 30 annual periods and one special period with setting of dates.
- 2 SPDT relay outputs and 3 SPST outputs for programmed On-Off controls.
- 1 relay output for local signalling of alarm status.
- 3 On-Off inputs for alarms, status or metering.
- 7 inputs of measurements with alarm potential (Pt 1 kΩ, NTC 1 kΩ, NTC 10 kΩ, 4 ... 20 mA or 0 ... 10 V-) or 7 On-Off inputs for alarm or status.
- Degree days metering.

Code	Description	Data sheet
<b>DAM 675</b>	Unit for programming controls and measurements, alarms and status.	D 510

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>STF 001</b>	Flue gases temperature detector.	0 ... 500 °C	Pt 1 kΩ	N 165
<b>STH 001</b>	Immersion high temperature detector.	0 ... 300 °C	Pt 1 kΩ	N 140
<b>SIH 010</b>	Immersion water temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAE 001</b>	Outside temperature detector.	-40 ... 40 °C	NTC 1 kΩ	N 120
<b>SAB 010</b>	Room temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>ASA 420</b>	Accessory for connection active detector 4 ... 20 mA.	—	—	—
<b>ASA 010</b>	Accessory for connection active detector 0 ... 10 V-.	—	—	—

## MULTIPLE UNIT FOR LOGICAL & TIMED PROGRAMMING OF ELECTRICAL OR HEATING PLANTS

### PLE 608

C ← BUS



#### APPLICATION

Suitable for On-Off control of six electric devices with timed programming and in relation to digital inputs. C-Bus compatible.

#### FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operational keys and alphanumeric display.
- Six On-Off control outputs with alarm status option.
- Independent programming for each output with seven 24-hour programmes, two 7-day programmes and one special period with date setting.
- 12 digital inputs for acquisition of status to be processed by logic algorithms for generation of control outputs; eight of these may be utilised as alarm inputs.
- Inputs and outputs events logger.

Code	Description	Data sheet
<b>PLE 608</b>	Unit for programming controls and acquisition measurements, alarms, status.	D 515

## PROGRAMMING UNIT FOR PLANTS & BOILER

### XPT 678

C ←BUS

C ←RING

#### APPLICATION

Designed for:

- On-Off control of five heating and/or DHW zones by timed events programme.
- as above but with addition of temperature control.
- control boiler according to heat demand from heating/DHW zones.

C-Bus enabled using ACB 460 C1 accessory

C-Ring compatible.



#### FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operating keys and alphanumeric display.
- Setting with dates of heating season and automatic switching GMT-BST.
- Five On-Off outputs for heating, etc plants
- Independent programming for each output with seven 24-hour programmes, two 7-day programmes, 15 annual periods and one special period with date setting.
- One On-Off output for control boiler.
- Three On-Off inputs for alarm or status.

Code	Description	Data sheet
<b>XPT 678</b>	Programming unit for heating zones and boiler.	D 511

## SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>ACB 460</b> <b>SIH 010</b> <b>SAE 001</b> <b>SAB 010</b>	Plug-in for C-Bus communication Immersion water temperature detector. Outside temperature detector. Room temperature detector.	0 ... 99 °C -40 ... 40 °C 0 ... 40 °C	NTC 10 kΩ NTC 1 kΩ NTC 10 kΩ	N 140 N 120 N 111

## PROGRAMMMER WITH 2 OUTPUTS & 2 ALARM INPUTS OPTIONAL TELEMAGEMENT WITH SMS COMMUNICATION

### XCO 428

OPTIONAL  
C ←BUS

RS 232

TELEMAGEMENT C-Bus: Enabled with ACB 400 accessory.

#### APPLICATION

For On-Off control of two electrical devices with timed programming and local remote controls and remote controls with timed programming and two alarm signals

#### FEATURES

- Power supply: 230V~; Consumption: 3VA; DIN 71 x 116 modular enclosure; Protection: IP 40.
- Two relay outputs with 5(1)A SPDT switches.
- Two On-Off switches.
- Two inputs for remote extension switches.
- Two programmable inputs for changing program or signalling alarm.
- Programmable via SMS



Code	Description	Data sheet
<b>XCO 428</b>	Time programmer with two outputs and two alarm inputs.	D 512

## ACCESSORY FOR TELEMAGEMENT

Code	Description	Data sheet
<b>ACB 400</b>	Plug-in for communication via C-Bus	T 433

## KIT OF MINI TELEMAGEMENT INCLUDING TIMED PROGRAM

### XCO 428 + GSM 723 (SINGLE PACKAGE)

OPTIONAL  
C ←BUS

RS 232

TELEMAGEMENT RS 232: already enabled by kit.

TELEMAGEMENT C-Bus: Enabled with ACB 400 accessory.



Code	Description	Data sheet
<b>XCO 428+GSM</b>	Mini kit for Telemagement via RS 232, including program. timer with two outputs. (Page 10.5).	—

## TWIN PUMP STEP CONTROLLER

## IPG 318

C ← BUS

## APPLICATION

Adapts the On-Off pump signal from a controller to control twin pumps.  
Automatically alternates the operation of the two pumps every week or every month.  
Automatically inserts the lag pump in case of a lockout in the lead pump.  
C-Bus compatible.

## FEATURES

- Power supply: 230 V ~; Consumption: 2 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.



Code		Description	Data sheet
IPG 318		Changeover controller for twin pumps.	D 610

## SEQUENCER FOR 5 PUMPS OR ELECTRIC LOADS

## IPG 658

C ← BUS

## APPLICATION

Designed for:

- Sequencing max 5 pumps by an On-Off or 0 ... 10 V– control signal with timed rotation of the pumps used and automatic replacement of faulty ones.
- Sequency max 5 electric loads according to total energy consumption (0 ... 10 V– control). Option of increasing number of loads controlled by using several IPG 658 and multiplying the control signal by means of CSC 328 convertors.

Communication by telemanagement system using parallel C-Bus connection.

## FEATURES

- Power supply: 230 V ~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
  - Digital programming by means of 4 operating keys and 3-figure display.
  - 5 On-Off relay outputs to control pumps or electric loads.
  - 1 On-Off relay output for signalling alarm.
  - 1 input for On-Off or 0 ... 10 V– control signal.
  - 2 On-Off inputs for each output used for acquisition lockout and confirmation operation.
- The inputs regarding possible unused outputs can be used to signal alarms or status.



Code		Description	Data sheet
IPG 658		Sequencer for max 5 pumps or electric charges.	D 614

## 0 ... 10 V– SIGNALS SELECTOR

## CSA 344

## APPLICATION

Selects the minimum, arithmetic mean and maximum values from 2 ... 6 signals 0 ... 10 V– coming from active detectors (humidity, pressure, temperature) or from progressive controls.

## FEATURES

- Power supply: 24 V ~; Consumption: 3VA; DIN 53 x 115 modular enclosure; Protection: IP 40.



Code		Description	Data sheet
CSA 344		Selector of minimum, arithmetic mean & maximum values of 0 ... 10 V– active signals.	D 655

## C-RING AMPLIFIER

## PCR 308

C ← RING

## APPLICATION

Amplifies the C-Ring signal and permits increasing the distance between the controllers connected.  
One PCR 308 required for each group of controllers.

## FEATURES

- Power supply: 230 V ~; Consumption: 4 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.



Code		Description	Data sheet
PCR 308		Low-power C-Ring amplifier.	T 424



## C-RING TEMPERATURE STEP CONTROLLER

### LCR 348

**C ←RING**



#### APPLICATION

Converts a threshold (can be set from 0 to 80°C in 5°C steps) of the desired zones flow temperature coming from C-Ring into a single SPDT relay control 5(1) A and in one 0 ... 10V- output.

#### FEATURES

- Power supply: 230 V~; Consumption: 3VA; DIN 53 x 115 modular container; Protection: IP 40.

Code		Description	Data sheet
<b>LCR 348</b>		C-Ring threshold temperature step controller.	D 661

## CONNECTOR IN C-RING OF VARIOUS COMMANDS FOR CONTROLLING ONE OR MORE BOILERS

### OCR 34.

**C ←RING**



#### APPLICATION

Connects in C-Ring to control the temperature required by the boiler(s):

- a temperature measured by a standard sensor
- a 0...10V- input which can be set with any scale
- a remote control type CBD 100
- a general-use switch

#### FEATURES

- Power supply: 230 V~/24 V~; Consumption: 3 VA; DIN 53 x 115 modular housing; Protection: IP 40.
- Output relay switch:
  - maximum applicable voltage 250 V~
  - maximum switching current 5 (1) A

Code		Description	Power supply	Data sheet
<b>OCR 348</b> <b>OCR 344</b>		Connector to C-Ring of various commands for controlling one or more boilers Connector to C-Ring of various commands for controlling one or more boilers	230 V~ 24 V~	D 662 D 662

## GENERAL ACCESSORIES FOR ELECTRIC CONNECTIONS



Code		Description	Data sheet
<b>ASA 241</b> <b>ASA 248</b> <b>ACT 248</b> <b>ACR 245</b> <b>ACR 242</b> <b>AIC 240</b> <b>FTR 101</b>		Connector for converting a switch powered by 24 V~ or 12 V~ in an optoisolator control. Connector for converting a switch powered by 230 V~ in an optoisolator control. Connector for converting a power supply of 24 V~ to 230 V~ - 10 W. Connector for converting a power supply of 24 V~ to 1 SPTD switch max. 5 (1) A. Connector for converting a power supply of 24 V~ to 2 SPTD switches max. 1 A (24 V~). Connector for invert the state of a generic contact. Universal filter for 24 ... 230 Volt~ switches or inputs.	D 615 D 615 D 615 D 615 D 615 D 615 D 615

## CONVERTOR OF 0 ... 10V– OR 4 ... 20 mA SIGNALS OR TEMPERATURE MEASUREMENT INTO RELAY CONTROLS

### CSV 328

C ←BUS

#### APPLICATION

The device is designed to convert one 0 ... 10V~ or 4 ... 20 mA or temperature measurement (NTC 1 kΩ or NTC 10 kΩ) signal into a 3-wire modulating control or 2-stage On-Off control or max-min limit On-Off control. C-Bus compatible.

#### FEATURES

• Power supply: 230 V~; Consumption: 2VA; DIN 53 x 115 modular enclosure; Protection: IP 40.



Code	Description	Data sheet
<b>CSV 328</b>	Converter of 0 ... 10 V– or 4 ... 20 mA or temperature measurement signal to relay controls.	D 652

## CONVERTOR OF 3-WIRE OR 0 ... 10 V– OR 4 ... 20 mA IN TWO 0 ... 10 V– SIGNALS

### CSC 328

C ←BUS

#### APPLICATION

The device is designed to transform one 3-wire modulating signal or one 0 ... 10 V– or 4 ... 20 mA signal into two 0 ... 10 V– signals. C-Bus compatible.

#### FEATURES

• Power supply: 230 V~; Consumption: 2 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.



Code	Description	Data sheet
<b>CSC 328</b>	Converter of 3-wire 0 ... 10 V– or 4 ... 20 mA signal to two 0 ... 10 V– signals.	D 653

## ACTIVE AND PASSIVE TEMPERATURE DETECTOR CONVERTER

### CAP 328

#### APPLICATION

The device is designed to convert the temperature measurement of one 0 ... 10 V– or 4 ... 20 mA active detector or one NTC 1 KΩ or NTC 10 KΩ passive detector into two NTC 1 KΩ or NTC 10 KΩ passive detector measurements. Each measurement output can be used in parallel on several controllers (up to 5) whose measurement inputs have the same features.

#### FEATURES

• Power supply: 230 V~; Consumption: 2 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.



Code	Description	Data sheet
<b>CAP 328</b>	Active and passive temperature detector.	D 654

Temperature measurement	Groups of controllers with identical measurement features
NTC 1 kΩ - Outside (-30 ... 40 °C)	<p><b>Check on CAP 328 Technical Data Sheet (D 654)</b></p>
NTC 10 kΩ - Room (0 ... 40 °C)	
NTC 10 kΩ - Discharge air (0 ... 60 °C)	
NTC 10 kΩ - Water (0 ... 100 °C)	

## ON - OFF OR DIFFERENTIAL TEMPERATURE CONTROLLER

### RTP 318

#### APPLICATION

For control temperature at a fixed point or to control the difference between two temperatures, by means of one stage On-Off.

**Essential detectors:** 1 detector for fixed point control.

2 detectors for control temperature difference.

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 3 operating keys and 3-figures alphanumeric display.
- One-stage On-Off SPDT.



Code	Description	Data sheet
<b>RTP 318</b>	On-Off or differential temperature controller.	D 112

#### DETECTORS & ACCESSORIES

Code	Description	Application range	Sensing elem. or signal	Data sheet
<b>SIH 010</b>	Immersion temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SCH 010</b>	Surface temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SAB 010</b>	Room temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STA 010</b>	Air duct temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 150
<b>SAF 010</b>	Cable-type temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 145
<b>SAE 001</b>	Outside temperature detector.	-30 ... 40 °C	NTC 1 kΩ	N 120
<b>SAF 001</b>	Cable-type temperature detector.	-40 ... 40 °C	NTC 1 kΩ	N 145

## DIFFERENTIAL CONTROLLER FOR TWO TEMPERATURES OR TWO 0 ... 10 V- SIGNALS

### DDM 328

**C ← BUS**

#### APPLICATION

- Suitable for (example):
- Control diffusors according to flow/room temperature differential.
  - Control dampers according to outside/room humidity differential.
  - Control pump according to flow/room temperature differential.

Communication with telemanagement systems via C-Bus parallel connection.

**Essential detectors:** two NTC 10 kΩ temperature detectors or two 0 ... 10 V- detectors.

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 operating keys and three-figure display.
- Modulating control (three-wire) or On-Off in two stages or On-Off for minimum and maximum limits.
- Progressive 0 ... 10 V- control.



Code	Description	Data sheet
<b>DDM 328</b>	Controller for differential between two temperatures or two 0 ... 10 V- signals.	D 156

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing elem. or signal	Data sheet
<b>SIH 010</b>	Immersion temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAB 010</b>	Room temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STA 010</b>	Air duct temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 150
<b>SUR 704</b>	Relative humidity detector.	10 ... 90 %	0 ... 10 V-	N 221
<b>SUT 714</b>	Relative humidity and temperature detector.	10 ... 90 %	0 ... 10 V-	N 222
<b>SAU 914</b>	Relative humidity & temperature sensor.	20 ... 80 %	0 ... 10 V-	N 227
		0 ... 40 °C	NTC 10 kΩ	-

## MODULATING OR TWO-STAGE ON-OFF TEMPERATURE CONTROLLER

### DTF 31.

C ←BUS

#### APPLICATION

Suitable for PI control of a fixed-point temperature with possible minimum and maximum flow limits. 3-point modulating control or on-off in 2 stages.

Telemanagement control via parallel C-Bus connection.

**Essential detectors:** 1 detector for primary control.

**Optional accessories:** 1 detector for limit control, 1 setpoint adjuster.

#### FEATURES

- Power supply: 24V ~ or 230 V ~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP40.
- Digital programming by means of 4 operating keys and 3-digit numeric display.
- Modulating control of valve by 3-wire reversible actuator or On-Off in 2 stages.
- Minimum and maximum limits flow temperature.
- Season switching by external switch.

Code		Description	Power supply	Data sheet
<b>DTF 314</b> <b>DTF 318</b>		Modulating temperature controller. Modulating temperature controller.	24 V~ 230 V~	D 155 D 155



## MODULATING TEMPERATURE CONTROLLER OR ON-OFF IN 2 STAGES

### RTF 31.

**NB :**Features identical to those of DTF 31.

**Not C-Bus compatible.**

Code		Description	Power supply	Data sheet
<b>RTF 314</b> <b>RTF 318</b>		Modulating temperature controller. Modulating temperature controller.	24 V~ 230 V~	D 151 D 151



4

## DETECTORS AND ACCESSORIES FOR DTF 31.. AND RTF 31..

Code		Description	Application range	Sensing element	Data sheet
<b>SIH 010</b>		Immersion water temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SIR 010</b>		Immersion water temperature detector (quick sensing).	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAB 010</b>		Room temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STA 010</b>		Air duct temperature detector.	0 ... 99 °C	NTC 10 kΩ	N 150
<b>CDB 100</b>		Setpoint adjuster with incorporated sensor.	-5 ... +5 °C	NTC 10 kΩ	N 710

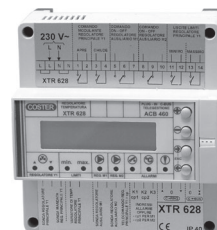
# TEMPERATURE CONTROLLER WITH TIMED PROGRAMMING OPTIONAL TELEMAGEMENT

## XTR 628

TELEMAGEMENT C-Bus: Enabled with ACB 460 accessory.

OPTIONAL  
C ← BUS

C ← RING



### APPLICATION

Suitable for temperature control:

- DHW & storage calorifier.
- Swimming pool water with or without flow limits.
- Flow underfloor panels and fan-coils.
- Greenhouse beds with flow limits.
- Room with or without flow limits for heating zones with radiators, panels, hot air generators.

Data communication with other controllers via C-Ring connection.

**Essential sensors: 1, 2 or 3 temperature sensors.**

**Optional accessories: 1 flow temperature sensor, 1 set-point adjuster.**

### FEATURES

- Power supply: 230V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- 1 primary temperature control with:
  - Control of temperature with one primary sensor or with one primary sensor and one flow sensor (minimum & maximum limits).
  - Modulating 3-wire control of valve or On-Off in 1 or 2 stages Proportional/Integral or differential.
- 2 On-Off temperature or timed controls with:
  - Control temperature with one sensor.
  - On-Off PI or differential control.
- Autonomous timed programming for the three controls with seven 24hour programs, two 7day programs and 2 5 annual periods with dates.
- Autonomous functions usable by the three types of control:
  - Priority and control anticondensing boiler.
  - Antibacteria.
- Automatic switching GMT – BST.
- 1 input for changing programs primary control.
- 2 inputs for changing programs On-Off control or On-Off alarm inputs.
- 1 On-Off alarm input.
- Alarms for plant faults and for open or short sensor circuit.

Code		Description	Data sheet
<b>XTR 628</b>		Temperature controller.	D 212

### SONDE E ACCESSORI

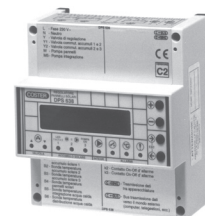
Code		Description	Application range	Sensing element	Data sheet
<b>ACB 460</b>		Plug-in for C-Bus communication.			–
<b>SIH 010</b>		Immersion temperature sensor (Normal).	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SIR 010</b>		Immersion temperature sensor (Rapid).	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAB 010</b>		Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STA 010</b>		Air duct temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 150
<b>CDB 100</b>		Setpoint adjuster with incorporated sensor.	–5 ... +5 °C	NTC 10 kΩ	N 710

## CONTROLLER FOR SOLAR PANEL INSTALLATIONS

### DPS 638

C ←BUS

C ←RING



#### APPLICATION

Designed for automation of solar panel installations with a maximum of three storage tanks with On-Off control of integration circuit and modulating control of DHW distribution circuit.

C-Bus compatible.

C-Ring compatible.

**Essential detectors:** 1 solar panel temperature detector; from 1 to 3 storage tank detectors.

**Optional detectors:** 1 integration temperature detector, 1 DHW temperature detector.

#### FEATURES

- Power supply: 230 V ~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operating keys and alphanumeric display.
- Setting dates of heating season and automatic switching GMT - BST.
- Seven 24-hour programmes, two 7-day programmes, 25 holiday periods and one special period with date setting.
- Management of heat exchange between solar panels and storage tanks (max. three) in relation to temperature differential with control panels circuit pump and automatic switching between three storage tanks.
- Control of integration circuit temperature by programmed events On-Off control and antibacterial function.
- Regulation of temperature by modulating three-wire control of DHW distribution temperature or of minimum solar panels temperature.
- 3 On-Off inputs for alarms or status.
- Alarm functioning of plant and alarms for closed or open detector circuits.

Code	Description	Data sheet
<b>DPS 638</b>	Temperature controller for solar panel installations.	D 310

4

## CONTROLLER FOR SOLAR PANEL INSTALLATIONS

### RPS 638

C ←RING



Technical and functional features same as DPS 638.

Not C-Bus compatible.

Code	Description	Data sheet
<b>RPS 638</b>	Temperature controller for solar panel installations.	D 315

## DETECTORS AND ACCESSORIES FOR RPS 638 AND DPS 638

Code	Description	Application range	Sensing element	Data sheet
<b>SIH 010</b>	Immersion detector (1/2" x 80 mm).	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAF 010</b>	Cable-type detector.	0 ... 99 °C	NTC 10 kΩ	N 145
<b>SHF 001</b>	Cable-type temperature detector with 3-metre cable.	0 ... 180 °C	Pt 1 kΩ	N 145
<b>GIS 090</b>	Cable-type detector pocket (1/2" x 90 mm).	—	—	N 145
<b>GIS 160</b>	Cable-type detector pocket (1/2" x 160 mm).	—	—	N 145
<b>GIS 500</b>	Cable-type detector pocket (1/2" x 500 mm).	—	—	N 145



## UNIVERSAL CONTROLLER

### DRU 614 - 618

C ← BUS



#### APPLICATION

Suitable for control of at fixed point of a temperature measured by a thermistor-type detector (NTC 10 kΩ or NTC 1 kΩ or PT 1 kΩ) or of another variable (pressure, level, etc.) measured by a detector with 0 ... 10 V– or 4 ... 20 mA output signals.

C-Bus compatible.

**Essential detectors: 1 thermistor type or voltage/current type.**

**Optional detectors: 1 setpoint adjuster.**

#### FEATURES

- Power supply: 24 V ~ (DRU 614), 230 V ~ (DRU 618); Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operating keys and alphanumeric display.
- Control at fixed point:
  - Three-wire modulating control or On-Off control in sequence of 2, 3 or 4 stages.
  - Two On-Off controls in relation to two adjustable thresholds of output signal or of measurement range.
  - Adjustment of set point by means of remote control.
- One On-Off alarm input.
- Two configurable inputs : remote control for inversion of control action or On-Off alarms.
- Alarms for operational controller fault for short or open detector circuits.

Code	Description	Data sheet
<b>DRU 614</b>	Universal controller. Power supply 24 V~.	D 410
<b>DRU 618</b>	Universal controller. Power supply 230 V~	D 410

## UNIVERSAL CONTROLLER

### DRU 414 - 418

C ← BUS



#### APPLICATION

Suitable for control at fixed point of a temperature measured by a thermistor-type detector NTC 10 kΩ or of another variable (humidity, pressure, level, etc.) measured by a detector with 0 ... 10 V– output signals.

C-Bus compatible.

**Essential detectors: 1 thermistor or voltage type.**

**Optional detectors: 1 setpoint adjuster.**

#### FEATURES

- Power supply: 24 V ~ (DRU 414), 230 V ~ (DRU 418); Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four operating keys and 3-figure numerical display.
- Three-wire modulating control or two-stage On-Off or 0 ... 10 V control signal.

Code	Description	Data sheet
<b>DRU 414</b>	Universal controller. Power supply 24 V~.	D 412
<b>DRU 418</b>	Universal controller. Power supply 230 V~	D 412

## DETECTORS AND ACCESSORIES FOR DRU 41. AND DRU 61.

Code	Description	Application range	Sensor or signal	Data sheet
<b>SIH 010</b>	Immersion temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAF 001</b>	Cable-type temperature sensor (only for DRU 614).	–40 ... 40°C	NTC 1 kΩ	N 145
<b>STH 001</b>	Immersion water temp. sensor (only for DRU 614).	0 ... 300 °C	PT 1 kΩ	N 140
<b>SAB 010</b>	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SUR 704</b>	Relative humidity sensor.	10 ... 90 %	0 ... 10 V–	N 221
<b>SUT 714</b>	Relative humidity and temperature sensor.	10 ... 90 %	0 ... 10 V–	N 222
<b>SAU 914</b>	Relative humidity.	20 ... 80 %	0 ... 10 V–	N 227
	& temperature sensor.	0 ... 40 °C	NTC 10 kΩ	
<b>SPW 204</b>	Absolute pressure sensor for liquids.	0 ... 4 bar	0 ... 10 V–	N 412
<b>SPW 210</b>	Absolute pressure sensor for liquids.	0 ... 10 bar	0 ... 10 V–	N 412
<b>SPW 216</b>	Absolute pressure sensor for liquids.	0 ... 16 bar	0 ... 10 V–	N 412
<b>SDW 201</b>	Differential pressure sensor for liquids.	0 ... 1 bar	0 ... 10 V–	N 422
<b>SDW 202</b>	Differential pressure sensor for liquids.	0 ... 2,5 bar	0 ... 10 V–	N 422
<b>SDW 206</b>	Differential pressure sensor for liquids.	0 ... 6 bar	0 ... 10 V–	N 422
<b>SDA 701</b>	Differential pressure sensor for air.	0 ... 1 mbar	0 ... 10 V–	N 430
<b>SDA 703</b>	Differential pressure sensor for air.	0 ... 3 mbar	0 ... 10 V–	N 430
<b>SDA 705</b>	Differential pressure sensor for air.	0 ... 5 mbar	0 ... 10 V–	N 430
<b>SDA 730</b>	Differential pressure sensor for air.	0 ... 30mbar	0 ... 10 V–	N 430
<b>CDB 100</b>	Setpoint adjuster with incorporated sensor.	–5 ... +5 °C	NTC 10 kΩ	N 710

100 kPa = 10 mWG = 1 bar



Description	Code	Communication	Page
<b>CONTROLLERS</b>			
<b>TEMP. CONTROLLER FOR TWO-BATTERY AIR-HANDLING UNIT</b> <b>OPTIONAL TELEMAGEMENT</b> CONTROL OF TEMPERATURE ROOM AND/OR DISCHARGE AIR.	<b>XTA 624</b>	OPTIONAL C ← BUS	<b>5.2</b>
<b>TEMPERATURE &amp; HUMIDITY CONTROLLER FOR FAN COILS</b> <b>OPTIONAL TELEMAGEMENT</b> WINTER & SUMMER CONTROL OF TEMPERATURE & HUMIDITY OF ROOM AND/OR DISCHARGE AIR.	<b>XTU 618</b>	OPTIONAL C ← BUS	<b>5.3</b>
<b>TEMPERATURE &amp; HUMIDITY CONTROLLER FOR ONE-BATTERY AIR-HANDLING UNIT</b> <b>OPTIONAL TELEMAGEMENT</b> CONTROL OF TEMPERATURE & HUMIDITY OF ROOM AND/OR DISCHARGE AIR & OPTIMISATION OF DAMPERS.	<b>XTU 614</b>	OPTIONAL C ← BUS	<b>5.4</b>
<b>TEMPERATURE &amp; HUMIDITY CONTROLLER FOR TWO-BATTERY AIR-HANDLING UNIT</b> <b>OPTIONAL TELEMAGEMENT</b> CONTROL OF TEMPERATURE & HUMIDITY OF ROOM AND/OR OF DISCHARGE AIR & OPTIMISATION OF DAMPERS.	<b>XTU 644</b>	OPTIONAL C ← BUS	<b>5.5</b>
<b>PAIR OF TEMPERATURE &amp; HUMIDITY CONTROLLERS FOR A 3 THREE-BATTERY AIR-HANDLING UNIT</b> <b>OPTIONAL TELEMAGEMENT</b> (SINGLE PACKAGE) TELEMAGEMENT C-BUS: ENABLED BY 2 ACB 460 ACCESSORIES.	<b>XTU 614 + XTU 644</b>	OPTIONAL C ← BUS	<b>5.5</b>
<b>AIR QUALITY CONTROLLER</b> CONTROL PERCENTAGE OF OUTSIDE AIR RELEASED IN ROOM IN RELATION TO AIR QUALITY MONITORED BY 1 OR MORE DETECTORS..	<b>RQA 410</b>		<b>5.6</b>
<b>AMBIENT AIR QUALITY DETECTOR</b> <b>AIR DUCT QUALITY DETECTOR</b> TRANSMIT TO RQA 410 CONTROLLER THE AIR POLLUTION LEVEL.	<b>SQC 954</b> <b>SQS 954</b>		<b>5.6</b>
<b>ACCESSORIES FOR AIR CONDITIONING</b>			
<b>SEQUENCE CONTROLLERS</b> CONVERTS A 3-WIRE MODULATING SIGNAL IN ON-OFF INSTRUCTIONS FOR SEQUENCING ELECTRIC DEVICES IN SEVERAL STAGES (MAX. 7).	<b>ICM 674</b>		<b>5.6</b>
<b>ELECTROMECHANICAL ROOM HUMIDOSTAT</b>	<b>UPA 798</b>		<b>5.7</b>
<b>ELECTROMECHANICAL AIR DUCT HUMIDOSTAT</b>	<b>UPC 799</b>		<b>5.7</b>
<b>ELECTROMECHANICAL FROST PROTECTION THERMOSTAT</b> FROST PROTECTION OF BATTERIES AND DHW.	<b>TAG 797</b>		<b>5.7</b>
<b>DIFFERENTIAL PRESSURE SWITCH</b> FOR SIGNALLING DIRTY FILTERS OR OPERATION OF FANS	<b>PDF 795</b>		<b>5.7</b>
<b>DAMPER ACTUATORS</b>	<b>CSL - CSN</b> <b>CSS - CSG</b>		<b>5.8</b>
<b>DAMPER ACTUATORS WITH SPRING RETURN</b>	<b>CFT - CFL</b> <b>CFS ...</b>		<b>5.8</b>

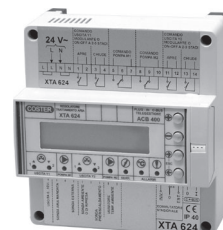
C ← BUS = communication with telemangement    <sup>OPTIONAL</sup> C ← BUS = optional telemangement    C ← RING = data exchange between controller

# TEMPERATURE CONTROLLER FOR 2-BATTERY AIR-HANDLING UNIT OPTIONAL TELEMAGEMENT

## XTA 624

TELEMAGEMENT C-Bus: Enabled with ACB 400 accessory.

OPTIONAL  
C ← BUS



### APPLICATION

Designed for the control of ambient temperature and/or of the discharge air in air-handling units comprising:

- 1 or 2 heating and/or cooling battery units.
- 1 air mixing unit or 1 heat regenerator.

**Essential sensors: 1 room or air duct temperature sensor.**

**Optional accessories: 1 flow temperature sensor, 1 pre-heating temperature sensor  
1 outside temperature sensor, 1 set-point adjuster.**

### FEATURES

- Power supply: 24V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Two 3-wire modulating outputs or On-Off in two stages (2 equal loads) or three stages (2 unequal loads) configurable for:
  - control of room temperature according to the heating and cooling values requested with summer outside compensation, minimum and maximum limits of flow in order to avoid current of cold air.
  - control of flow temperature in relation to values requested by heating and by cooling with, if required, winter and summer compensation.
  - control of fixed point pre-heating temperature.
- One progressive 0...10 V- output configurable for:
  - control of air mixing in comparison with room – outside temperature (free cooling).
  - control of heat regenerator in relation to room – outside temperature.
- Manual or automatic season switching of the controller functions.
- Adjustment of temperature setting by means of remote control.
- Alarms for plant faults and for open or short sensor circuit.

Code	Description	Data sheet
XTA 624	Temperature controller for two-battery air-handling units.	E 136

### SENSORS AND ACCESSORIES

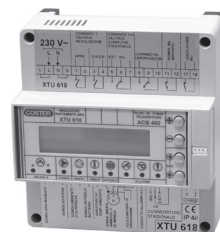
Code	Description	Application range	Sensing element	Data sheet
ACB 400	Plug-in for C-Bus communication.	–	–	T433
STA 010	Air duct temperature sensor (extract, discharge, condensation).	0 ... 60 °C	NTC 10 kΩ	N 150
SAB 010	Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
STA 001	Air duct temperature sensor (external).	–40 ... 40 °C	NTC 1 kΩ	N 150
SAE 001	External temperature sensor.	–40 ... 40 °C	NTC 1 kΩ	N 120
CDB 100	Temperature setpoint adjuster with incorporated sensor.	–5 ... +5 °C	NTC 10 kΩ	N 710

# TEMPERATURE & HUMIDITY CONTROLLER FOR FAN COILS OPTIONAL TELEMAGEMENT

## XTU 618

TELEMAGEMENT C-Bus: Enabled with ACB 460 accessory.

OPTIONAL  
C ← BUS



### APPLICATION

Designed for winter and summer control of the control of room temperature and humidity and/or discharge air in fan coil zones.

**Essential sensors: 1 room or air duct temperature sensor.**

**Optional accessories: 1 flow temperature sensor, 1 outside temperature sensor  
1 room or air-duct humidity sensor, 1 battery frost protection sensor,  
1 set-point adjuster, 1 remote control.**

### FEATURES

- Power supply: 24V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Timed programming: 24hour and 7day.
- Programming with dates: 25 holiday periods; winter season; summer season.
- Automatic switching GMT – BST.
- Winter and summer control of room temperature or of discharge air by:
  - three-wire modulating control or On-Off in two stages.
  - winter and summer minimum and maximum limits of discharge air temperature.
  - maximum temperature differential between winter discharge air and room to avoid stratification of warm air.
  - maximum temperature differential between summer discharge air and room so as to avoid condensation in the discharge air duct.
- Winter control of room humidity or of discharge air by On-Off control of humidifying unit.
- Control zone fan and pump by timed program in use.
- Three-wire On-Off control for season switching primary circuit.
- Season switching:
  - manual from display.
  - by remote control (manual change-over switch or from other devices).
  - automatic in relation to season.
  - automatic in relation to outside temperature.
- Control Frospot temperature battery.
- Remote adjustment temperature setting.
- Remote control for changing timed events programme in use.
- One On-Off input for signalling status or alarm.
- Alarms for plant faults and for open or short sensor circuit.

Code	Description	Data sheet
XTU 618	Temperature & humidity controller for fan coils.	E 113

### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing elem. or signal	Data sheet
ACB 460	Plug-in for C-Bus communication.	–	–	T 433
STA 010	Air duct temperature detector (extract or discharge air).	0 ... 60 °C	NTC 10 kΩ	N 150
SAB 010	Room temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 111
STA 001	Air duct temperature detector (outside).	–40 ... 40 °C	NTC 1 kΩ	N 150
SAE 001	Outside temperature detector.	–40 ... 40 °C	NTC 1 kΩ	N 120
SAF 010	Cable-type frost protection temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 145
SUR 704	Relative humidity detector.	10 ... 90 %	0 ... 10 V–	N 221
SAU 914	Relative humidity & temperature sensor.	20 ... 80 %	0 ... 10 V–	N 227
CDB 100	Temperature setpoint adjuster with incorporated sensor.	0 ... 40 °C	NTC 10 kΩ	–
CDB 333	Remote control for modification of programme in use.	–5 ... +5 °C	NTC 10 kΩ	N 710
		–	–	N 710

# TEMPERATURE & HUMIDITY CONTROLLER FOR ONE-BATTERY AIR-HANDLING UNITS OPTIONAL TELEMAGEMENT

OPTIONAL  
C ← BUS

## XTU 614

TELEMAGEMENT C-Bus: Enabled with ACB 460 accessory.

### APPLICATION

For control of room temperature and humidity and/or discharge air in air-handling units comprising:

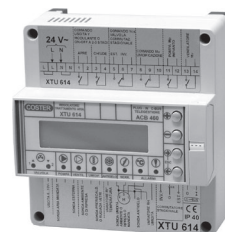
- 1 battery for heating and/or cooling or pre-heating.
- 1 On-Off humidification battery.
- 1 air mixing unit or 1 heat regenerator.

**Essential sensors: 1 room or air duct temperature sensor.**

**Optional sensors: 1 flow or pre-heating temperature sensor, 1 window dew-point sensor, 1 battery Frosprot sensor, 1 temperature set-point adjuster, 1 humidity set-point adjuster.**

### FEATURES

- Power supply: 24V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Timed programming: 24hour and 7day.
- Programming with dates: 25 holiday periods; winter season; summer season.
- Automatic switching GMT – BST.
- One 3-wire modulating output or On-Off in 2 stages (2 equal loads) or in 3 stages (2 unequal loads) configurable for:
  - control of winter & summer room temperature with, if required, summer outside compensation, minimum. & maximum limits of flow in order to avoid cold air currents, stratification of hot air and condensing in the air ducts.
  - control of flow temperature at fixed point with, if required, winter & summer compensation.
  - control of pre-heating temperature at a variable value in relation to room temperature & humidity.
- 1 On-Off output for control humidifying unit for control of relative humidity at fixed point.
- 1 progressive 0...10 V- output configurable for:
  - control of mixture outside air in relation to comparison room - outside temperatures.
  - control outside air for control of room dehumidification with compensation for windows dew point.
  - control of heat regenerator in relation to comparison room – outside temperatures.
- Two On-Off outputs for control of fan and pump according to timed program in use.
- Control Frosprot temperature battery.
- Manual or automatic season switching of controller functions and of On-Off 3-wire season switch.
- Variation of temperature & humidity set points by means of remote control.
- Alarms for plant faults and for open or short sensor circuit.



Code	Description	Data sheet
XTU 614	Temperature & humidity controller for 1 battery air-handling unit.	E 134

### SENSORS AND ACCESSORES

Code	Description	Application range	Sensing elem. or signal	Data sheet
ACB 460	Plug-in for C-Bus communication.	–	–	T 433
STA 010	Air duct temperature detector (extract, discharge, dew point).	0 ... 60 °C	NTC 10 kΩ	N 150
SAB 010	Room temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 111
STA 001	Air duct temperature detector (outside air).	–40 ... 40 °C	NTC 1 kΩ	N 150
SAE 001	Outside temperature detector.	–40 ... 40 °C	NTC 1 kΩ	N 120
SAF 010	Cable-type temperature detector (frost protection).	0 ... 40 °C	NTC 10 kΩ	N 145
STV 010	Window glass dew point detector.	0 ... 40 °C	NTC 10 kΩ	N 160
SUR 704	Relative humidity detector.	10 ... 90 %	0 ... 10 V–	N 221
SUT 714	Relative humidity and temperature detector.	10 ... 90 %	0 ... 10 V–	N 222
SAU 914	Relative humidity & temperature sensor.	20 ... 80 %	0 ... 10 V–	N 227
CDB 100	Temperature setpoint adjuster with incorporated sensor.	0 ... 40 °C	NTC 10 kΩ	–
CDB 200	Humidity setpoint adjuster.	–5 ... +5 °C	NTC 10 kΩ	N 710
		–10 ... +10 %	–	N 710

## TEMPERATURE & HUMIDITY CONTROLLER FOR 2-BATTERY AIR-HANDLING UNITS OPTIONAL TELEMAGEMENT

OPTIONAL  
C ← BUS

### XTU 644

TELEMAGEMENT C-Bus: Enabled with ACB 460 accessory.

#### APPLICATION

For control of temperature and humidity of room and/or discharge air in air-handling units comprising:

- 1 or 2 batteries for heating and/or cooling.
- 1 modulating or On-Off humidification battery.
- 1 air mixing unit or 1 heat regenerator.

**Essential sensors: 1 room or air duct temperature sensor.**

**Optional sensors: 1 flow temperature sensor, 1 pre-heating temperature sensor, 1 outside temperature sensor, 1 room or air duct humidity sensor, 1 outside humidity sensor, 1 window dew-point sensor, 1 temperature set-point adjuster, 1 humidity set-point adjuster.**

#### FEATURES

- Power supply: 24V~; Consumption: 5VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of 4 keys and alphanumeric display.
- Three outputs: 3-wire modulating or On-Off in two stages (2 equal loads) or in three stages (2 unequal loads) configurable for:
  - control of room temperature in relation to heating and cooling values requested with, if required, summer outside compensation, minimum and maximum limits of flow in order to avoid cold air currents, stratification of warm air and condensing in the air ducts.
  - control of flow temperature in relation to heating and cooling values requested with, if required, winter and summer compensation.
  - control of pre-heating temperature at a value variable in relation to room temperature and humidity.
  - control of room relative humidity in relation to humidification & dehumidification values requested.
- One progressive 0...10V- output configurable for:
  - control of air mixture in relation to room-outside temperature (free cooling) or an enthalpic comparison.
  - control of outside air for controlling room dehumidification with compensation for window dew point.
  - control of heat regenerator in relation comparison room – outside temperatures.
- Manual or automatic season switching of the controller functions and of the three-wire On-Off season control.
- Variation of temperature & humidity set points by means of remote control.
- Alarms for plant faults and for open or short sensor circuit.

Code	Description	Data sheet
<b>XTU 644</b>	Temperature & humidity controller for 2-battery air-handling unit.	E 135

#### SENSORS AND ACCESSORIES

Code	Description	Application range	Sensing elem or signal	Data sheet
<b>ACB 460</b>	Plug-in for C-Bus communication.	–	–	T 433
<b>STA 010</b>	Air duct temperature detector (extract, discharge, dew point).	0 ... 60 °C	NTC 10 kΩ	N 150
<b>SAB 010</b>	Room temperature detector.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>STA 001</b>	Air duct temperature detector (outside air).	–40 ... 40 °C	NTC 1 kΩ	N 150
<b>SAE 001</b>	Outside temperature detector.	–40 ... 40 °C	NTC 1 kΩ	N 120
<b>STV 010</b>	Window glass dew point detector.	0 ... 40 °C	NTC 10 kΩ	N 160
<b>SUR 704</b>	Relative humidity detector.	10 ... 90 %	0 ... 10 V–	N 221
<b>SUT 714</b>	Relative humidity and temperature detector.	10 ... 90 %	0 ... 10 V–	N 222
<b>SAU 914</b>	Relative humidity & temperature sensor.	20 ... 80 %	0 ... 10 V–	N 227
<b>CDB 100</b>	Temperature setpoint adjuster with incorporated sensor.	0 ... 40 °C	NTC 10 kΩ	–
<b>CDB 200</b>	Humidity setpoint adjuster.	–5 ... +5 °C	NTC 10 kΩ	N 710
		–10 ... +10 %	–	N 710

## PAIR OF TEMPERATURE & HUMIDITY CONTROLLERS 3-BATTERY FOR AIR-HANDLING UNITS OPTIONAL TELEMAGEMENT

### XTU 614 + XTU 644 (SINGLE PACKAGE)

TELEMAGEMENT C-Bus: Enabled with ACB 460 accessory.

OPTIONAL  
C ← BUS



Code	Description	Data sheet
<b>XTU 614+644</b> <b>ACB 460</b>	Two temperature & humidity controllers (1 XTU 614 + 1 XTU 644) for 3-battery air-handling unit. Plug-in for communication via C-Bus (use two plugs, one per controller).	– T 433

## AIR QUALITY CONTROLLER

## RQA 410

## APPLICATION

Controls the percentage of outside air entering the premises in relation to the quality of air monitored by one or more SQC 954 sensors. Controls, with a progressive 0 ... 10 V – signal, the outside air damper and/or, by means of a relay, the switching on or increased speed of a fan.

Supplied with potentiometers for minimum % outside air and air quality set point.

**THE UNIT CANNOT BE USED FOR SAFETY SYSTEMS.**

**Essential detectors: 1 or more room air duct air quality detectors.**

## FEATURES

- Power supply: 24 V~; Consumption: 5 VA; Wall-mounting case 130 x 80 x 35; Protection: IP 30.
- 2 setting potentiometers: - Minimum opening % outside air; - Air quality value requested.



Code		Description	Output 0 ... 10 V–	Relay output	Data sheet
<b>RQA 410</b>		Air quality controller.	1	1	E 310

## AIR QUALITY DETECTORS

## SQC 954 - SQS 954

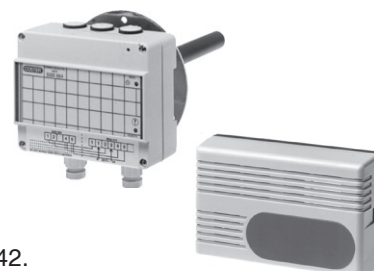
## APPLICATION

Monitor the room air pollution level and transfer to the RQA 410 controller a signal proportional to the pollution value.

**THE UNIT CANNOT BE USED FOR SAFETY SYSTEMS.**

## FEATURES

- Power supply: 24 V ~; Consumption: 5 VA; Wall-mounting case 130 x 80 x 37; Protection: IP 42.



Code		Description	Data sheet
<b>SQC 954</b> <b>SQS 954</b>		Room air quality detector. Air quality detector for air duct.	E 310 E 310

## SEQUENCE CONTROLLERS

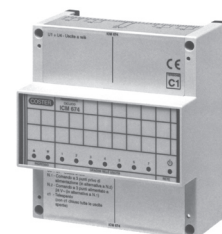
## ICM 674

## APPLICATION

Converts a 3-wire modulating signal to On-Off instructions for sequencing electrical devices having several stages: burners, resistances, refrigerators, humidifiers.

## FEATURES

- Power supply: 24 V~; Consumption: 1 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Input: 3-wire 24 V~ modulating signal (neutral, opens, closes).
- 7 voltage-free SPDT output contacts: rating 250 V ~, 5 (1) A.



Code		Description	Data sheet
<b>ICM 674</b>		7-step sequencer.	E 812



## ELECTROMECHANICAL ROOM HUMIDISTAT

## UPA 798

## APPLICATION

On-Off switching of humidification or dehumidification units. Wall mounting.

## FEATURES

- Sensing element in synthetic fibre; Protection: IP 20; SPDT output: rating: 250 V ~, 10 (3) A.



Code		Description	Setting range	$\Delta$ H%	Data sheet
UPA 798		On-Off room humidistat.	30 ... 100 %	4%	—

## AIR DUCT ELECTROMECHANICAL HUMIDISTAT

## UPC 799

## APPLICATION

On-Off switching of humidification or dehumidification units. Mounted in air duct.

## FEATURES

- Sensing element in synthetic fibre; Protection: IP 65; SPDT output: rating: 250 V ~, 15 (8) A.



Code		Description	Setting range	$\Delta$ H%	Data sheet
UPC 799		On-Off air duct humidistat.	35 ... 100 %	5%	-

## ELECTROMECHANICAL FROST PROTECTION THERMOSTAT

## TAG 797

## APPLICATION

For frost protection of water battery heater units.

## FEATURES

- Protection: IP 54; Voltage-free SPDT output: rating: 250 V ~, 15 (8) A.



Code		Description	Setting range	Max Temp	$\Delta$ t	Data sheet
TAG 797		Electromech. frost protection thermostat.	- 10 ... + 12 °C	150 °C	1 °C	E 710

## DIFFERENTIAL PRESSURE SWITCH

## PDF 795

## APPLICATION

For signalling state of cleanliness of filtering units or of operation of fans.

## FEATURES

- Protection: IP 54; Voltage-free SPDT output: rating: 250 V ~, 1,5 (0,4) A.



Code		Description	Setting range	$\Delta$ p	Max p	Data sheet
PDF 795		Differential pressure switch.	50 ... 500 Pa	20 Pa $\pm$ 15%	5 k Pa	E 730



## DAMPER ACTUATORS

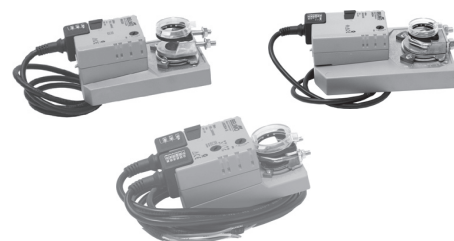
### CSL ... - CSN ... - CSS ... - CSG ...

#### APPLICATION

Actuators suitable for operating dampers in air handling sites.  
Rotary movement with 90° rotation angle. Mounted directly on damper rod.

#### FEATURES

- Power supply: 230 V~ or 24 V~/–; Protection: IP 54.



Code		Power supply V~ (VA)	Control	Auxiliary contacts	Dampers m <sup>2</sup>	Torque N/m	Run sec.	Data sheet
<b>CSL 138</b>		230 V~ (4)	2 or 3 points	No	1	5	150	E 921
<b>CSL 138/C</b>		230 V~ (4)	2 or 3 points	1	1	5	150	E 921
<b>CSL 134</b>		24 V~/– (2)	2 or 3 points	No	1	5	150	E 921
<b>CSL 134/C</b>		24 V~/– (2)	2 or 3 points	1	1	5	150	E 921
<b>CSL 104</b>		24 V~/– (2)	2 ... 10 V–	No	1	5	150	E 921
<b>CSN 238</b>		230 V~ (6)	2 or 3 points	No	2	10	150	E 922
<b>CSN 238/C</b>		230 V~ (6)	2 or 3 points	1	2	10	150	E 922
<b>CSN 234</b>		24 V~/– (4)	2 or 3 points	No	2	10	150	E 922
<b>CSN 234/C</b>		24 V~/– (4)	2 or 3 points	1	2	10	150	E 922
<b>CSN 204</b>		24 V~/– (4)	2 ... 10 V–	No	2	10	150	E 922
<b>CSS 438</b>		230 V~ (6)	2 or 3 points	No	4	20	150	E 931
<b>CSS 438/C</b>		230 V~ (6)	2 or 3 points	1	4	20	150	E 931
<b>CSS 434</b>		24 V~/– (4)	2 or 3 points	No	4	20	150	E 931
<b>CSS 434/C</b>		24 V~/– (4)	2 or 3 points	1	4	20	150	E 931
<b>CSS 404</b>		24 V~/– (4)	2 ... 10 V–	No	4	20	150	E 931
<b>CSG 838</b>		230 V~ (8)	2 or 3 points	No	8	40	150	E 940
<b>CSG 838/C</b>		230 V~ (8)	2 or 3 points	1	8	40	150	E 940
<b>CSG 834</b>		24 V~/– (7)	2 or 3 points	No	8	40	150	E 940
<b>CSG 834/C</b>		24 V~/– (7)	2 or 3 points	1	8	40	150	E 940
<b>CSG 804</b>		24 V~/– (7)	2 ... 10 V–	No	8	40	150	E 940

## DAMPER ACTUATORS WITH SPRING RETURN

### CFT ... - CFL ... - CFS ...

#### APPLICATION

Actuators suitable for operating dampers in air handling sites.  
Rotary movement with 90° rotation angle. Mounted directly on damper rod.  
Spring return in absence of power.




#### FEATURES

- Power supply: 230 V~ or 24 V~/–; Protection: CFT ...IP42; CFL .../CF ...: IP 54.



Code		Power supply V~ (VA)	Control	Auxiliary contacts	Dampers m <sup>2</sup>	Torque N/m	Run sec.	Emerg. sec.	Data sheet
<b>CFT 028</b>		230 V~ (5)	2 points	No	0.4	2	75	25	E 951
<b>CFT 028/C</b>		230 V~ (5)	2 points	1	0.4	2	75	25	E 951
<b>CFT 024</b>		24 V~/– (5)	2 points	No	0.4	2	75	25	E 951
<b>CFT 024/C</b>		24 V~/– (5)	v	1	0.4	2	75	25	E 951
<b>CFT 004</b>		24 V~/– (4)	2 ... 10 V–	No	0.4	2	150	25	E 951
<b>CFL 128</b>		230 V~ (7)	2 points	No	0.8	4	75	20	E 952
<b>CFL 128/C</b>		230 V~ (7)	2 points	1	0.8	4	75	20	E 952
<b>CFL 124</b>		24 V~/– (7)	2 points	No	0.8	4	75	20	E 952
<b>CFL 124/C</b>		24 V~/– (7)	2 points	1	0.8	4	75	20	E 952
<b>CFL 134</b>		24 V~/– (5)	3 points	No	0.8	4	150	20	E 952
<b>CFL 104</b>		24 V~/– (5)	2 ... 10 V–	No	0.8	4	150	20	E 952
<b>CFS 428</b>		230 V~ (18)	2 points	No	4	20	75	20	E 954
<b>CFS 428/C</b>		230 V~ (18)	2 points	2	4	20	75	20	E 954
<b>CFS 424</b>		24 V~/– (7,5)	2 points	No	4	20	75	20	E 954
<b>CFS 424/C</b>		24 V~/– (7,5)	2 points	2	4	20	75	20	E 954
<b>CFS 404</b>		24 V~/– (7)	2 ... 10 V–	No	4	20	150	20	E 954
<b>CFS 404/C</b>		24 V~/– (7)	2 ... 10 V–	2	4	20	150	20	E 954

## ACCESSORIES FOR DAMPER ACTUATORS

Code		Description	Pictures
<b>FCF 223</b> <b>FCS 223</b>		End-of-run auxiliary with 2 SPDT switch 3 (0.5) A, 250 V~ for CFS ... actuators. End-of-run auxiliary with 2 SPDT switches 3 (0.5) A 250 V~ for CS ... actuators.	
<b>PCS 104</b>		Positioner 0 ... 100% for damper actuators 0 ... 10V– (max. 10 actuators).	
<b>KH 8</b> <b>AH-25</b> <b>AH-20</b> <b>AH-GMA</b> <b>KG 10</b> <b>AH-TF</b> <b>KH-LF</b> <b>KH-AFB</b> <b>ZG-NMA</b> <b>ZG-SMA</b> <b>ZG-GMA</b> <b>ZG-TF1</b> <b>ZG-LF1</b> <b>ZG-AFB</b>		Universal lever for damper shafts (if round 10 ... 18 mm; if square 10 ... 14 mm). Lever for actuators CSN.... Lever for actuators CSS.... Lever for actuators CSG.... Ball joint for connection (use rods with max. diameter 10 mm). Lever for actuators CFT.... Lever for actuators CFL.... Lever for actuators CFS.... Kit for mounting actuators on the flat CSN.... Kit for mounting actuators on the flat CSS.... Kit for mounting actuators on the flat CSG.... Kit for mounting actuators on the flat CFT.... Kit for mounting actuators on the flat CFL.... Kit for mounting actuators on the flat CFS....	

### Accessories required for coupling actuators to dampers.

- 1 actuator for 1 damper: - direct installation on damper shaft – no accessories required.  
- remote mounting: 1 AH..., 1 KH8, 2 KG 10 & 1 rod <sup>(1)</sup>.
- 1 actuator for 2 dampers: - direct installation on shaft of a damper: 1 AH..., 1 KH8, 2 KG 10 & 1 rod <sup>(1)</sup>.  
- remote installation: 1 AH..., 2 KH8, 3 KG 10 & 2 rods <sup>(1)</sup>.
- 1 actuator for 3 dampers: - direct installation on shaft of a damper: 1 AH..., 2 KH8, 3 KG 10 & 2 rods <sup>(1)</sup>.  
- remote installation : 1 AH..., 3 KH8, 4 KG 10 and 3 rods<sup>(1)</sup>.

(1) Connection rods between universal joints: 8 -10 mm rod generally available at ironmongers.

NOTES

Handwriting practice lines consisting of alternating blue and grey horizontal bands.

Description	Code	Communication	Page
<b>GAS DETECTOR</b>			
<b>MICROPROCESSOR-BASED DOMESTIC GAS DETECTORS WITH RELAY OUTPUT</b> SUPPLIED WITH INTERNAL METHANE OR LPG DETECTOR	RGS .2.		6.2
<b>MICROPROCESSOR-BASED DOMESTIC GAS DETECTORS WITH NORMALLY-OPEN VALVE &amp; MANUAL RESET</b> SUPPLIED WITH INTERNAL METHANE OR LPG DETECTOR	RGS .4.		6.2
<b>GAS SENSOR FOR RGS ... GAS DETECTORS RIVELATORI RGS</b> MEASURE THE GAS CONCENTRATION & SEND VALUE TO DETECTOR.	SRS ...		6.2
<b>DOMESTIC GAS DETECTORS WITH BACK-UP BATTERY MONOXIDE DETECTOR WITH RELAY OUTPUT</b> INCLUDES INTERNAL SELECTIVE CO SENSOR.	RGS 328		6.3
<b>DOMESTIC GAS DETECTORS WITH BACK-UP BATTERY INCLUDING NORMALLY-CLOSED VALVE WITH MANUAL RESET</b> INCLUDE INTERNAL METHANE OR LPG SENSOR AND BACK-UP BATTERY (LAST ABOUT ONE HOUR).	RGH ...		6.3
<b>GAS DETECTORS IN DIN 6 UNITS</b> MONITOR THE GAS CONCENTRATION WITH 1, 2 OR 3 EXTERNAL SENSORS	RFG 65.		6.4
<b>GAS DETECTORS IN DIN 3 UNITS</b> MONITOR THE GAS CONCENTRATION WITH 1 EXTERNAL SENSORS.	RFG 361		6.4
<b>GAS DETECTION SENSORS FOR RFG 65. &amp; RFG 361</b> RILEVANO LA CONCENTRAZIONE DI GAS ED INVIANO IL VALORE AL RIVELATORE.	SRD - SRS		6.4
<b>GAS DETECTOR WITH PREALARM 144 X 144 PANEL MOUNTING</b> MONITOR THE GAS CONCENTRATION BY 1 OR 2 EXTERNAL SENSORS.	RFG 782		6.5
<b>GAS MONITORING SENSORS FOR RFG 100</b> MONITOR THE GAS CONCENTRATION & SEND VALUE TO DETECTOR.	SGC - SGR		6.5
<b>ACCESSORIES FOR GAS DETECTION PLANTS</b>			
<b>BACK-UP BATTERIES FOR GAS DETECTION SYSTEMS</b> USED TO POWER 12 V- GAS SAFETY SYSTEMS ALSO IN EVENT OF MAINS SUPPLY FAILURE.	AL ...  ACC ...		6.6
<b>STABILIZED (STANDBY) POWER BACK-UP UNITS</b> UNITS FOR KEEPING BATTERIES CHARGED.			
<b>WEATHERPROOF BATTERIES</b> LONG-LIFE LEAD-SEALED RECHARGEABLE BATTERIES.			
<b>REMOTE AUDIBLE ALARM</b> <b>REMOTE VISUAL ALARM</b> <b>REMOTE AUDIBLE AND VISUAL ALARM</b>	SAS 880 SAL 881 CSL 882		6.6
<b>GAS SOLENOID VALVES &amp; ACCESSORIES</b>			
<b>NORMALLY-CLOSED BRASS GAS SOLENOID VALVES</b> THREADED DN 1/2", GASTEC CERTIFICATE	GCAO ...		6.7
<b>ENORMALLY-CLOSED BRASS GAS SOLENOID VALVES WITH MANUAL RESET</b> THREADED DN 1/2" - 3/4" - 1".	GCRO ...		6.7
<b>NORMALLY-OPEN GAS SOLENOID VALVES WITH MANUAL RESET</b>	GARO ...		6.7
<b>AUTOMATIC NORMALLY-CLOSED GAS SOLENOID VALVES</b> ALUMINIUM BODY, THREADED DN 1/2" ... 2", FLANGED DN 65 ... 100.	GCA ...		6.8
<b>NORMALLY-CLOSED GAS SOLENOID VALVES WITH MANUAL RESET</b> ALUMINIUM BODY, THREADED DN 1/2" ... 2", FLANGED DN 65 ... 100.	GCR ...		6.9
<b>NORMALLY-OPEN GAS SOLENOID VALVES WITH MANUAL RESET</b>	GAR ...		6.10

## SELECTIVE MICROPROCESSOR-BASED DOMESTIC GAS DETECTORS WITH RELAY OUTPUT

### RGS 128 - 228

#### APPLICATION

Electronic digital detectors **fitted with internal methane or LPG internal sensing element. Option of connecting 1 or 2 methane, LPG or CO outside sensors.** Signals pre-alarm, alarm and fault in sensing element.

Complies with CEI EN 50194 and CEI EN 50244 regulations.

**Optional sensors: 1 or 2 methane detecting sensors (SRS 158), LPG (SRS 258), CO (SRS 358).**

#### FEATURES

- Power supply: 230 V~; Consumption: 2 VA;
- Domestic-type enclosure 130 x 80 x 37 mm; Protection: IP 20; Wall-mounting.
- Voltage-free SPDT relay output, rating max. 250 V~, 5 (1) A.

Code		Internal sensor	Alarm threshold	Pre-alarm threshold	Data sheet
<b>RGS 128</b>		methane	0,80 %	0,50 %	G 221
<b>RGS 228</b>		LPG	0,35 %	0,20 %	G 221



## SELECTIVE MICROPROCESSOR-BASED DOMESTIC GAS DETECTORS WITH N.O. VALVES AND MANUAL RESET

### RGS 148 - 248

#### APPLICATION

Electronic digital detectors **fitted with internal methane or LPG internal sensing element. Option of connecting 1 or 2 methane, LPG or CO outside sensors.** Signals pre-alarm, alarm and fault in sensing element.

Complies with CEI EN 50194 and CEI EN 50244 regulations.

**Optional sensors: 1 or 2 methane detecting sensors (SRS 158), LPG (SRS 258), CO (SRS 358).**

#### FEATURES

- Power supply: 230 V~; Consumption: 2 VA;
- Domestic-type enclosure 130 x 80 x 37 mm; Protection: IP 20; Wall-mounting.
- Low-voltage (about 20 V~) pulsed output for ERA valve (supplied) N.O. with manual reset.

Code		Internal sensor	Alarm threshold	Pre-alarm threshold	Code	Valve supplied	Max. press	Flow <sup>(1)</sup>	Data sheet
<b>RGS 148.15</b>		methane	0.80 %	0.50 %	<b>ERA 015</b>	1/2"	200 mbar	1.5 m³/h	G 226
<b>RGS 148.20</b>		methane	0.80 %	0.50 %	<b>ERA 020</b>	3/4"	200 mbar	2.3 m³/h	G 226
<b>RGS 148.25</b>		methane	0.80 %	0.50 %	<b>ERA 025</b>	1"	200 mbar	3.5 m³/h	G 226
<b>RGS 248.15</b>		LPG	0.35 %	0.20 %	<b>ERA 015</b>	1/2"	200 mbar	0.9 m³/h	G 226
<b>RGS 248.20</b>		LPG	0.35 %	0.20 %	<b>ERA 020</b>	3/4"	200 mbar	1.4 m³/h	G 226
<b>RGS 248.25</b>		LPG	0.35 %	0.20 %	<b>ERA 025</b>	1"	200 mbar	2.2 m³/h	G 226

(1) Flow with pressure drop of 1 mbar (10 mmWG).



## DOMESTIC GAS DETECTING FOR RGS ...

### SRS ...

#### APPLICATION

Monitor the concentration of gas present in the air and send a signal to the RGS ... electronic detector.

Conform to CEI EN 50194 and CEI EN 50244 standards.

#### FEATURES

- Power supply: 230 V~; Consumption: 2 VA.
- Domestic-type enclosure: 130 x 80 x 37 mm; Protection: IP 20; Wall-mounting;
- Output signal: 0,5 ... 5 V~

Code		Description	Length connections		Data sheet
			4 x 1 mm²	4 x 1.5 mm²	
<b>SRS 158</b>		Selective sensor for detecting methane.	50 mt.	75 mt.	G 420
<b>SRS 258</b>		Selective sensor for detecting LPG	50 mt.	75 mt.	G 420
<b>SRS 358</b>		Selective sensor for detecting CO	50 mt.	75 mt.	G 420



## MICROPROCESSOR-BASED DOMESTIC SELECTIVE CARBON MONOXIDE DETECTOR WITH RELAY OUTPUT

### RGS 328

#### APPLICATION

Digital electronic detector **supplied with internal selective CO sensor**.

Pre-alarm, alarm and sensor fault signals.

Conform to CEI EN 50194 and CEI EN 50244 standards.

#### FEATURES

- Power supply: 230 V ~; Consumption: 2 VA;
- Domestic-type enclosure: 130 x 80 x 37 mm; Protection: IP 20; Wall-mounting;
- Alarm threshold in relation to CO concentration and time gas persists.
- SPDT voltage-free output relay: maximum switching 250 V~, 5 (1) A.



Code	Description	Data sheet
<b>RGS 328</b>	Selective detector for carbon monoxide.	G 227

## DOMESTIC GAS DETECTORS WITH BACKUP BATTERY AND N.C. MANUALLY-RESET VALVE

### RGH ...

#### APPLICATION

Gas detectors for domestic use supplied **with internal methane or LPG sensor**, battery backup having an autonomy of about one hour, and N.C. gas valve ERC 3.. with manual reset.

Monitor the concentration of gas in the air and, when this exceeds the threshold value, cuts off the 3 V – power supply to the valve. Indicates by means of LEDs and internal buzzer the states of pre-alarm, alarm and sensor fault.

Complies with CEI EN 50194 and CEI EN 50244 regulations.

#### FEATURES

- Power supply: 230 V~; Consumption: 2 VA;
- Domestic-type enclosure: 130 x 80 x 37 mm; Protection: IP 20; Wall-mounting;
- 3 V– output for N.C. ERC valve (supplied) with manual reset.
- ERC valves: Protection: IP 55.



Code		Internal sensor	Alarm threshold	Valve supplied				Data sheet
				Code	DN	Max. press.	Flow rate <sup>(1)</sup>	
<b>RGH 138.15</b>		methane	0,80 %	<b>ERC 315</b>	1/2"	500 mbar	1.5 m³/h	G 310
<b>RGH 138.20</b>		methane	0,80 %	<b>ERC 320</b>	3/4"	500 mbar	2.3 m³/h	G 310
<b>RGH 138.25</b>		methane	0,80 %	<b>ERC 325</b>	1"	500 mbar	3.5 m³/h	G 310
<b>RGH 238.15</b>		LPG	0,35 %	<b>ERC 315</b>	1/2"	500 mbar	0.9 m³/h	G 310
<b>RGH 238.20</b>		LPG	0,35 %	<b>ERC 320</b>	3/4"	500 mbar	1.4 m³/h	G 310
<b>RGH 238.25</b>		LPG	0,35 %	<b>ERC 325</b>	1"	500 mbar	2.2 m³/h	G 310

#### ACCESSORIES

Code	Description	Back-up period	Data sheet
<b>ALH 835</b> <b>ABE 301</b>	Auxiliary power supply for RGH ... gas detectors with power backup. Emergency power supply for ERC ... valves.	5 hours 20 hours	G 310 –

(1) Flow with pressure drop of 1 mbar (10 mmWG)

## GAS DETECTORS IN DIN 6 MODULE CASE

### RFG 651 - 652 - 653

#### APPLICATION

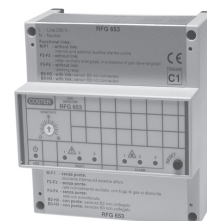
Monitor, by means of remote sensors, the concentration of gas in the air, and, when this exceeds the threshold level, activate the operational relay and the external alarms.

Complies with CEI EN 50194 and CEI EN 50244 regulations.

**Essential sensors: 1, 2 or 3 sensors for methane, LPG and carbon monoxide.**

#### FEATURES

- Power supply: 230 V ~ or 12 V –; Consumption: 6 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Adjustable alarm threshold: methane = 0.5 ... 1.25 %; propane = 0.22 ... 0.56 %; CO = 0.02 ... 0.05 %.
- Pre-alarm ( 63 %)alarm and fault sensors alarm.
- Voltage-free SPDT output; rating 250 V ~, 5 (1) A for control N.O. or N.C. valves.



Code	Description	Data sheet
<b>RFG 651</b>	Gas detector for one remote sensor.	G 512
<b>RFG 652</b>	Gas detector for two remote sensors.	G 512
<b>RFG 653</b>	Gas detector for three remote sensors.	G 512

## GAS DETECTORS IN DIN 3 MODULE CASE

### RFG 361

#### APPLICATION

Monitor, by means of a remote sensor, the concentration of gas in the air, and, when this exceeds the threshold level, activate the operational relay.

Complies with CEI EN 50194 and CEI EN 50244 regulations.

**Essential sensors: 1 sensor for methane, LPG, carbon monoxide.**

#### FEATURES

- Power supply: 230 V ~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Adjustable alarm threshold: methane = 0.5 ... 1.25 %; propane = 0.22 ... 0.56 %; CO = 0.02 ... 0.05 %.
- Pre-alarm threshold about 63 % of alarm threshold.
- Voltage-free SPDT output; rating 250 V ~, 5 (1) A for control N.O. or N.C. valves.



Code	Description	Data sheet
<b>RFG 361</b>	Gas detector for one remote sensor.	G 521

## GAS SENSORS FOR RFG 651/2/3 AND RFG 361

### SRD ... - SRS ...

#### APPLICATION

Monitor the concentration of combustible gas or carbon monoxide in the air and activate a voltage output to the electronic detector. Housing in plastic material. Wall mounting.

Complies with CEI EN 50194 and CEI EN 50244 regulations.

#### FEATURES

- Power supply: 12 V– (from the detector); Consumption: 150 mA; Output signal: 0 ... 5 V–.



Code	Gas	Case	Protect.	Connection length		Data sheet
				3 x 1 mm <sup>2</sup>	3 x 1.5 mm <sup>2</sup>	
<b>SRD 150</b>	methane	Domestic (80 x 80 x 35 mm)	IP 20	50 m	75 m	–
<b>SRD 250</b>	LPG	Domestic (80 x 80 x 35 mm)	IP 20	50 m	75 m	–
<b>SRD 350</b>	CO	Domestic (80 x 80 x 35 mm)	IP 20	50 m	75 m	–
<b>SRS 150</b>	methane	Commercial (80 x 80 x 42 mm)	IP 44	50 m	75 m	–
<b>SRS 250</b>	LPG	Commercial (80 x 80 x 42 mm)	IP 44	50 m	75 m	–
<b>SRS 350</b>	CO	Commercial (80 x 80 x 42 mm)	IP 44	50 m	75 m	–



## GAS DETECTOR 144 x 144 WITH PRE-ALARM FOR PANEL MOUNTING

## RFG 782

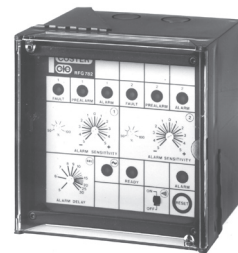
## APPLICATION

Monitors, by means of one or two remote sensors, the concentration of gas in the air. When this concentration exceeds the 1st threshold, the detector activates the pre-alarm relay and when the concentration exceeds the 2nd threshold it activates the operational relay and the external alarms. Complies with CEI EN 50194 and CEI EN 50244 regulations.

**Essential sensors : 1 or 2 sensors for methane, LPG, carbon monoxide.**

## FEATURES

- Power supply: 230 V ~ or 12 V –; Consumption: 6 VA; Case: DIN 144 x 144; Protection: IP 40.
- Adjustable pre-alarm and alarm thresholds: methane = 0.25 ... 0.8 %; LPG = 0.06 ... 0.35 %; CO = 0.005 ... 0.05 %.
- Signals pre-alarm, alarm and fault in sensors.
- Voltage-free SPDT outputs: rating: 250 V~, 10 (2.5) A for control of N.O. or N.C. valves.



Code		Description	Data sheet
<b>RFG 782</b>		Gas leak detector with pre-alarm for 1 or 2 remote sensors.	G 610

## GAS SENSORS FOR RFG 782

## SGC 3.. - SGR 3..

## APPLICATION

Monitor inflammable gas or carbon monoxide concentration in the air and process a voltage output to the electronic detector RFG 782. Housing in plastic material. Wall mounting. Complies with CEI EN 50194 and CEI EN 50244 regulations.

## FEATURES

- Power supply: 12 V– (from the detector); Consumption: 150 mA; Output signal: 0 ... 5 V–.



Code		Gas	Case	Protect.	Connection length		Data sheet
					3 x 1 mm <sup>2</sup>	3 x 1.5 mm <sup>2</sup>	
<b>SGC 300/M</b>		methane	Domestic (90 x 65 x 42 mm)	IP 20	50 m	75 m	–
<b>SGC 300/P</b>		LPG	Domestic (90 x 65 x 42 mm)	IP 20	50 m	75 m	–
<b>SGC 301</b>		CO	Domestic (90 x 65 x 42 mm)	IP 20	50 m	75 m	–
<b>SGR 300/M</b>		methane	Commercial (80 x 80 x 42 mm)	IP 44	50 m	75 m	–
<b>SGR 300/P</b>		LPG	Commercial (80 x 80 x 42 mm)	IP 44	50 m	75 m	–
<b>SGR 301</b>		CO	Commercial (80 x 80 x 42 mm)	IP 44	50 m	75 m	–

## BACK-UP POWER UNITS FOR GAS SAFETY SYSTEMS

For supplying 12 V– to gas safety systems in event of mains failure.

Consists of:

- 1 Stabilized (standby) back-up power unit.
- 1 Weatherproof battery.

### STABILIZED (STANDBY) POWER BACK-UP UNITS

#### ALI 310 - ALP 1..

##### APPLICATION

Stabilized back-up units for keeping batteries charged.



Code		Power VA	Input V ~	Output		Dimensions L x P x H mm.	Weight Kg
				V ~	A		
<b>ALI 310</b>		24	230	13.8	3	140 x 120 x 42	0.5
<b>ALP 114</b>		84	230	13.5	10	200 x 240 x 110	6.7
<b>ALP 120</b>		180	230	13.5	20	200 x 275 x 130	7.5

### WEATHERPROOF BATTERIES

#### ACC ...

##### APPLICATION

Long-life lead-sealed rechargeable batteries. Withstand demanding operating conditions such as overloading and very low discharge. Do not require any maintenance.



Code		Power VA	Voltage V –	Rating A/h	Dimensions L x P x H mm.	Weight Kg
<b>ACC 019</b>		22	12	2.3	178 x 34 x 65	0.9
<b>ACC 060</b>		72	12	7.0	151 x 64.5 x 97.5	2.5
<b>ACC 150</b>		180	12	17	181 x 76 x 167	6
<b>ACC 240</b>		288	12	24	175 x 166 x 125	8.1
<b>ACC 400</b>		480	12	40	197 x 165 x 170	14

### METHOD OF CHOOSING POWER SUPPLY IN RELATION TO SYSTEM TO BE ENERGISED

- Calculate the total power absorbed  $P_t$  in VA by the system which has to be energised by adding together all the consumptions of the single components of the system: detectors  $P_r$ , sensors  $P_s$  (only SRS 158-258, SRC 358), valves  $P_v$ , external alarms  $P_a$ . Power consumption by sensors SGC ..., SGR ... must not be added since this is already included in that of the detectors which energise them.

**$P_t = P_r + P_s + P_v + P_a$ . The power of the power unit must be greater than or equal to  $P_t$ .**

- By multiplying the power absorbed,  $P_t$ , by the number of hours  $h$  for which it is necessary to keep the system running efficiently without mains supply, the power effectively necessary,  $P_e$ , is obtained.

**$P_e = P_t \times h$ . The power of the battery must not be less than  $P_e$ .** If a single battery is not sufficient, use two or more batteries in parallel.



### GENERAL ACCESSORIES FOR GAS DETECTION SYSTEMS

Code		Description	Power supply	Consumption	Protection
<b>SAS 880</b>		Remote audible alarm.	230 V~	10 VA	IP 22
<b>SAL 881</b>		Remote visual alarm.	230 V~	4 VA	IP 54
<b>CSL 882</b>		Remote audible and visual alarm.	230 V~	10 VA	IP 30

## AUTOMATIC N. C. GAS SOLENOID VALVE

### GCAO ...

#### APPLICATION

Without power they are closed, when powered they are open. Approved Class A Group 2.

#### FEATURES

- Construction : brass body
- Linkage : screwed female EN 10226
- Protection : IP 65
- Working temperature : - 15...+ 60°C



Code		DN	Power supply		P.max <sup>(1)</sup> mbar	Flow rate m <sup>3</sup> /h <sup>(2)</sup>		Data sheet
			V	VA		0.5 mbar	1 mbar	
GCAO 810		3/8"	230 VAC	12	200	0.92	1.4	G 914
GCAO 410		3/8"	24 VAC	19	200	0.92	1.4	G 914
GCAO 210		3/8"	12 VDC	8	200	0.92	1.4	G 914
GCAO 815		1/2"	230 VAC	12	200	0.92	1.4	G 914
GCAO 415		1/2"	24 VAC	19	200	0.92	1.4	G 914
GCAO 215		1/2"	12 VDC	8	200	0.92	1.4	G 914
GCAO 820		3/4"	230 VAC	12	200	0.92	1.4	G 914
GCAO 420		3/4"	24 VAC	19	200	0.92	1.4	G 914
GCAO 220		3/4"	12 VDC	8	200	0.92	1.4	G 914

## N. O. GAS SOLENOID VALVES WITH MANUAL RE-SET

### GCRO ...

#### APPLICATION

Without power they are closed; they have to be re-opened manually and remain open when powered.

Approved Class A Group 2.

#### FEATURES

- Construction : brass body
- Linkage : screwed female EN 10226
- Protection : IP 65
- Working temperature : - 15...+ 60°C



Code		DN	Power supply		P.max <sup>(1)</sup> mbar	Flow rate m <sup>3</sup> /h <sup>(2)</sup>		Data sheet
			V	VA		0.5 mbar	1 mbar	
GCRO 815		1/2"	230 VAC	9	500	1.8	2.6	G 924
GCRO 415		1/2"	24 VAC	8	500	1.8	2.6	G 924
GCRO 215		1/2"	12 VDC	8	500	1.8	2.6	G 924
GCRO 820		3/4"	230 VAC	9	500	3	4.5	G 924
GCRO 420		3/4"	24 VAC	8	500	3	4.5	G 924
GCRO 220		3/4"	12 VDC	8	500	3	4.5	G 924
GCRO 825		1"	230 VAC	9	500	4.5	6.6	G 924
GCRO 425		1"	24 VAC	8	500	4.5	6.6	G 924
GCRO 225		1"	12 VDC	8	500	4.5	6.6	G 924

## N.O. GAS SOLENOID VALVES WITH MANUAL RE-SET

### GARO ...

#### APPLICATION

Without power they are open; when powered they are closed. They have to be re-opened manually and remain open if not powered.

#### FEATURES

- Construction : Brass body
- Linkage : screwed female EN 10226
- Protection : IP 65
- Working temperature : - 15...+ 60°C



Code		DN	Power supply		P.max <sup>(1)</sup> mbar	Flow rate m <sup>3</sup> /h <sup>(2)</sup>		Data sheet
			V	VA		0.5 mbar	1 mbar	
GARO 815		1/2"	230 VAC	7	500	1.8	2.6	G 934
GARO 415		1/2"	24 VAC	4	500	1.8	2.6	G 934
GARO 215		1/2"	12 VDC	6	500	1.8	2.6	G 934
GARO 820		3/4"	230 VAC	7	500	3	4.5	G 934
GARO 420		3/4"	24 VAC	4	500	3	4.5	G 934
GARO 220		3/4"	12 VDC	6	500	3	4.5	G 934
GARO 825		1"	230 VAC	8	500	4.5	6.6	G 934
GARO 425		1"	24 VAC	22	500	4.5	6.6	G 934
GARO 225		1"	12 VDC	8	500	4.5	6.6	G 934

(1) – Maximum working pressure.

(2) – Flow of methane with pressure drop of 0.5 mbar (5mmWG) and 1 mbar (10 mmWG). 100 mbar = 10 kPa = 1.000 mm WG

## AUTOMATIC N. C. GAS SOLENOID VALVE

### GCA ...

#### APPLICATION

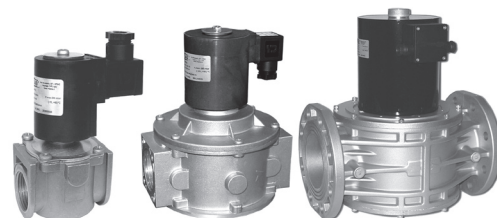
Without power they are closed, when powered they are open.

Approved Class A Group 2.

Ready for shut-off indicator microswitch mounting

#### FEATURES

- Constructed to EN standards; Aluminium body.
- Linkage : DN 15 to 50 : screwed female EN 10226 ; DN 65 to 200 : flanged PN16 ISO 7005
- Protection : IP 65
- Working temperature : - 15...+ 60°C
- Mounted with coil axis within 90° of vertical.



Code		DN	Power supply		P.max <sup>(1)</sup> mbar	Flow rate m <sup>3</sup> /h <sup>(2)</sup>		Data sheet
			V	VA		0,5 mbar	1 mbar	
		SCREWED						
GCA 815		1/2"	230 VAC	18	200	3,5	5	G 913
GCA 415		1/2"	24 VAC	14	200	3,5	5	G 913
GCA 215		1/2"	12 VDC	16	200	3,5	5	G 913
GCA 820		3/4"	230 VAC	18	200	4,8	7	G 913
GCA 420		3/4"	24 VAC	14	200	4,8	7	G 913
GCA 220		3/4"	12 VDC	16	200	4,8	7	G 913
GCA 825		1"	230 VAC	9/30 <sup>(3)</sup>	200	6	8,8	G 913
GCA 425		1"	24 VAC	7/24 <sup>(3)</sup>	200	6	8,8	G 913
GCA 225		1"	12 VDC	6/23 <sup>(3)</sup>	200	6	8,8	G 913
GCA 832		1"1/4	230 VAC	32/97 <sup>(3)</sup>	200	19	27	G 913
GCA 432		1"1/4	24 VAC	17/68 <sup>(3)</sup>	200	19	27	G 913
GCA 840		1"1/2	230 VAC	32/97 <sup>(3)</sup>	200	20	29	G 913
GCA 440		1"1/2	24 VAC	17/68 <sup>(3)</sup>	200	20	29	G 913
GCA 850		2"	230 VAC	32/97 <sup>(3)</sup>	200	30	43	G 913
GCA 450		2"	24 VAC	17/68 <sup>(3)</sup>	200	30	43	G 913
		FLANGED						
GCA 865		65	230 VAC	29/105 <sup>(3)</sup>	360	50	71	G 913
GCA 465		65	24 VAC	24/88 <sup>(3)</sup>	360	50	71	G 913
GCA 880		80	230 VAC	29/105 <sup>(3)</sup>	360	56	80	G 913
GCA 480		80	24 VAC	24/88 <sup>(3)</sup>	360	56	80	G 913
GCA 8100		100	230 VAC	36/124 <sup>(3)</sup>	360	90	137	G 913
GCA 4100		100	24 VAC	29/107 <sup>(3)</sup>	360	90	137	G 913
GCA 8125		125	230 VAC	36/124 <sup>(3)</sup>	360	150	215	G 913
GCA 4125		125	24 VAC	29/107 <sup>(3)</sup>	360	150	215	G 913
GCA 8150		150	230 VAC	36/124 <sup>(3)</sup>	360	180	255	G 913
GCA 4150		150	24 VAC	29/107 <sup>(3)</sup>	360	180	255	G 913
GCA 8200		200	230 VAC	5/47 <sup>(3)</sup>	360	390	580	G 913
GCA 4200		200	24 VAC	5/47 <sup>(3)</sup>	360	390	580	G 913
GCA 8200C <sup>(4)</sup>		200	230 VAC	5/47 <sup>(3)</sup>	360	390	580	G 913
GCA 4200C <sup>(4)</sup>		200	24 VAC	5/47 <sup>(3)</sup>	360	390	580	G 913

(1) – Maximum working pressure.

(2) – Flow of methane with pressure drop of 0.5 mbar (5mmWG) and 1 mbar (10 mmWG)      100 mbar = 10 kPa = 1,000 mmWG

(3) – Power absorbed by startup

(4) – Supplied with closure indicator microswitch

## N.C. GAS SOLENOID VALVES WITH MANUAL RE-SET

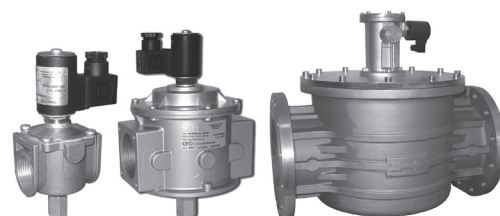
### GCR ...

#### APPLICATION

Without power they are closed; they have to be re-opened manually and remain open when powered.  
Approved Class A Group 2.

#### FEATURES

- Constructed to EN standards; Aluminium body.
- Linkage : DN 15 to 50 : screwed female EN 10226 ; DN 65 to 300 : flanged PN16 ISO 7005
- Protection : IP 65
- Working temperature : -15...+ 60°C
- Mounted with coil axis within 90° of vertical.



Code		DN	Power supply		P.max <sup>(1)</sup> mbar	Flow rate m <sup>3</sup> /h <sup>(2)</sup>		Data sheet
			V	VA		0.5 mbar	1 mbar	
		SCREWED						
GCR 815		1/2"	230 VAC	9	500	6,6	8,7	G 923
GCR 415		1/2"	24 VAC	8	500	6,6	8,7	G 923
GCR 215		1/2"	12 VDC	8	500	6,6	8,7	G 923
GCR 820		3/4"	230 VAC	9	500	9,8	14	G 923
GCR 420		3/4"	24 VAC	8	500	9,8	14	G 923
GCR 220		3/4"	12 VDC	8	500	9,8	14	G 923
GCR 825		1"	230 VAC	9	500	15	19	G 923
GCR 425		1"	24 VAC	8	500	15	19	G 923
GCR 225		1"	12 VDC	8	500	15	19	G 923
GCR 832		1"1/4	230 VAC	9	500	18	27	G 923
GCR 432		1"1/4	24 VAC	8	500	18	27	G 923
GCR 232		1"1/4	12 VDC	8	500	18	27	G 923
GCR 840		1"1/2	230 VAC	9	500	20	30	G 923
GCR 440		1"1/2	24 VAC	8	500	20	30	G 923
GCR 240		1"1/2	12 VDC	8	500	20	30	G 923
GCR 850		2"	230 VAC	9	500	25	37	G 923
GCR 450		2"	24 VAC	8	500	25	37	G 923
GCR 250		2"	12 VDC	8	500	25	37	G 923
		FLANGED						
GCR 865		65	230 VAC	18	500	53	78	G 923
GCR 465		65	24 VAC	20	500	53	78	G 923
GCR 265		65	12 VDC	18	500	53	78	G 923
GCR 880		80	230 VAC	18	500	53	78	G 923
GCR 480		80	24 VAC	20	500	53	78	G 923
GCR 280		80	12 VDC	18	500	53	78	G 923
GCR 8100		100	230 VAC	18	500	83	130	G 923
GCR 4100		100	24 VAC	20	500	83	130	G 923
GCR 2100		100	12 VDC	18	500	83	130	G 923
GCR 8125		125	230 VAC	18	500	230	335	G 923
GCR 4125		125	24 VAC	20	500	230	335	G 923
GCR 2125		125	12 VDC	18	500	230	335	G 923
GCR 8150		150	230 VAC	18	500	230	335	G 923
GCR 4150		150	24 VAC	20	500	230	335	G 923
GCR 2150		150	12 VDC	18	500	230	335	G 923
GCR 8200		200	230 VAC	18	500	360	525	G 923
GCR 4200		200	24 VAC	20	500	360	525	G 923
GCR 2200		200	12 VDC	18	500	360	525	G 923
GCR 8300		300	230 VAC	18	500	800	1200	G 923
GCR 4300		300	24 VAC	20	500	800	1200	G 923
GCR 2300		300	12 VDC	18	500	800	1200	G 923

(1) – Maximum working pressure.

(2) – Flow of methane with pressure drop of 0.5 mbar (5mmWG) and 1 mbar (10 mmWG)      100 mbar = 10 kPa = 1,000 mmWG



## N.O. GAS SOLENOID VALVES WITH MANUAL RE-SET

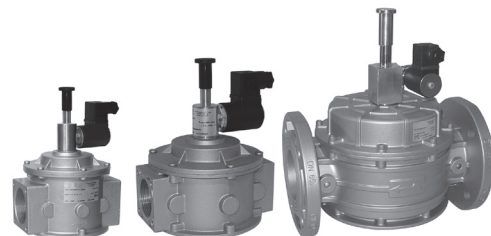
### GAR ...

#### APPLICATION

Without power they are open; when powered they are closed.  
They have to be re-opened manually and remain open if not powered.

#### FEATURES

- Constructed to EN standards; Aluminium body
- Linkage : DN 15 to 50 : screwed female EN 10226 ; DN 65 to 300 : flanged PN16 ISO 7005
- Protection : IP 65
- Working temperature : – 15...+ 60°C
- Mounted with coil axis within 90° of vertical.



Code		DN	Power supply		P.max <sup>(1)</sup>	Flow rate m <sup>3</sup> /h <sup>(2)</sup>		Data sheet
			V	VA	mbar	0.5 mbar	1 mbar	
		SCREWED						
GAR 815		1/2"	230 VAC	7	500	5.1	6,9	G 933
GAR 415		1/2"	24 VAC	4	500	5.1	6,9	G 933
GAR 215		1/2"	12 VDC	6	500	5.1	6,9	G 933
GAR 820		3/4"	230 VAC	7	500	6.9	9	G 933
GAR 420		3/4"	24 VAC	4	500	6.9	9	G 933
GAR 220		3/4"	12 VDC	6	500	6.9	9	G 933
GAR 825		1"	230 VAC	7	500	8.7	12	G 933
GAR 425		1"	24 VAC	4	500	8.7	12	G 933
GAR 225		1"	12 VDC	6	500	8.7	12	G 933
GAR 832		1"1/4	230 VAC	23	500	20	29	G 933
GAR 432		1"1/4	24 VAC	22	500	20	29	G 933
GAR 232		1"1/4	12 VDC	20	500	20	29	G 933
GAR 840		1"1/2	230 VAC	23	500	20	29	G 933
GAR 440		1"1/2	24 VAC	22	500	20	29	G 933
GAR 240		1"1/2	12 VDC	20	500	20	29	G 933
GAR 850		2"	230 VAC	23	500	25	37	G 933
GAR 450		2"	24 VAC	22	500	25	37	G 933
GAR 250		2"	12 VDC	20	500	25	37	G 933
		FLANGED						
GAR 865		65	230 VAC	23	500	63	92	G 933
GAR 465		65	24 VAC	22	500	63	92	G 933
GAR 265		65	12 VDC	20	500	63	92	G 933
GAR 880		80	230 VAC	23	500	76	115	G 933
GAR 480		80	24 VAC	22	500	76	115	G 933
GAR 280		80	12 VDC	20	500	76	115	G 933
GAR 8100		100	230 VAC	23	500	92	140	G 933
GAR 4100		100	24 VAC	22	500	92	140	G 933
GAR 2100		100	12 VDC	20	500	92	140	G 933
GAR 8125		125	230 VAC	23	500	275	400	G 933
GAR 4125		125	24 VAC	22	500	275	400	G 933
GAR 2125		125	12 VDC	20	500	275	400	G 933
GAR 8150		150	230 VAC	23	500	275	400	G 933
GAR 4150		150	24 VAC	22	500	275	400	G 933
GAR 2150		150	12 VDC	20	500	275	400	G 933
GAR 8200		200	230 VAC	57	500	360	525	G 933
GAR 4200		200	24 VAC	45	500	360	525	G 933
GAR 2200		200	12 VDC	40	500	360	525	G 933
GAR 8300		300	230 VAC	57	500	790	1200	G 933
GAR 4300		300	24 VAC	45	500	790	1200	G 933
GAR 2300		300	12 VDC	40	500	790	1200	G 933

(1) – Maximum working pressure.

(2) – Flow of methane with pressure drop of 0.5 mbar (5mmWG) and 1 mbar (10 mmWG) 100 mbar = 10 kPa = 1,000 mmWG

## ACCESSORIES FOR GCA ...

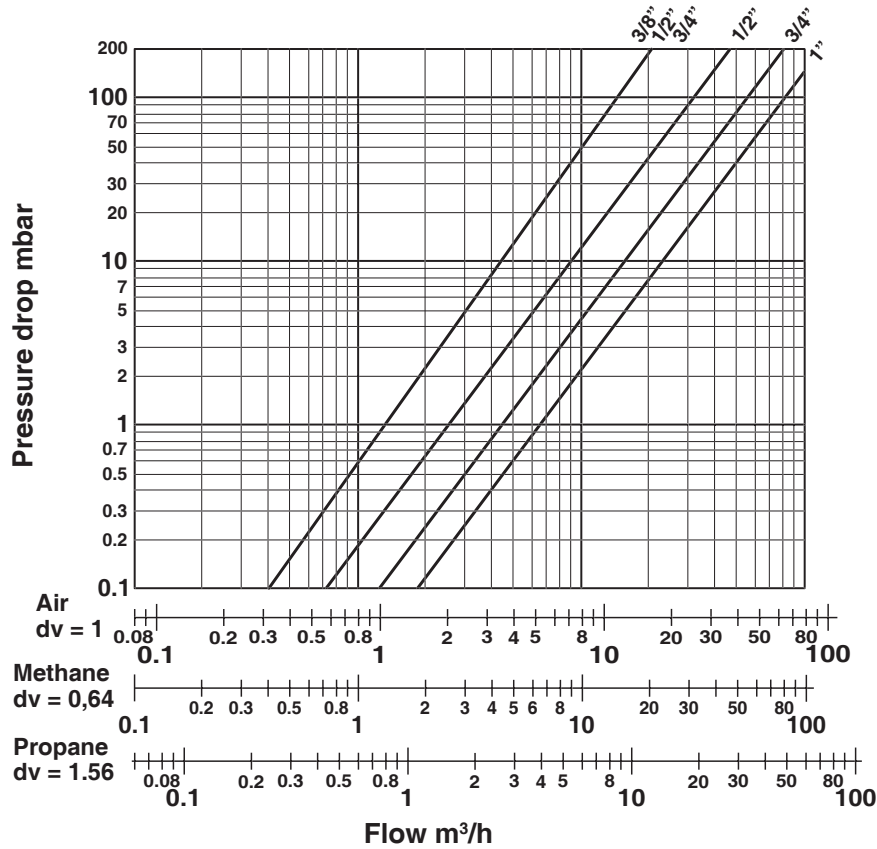
Code		Description
<b>FCM 15-20-25</b>		Microswitch shut-off indicator kit for GCA DN 15-20-25 solenoid valves
<b>FCM 32-40</b>		Microswitch shut-off indicator kit for GCA DN 32-40 solenoid valves
<b>FCM 50</b>		Microswitch shut-off indicator kit for GCA DN 50 solenoid valves
<b>FCM 65-80</b>		Microswitch shut-off indicator kit for GCA DN 65-80 solenoid valves
<b>FCM 100</b>		Microswitch shut-off indicator kit for GCA DN 100 solenoid valves
<b>FCM 125-150</b>		Microswitch shut-off indicator kit for GCA DN 125-150 solenoid valves

## ACCESSORIES FOR GCR ...

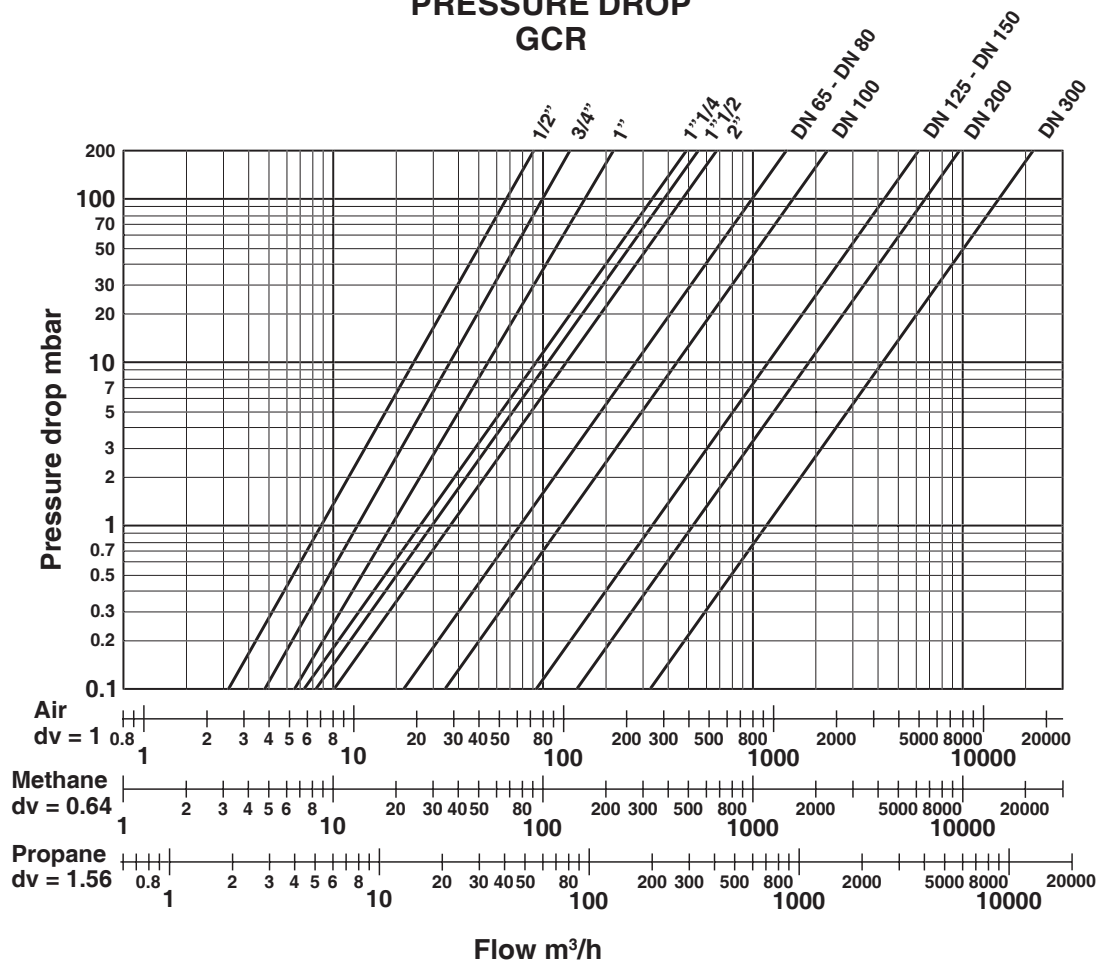
Code		Description
<b>FCR 65 - 80</b>		Microswitch shut-off indicator kit for GCR DN 65 - DN 80 solenoid valves
<b>FCR 100 - 125 -150</b>		Microswitch shut-off indicator kit for GCR DN 100 - DN 125 - DN 150 solenoid valves
<b>FCR 200</b>		Microswitch shut-off indicator kit for GCR DN 200 solenoid valves
<b>FCR 300</b>		Microswitch shut-off indicator kit for GCR DN 300 solenoid valves



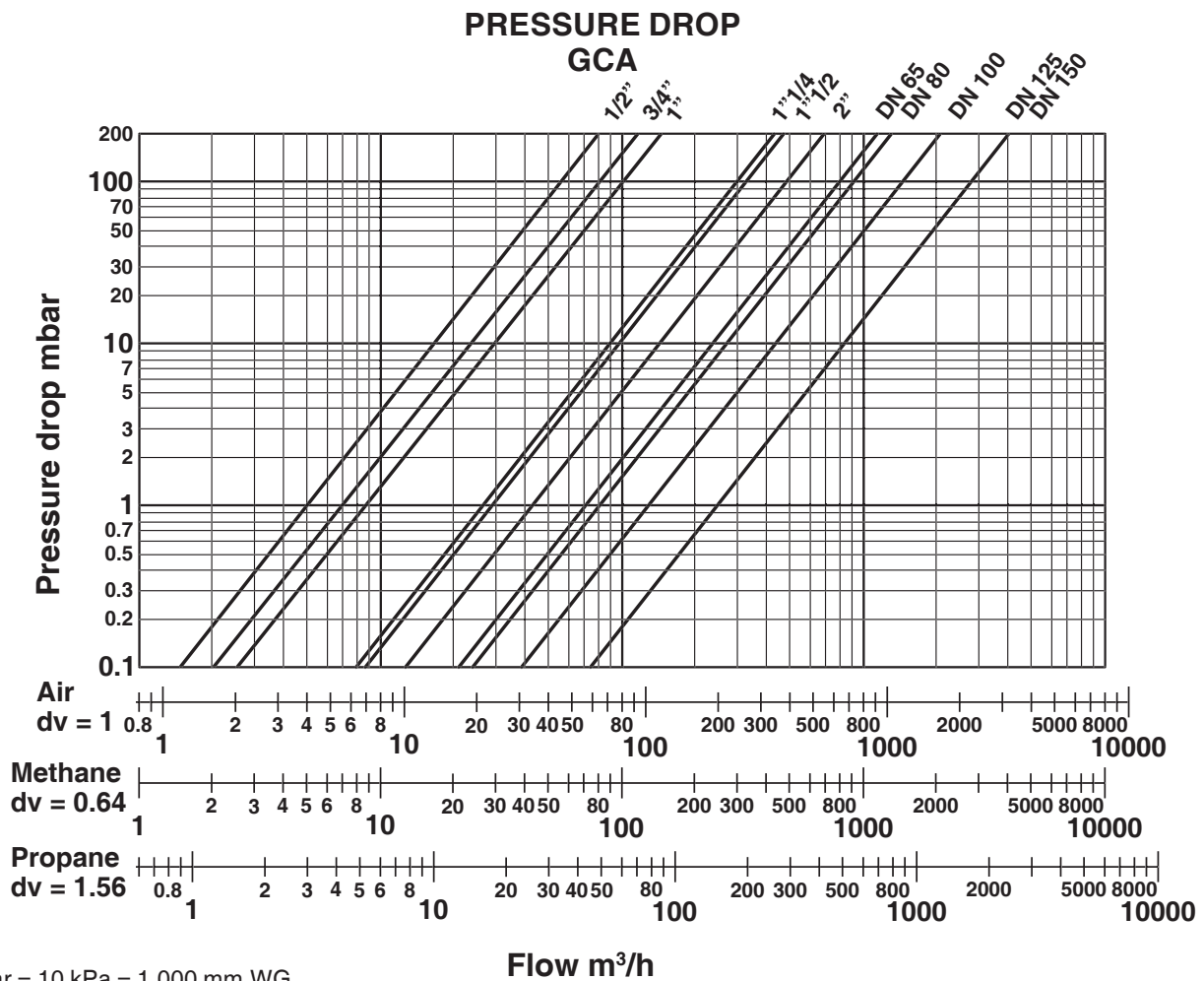
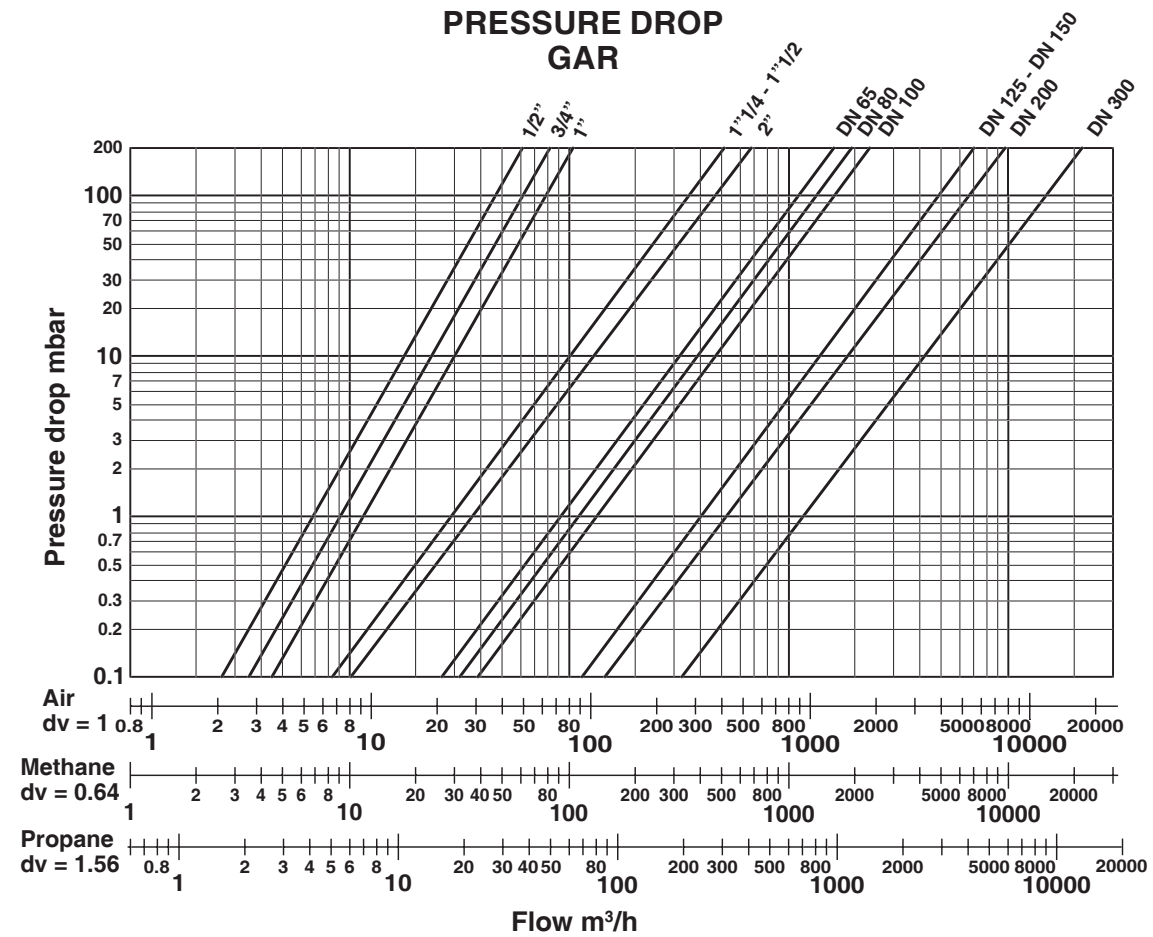
## PRESSURE DROP GCAO, GCRO, GARO



## PRESSURE DROP GCR



100 mbar = 10 kPa = 1.000 mm.WG

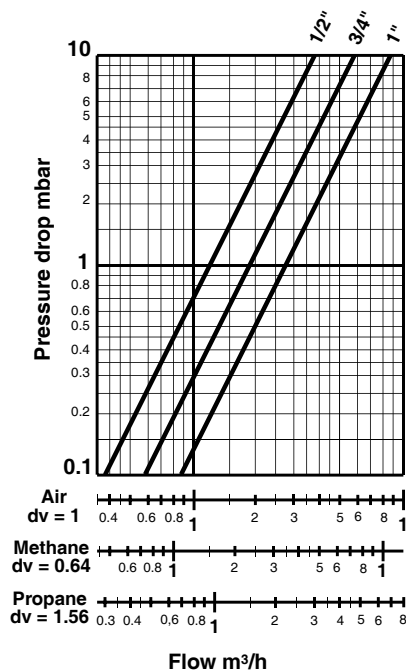


100 mbar = 10 kPa = 1.000 mm.WG

## FEATURES OF GAS SOLENOID VALVES

Model	Operation	Advantages	Disadvantages
Normally closed <b>GCA</b>	Without power closes. With power opens.	<b>Ideal for boiler plants.</b> In event gas leak, detector switches off power to valve. Power returns only with manual re-set of detector. In event mains supply failure valve closes; when power returns valve re-opens automatically.	Not recommended for kitchens without thermo-couple. In event failure of mains power, valve closes and flame goes out; when power returns valve re-opens and gas escapes causing a dangerous situation.
Normally closed with manual re-set <b>GCR - ERC</b>	Without power closes. With power opens only by manual action.	Maximum safety for all uses.	At each failure of mains supply, valve closes. When power returns valve has to be re-opened manually. <b>Not suitable for kitchens because, if no power, user tends to re-open valve with mechanical aids.</b> <b>On return of power, safety system no longer functions.</b>
Normally open with manual re-set <b>GAR - ERA</b>	With power closes. Without power opens only by manual action.	<b>In kitchen permits using gas even in event lack of mains supply.</b> In boiler plant, in event failure of mains power, valve remains open and burners safety system operates. On return of power, unnecessary manual operation to re-start plant.	In event lack of mains power, valve remains open and gas safety system remains active only if powered by back-up battery. <b>At present these are not subject to approval.</b>

## PRESSURE DROP ERA ..., ERC ...



Description	Code	Communication	Page
<b>DEGREE-DAYS METERING UNIT</b>			
<b>DEGREE-DAYS METERING UNIT</b>	<b>XGG 618</b>	OPTIONAL <b>(C ← BUS)</b>	<b>7.3</b>
<b>“ENERGICOSTER” MULTIZONE SYSTEM OF METERING THERMAL &amp; REFRIGERATION ENERGY &amp; DHW CONSUMPTION</b> THE SYSTEM COMPRISES: - 1 UMC 734 CENTRAL DISPLAY UNIT, WITH C-BUS. - 1 IET 7.. ELECTRONIC INTEGRATOR, WITH C-BUS, FOR EACH METERING UNIT. - 1 VOLUMETRIC METER WITH PULSE TRANSMITTER KU ..., KM ..., KW ... FOR EACH METERING UNIT.			
<b>VISUAL DISPLAY UNIT FOR METERING SYSTEMS</b> MASTER OF C-BUS COMMUNICATION WITH THE REMOTE UNITS PERMITS SEEING ON ALPHANUMERIC DISPLAY ALL THE DATA MONITORED BY THE REMOTE METERING UNITS IEB ... (MAX. 239).	<b>UMC 73.</b>	<b>(C ← BUS)</b>	<b>7.4</b>
<b>TELEMANAGED ELECTRONIC ENERGY INTEGRATORS WITH C-BUS</b> POWER SUPPLY: 230 V~ OR 24 V~, SUPPLIED WITH FLOW & RETURN DETECTORS.	<b>IET 7..</b>	<b>(C ← BUS)</b>	<b>7.5</b>
<b>VOLUMETRIC TURBINE-DRIVEN METERS WITH PULSE TRANSMITTER</b> METER THE QUANTITY OF WATER IN CIRCULATION IN THE PLANT. SUPPLIED WITH PULSE TRANSMITTERS WITH REED CONTACT			
<b>VOLUMETRIC TURBINE METERS WITH MULTIPLE JETS AND PULSE TRANSMITTER</b>	<b>KMF KMS</b>		<b>7.7</b>
<b>SINGLE-JET VOLUMETRIC METERS WITH PULSE TRANSMITTER</b> FOR WATER 30 - 90 °C, THREADED PN 16, DN 1/2" ... 1 1/4", Qn 1.5 ... 5 m³/h.	<b>KUF KUC</b>		<b>7.8</b>
<b>SINGLE JET TURBINE VOLUMETRIC FLOW METERS WITH INDUCTIVE PULSE GENERATOR</b>	<b>KCC ...</b>		<b>7.8</b>
<b>WOLTMANN VOLUMETRIC TURBINE METERS WITH PULSE TRANSMITTERS</b> FOR WATER 30 – 120 °C, FLANGED PN 16, DN 50 ... 200, Qn 15 ... 250 m³/h.	<b>KWP KWS</b>		<b>7.9</b>
<b>ULTRASONIC VOLUMETRIC METRES WITH PULSE GENERATOR (20...130 °C)</b>	<b>KSHG-KSHF</b>		<b>7.10</b>
<b>THERMSHARE SYSTEM</b> THIS SYSTEM PERMITS INDEPENDENT HEATING AND DHW CONTROL WITH CENTRALISED SYSTEMS AND ALLOCATING THE COSTS OF HEATING AND HOT AND COLD DOMESTIC WATER TO INDIVIDUAL APPARTMENTS			
<b>CONSUMPTION METERING UNIT</b> 1 UNIT EVERY 16 METERING UNITS; SUITABLE FOR OTHER CONSUMER METRING.	<b>UCA 668</b>	<b>(C ← BUS)</b>	<b>7.6</b>
<b>PULSE COUNTER UNIT</b> 1 UNIT EVERY 2 METERING UNITS	<b>UCI 328</b>	<b>(C ← BUS)</b>	<b>7.6</b>
<b>ACCESSORY FOR DUPLICATION PULSE</b> •PERMITS DUPLICATING A PULSE SIGNAL FROM A VOLUMETRIC METER TO CONTROL BOTH THE ELECTRONIC INTEGRATOR AND A CONTROLLER WITH FLOW LIMITER	<b>ADI 312</b>		<b>7.6</b>
<b>MULTIPLE-JET VOLUMETRIC TURBINE METERS WITH PULSE TRANSMITTERS</b> FOR WATER 30 – 90 - 120 °C, THREADED PN 16, DN 1/2" ... 2", Qn 1,5 ... 15 m³/h.	<b>KMF KMS</b>		<b>7.7</b>
<b>SINGLE-JET VOLUMETRIC METERS WITH PULSE TRANSMITTER</b> FOR WATER 30 - 90 °C, THREADED PN 16, DN 1/2" ... 1 1/4", Qn 1.5 ... 5 m³/h.	<b>KUF KUC</b>		<b>7.8</b>
<b>SINGLE JET TURBINE VOLUMETRIC FLOW METERS WITH INDUCTIVE PULSE GENERATOR</b>	<b>KCC ...</b>		<b>7.8</b>
<b>WOLTMANN VOLUMETRIC TURBINE METERS WITH PULSE TRANSMITTERS</b> FOR WATER 30 – 120 °C, FLANGED PN 16, DN 50 ... 200, QN 15 ... 250 m³/h.	<b>KWP KWS</b>		<b>7.9</b>

**(C ← BUS)** = communication with telemanagement    **(C ← BUS)** = optional telemanagement    **(C ← RING)** = data exchange between controllers

**EXAMPLES OF CONSUMPTION METERING PLANTS**

Plants	Products required
<p><b>Centralised with horizontal distribution (zoned)</b></p> <ul style="list-style-type: none"> <li>• Thermal energy metering by “ENERGICOSTER” system.</li> <li>• Thermal energy metering and DHW consumption.</li> </ul>	<p>For each apartment:</p> <ul style="list-style-type: none"> <li>- 1 zone valve <b>HGM ...</b> or <b>HMM ...</b></li> <li>- 1 actuator <b>CDK 064</b> or <b>CDK 068</b></li> <li>- 1 chronothermostat</li> <li>- 1 integrator <b>IEB 7..</b></li> <li>- 1 volumetric meter <b>KUC ...</b>, <b>KMR ...</b></li> </ul> <p>For plant:</p> <ul style="list-style-type: none"> <li>- 1 central display unit <b>UMC 734</b></li> </ul> <p>For each apartment:</p> <ul style="list-style-type: none"> <li>- 1 zone valve <b>HGM ...</b> or <b>HMM ...</b></li> <li>- 1 actuator <b>CDK 064</b> or <b>CDK 068</b></li> <li>- 1 chronothermostat <b>CMD 91</b></li> <li>- 1 Integrator</li> <li>- 1 volumetric flow meter <b>KUC</b>, <b>KMC</b> (heating)</li> <li>- 1 volumetric flow meter <b>KUC ...</b>, <b>KMR ...</b> (DHW)</li> </ul> <p>For plant:</p> <ul style="list-style-type: none"> <li>- 1 central display unit <b>UMC 734</b></li> </ul>
<p><b>District heating sustations</b></p> <ul style="list-style-type: none"> <li>• District heating network for hot water (max. 100°C) with volumetric turbine-driven.</li> </ul>	<p>For each substation:</p> <ul style="list-style-type: none"> <li>- 1 integrator</li> <li>- 1 volumetric meter <b>KMS</b>, <b>KWS</b></li> </ul>

# DEGREE-DAYS METERING UNIT OPTIONAL TELEMAGEMENT

## XGG 618

TELEMAGEMENT C-Bus: Enabled using ACB 460 accessory.

### APPLICATION

Meters winter degree-days in each individual building and permits:

- calculating heating costs.
- keeping under control the overall efficiency of the plants.
- program fuel requirements.

**Essential sensors: 1 outside sensor for metering degree-days.**

### FEATURES

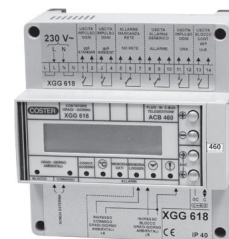
- Power supply: 230 V~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Digital programming by means of four keys and alphanumeric display.
- Automatic switching GMT - BST.
- Accuracy: Better than required by regulation EN 1434, Class 2.
- Metering: - standard degree-days: difference between mean daily (24 hour) outside temperature and the reference room temperature of 20°C.
  - room degree-days: difference between the mean daily (24hour) outside temperature and a room temperature which can be set. Metering enabled by external control.
  - hours of operation: hours devices switched on (presence of power).
- Data logger: One daily recording of all counts; max. 366 recordings; display with dates.

Code		Description	Data sheet
<b>XGG 618</b>		Degree-days metering unit.	H 111

### ACCESSORIES

Code		Description	Campo di impiego	Sensore	Data sheet
<b>ACB 460</b> <b>SGG 001</b>		Plug-in for communication via C-Bus. Outside temperature sensor for measuring degree-days.	– – 50 ... 40 °C	Pt 1 kΩ	T 433 N 121

OPTIONAL  
**C ←BUS**



## MULTIZONE SYSTEM FOR METERING HEAT AND COLD ENERGY AND DHW CONSUMPTION

### "ENERGICOSTER"

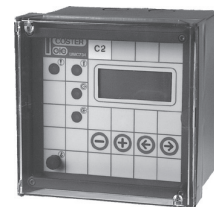
The system comprises:

- 1 visual display unit **UMC 734** with C-Bus
- 1 electronic integrator **IEB 7..** or **IET 7..** with C-Bus complete with flow and return sensors for each metering unit
- 1 volumetric hour run meter with pulse transmitter **KU ...**, **KM ...**, **KW ...**, **KS ...** for each metering unit.

### VISUAL DISPLAY UNIT FOR METERING SYSTEMS

#### UMC 73.

C ← BUS



#### APPLICATION

Supervisor for Bus communication with remote units. Permits viewing on alphanumeric display all the data monitored by the remote metering units IEB ... and IET 7.. (max. 239).

Communication with Telemanagement systems via parallel C-Bus connection..

#### FEATURES

- Power supply: 230 or 24 V~; Consumption: 10 VA; Case 144 x 144; Protection: IP 40.

Code		Description	Data sheet
<b>UMC 734</b> <b>UMC 738</b>		Central display unit for metering systems 24 Volt ~. Central display unit for metering systems 230 Volt ~.	H 310 H 310



## ELECTRONIC ENERGY INTEGRATORS

### IET 7...

- Measurement of thermal and refrigerating energy
- Remote management
- Programming via 2 keys and alphanumeric display screen

**C ← BUS**


#### APPLICATION

- Flow rate measurement with K...: volumetric metres
- Measurement of send and return temperatures ( $\Delta T$ ) with 2 SPT ... sensors
- Calculation of thermal and refrigerating energy
- Accounting of hot and cold water consumption (IET 7383 / IET 7343)
- Two pulse outputs available (IET 7183 / IET 7143), relative energy and flow rate
- Automatic accounting switch depending on the type of hot or cold fluid
- Alarms for device anomalies and/or tampering

#### FEATURES

- Power supply 230V / 24V AC; +10%-15%; 50...60Hz; con pila tampone al litio
- Consumption 0,35VA
- Mounting on DIN rail on wall or on insulated pipe
- Protection IP 54
- Communication systems C-Bus: for remote management

**ESSENTIAL ACCESSORIES : 1 pair of sensors + 1 kit for direct immersion**
**or**
**1 pair of sensors + 1 pair of pockets**
**or**
**1 pair of sensors + 1 kit for direct immersion + 1 pair of "T" joints**

Code	Power supply	Metering energy and flow			Pulse transmitter		Data sheet
		Heat. / Cold	H <sub>2</sub> O Hot	H <sub>2</sub> O Cold	Energy	Flow	
<b>IET 7383</b>	230 V AC + battey	MW/h + m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	–	–	H 354
<b>IET 7343</b>	24 V AC + battery	MW/h + m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	–	–	H 354
<b>IET 7183</b>	230 V AC + battery	MW/h + m <sup>3</sup>	–	–	Yes	Yes	H 355
<b>IET 7143</b>	24 V AC + battery	MW/h + m <sup>3</sup>	–	–	Yes	Yes	H 355

## SENSORS AND ACCESSORIES

**Conforms to directive MID 2004/22/CE**

Code	Description	Setting range	Sensing element	Data sheet
<b>SPT 001</b>	Pair of sensors with 75-centimetre cable	0 ... 150 °C	Pt 1000	N 146
<b>SPT 031</b>	Pair of sensors with 3-metre cable	0 ... 150 °C	Pt 1000	N 146
<b>SPT 101</b>	Pair of sensors with 10-metre cable	0 ... 150 °C	Pt 1000	N 146

#### Accessories for assembly with pockets or direct immersion

Code	Description	Joints	Pipe DN	Depth + thread
<b>GIS 062</b>	Pair of brass pockets for sensors.	1/4"	1" 1/4 ... 4"	62 + 18
<b>GIS 112</b>	Pair of brass pockets for sensors.	1/4"	over 4"	112 + 18

Code	Description	Joints	Pipe DN	Overall dimensions
<b>GIS 001</b>	Pair of direct immersion sensor assembly kits.	1/2"	max 1"	–
<b>ART 015</b>	Pair of T-joints for GIS 001 kit.	1/2"	1/2"	56 mm
<b>ART 020</b>	Pair of T-joints for GIS 001 kit.	3/4"	3/4"	56 mm
<b>ART 025</b>	Pair of T-joints for GIS 001 kit.	1"	1"	62 mm

## WATER CONSUMPTION METERING UNIT

## UCA 668

C ←BUS

## APPLICATION

Measures consumption metered by meters with pulse transmitters.  
Communication with Telemangement systems via C-Bus parallel connection.

## FEATURES

- Power supply: 230 V~; Consumption: 5 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Total and seasonal metering of consumption from 16 flow meters.
- Alarm for irregular functioning of device.
- Testing of electrical connections at commissioning.



Code		Description	Data sheet
UCA 668		Water consumption metering unit.	H 420

## PULSE COUNT UNIT

## UCI 328

C ←BUS

## APPLICATION

Acquires and sums the pulse coming from two emitters (volumetric meters, integrators, etc.).  
Communication with Telemangement systems via C-Bus parallel connection.

## FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Two inputs for pulse count.



Code		Description	Data sheet
UCI 328		Pulse count unit.	H 421

## PULSE DUPLICATION ACCESSORY

## ADI 312

## APPLICATION

The device enables duplication of a pulse signal. e.g.: volumetric pulse transmitter used by a heat integrator and a controller with flow limit.

## FEATURES

- Power supply: 230 V~; Consumption: 2 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.



Code		Description	Data sheet
ADI 312		Pulse duplication accessory.	H 910

## VOLUMETRIC METERS WITH PULSE TRANSMITTERS

Measure the quantity of water in circulation in the plant. Complete with pulse transmitters with reed contact. Connected to electronic integrators permit energy metering. They must be installed on the return pipe with, upstream, a filter for collecting impurities. Their size must be in relation to the nominal flow  $Q_n$  and not according to the diameter of the pipework. Manufactured in accordance with current regulations.

## VOLUMETRIC TURBINE METERS WITH MULTIPLE JETS AND PULSE TRANSMITTERS

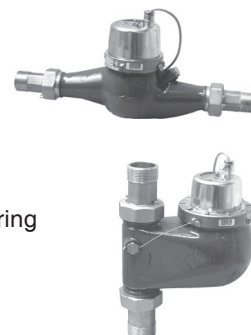
### KMF ... - KMS ...

#### APPLICATION

Volumetric turbine meter with multiple jet for use in combination with IEB ... and IET ... integrators for metering thermal and/or cooling energy or for metering consumption of hot or cold water..

#### FEATURES

- PN 16. Includes male threaded unions; KMF 50CF, KMS 50CF are flanged.
- KMS ..., KMS U..., KMS D... are approved for class A; KMF approved for cold water (CEE 75/33)
- Other non-specified meters have not been officially approved
- Includes reed pulse transmitter, Connection cable 2 x 0.5 mm 2 x 2 m, Protection : IP68.



Code	DN	Length <sup>(1)</sup> mm.	$Q_n$ m³/h	$Q_{max}$ m³/h	$Q_t$ l/h	$Q_{min}$ l/h	Kvs m³/h	$\Delta p_{Q_n}$ kPa	Pulse transmitter			Data sheet
									pul/l (K)	pul/m³	l/pul	
Tmax 30°C horizontal												
<b>KMF 15D</b>	1/2"	165	<b>1.5</b>	3	120	30	4.5	10.5	0.1	100	<b>10</b>	H 621
<b>KMF 20D</b>	3/4"	190	<b>2.5</b>	5	200	50	6.7	14.5	0.1	100	<b>10</b>	H 621
<b>KMF 25C</b>	1"	260	<b>3.5</b>	7	280	70	7.2	23	0.01	10	<b>100</b>	H 621
<b>KMF 32C</b>	1 1/4"	260	<b>5</b>	12	400	100	12.8	24	0.01	10	<b>100</b>	H 621
<b>KMF 40C</b>	1 1/2"	300	<b>10</b>	20	800	200	22	21	0.01	10	<b>100</b>	H 621
<b>KMF 50C</b>	2"	300	<b>15</b>	30	3,000	450	30.5	22	0.01	10	<b>100</b>	H 621
Tmax 120°C horizontal												
<b>KMS 15D</b>	1/2"	165	<b>1.5</b>	3	150	30	3	10.5	0.1	100	<b>10</b>	H 622
<b>KMS 20D</b>	3/4"	190	<b>2.5</b>	5	250	50	5	14.5	0.1	100	<b>10</b>	H 622
<b>KMS 25C</b>	1"	260	<b>3.5</b>	7	280	65	7	23	0.01	10	<b>100</b>	H 622
<b>KMS 32C</b>	1 1/4"	260	<b>6</b>	12	480	90	12	24	0.01	10	<b>100</b>	H 622
<b>KMS 40C</b>	1 1/2"	300	<b>10</b>	20	1,000	160	20	21	0.01	10	<b>100</b>	H 622
<b>KMS 50C</b>	2"	270	<b>15</b>	30	1,200	200	30	22	0.01	10	<b>100</b>	H 622
<b>KMS 50CF<sup>(2)</sup></b>	50 mm.	270	<b>15</b>	30	1,200	200	30	22	0.01	10	<b>100</b>	H 622
Tmax 120°C vertical up												
<b>KMS U15D</b>	1/2"	105	<b>1.5</b>	3	150	30	3	10.5	0.1	100	<b>10</b>	H 622
<b>KMS U20D</b>	3/4"	105	<b>2.5</b>	5	250	50	5	14.5	0.1	100	<b>10</b>	H 622
<b>KMS U25C</b>	1"	150	<b>3.5</b>	7	280	65	7	23	0.01	10	<b>100</b>	H 622
<b>KMS U32C</b>	1 1/4"	150	<b>6</b>	12	480	90	12	24	0.01	10	<b>100</b>	H 622
<b>KMS U40C</b>	1 1/2"	150	<b>10</b>	20	1,000	160	20	21	0.01	10	<b>100</b>	H 622
Tmax 120°C vertical down												
<b>KMS D15D</b>	1/2"	105	<b>1.5</b>	3	150	30	3	10.5	0.1	100	<b>10</b>	H 622
<b>KMS D20D</b>	3/4"	105	<b>2.5</b>	5	250	50	5	14.5	0.1	100	<b>10</b>	H 622
<b>KMS D25C</b>	1"	150	<b>3.5</b>	7	280	65	7	23	0.01	10	<b>100</b>	H 622
<b>KMS D32C</b>	1 1/4"	150	<b>6</b>	12	480	90	12	24	0.01	10	<b>100</b>	H 622
<b>KMS D40C</b>	1 1/2"	150	<b>10</b>	20	1,000	160	20	21	0.01	10	<b>100</b>	H 622

(1) – Length without unions.

(2) – PN 16 flanged connections.

$Q_n$  – Nominal flow: Maximum continuous flow measurable by the meter.

$Q_{max}$  – Maximum temporary flow bearable by the meter.

$Q_t$  – Transition flow: minimum limit with error less than  $\pm 3\%$ .

$Q_{min}$  – Minimum flow limit: minimum limit with error less than  $\pm 5\%$ .

Kvs – Flow coefficient: Flow in m³/h with pressure drop of 100 kPa = 10 mWG = 1 bar.

$\Delta p_{Q_n}$  – Pressure drop at nominal flow  $Q_n$ .

**FOR APPLICATION ON DISTRICT HEATING SITES,  
THE USE OF MECHANICAL VOLUMETRIC METERS IS NOT RECOMMENDED**

## SINGLE-JET VOLUMETRIC METERS WITH PULSE TRANSMITTER

### KUF ... - KUC ...

#### APPLICATION

Volumetric turbine meter with multiple jet for use in combination with IEB ... and IET ... integrators for metering thermal and/or refrigeration energy or for metering consumption of hot or cold water.

#### FEATURES

- PN 16. Includes male threaded unions.
- Mounting: Horizontal in Class B, Vertical in Classe A.
- Includes reed pulse transmitter; Connection cable 2 x 0.5 mm<sup>2</sup> x 2 m; Protection: IP 68.



Code	DN	Length <sup>(1)</sup> mm.	Qn m <sup>3</sup> /h	Qmax m <sup>3</sup> /h	Qt l/h	Qmin l/h	Kvs m <sup>3</sup> /h	Δp Qn kPa	Pulse transmitter			Data sheet
Tmax 30 °C												
<b>KUF 15D</b> <sup>(2)</sup>	1/2"	110	<b>1.5</b>	3	120	30	3	24	0.1	100	<b>10</b>	H 611
<b>KUF 20D</b> <sup>(2)</sup>	3/4"	130	<b>2.5</b>	5	200	50	6	17	0.1	100	<b>10</b>	H 611
<b>KUF 25C</b> <sup>(2)</sup>	1"	160	<b>3.5</b>	7	280	70	7	25	0.01	10	<b>100</b>	H 611
Tmax 90 °C												
<b>KUC 15D</b> <sup>(3)</sup>	1/2"	110	<b>1.5</b>	3	120	30	3	24	0.1	100	<b>10</b>	H 611
<b>KUC 20D</b> <sup>(3)</sup>	3/4"	130	<b>2.5</b>	5	200	50	6	17	0.1	100	<b>10</b>	H 611

## SINGLE JET TURBINE VOLUMETRIC FLOW METERS WITH INDUCTIVE PULSE GENERATOR

### KCC .....

- Measures water flow in the system.
- For use with IET 7... electronic integrators for the measurement of thermal and/or refrigeration energy, and hot and/or water consumption.
- Assembly: horizontal, vertical, reversed.
- Precision class : 3
- **MID TMC 142/11 – 4829** certification

#### FEATURES

- Nominal pressure PN16
- Fluid temperature 5÷90 °C
- Protection IP 65
- Pulse generator open collector max 30Vcc, 200mA, duration 10ms,
- Battery life 15 years
- Connection cable 2 x 0,5 mm<sup>2</sup> x 2 m
- Connectors Threaded male mouths



Code	DN	Lung. <sup>(1)</sup> mm.	Qp m <sup>3</sup> /h	Qmax m <sup>3</sup> /h	Qmin l/h	Kvs m <sup>3</sup> /h	Δp Qp kPa	Pulse generator			Data sheet
								pul/lt (K)	pul/m <sup>3</sup>	lt/pul	
<b>KCC 15-0,6</b>	1/2"	110	<b>0.6</b>	1.2	12	1.3	25	0.1	100	<b>10</b>	H 613
<b>KCC 15-1,5</b>	1/2"	110	<b>1.5</b>	3	30	3	25	0.1	100	<b>10</b>	H 613
<b>KCC 20-2,5</b>	3/4"	130	<b>2.5</b>	5	60	5	25	0.1	100	<b>10</b>	H 613

- (1) – Length without unions.  
 Qp – Permanent flow  
 Qmax – Maximum temporary flow bearable by the meter.  
 Qmin – Minimum flow limit: minimum limit with error less than ±5%.  
 Kvs – Flow coefficient: Flow in m<sup>3</sup>/h with pressure drop of 100 kPa = 10 mWG = 1 bar.  
 Δp Qp – Pressure drop at permanent flow Qn.

**FOR APPLICATION ON DISTRICT HEATING SITES,  
THE USE OF MECHANICAL VOLUMETRIC METERS IS NOT RECOMENDED**

## VOLUMETRIC WOLTMANN TURBINE METERS WITH PULSE TRANSMITTERS

### KWP ... - KWS ...

#### APPLICATION

Volumetric Woltmann turbine meter suitable for use with IEB ... and IET ... integrators for metering thermal and/or refrigeration energy or for metering consumption of hot or cold water.



#### FEATURES

- PN 16 flanged unions.
- Approved EEC 75/33 in Class B; Horizontal or vertical mounting.
- Include reed pulse transmitter; Connection cable 2 x 0.5 mm<sup>2</sup> x 3 m; Protection: IP 68.

Code		DN	Length <sup>(1)</sup> mm.	Qn m <sup>3</sup> /h	Qmax m <sup>3</sup> /h	Qt m <sup>3</sup> /h	Qmin m <sup>3</sup> /h	Kvs m <sup>3</sup> /h	Δp Qn kPa	Pulse transmitter			Data sheet
										i/l (K)	pul/m <sup>3</sup>	l/pul	
Tmax 30 °C													
<b>KWP 50M</b> <sup>(2)</sup>		50	200	<b>15</b>	30	3	0.45	112	1.8	0.001	1	<b>1,000</b>	H 632
<b>KWP 65M</b> <sup>(2)</sup>		65	200	<b>25</b>	50	5	0.75	145	1.5	0.001	1	<b>1,000</b>	H 632
<b>KWP 80M</b> <sup>(2)</sup>		80	225	<b>40</b>	80	8	1.2	205	1.2	0.001	1	<b>1,000</b>	H 632
<b>KWP 100M</b> <sup>(2)</sup>		100	250	<b>60</b>	120	12	1.8	365	2.3	0.001	1	<b>1,000</b>	H 632
<b>KWP 125M</b> <sup>(2)</sup>		125	250	<b>100</b>	200	20	3.0	335	9.1	0.001	1	<b>1,000</b>	H 632
<b>KWP 150M</b> <sup>(2)</sup>		150	300	<b>150</b>	300	30	4.5	980	2.4	0.001	1	<b>1,000</b>	H 632
<b>KWP 200M</b> <sup>(2)</sup>		200	350	<b>250</b>	500	50	7.5	1,800	2.1	0.001	1	<b>1,000</b>	H 632
Tmax 120 °C													
<b>KWS 50M</b> <sup>(3)</sup>		50	200	<b>15</b>	30	2.4	0.6	150	1.0	0.001	1	<b>1,000</b>	H 632
<b>KWS 65M</b> <sup>(3)</sup>		65	200	<b>25</b>	30	4	1.0	145	3.0	0.001	1	<b>1,000</b>	H 632
<b>KWS 80M</b> <sup>(3)</sup>		80	225	<b>32</b>	45	8	1.0	320	1.0	0.001	1	<b>1,000</b>	H 632
<b>KWS 100M</b> <sup>(3)</sup>		100	250	<b>60</b>	180	9	4.1	300	4.1	0.001	1	<b>1,000</b>	H 632
<b>KWS 125M</b> <sup>(3)</sup>		125	250	<b>100</b>	250	15	2.7	610	2.7	0.001	1	<b>1,000</b>	H 632
<b>KWS 150M</b> <sup>(3)</sup>		150	300	<b>150</b>	350	22.5	2.4	1,000	2.4	0.001	1	<b>1,000</b>	H 632
<b>KWS 200M</b> <sup>(3)</sup>		200	350	<b>250</b>	600	37.5	1.7	2,000	1.7	0.001	1	<b>1,000</b>	H 632

(1) – Length flange to flange.

(2) – Approved for cold water (EEC 75/33).

(3) – Approved for hot water (EEC 79/830)

Qn – Nominal flow: Maximum continuous flow measurable by the meter.

Qmax – Maximum temporary flow bearable by the meter.

Qt – Transition flow: minimum limit with error less than ±2%.

Qmin – Minimum flow limit: minimum limit with error less than ±5%.

Kvs – Flow coefficient: Flow in m<sup>3</sup>/h with pressure drop of 100 kPa = 10 mWG = 1 bar.

Δp Qn – Pressure drop at nominal flow Qn.

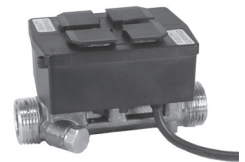
**FOR APPLICATION ON DISTRICT HEATING SITES,  
THE USE OF MECHANICAL VOLUMETRIC METERS IS NOT RECOMENDED**

# ULTRASONIC VOLUMETRIC METERS WITH PULSE GENERATOR (20...130 °C)

## KSHG ... - KSHF ...

### APPLICATION

Ultrasonic volumetric meter suited for use with IET... integrators for the measurement of thermal energy.



### FEATURES

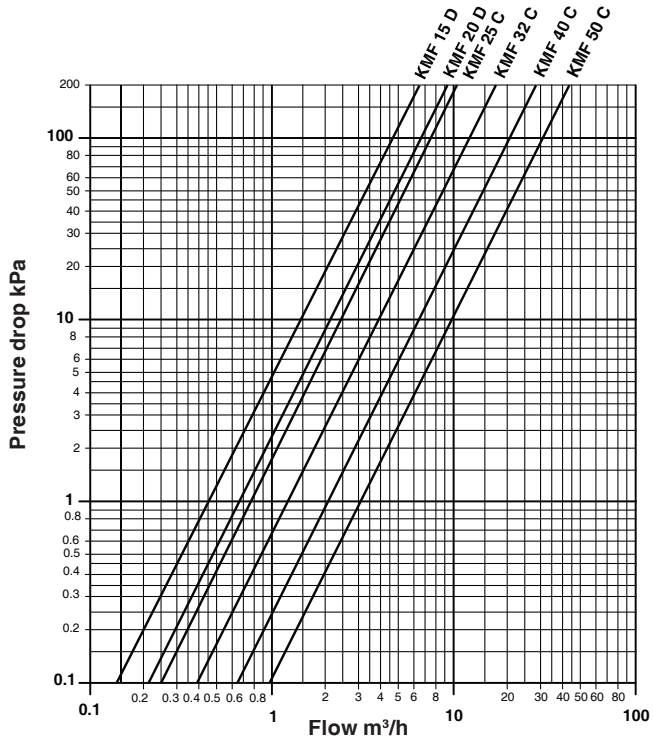
- Power supply : 3.6 VDC from IET 7... integrator
- Nominal pressure : See table
- Connectors : KSHG... : PN16 threaded male mouths ; KSHF... : PN25 flanged
- Fluid temperature : 20÷130°C
- Protection : IP 54
- Connection cable : 4 x 0.5 mm<sup>2</sup> x 2.5 m
- Assembly Indifferent
- Certification : **MID DE-07-MI004-PTB022**
- Precision class : **EN 1434 classe 2 e 3**

Code	DN body	Thread body	PN	Length. mm. <sup>(1)</sup>	Qn m <sup>3</sup> /h	Qmax m <sup>3</sup> /h	Qmin lt./h	Qstart lt./h	Kvs m <sup>3</sup> /h	Δp Qn kPa	l/pul	Data sheet
threaded	inches	male										
<b>KSHG 15-0,6</b>	1/2"	3/4"	16	110	<b>0,6</b>	1,2	6	1	2,1	8,5	<b>1</b>	H 651
<b>KSHG 15-1,5</b>	1/2"	3/4"	16	110	<b>1,5</b>	3	6	2,5	5,2	7,5	<b>1</b>	H 651
<b>KSHG 20-2,5</b>	3/4"	1"	16	130	<b>2,5</b>	5	10	4	7,8	10,0	<b>10</b>	H 651
<b>KSHG 25-3,5</b>	1"	1"1/4	16	260	<b>3,5</b>	7	35	7	17	4,4	<b>10</b>	H 651
<b>KSHG 25-6</b>	1"	1"1/4	16	260	<b>6</b>	12	24	7	17	12,8	<b>10</b>	H 651
<b>KSHG 40-10</b>	1"1/2	2"	16	300	<b>10</b>	20	100	15	34	9,5	<b>10</b>	H 651
flanged	mm											
<b>KSHF 25-3,5</b>	25	—	25	260	<b>3,5</b>	7	35	7	17	4,4	<b>10</b>	H 651
<b>KSHF 25-6</b>	25	—	25	260	<b>6</b>	12	24	7	17	12,8	<b>10</b>	H 651
<b>KSHF 32-6</b>	32	—	25	260	<b>6</b>	12	24	7	17	12,8	<b>10</b>	H 651
<b>KSHF 40-10</b>	40	—	25	300	<b>10</b>	20	100	15	34	9,5	<b>10</b>	H 651
<b>KSHF 50-15</b>	50	—	25	270	<b>15</b>	30	150	40	52	8,0	<b>10</b>	H 651
<b>KSHF 65-25</b>	65	—	25	300	<b>25</b>	50	250	50	90	7,5	<b>100</b>	H 651
<b>KSHF 80-40</b>	80	—	25	300	<b>40</b>	80	400	80	145	8,0	<b>100</b>	H 651
<b>KSHF 100-60</b>	100	—	25	360	<b>60</b>	120	600	120	210	9,0	<b>100</b>	H 651

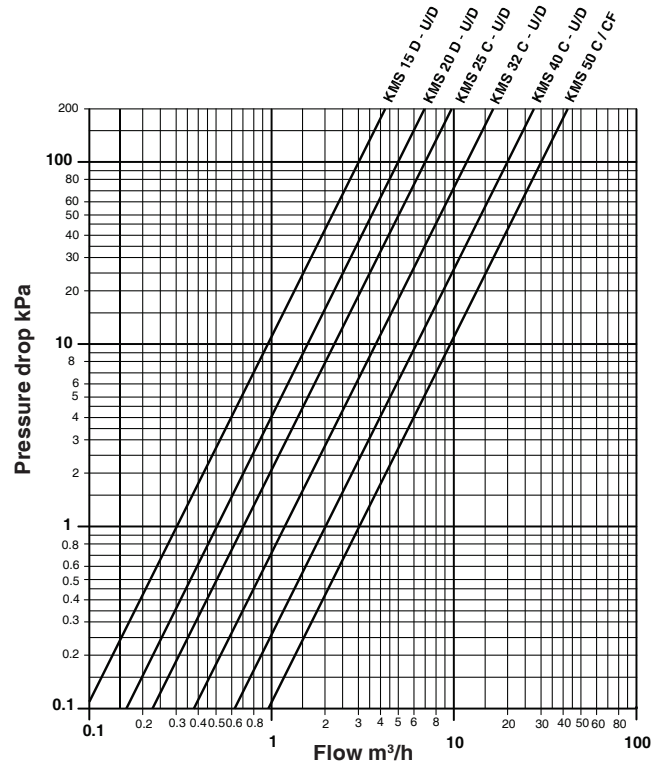
- (1) — Length without mouths, or flange to flange.  
Qn — Nominal flow rate: maximum constant flow rate measurable by the metre.  
Qmax — Temporary maximum flow rate bearable by the metre.  
Qmin — Minimum flow rate, tolerance ± 3%.  
Qstart — Minimum flow rate for reading..  
Kvs — Flow rate coefficient: flow rate in m<sup>3</sup>/h with loss of head of 100 kPa = 10 mCA = 1 bar.  
Δp Qn — Loss of head at nominal flow rate Qn.

**PRESSURE DROP IN VOLUMETRIC TURBINE-DRIVEN METERS WITH PULSE TRANSMITTER**

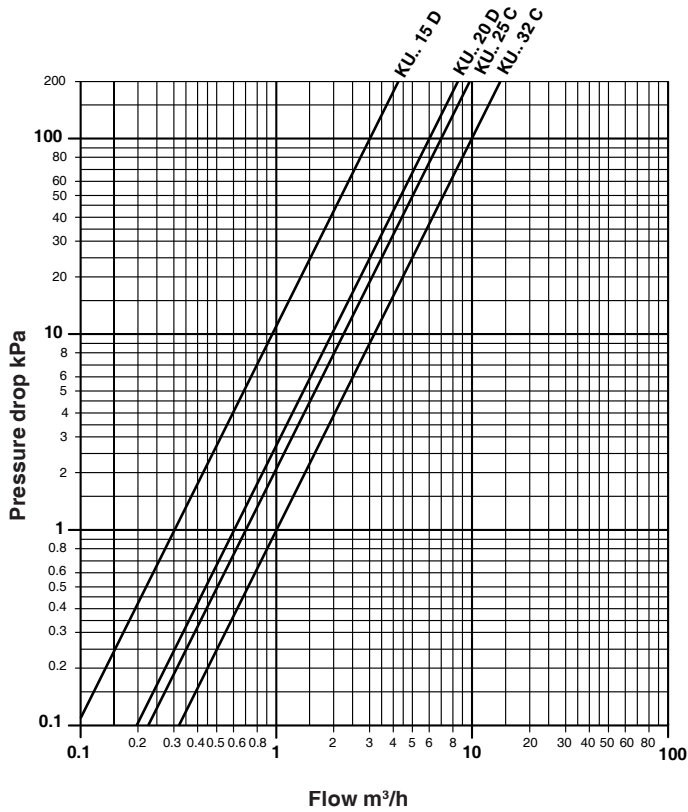
**MULTIPLE-JET KMF...**



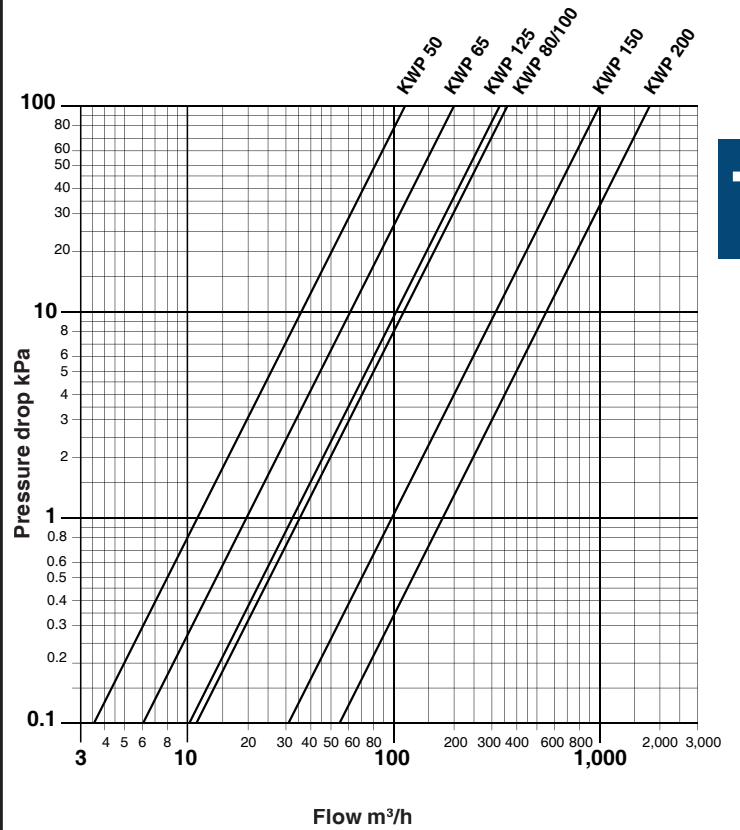
**MULTIPLE-JET KMS ...**



**SINGLE-JET KU...**



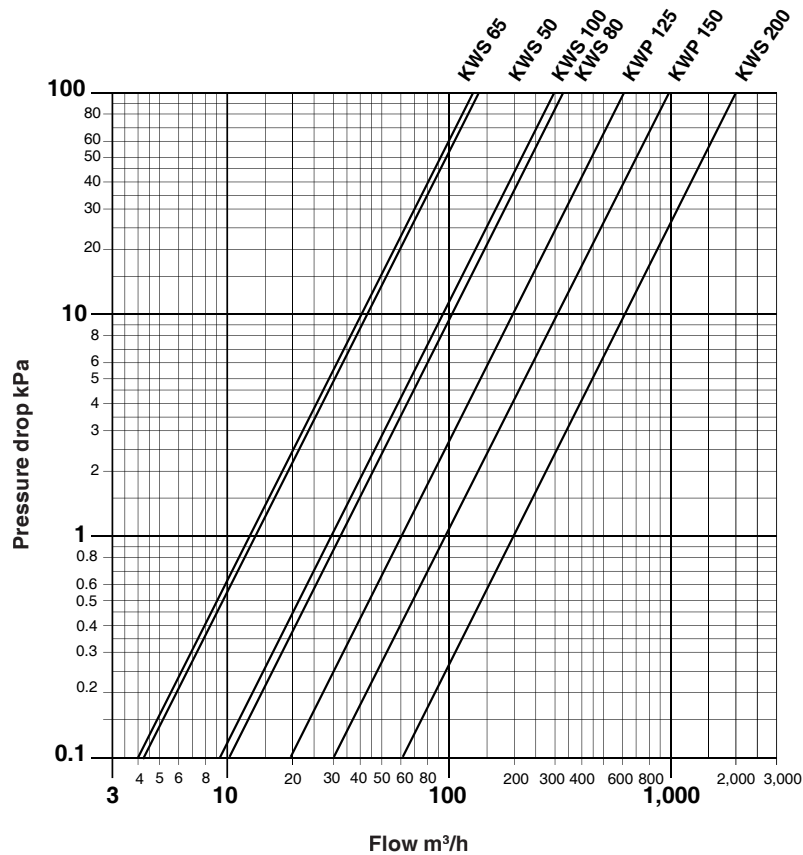
**WOLTMANN KWP ...**



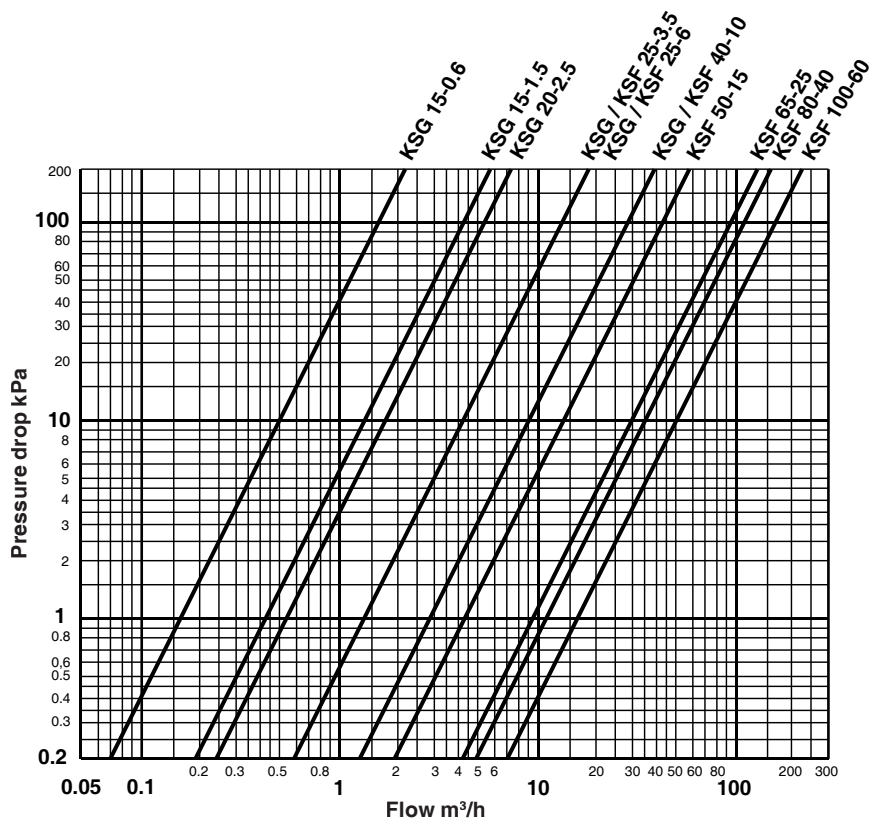
100 kPa = 10 mWG = 1 bar



## KWS ... WOLTMANN



## PRESSURE DROP IN ULTRASOUND STATIC VOLUMETRIC METERS KS ...



100 kPa = 10 mWG = 1 bar

Description	Code	Page
<b>VALVES FOR RADIATORS FOR ZONES</b>		
<b>2-PORT RADIATOR BALL VALVES PN 10 (5 ... 90 °C)</b> BY PASS OR THROUGHPORT, 3/8" ... 1".	HGT ...	8.3
<b>ACTUATOR FOR HGT ... VALVES</b> POWER SUPPLY 24 V~, 3-WIRE CONTROL WITH 1 WIRE + HEART.	CDR 064	8.3
<b>2, 3 AND 4-PORT BALL ZONE VALVES PN 10 (5 ... 90 °C)</b> THREADED DN 3/8"-1".	HMM ... HGM ...	8.4
<b>V2, 3 AND 4-PORT CERAMIC DISK CONTROL VALVES</b> <b>PN 10 (1 ... 95 °C)</b> HOT/COLD FAN-COIL CONTROL..	VDM ...	8.4
<b>REVERSIBLE 90° ROTARY ACTUATORS FOR HGM ... - HMM ... - VDM ... VALVES</b> POWER SUPPLY 230 - 24 - 12 V~, 3-WIRE CONTROL.	CDK 06. CDK 03.	8.4
<b>BALL VALVES</b>		
<b>2-PORT THREADED BALL VALVES FEMALE PN 6 (-15 ... +120 °C)</b> HOT/COLD ZONED PLANTS. SOLAR, DHW, ETC. THREADED DN 1/2" ... 1"1/4	XDG 2..	8.5
<b>2-PORT THREADED BALL VALVES FEMALE (-15 ... +120 °C)</b> TIGHT SHUT-OFF HOT/COLD PLANTS. THREADED DN 1/2" ... 4"	YDG 2..	8.5
<b>3-PORT SCREWED FEMALE BALL VALVES PN 6 (-15 ... +120 °C)</b> HOT/COLD ZONED PLANTS. SOLAR, DHW, ETC. THREADED DN 1/2" ... 2".	XLG 3..	8.6
<b>3-PORT SCREWED FEMALE BALL VALVES PN 6 (-15 ... +120 °C)</b> HOT/COLD ZONED PLANTS. SOLAR, DHW, ETC. THREADED DN 1/2" ... 2".	XDG 3..	8.6
<b>2-PORT FLANGED BALL VALVES PN 16 (-15 ... 120 °C)</b> TIGHT SHUT-OFF HOT/COLD PLANTS.. FLANGED DN 40 ... 200	2S ...	8.7
<b>BUTTERFLY &amp; SLIPPER VALVES</b>		
<b>3 -AND 4-PORT SLIPPER &amp; BUTTERFLY VALVES PN 6 (10 ... 110 °C)</b> FOR HEATING PLANTS, DN 15 ... 150.	VSG-F - VFG-F	8.8
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<b>ROTARY 90° ACTUATORS FOR BALL, BUTTERFLY &amp; SLIPPER VALVES</b>		
<b>REVERSIBLE 90° ROTARY ACTUATORS FOR HGM ... - HMM ... - VDM ... VALVES</b> POWER SUPPLY 230 - 24 - 12 V~, 3-WIRE CONTROL.	CDK 06. CDK 03.	8.4
<b>REVERSIBLE 90° ROTARY ACTUATOR FOR 2-WAY FLANGED BALL VALVES 2S DN 150 – 200</b> POWER SUPPLY 230 ~, 3-WIRE CONTROL, TORQUE 800 Nm	CVS 808	8.7
<b>ROTARY 90° REVERSIBLE ACTUATOR FOR BALL VALVES (PRE-WIRED)</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL, TORQUE 6 Nm.	CRB 09.	8.10
<b>ROTARY 90° REVERSIBLE ACTUATOR FOR XDG ... - YDG ... - 2S ... - 2F ... VALVES (MAX. DN 1"1/4)</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL.	CVC ...	8.10
<b>ROTARY 90° REVERSIBLE ACTUATOR WITH MANUAL RELEASE</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL, TORQUE 15 Nm.	CVH ...	8.11
<b>ROTARY 90° REVERSIBLE ACTUATOR FOR BALL, BUTTERFLY, &amp; SLIPPER VALVES WITH MANUAL RELEASE</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL, TORQUE 120 Nm.	CVF...	8.11

Description	Code	Page
<b>VALVES FOR RADIATORS FOR ZONES</b>		
<b>3-WAY THREADED SEAT VALVES PN 16 (-10 ... 120 °C)</b>	<b>VOBG 3..</b>	<b>8.14</b>
<b>FEMALE CAPS TO TRANSFORM THE VOBG... VALVES FROM 3-WAY TO 2-WAY</b>	<b>TVG ...</b>	<b>8.14</b>
<b>3-WAY FLANGED SEAT VALVES PN 6 (-10 ... 120 °C)</b>	<b>VORF 3...</b>	<b>8.15</b>
<b>3-WAY FLANGED SEAT VALVES PN 16 (-10 ... 120 °C)</b>	<b>VONF 3...</b>	<b>8.16</b>
<b>LINEAR ACTUATORS FOR VOBG ... - VORF ... - VONF ...</b>	<b>CLNV ...</b>	<b>8.17</b>
<b>LINEAR ACTUATORS FOR VORF ... - VONF ...</b>	<b>CLAV ...</b>	<b>8.17</b>
<b>LINEAR ACTUATORS FOR VOBG ... - VORF ... - VONF ... WITH EMERGENCY CLOSURE</b>	<b>CLNF ...</b>	<b>8.17</b>
<b>BALL VALVES</b>		
<b>2-PORT THREADED BALL VALVES FEMALE PN 6 (-15 ... +120 °C)</b> HOT/COLD ZONED PLANTS. SOLAR, DHW, ETC. THREADED DN 1/2" ... 1"1/4	<b>XDG 2..</b>	<b>8.7</b>
<b>2-PORT THREADED BALL VALVES FEMALE (-15 ... +120 °C)</b> TIGHT SHUT-OFF HOT/COLD PLANTS. THREADED DN 1/2" ... 4"	<b>YDG 2..</b>	<b>8.7</b>
<b>3-PORT SCREWED FEMALE BALL VALVES PN 6 (-15 ... +120 °C)</b> HOT/COLD ZONED PLANTS. SOLAR, DHW, ETC. THREADED DN 1/2" ... 2".	<b>XLG 3..</b>	<b>8.8</b>
<b>3-PORT SCREWED FEMALE BALL VALVES PN 6 (-15 ... +120 °C)</b> HOT/COLD ZONED PLANTS. SOLAR, DHW, ETC. THREADED DN 1/2" ... 2".	<b>XDG 3..</b>	<b>8.8</b>
<b>2-PORT FLANGED BALL VALVES PN 16 (-15 ... 120 °C)</b> TIGHT SHUT-OFF HOT/COLD PLANTS.. FLANGED DN 40 ... 200	<b>2S ...</b>	<b>8.8</b>
<b>BUTTERFLY &amp; SLIPPER VALVES</b>		
<b>3 -AND 4-PORT SLIPPER &amp; BUTTERFLY VALVES PN 6 (10 ... 110 °C)</b> FOR HEATING PLANTS, DN 15 ... 150.	<b>VSG-F VFG-F</b>	<b>8.9</b>
<b>V2-PORT BUTTERFLY VALVES PN 6 (10 ... 110 °C)</b> SHUT-OFF IN PLANTS WHERE TIGHT CLOSURE NOT REQUIRED, DN 50...200	<b>2F ...</b>	<b>8.10</b>
<b>ROTARY 90° ACTUATORS FOR BALL, BUTTERFLY &amp; SLIPPER VALVES</b>		
<b>REVERSIBLE 90° ROTARY ACTUATORS FOR HGM ... - HMM ... - VDM ... VALVES</b> POWER SUPPLY 230 - 24 - 12 V~, 3-WIRE CONTROL.	<b>CDK 06. CDK 03.</b>	<b>8.5</b>
<b>REVERSIBLE 90° ROTARY ACTUATOR FOR 2-WAY FLANGED BALL VALVES 2S DN 150 – 200</b> POWER SUPPLY 230 ~, 3-WIRE CONTROL, TORQUE 800 Nm	<b>CVS 808</b>	<b>8.6</b>
<b>ROTARY 90° REVERSIBLE ACTUATOR FOR BALL VALVES (PRE-WIRED)</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL, TORQUE 6 Nm.	<b>CRB 09.</b>	<b>8.12</b>
<b>ROTARY 90° REVERSIBLE ACTUATOR FOR XDG ... - YDG ... - 2S ... - 2F ... VALVES (MAX. DN 1"1/4)</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL.	<b>CVC ...</b>	<b>8.12</b>
<b>ROTARY 90° REVERSIBLE ACTUATOR WITH MANUAL RELEASE</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL, TORQUE 15 Nm.	<b>CVH ...</b>	<b>8.13</b>
<b>ROTARY 90° REVERSIBLE ACTUATOR FOR BALL, BUTTERFLY, &amp; SLIPPER VALVES WITH MANUAL RELEASE</b> POWER SUPPLY 230 - 24 V~, 3-WIRE CONTROL, TORQUE 120 Nm.	<b>CVF...</b>	<b>8.13</b>
<b>BALL VALVES</b>		
<b>3-WAY BALL VALVES PN 16 (-10 ... 120 °C)</b>	<b>VYG 3..</b>	<b>8.12</b>
<b>2-WAY CONSTANT FLOW BALL VALVES PN 16/25 (5 ... 100 °C)</b>	<b>VZG 2..</b>	<b>8.12</b>
<b>ROTARY ACTUATORS WITH MANUAL OPERATION</b>	<b>CVTR ... CVLR ... CVHR ... CVSR ...</b>	<b>8.13</b>

## 2-PORT RADIATOR BALL VALVES PN 10 (5 ... 90 °C)

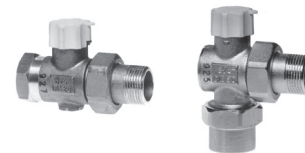
### HGT ...

#### APPLICATION

Rotary ball valves designed for On-Off or modulating control of radiators.

#### FEATURES

- Body and ball in chromed brass.



Code		DN body	Kvs <sup>(1)</sup> m³/h	Connections entry      outlet	Radiator union	Suitable actuator <b>CDR 06.</b>		Data sheet
throughport				female      rafit	male	bar <sup>(2)</sup>	s <sup>(3)</sup>	
HGT 110		3/8"	5,4	3/8"      1/2"	3/8"	1.2	60	M 811
HGT 115		1/2"	6	1/2"      3/4"	1/2"	1.2	60	M 811
HGT 120		3/4"	11	3/4"      1"	3/4"	1.2	60	M 811
HGT 125		1"	25,7	1"      1"1/4"	1"	1.2	60	M 811
by pass								
HGT 210		3/8"	2,4	3/8"      1/2"	3/8"	1.2	60	M 811
HGT 215		1/2"	2,6	1/2"      3/4"	1/2"	1.2	60	M 811
HGT 220		3/4"	5	3/4"      1"	3/4"	1.2	60	M 811
HGT 225		1"	11,7	1"      1"1/4"	1"	1.2	60	M 811

(1) : Kvs = Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

100 kPa = 10 mWG = 1 bar

(2) : bar = Maximum pressure differential ( $\Delta p$  max) permitted by actuator.

(3) : s = Time (seconds) necessary for actuator to make the complete valve run.

## REVERSIBLE 90° ROTARY ACTUATOR FOR HGT ... / HGM ... / HMM ... / VDM ... VALVES

### CDR 064

#### APPLICATION

Reversible rotary actuator with rotation angle fixed at 90°.

#### FEATURES

- Power supply: 24 V~; Protection: IP 54.



Code		Power supply V~ (VA)	Control	Time s	Normal Torque kg/cm.(Nm)	StartingTorque kg/cm. (Nm)	Data sheet
<b>CDR 064</b>		24 (1)	3 wire	60	15 (1.5)	30 (3)	M 322

## 2-, 3- AND 4- PORT ZONE BALL VALVES PN 10 (5 ... 90 °C)

### HGM ... - HMM ...

#### APPLICATION

Rotary ball valves for shut-off in zoned installations.  
Suitable for mounting on modular manifolds.

#### FEATURES

- Body and ball in chromed brass; supplied with male connections for flat unions; **HMM 4.. : with adjustable**



Code		DN body	Kvs <sup>(1)</sup>		Connections		Suitable actuator CDK 06. - CDR 06.		Data sheet
			thr-port	by-pass			bar <sup>(2)</sup>	s <sup>(3)</sup>	
2-port			m³/h	m³/h	female	male			
<b>HGM 210</b>		3/8"	5.4	—	3/8"	3/8"	6	60	M 812
<b>HGM 215</b>		1/2"	6	—	1/2"	1/2"	6	60	M 812
<b>HGM 220</b>		3/4"	11	—	3/4"	3/4"	6	60	M 812
<b>HGM 225</b>		1"	25.7	—	1"	1"	6	60	M 812
2-port					male	male			
<b>HMM 210</b>		3/8"	5.4	—	3/8"	3/8"	6	60	M 812
<b>HMM 215</b>		1/2"	6	—	1/2"	1/2"	6	60	M 812
<b>HMM 220</b>		3/4"	11	—	3/4"	3/4"	6	60	M 812
<b>HMM 225</b>		1"	25.7	—	1"	1"	6	60	M 812
3-port					3 males				
<b>HMM 320</b>		3/4"	11	3	3/4"		6	60	M 813
<b>HMM 325</b>		1"	25.7	6.5	1"		6	60	M 813
4-port					4 males				
<b>HMM 410</b>		3/8"	5.4	1.3	3/8"		6	60	M 814
<b>HMM 415</b>		1/2"	6	1.5	1/2"		6	60	M 814
<b>HMM 420</b>		3/4"	11	3	3/4"		6	60	M 814
<b>HMM 425</b>		1"	25.7	6.5	1"		6	60	M 814

## 2-, 3- AND 4-PORT PN 10 CERAMIC DISK CONTROL VALVES (1 ... 95°C)

### VDM ...

#### APPLICATION

Designed for hot/cold fan coil regulation.

#### FEATURES

- Brass body; ceramic disk shutter; threaded male connections for flat unions.



Code		DN body	Kvs <sup>(1)</sup>		Connections		Suitable actuator CDK 06. - CDR 06.		Data sheet
			thr-port	by-pass			bar <sup>(2)</sup>	s <sup>(3)</sup>	
2-port			m³/h	m³/h					
<b>VDM 210</b>		3/8"	1.6	—	2 males 3/8"		6	60	M 821
<b>VDM 215</b>		1/2"	1.8	—	2 males 1/2"		6	60	M 821
3-port					throughport by pass				
<b>VDM 310</b>		3/8"	1.6	1.1	male 3/8" female 1/2"		6	60	M 822
<b>VDM 315</b>		1/2"	1.8	1.2	male 1/2" female 1/2"		6	60	M 822
4-port									
<b>VDM 410</b>		3/8"	1.6	1.1	4 males 3/8"		6	60	M 823
<b>VDM 415</b>		1/2"	1.8	1.2	4 males 1/2"		6	60	M 823

## ROTARY REVERSIBLE 90° ACTUATORS FOR HGM - HMM - VDM VALVES

### CDK 06. - CDK 03.

#### APPLICATION

Rotary reversible actuator with fixed 90° rotation angle. Three-wire electric control (Common, Opens, Closes).

#### FEATURES

- Power supply: 230 - 24 - 12 V~; Protection: IP 53; Run time: 60 s.
- Supplied with auxiliary end-of-run with SPDT switch, intervention at 50% of run.



Code		Power supply V~ (VA)	Control	Run time (s)	Nominal Torque kg/cm. (Nm)	Starting Torque kg/cm. (Nm)	Data sheet
<b>CDK 068</b>		230 (4)	3 punti	60	15 (1,5)	30 (3)	M 324
<b>CDK 064</b>		24 (1)	3 punti	60	15 (1,5)	30 (3)	M 324
<b>CDK 062</b>		12 (4)	3 punti	60	15 (1,5)	30 (3)	M 325
<b>CDK 038</b>		230 (4)	3 punti	30	10 (1)	20 (2)	M 324
<b>CDK 034</b>		24 (1)	3 punti	30	10 (1)	20 (2)	M 324
<b>CDK 032</b>		12 (4)	3 punti	30	10 (1)	20 (2)	M 325

(1) : Kvs = Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

100 kPa = 10 mWG = 1 bar

(2) : bar = Maximum pressure differential (Δp max) permitted by actuator.

(3) : s = Time (seconds) necessary for actuator to make the whole valve run.

## 2-PORT FEMALE THREADED PN 6 BALL VALVES (–15 ... +120 °C)

### XDG 2..

#### APPLICATION

Suitable for zoned systems, solar plants, DHW production, refrigerated water production, etc.

#### FEATURES

- Body and ball in chromed brass; Seals in Teflon and Viton.
- Fluid temperature: +5 ... +120 °C (with CRB ..., CVC ... and CVH ...); up to –15 °C (with CVC ... /T and CVH ... /T).



Code		DN	Kvs <sup>(1)</sup> m³/h	Suitable actuators		Data sheet
				CRB ... - CVC ...	CVH ...	
				bar <sup>(2)</sup>	bar <sup>(2)</sup>	
XDG 215		1/2"	16.3	6	6	M 912
XDG 220		3/4"	29.5	6	6	M 912
XDG 225		1"	43	6	6	M 912
XDG 232		1"1/4	89	6	6	M 912

## 2-PORT THREADED FEMALE BALL VALVES (–15 ... +120 °C)

### YDG 2..

#### APPLICATION

For plants with cold, hot or superheated water (max. 120 °C).

#### FEATURES

- Brass body and ball; Seals in Teflon and Viton. Complete with actuator linkage kit.
- Fluid temperature: +5 ... +120 °C (with CRB ..., CVC ... and CVH ...); up to –15 °C (with CVC ... /T and CVH ... /T).



Code		DN	PN	Kvs <sup>(1)</sup> m³/h	Suitable actuators			Data sheet
					CRB ... - CVC ...	CVH ...	CVF ...	
					bar <sup>(2)</sup>	bar <sup>(2)</sup>	bar <sup>(2)</sup>	
YDG 215		1/2"	40	16.3	10	10	–	M 913
YDG 220		3/4"	40	29.5	10	10	–	M 913
YDG 225		1"	40	43	10	10	–	M 913
YDG 232		1"1/4	40	89	10	10	–	M 913
YDG 240		1"1/2	40	230	–	10	–	M 913
YDG 250		2"	40	265	–	10	–	M 913
YDG 265		2"1/2	25	540	–	10	–	M 913
YDG 280		3"	16	873	–	–	10	M 913
YDG 2100		4"	16	1.390	–	–	10	M 913

(1) : Kvs – Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

(2) : bar = Maximum pressure differential ( $\Delta p$  max) permitted by actuator.

100 kPa = 10 mWG = 1 bar

### 3-PORT SCREWED FEMALE BALL VALVES PN 6 (–15 ... +120 °C)

## XLG 3..



#### APPLICATION

Designed for zoned, solar, DHW production, chilled water, etc plants.

#### FEATURES

- Chromed brass body and ball; Teflon and Viton seals.
- Fluid temperature: +5 ... +120 °C (with CRB ..., CVC ... & CVH ...); down to –15 °C (with CVC .../T & CVH .../T).

Code		DN	Kvs <sup>(1)</sup> m <sup>3</sup> /h	Suitable actuators			Data sheet
				CRB ... - CVC ...	CVH 11.	CVH 63./21./05.	
			thr-port    by-pass	bar <sup>(2)</sup>	bar <sup>(2)</sup>	bar <sup>(2)</sup>	
XLG 315		1/2"	16.3    1.5	6	6	6	M 916
XLG 320		3/4"	29.5    1.8	6	6	6	M 916
XLG 325		1"	43       3.9	6	6	6	M 916
XLG 332		1"1/4	89       7.9	6	6	6	M 916
XLG 341		1"1/2	160      14.8	–	6	6	M 916
XLG 351		2"	265      24.5	–	–	6	M 916

### 3-PORT SCREWED FEMALE BALL VALVES PN 6 (–15 ... +120 °C)

## XDG 3..



#### APPLICATION

Designed for zoned, solar, DHW production, chilled water, etc plants.

#### FEATURES

- Chromed brass body and ball; Teflon and Viton seals.
- Fluid temperature: +5 ... +120 °C (with CRB ..., CVC ... & CVH ...); down to –15 °C (with CVC .../T & CVH .../T).

Code		DN	Kvs <sup>(1)</sup> m <sup>3</sup> /h	Suitable actuators			Data sheet
				CRB ... - CVC ...	CVH 11.	CVH 63./21./05.	
				bar <sup>(2)</sup>	bar <sup>(2)</sup>	bar <sup>(2)</sup>	
XDG 315		1/2"	3.9	6	6	6	M 918
XDG 320		3/4"	7.9	6	6	6	M 918
XDG 325		1"	13	6	6	6	M 918
XDG 332		1"1/4	20.7	6	6	6	M 918
XDG 340		1"1/2	38.7	–	6	6	M 918
XDG 350		2"	54	–	–	6	M 918

(1) : Kvs – Flow coefficient: Flow in m<sup>3</sup>/h with valve open and pressure drop of 100 kPa.

(2) : bar = Maximum pressure differential (Δp max) permitted by actuator.

100 kPa = 10 mWG = 1 bar



## 2-PORT FLANGED BALL VALVES PN 16 (–15 ... +120 °C)

### 2S ...

#### APPLICATION

For shut-off in installations where a tight closure is necessary:  
boilers in sequence, shut-off in secondary circuits.

#### FEATURES

- Body in cast iron; Ball in chromed brass; Seals in Teflon and Viton.
- Complete with actuator linkage kit.
- Fluid temperature: +5 ... +120 °C (with CVH ...); up to –15 °C (with CVH ... /T and CVF ...).



Code		DN mm.	Kvs <sup>(1)</sup> m³/h	Suitable actuators			Data sheet
				CVH 63. / 21.	CVF ...	CVS 808	
			bar <sup>(2)</sup>	bar <sup>(2)</sup>	bar <sup>(2)</sup>		
2S DN 40		40	230	6	–	–	M 921
2S DN 50		50	265	6	–	–	M 921
2S DN 65		65	540	6	–	–	M 921
2S DN 80		80	873	–	6	–	M 921
2S DN 100		100	1,390	–	6	–	M 921
2S DN 100S		100	1,390	–	–	10	M 921
2S DN 125		125	1,707	–	–	10	M 921
2S DN 150		150	2,024	–	–	10	M 921
2S DN 200		200	2,720	–	–	10	M 921

(1) : Kvs – Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

(2) : bar = Maximum pressure differential ( $\Delta p$  max) permitted by actuator.

100 kPa = 10 mWG = 1 bar

## REVERSIBLE ROTARY ACTUATOR 90° FOR 2S DN 100S – 200 BALL VALVES

### CVS 808

#### APPLICATION

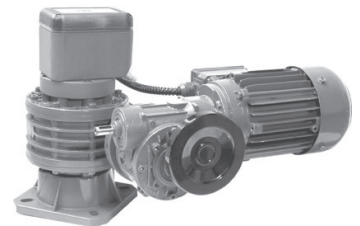
Actuator for large rotary valves.

Reversible with rotation angle fixed at 90°.

3-wire electric control (Common, Opens, Closes).

#### FEATURES

- Power supply: 230 V~; Protection: IP 55; Run time: 55 seconds.
- Auxiliary SPDT switch: Flow 250 V~; 5 (1)A.
- Direct attachment to Coster ball valves 2S DN 150 & DN 200.



Code		Power supply V~ (W)	Run time sec	Normal torque kg/cm. (Nm)	Starting torque kg/cm. (Nm)	Valves 2S DN	Data sheet
CVS 808		230 (150)	55	8,000 (800)	8,000 (800)	150 - 200	M 141

### 3- AND 4-PORT SLIPPER & BUTTERFLY VALVES PN 6 (10 ... 110 °C)

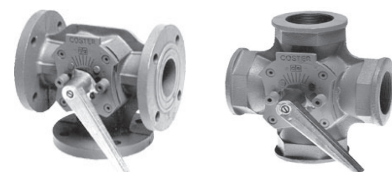
## VSG ... - VSF ... - VFG ... - VFF ...

#### APPLICATION

Used as mixing or diverting valves to control temperature of circulating water in heating plants.

#### FEATURES

- Body and rotor in GG25 cast iron; spindle in stainless steel.
- Connections: DN 3/4" ... 2" threaded female; DN 40 ... 150 flanged.
- Rotation angle 90°; Linear control; Let by  $\leq 1.5$  % Kvs.



Code		DN	Kvs <sup>(1)</sup> m³/h	Rotor <sup>(3)</sup>	Length <sup>(4)</sup> mm.	Suitable actuators			Data sheet
						CVC ...	CVH ...	CVF ...	
3-port thre.d		inches				bar <sup>(2)</sup>	bar <sup>(2)</sup>	bar <sup>(2)</sup>	
VSG 320		3/4"	13	slipper	130	0.3	0.5	—	M 931
VSG 325		1"	13	slipper	130	0.3	0.5	—	M 931
VSG 332		1"1/4	19	slipper	142	0.2	0.5	—	M 931
VSG 340		1"1/2	29	slipper	160	0.2	0.5	—	M 931
VSG 350		2"	57	slipper	190	0.2	0.5	—	M 931
VFG 320		3/4"	13	butterfly	130	0.3	0.5	—	M 931
VFG 325		1"	13	butterfly	130	0.3	0.5	—	M 931
VFG 332		1"1/4	19	butterfly	142	0.2	0.5	—	M 931
VFG 340		1"1/2	29	butterfly	160	0.2	0.5	—	M 931
VFG 350		2"	57	butterfly	190	0.2	0.5	—	M 931
3-port flanged		mm							
VSF 340		40	29	slipper	180	0.2	0.5	—	M 931
VSF 350		50	57	slipper	200	0.2	0.5	—	M 931
VSF 365		65	81	slipper	230	—	0.4	—	M 931
VSF 380		80	170	slipper	250	—	0.4	—	M 931
VSF 3100		100	240	slipper	280	—	0.3	0.5 <sup>(5)</sup>	M 931
VSF 3125		125	470	slipper	300	—	—	0.5	M 931
VSF 3150		150	700	slipper	350	—	—	0.5	M 931
VFF 340		40	29	butterfly	180	0.2	0.5	—	M 931
VFF 350		50	57	butterfly	200	0.2	0.5	—	M 931
VFF 365		65	81	butterfly	230	—	0.4	—	M 931
VFF 380		80	170	butterfly	250	—	0.4	—	M 931
VFF 3100		100	240	butterfly	280	—	0.3	0.5 <sup>(5)</sup>	M 931
VFF 3125		125	470	butterfly	300	—	—	0.5	M 931
VFF 3150		150	700	butterfly	350	—	—	0.5	M 931
4-port thre.d		inches							
VFG 420		3/4"	13	butterfly	130	0.3	0.5	—	M 931
VFG 425		1"	13	butterfly	130	0.3	0.5	—	M 931
VFG 432		1"1/4	19	butterfly	142	0.2	0.5	—	M 931
VFG 440		1"1/2	29	butterfly	160	0.2	0.5	—	M 931
VFG 450		2"	57	butterfly	190	0.2	0.5	—	M 931
4-port flanged		mm							
VFF 440		40	29	butterfly	180	0.2	0.5	—	M 931
VFF 450		50	57	butterfly	200	0.2	0.5	—	M 931
VFF 465		65	81	butterfly	230	—	0.4	—	M 931
VFF 480		80	170	butterfly	250	—	0.4	—	M 931
VFF 4100		100	240	butterfly	280	—	0.3	0.5 <sup>(5)</sup>	M 931
VFF 4125		125	470	butterfly	300	—	—	0.5	M 931
VFF 4150		150	700	butterfly	350	—	—	0.5	M 931

(1) : Kvs – Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

100 kPa = 10 mWG = 1 bar

(2) : bar = Maximum pressure differential ( $\Delta p$  max) permitted by actuator.

(3) : Type of rotor. For 3-port valves: slipper = left or right lateral port always open; butterfly = central port always open.

(4) : Length flange to flange.

(5) : Coupling possible only with AVF 171 linkage.

## 2-PORT BUTTERFLY VALVES PN 6 (10 ... 110 °C)

### 2F ...

#### APPLICATION

As shut-off valves with 2-position control, in systems where tight shut-off is not necessary: - boilers in sequence; - shut-off in secondary circuits.

#### FEATURES

- PN 6 flanged connections; Working temperature: 10 ... 110 °; Rotation angle 90°.
- Cast iron body; Brass butterfly with ring seal in Teflon; Stainless steel spindle.



Code		DN	Kvs <sup>(1)</sup> m³/h	Suitable actuators		Data sheet
				CVC ...	CVH ...	
				bar <sup>(2)</sup>	bar <sup>(2)</sup>	
2F DN 50		50	100	1.5	3	M 920
2F DN 65		65	160	1.5	3	M 920
2F DN 80		80	280	—	3	M 920
2F DN 100		100	450	—	3	M 920
2F DN 125		125	700	—	2	M 920
2F DN 150		150	1.200	—	2	M 920
2F DN 175		175	1.800	—	2	M 920
2F DN 200		200	2.300	—	2	M 920

(1) : Kvs – Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

100 kPa = 10 mWG = 1 bar

(2) : bar = Maximum pressure differential (Δp max) permitted by actuator.

## FLANGES WITH NECK FOR FLANGED VALVES PN 6

### AFC ...

#### APPLICATION

- PN 6 UNI 2280.
- Packs containing 1 flange and including seals, bolts, nuts and washers.



Code		Seal		Bolts (2-port)		Including: Bolts (3-and 4-port)		Nuts		Washers	
		No.	mm	No.	mm	No.	mm	No.	mm	No.	mm
AFC 040		1	85 x 45 x 2	0	—	4	12 M x 55	4	12 M	8	ø 12
AFC 050		1	95 x 57 x 2	2	12 M x 80	4	12 M x 55	4	12 M	8	ø 12
AFC 065		1	115 x 76 x 2	2	12 M x 80	4	12 M x 55	4	12 M	8	ø 12
AFC 080		1	132 x 89 x 2	2	16 M x 100	4	16 M x 60	4	16 M	8	ø 16
AFC 100		1	152 x 108 x 2	2	16 M x 100	4	16 M x 60	4	16 M	8	ø 16
AFC 125		1	182 x 133 x 2	4	16 M x 120	8	16 M x 60	8	16 M	16	ø 16
AFC 150		1	207 x 159 x 2	4	16 M x 120	8	16 M x 60	8	16 M	16	ø 16
AFC 175		1	230 x 185 x 3	8	16 M x 140	—	—	8	16 M	16	ø 16
AFC 200		1	255 x 210 x 3	8	16 M x 140	—	—	8	16 M	16	ø 16

## REVERSIBLE 90° ROTARY ACTUATOR (PRE-WIRED)

### CRB ...

#### APPLICATION

Actuator for rotary ball valves. Reversible with rotation angle fixed at 90°.  
3-wire electrical control (Common, Opens, Closes).

#### FEATURES

- Power supply: 230 - 24 V ~; Protection: IP 54; Run time: 90 seconds.
- Two SPDT auxiliary microswitches at extremities of run: rating: 250 V, ~ 5 (1) A.
- Direct linkage with all Coster rotary valves.



Code		Power supply V~ (VA)	Run time s	Nominal torque kg/cm. (Nm)	Starting torque kg/cm. (Nm)	Valves (up to DN) <b>XDG / XLG / YDG</b>	Data sheet
<b>CRB 098</b>		230 (4.5)	90	60 (6)	90 (9)	1"1/4	M 116
<b>CRB 094</b>		24 (4.5)	90	60 (6)	90 (9)	1"1/4	M 116

#### SPECIAL MODELS

Code	Description
<b>CRB 098/S2</b>	Including relay for On-Off control with two wires (only 230 V ~).

## REVERSIBLE 90° ROTARY ACTUATOR WITH CONNECTION TO TERMINAL BLOCK

### CVC ...

#### APPLICATION

Actuator for rotary slipper and ball valves. Reversible with rotation angle fixed at 90°.  
Three-wire electric control (Common, Opens, Closes).

#### FEATURES

- Power supply: 230 - 24 V ~; Protection: IP 55; Run times: 180 - 90 - 30 - 15 seconds.
- Two SPDT auxiliary microswitches at extremities of run: rating: 250 V ~, 5 (1) A.
- Direct linkage with all Coster rotary valves.



Code		Power V~ (VA)	Run time sec	Nominal torque kg/cm. (Nm)	Starting torque kg/cm. (Nm)	Valves (up to DN)			Data sheet
						mixing VSG / VFG / VSF	butterfly 2F	ball XDG/XLG/YDG	
<b>CVC 188</b>		230 (2.5)	180	60 (6)	90 (9)	50	65	1"1/4	M 110
<b>CVC 184</b>		24 (2.5)	180	60 (6)	90 (9)	50	65	1"1/4	M 110
<b>CVC 098</b>		230 (4.5)	90	60 (6)	90 (9)	50	65	1"1/4	M 110
<b>CVC 094</b>		24 (4.5)	90	60 (6)	90 (9)	50	65	1"1/4	M 110
<b>CVC 038</b>		230 (5)	30	60 (6)	90 (9)	50	65	1"1/4	M 110
<b>CVC 034</b>		24 (5)	30	60 (6)	90 (9)	50	65	1"1/4	M 110
<b>CVC 018</b>		230 (7)	15	60 (6)	90 (9)	50	—	1"1/4	M 110
<b>CVC 014</b>		24 (7)	15	60 (6)	90 (9)	50	—	1"1/4	M 110

#### SPECIAL MODELS

Code	Description
<b>CVC ... / T</b> <b>CVC ... / T/S1</b> <b>CVC ..8 / S2</b>	With 6 W internal heater for applications with fluid temperature down to – 15 °C (without auxiliary micro) Including 2 W internal heater for applications with fluid temperature down to – 15 °C (with auxiliary micro) Including relay for On-Off control with two wires (only 230 V ~).

#### ACCESSORIES FOR CRB ... AND CVC ...

Code	Description
<b>SMP 750</b> <b>SMP 760</b> <b>AVA 101</b>	Manual release, for VSG/VFG/VSF/VFF mizing valves, for 2F butterfly and XDG/YDG ball valves. Manual release for YDG 2.. valves up to 1"1/4.
<b>AVS 102</b>	Linkage for: <b>Honeywell-Mut 2</b> (Controlli, Caleffi, Sara); <b>Zentra</b> ; <b>Buche</b> (Cazzaniga, Sauter, Ari-Fasoli, Chibro-Muller, Vilb up to 2", Mastermann); <b>Landis &amp; Gyr</b> (Lazzari, Tonon, Casem); <b>Stark</b> (Besser, Errevi, Interme, Ari-Fasoli). Special linkage kits with unperforated plate for: <b>Viessman</b> (Lazzari, Tonon, Casem); <b>Wema</b> <b>Warmetchnik</b> (Billman, Mixette, Thermia, Firix, Esbe); <b>Vilb</b> (Termoregler); <b>Besser</b> .
<b>AVS 103</b> <b>AVS 104</b> <b>AVS 105</b>	Linkage for screwed old model <b>Honeywell-Mut 3</b> (Controlli, Caleffi, Sara). Linkage for <b>Landis &amp; Gyr</b> SN3-SN4. Linkage for <b>Centra</b> DR-ZR.

## REVERSIBLE 90° ROTARY ACTUATOR WITH MANUAL RELEASE

### CVH ...

#### APPLICATION

Actuator for rotary slipper and ball valves. Reversible with rotation angle fixed at 90°. 3-wire electrical control (Common, Opens, Closes). Manual release is built-in.

#### FEATURES

- Power supply: 230 - 24 V ~; Protection: IP 54; Run time: 630 - 210 - 105 - 52 seconds.
- Adjustable SPDT auxiliary switch: rating 250 V, 5 (1) A; may be fitted on all the Coster rotary valves.
- Direct linkage to all Coster rotary valves.



Code		Power V~ (VA)	Run time s	Nominal torque kg/cm. (Nm)	Starting torque kg/cm. (Nm)	Valves (up to DN)					Data sheet
						mixing VSG / VFG / VSF	butterfly 2F	ball XDG/XLG	ball YDG 2	ball 2S	
<b>CVH 638</b>		230 (4,5)	630	150 (15)	200 (20)	100	200	2"	2"1/2	65	M 121
<b>CVH 634</b>		24 (4,5)	630	150 (15)	200 (20)	100	200	2"	2"1/2	65	M 121
<b>CVH 218</b>		230 (4,5)	210	150 (15)	200 (20)	100	200	2"	2"1/2	65	M 121
<b>CVH 214</b>		24 (4,5)	210	150 (15)	200 (20)	100	200	2"	2"1/2	65	M 121
<b>CVH 118</b>		230 (4,5)	105	150 (15)	200 (20)	100	200	1"1/2	2"1/2	—	M 121
<b>CVH 114</b>		24 (4,5)	105	150 (15)	200 (20)	100	200	1"1/2	2"1/2	—	M 121
<b>CVH 058</b>		230 (5)	52	150 (15)	200 (20)	100	200	2"	2"1/2	—	M 121
<b>CVH 054</b>		24 (5)	52	150 (15)	200 (20)	100	200	2"	2"1/2	—	M 121

#### SPECIAL VERSION

Code	Description
<b>CVH ... / T</b>	Includes 2W internal heater for application with flow down to -15 °C.

## REVERSIBLE 90° ROTARY ACTUATOR FOR VALVES DN 100 ... 150

### CVF ...

#### APPLICATION

Actuator for large sized rotary valves. Reversible with rotation angle fixed at 90°. 3-wire electrical control (Common, Opens, Closes). Manual release is built-in.

#### FEATURES

- Power supply: 230 - 24 V ~; Protection: IP 54; Run time: 450 - 150 seconds.
- Auxiliary SPDT switch: rating 250 V, 5 (1) A; may be fitted on all the Coster rotary valves.
- Direct linkage to Coster rotary valves.
- Linkage for Coster VFF 3100 / VFF 4100 use AVF 171.



Code		Power V~ (VA)	Run time s	Nominal torque kg/cm. (Nm)	Starting torque kg/cm. (Nm)	Valves (up to DN)			Data sheet
						mixing VSF	ball 2S ...	ball YDG 2..	
<b>CVF 458</b>		230 (6)	450	1,200 (120)	1,200 (120)	100 ... 150	80 / 100	3" - 4"	M 140
<b>CVF 454</b>		24 (6)	450	1,200 (120)	1,200 (120)	100 ... 150	80 / 100	3" - 4"	M 140
<b>CVF 158</b>		230 (7)	150	1,000 (100)	1,000 (100)	100 ... 150	80 / 100	3" - 4"	M 140
<b>CVF 154</b>		24 (7)	150	1,000 (100)	1,000 (100)	100 ... 150	80 / 100	3" - 4"	M 140

#### ACCESSORIES FOR CVH ... AND CVF ...

Code	Description
<b>AVA 101</b>	Linkage for: <b>Honeywell-Mut 2</b> (Controlli, Caleffi, Sara); <b>Zentra</b> ;
<b>AVS 102</b>	<b>Buche</b> (Cazzaniga, Sauter, Ari-Fasoli, Chibro-Muller, Vilbup to a 2", Mastermann);
<b>AVS 103</b>	<b>Landis &amp; Gyr</b> (Lazzari, Tonon, Casem); <b>Stark</b> (Besser, Errevi, Intermes, Ari - Fasoli).
<b>AVS 104</b>	Special linkage kits with unperforated plate for: <b>Viessman</b> (Lazzari, Tonon, Casem); <b>Wema</b> ;
<b>AVS 105</b>	<b>Warmetchnik</b> (Billman, Mixette, Thermia, Firix, Esbe); <b>Vilb</b> (Termoregler); <b>Besser</b> .
<b>AVF 171</b>	Linkage for <b>Honeywell-Mut 3</b> screwed old model (Controlli, Caleffi, Sara).
<b>AVF 172</b>	Linkage for <b>Landis &amp; Gyr</b> SN3-SN4.
	Linkage for <b>Centra</b> DR-ZR.
	CVF linkage for <b>Coster</b> VFF 3100 / VFF 4100.
	CVF linkage for <b>Honeywell-Mut 2</b> flanged (Controlli, Caleffi, Sara);
	<b>Jucker</b> ; <b>Zentra</b> ; <b>Landis &amp; Gyr</b> (Lazzari, Tonon, Casem); <b>Stark</b> (Besser, Errevi, Intermes, Ari fasoli);
	<b>Buche</b> (Cazzaniga, Sauter, Ari-Fasoli, Chibro-Muller, Vilb up to 2", Mastermann).

# BALL VALVES EQUAL-PERCENTAGE

## 3-WAY BALL VALVES PN 16 (–10...120 °C)

### VYG 3...

- Rotary mixer or deviator valves

#### APPLICATION

- Flow adjustment in heating systems max 120°C (max 100°C with CVTR... actuators)
- Flow adjustment in refrigerated water systems up to –10°C; glycol-water max 50%

#### FEATURES

- Valve body nickel-plated brass
- Ball + shaft stainless steel
- Joints female thread (ISO 7/1)
- Adjustment features straight way A-AB = equal-percentage  
angle way B-AB = linear with Kvs 70% of straight way  
straight way A-AB seal (EN12266-1), angle way B-AB < 2% Kvs  
 $\Delta p_{max}$  3.5 bar
- Drawing
- Differential pressure



Code	DN body	DN connection	Kvs <sup>(1)</sup> m³/h	Actuator connector ISO5211	Suitable actuators				Data sheet
					CVTR... 100 s <sup>(3)</sup>	CVLR... 90 s <sup>(3)</sup>	CVHR... 140 s <sup>(3)</sup>	CVSR... 90 s <sup>(3)</sup>	
	mm	female			bar <sup>(2)</sup>	bar <sup>(2)</sup>	bar <sup>(2)</sup>	bar <sup>(2)</sup>	
<b>VYG 315-0,63</b>	15	1/2"	0,63	F04	3.5	3.5	3.5	3.5	M 850
<b>VYG 315-1</b>	15	1/2"	1,0	F04	3.5	3.5	3.5	3.5	M 850
<b>VYG 315-1,6</b>	15	1/2"	1,6	F04	3.5	3.5	3.5	3.5	M 850
<b>VYG 315-2,5</b>	15	1/2"	2,5	F04	3.5	3.5	3.5	3.5	M 850
<b>VYG 315-4</b>	15	1/2"	4,0	F04	3.5	3.5	3.5	3.5	M 850
<b>VYG 320-6,3</b>	20	3/4"	6,3	F04	3.5	3.5	3.5	3.5	M 850
<b>VYG 325-10</b>	25	1"	10	F04	–	3.5	3.5	3.5	M 850
<b>VYG 332-16</b>	32	1"1/4	16	F04	–	–	3.5	3.5	M 850
<b>VYG 340-25</b>	40	1"1/2	25	F04	–	–	3.5	3.5	M 850
<b>VYG 350-40</b>	50	2"	40	F04	–	–	–	3.5	M 850
<b>VYG 350-58</b>	50	2"	58	F04	–	–	–	3.5	M 850

(1) : Kvs – Flow coefficient: Flow rate in m³/h with open valve and pressure drops of 100 kPa

100 kPa = 10 mWG = 1 bar

(2) : bar – Maximum pressure differential  $\Delta p$  max. permitted by the actuator

(3) : s – Time in seconds required by actuator to complete valve excursion

## 2-WAY CONSTANT FLOW BALL VALVES PN 16/25 (5 ... 100 °C)

### VZG 2...

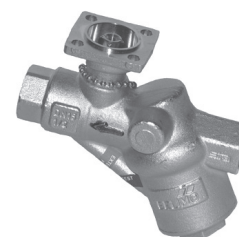
- Rotary valves; constant flow with  $\Delta p$  of between 0.3 and 3.5 bar

#### APPLICATION

- Flow adjustment in heating systems max 100°C
- Flow adjustment in refrigerated water systems up to 5°C; glycol-water max 50%

#### FEATURES

- Valve body nickel-plated brass
- Ball + shaft chrome-plated brass
- Joints female thread (ISO 7/1)
- Adjustment features equal-percentage
- Drawing sealing (class IV, DIN IEC 534 at 350 kPa)
- Static pressure max 41 bar (DN 15÷25) , max 27 (DN 32÷50) ;  $\Delta p_{max}$  3.5 bar



Code	DN corpo	DN connection	Kvs <sup>(1)</sup> m³/h	Actuator connector ISO5211	Suitable actuators		Data sheet
					CVLR... 90 s <sup>(3)</sup>	CVSR... 90 s <sup>(3)</sup>	
	mm	femm.			bar <sup>(2)</sup>	bar <sup>(2)</sup>	
<b>VZG 215-0,32</b>	15	1/2"	0,32	F04	3.5	3.5	M 860
<b>VZG 215-1,3</b>	15	1/2"	1,3	F04	3.5	3.5	M 860
<b>VZG 220-2,4</b>	20	3/4"	2,4	F04	3.5	3.5	M 860
<b>VZG 225-3,5</b>	25	1"	3,5	F04	3.5	3.5	M 860
<b>VZG 232-5,4</b>	32	1"1/4	5,4	F04	–	3.5	M 860
<b>VZG 240-7,5</b>	40	1"1/2	7,5	F04	–	3.5	M 860
<b>VZG 250-9,1</b>	50	2"	9,1	F04	–	3.5	M 860

(1) : Kvs – Flow rate m³/h with open valve with  $\Delta p$  from 0.3 to 3.5 bar

100 kPa = 10 mWG = 1 bar

(2) : bar – Maximum pressure differential  $\Delta p$  max. permitted by the actuator

(3) : s – Time in seconds required by actuator to complete valve excursion



## ROTARY ACTUATOR WITH MANUAL OPERATION OPTION, 2 Nm TORQUE

### CVTR ...

- Reversible actuator with direct coupling to VYG3... valves
- 3-terminal switch, fixed 90° rotation angle

#### FEATURES

- Power supply see table
- Protection IP 40



Code	Power supply V (VA)	Run time sec.	Torque Nm	End of run (accessory)	Valve joint	Valves (DN) <b>VYG 3..</b>	Data sheet
<b>CVTR 108</b>	230 V AC(1)	105	2	No	F04	1/2"÷3/4"	M 410
<b>CVTR 104</b>	24 V AC/DC (1)	105	2	No	F04	1/2"÷3/4"	M 410

## ROTARY ACTUATOR WITH MANUAL OPERATION OPTION, 5 Nm TORQUE

### CVLR ...

- Reversible actuator with direct coupling to VZG 2... and VYG3... valves
- 3-terminal switch, fixed 90° rotation angle

#### DATI TECNICI

- Power supply see table
- Protection IP 54



Code	Power supply V (VA)	Run time sec.	Torque Nm	End of run (accessory)	Valve joint	Valves (DN)		Data sheet
						<b>VZG 2..</b>	<b>VYG 3..</b>	
<b>CVLR 097</b>	100÷240 V AC (4)	90	5	1 or 2	F04	1/2"÷1"	1/2"÷1"	M 411
<b>CVLR 095</b>	24 V AC/DC (2)	90	5	1 or 2	F04	1/2"÷1"	1/2"÷1"	M 411

## ROTARY ACTUATOR WITH MANUAL OPERATION OPTION, 10 Nm TORQUE

### CVHR ...

- Reversible actuator with direct coupling to VYG3... valves
- 3-terminal switch, fixed 90° rotation angle

#### FEATURES

- Power supply see table
- Protection IP 40



Sigla	Power supply V (VA)	Run time sec.	Torque Nm	End of run (accessory)	Valve joint	Valves (DN) <b>VYG 3..</b>	Data sheet
<b>CVHR 148</b>	230 V AC(3,5)	140	10	No	F04	1/2"÷1"1/2"	M 412
<b>CVHR 144</b>	24 V AC/DC (1,5)	140	10	No	F04	1/2"÷1"1/2"	M 412

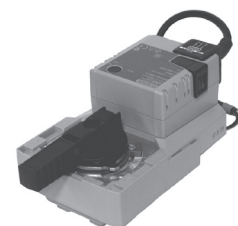
## ROTARY ACTUATOR WITH MANUAL OPERATION OPTION, 20 Nm TORQUE

### CVSR ...

- Reversible actuator with direct coupling to VZG 2... and VYG3... valves
- 3-terminal switch, fixed 90° rotation angle

#### FEATURES

- Power supply see table
- Protection IP 54



Code	Power supply V (VA)	Run time sec.	Torque Nm	End of run (accessory)	Valve joint	Valves (DN)		Data sheet
						<b>VZG 2..</b>	<b>VYG 3..</b>	
<b>CVSR 097</b>	100÷240 VAC (6)	90	20	1 or 2	F04	1/2"÷2"	1/2"÷2"	M 413
<b>CVSR 095</b>	24 VAC/DC (4)	90	20	1 or 2	F04	1/2"÷2"	1/2"÷2"	M 413

## ACCESSORIES FOR CVLR, CVSR ACTUATORS

Code	Description
<b>FCS 123</b>	Auxiliary stop with 1 comm. terminal 3 (0.5) A, 250 VAC, adjustable 0÷100%
<b>FCS 223</b>	Auxiliary stop with con 2 comm. terminal 3 (0.5) A, 250 VAC, independently adjustable 0÷100 %



## 3-WAY THREADED SEAT VALVES PN 16 (–10 ... 120 °C)

### VOBG 3...

#### GENERAL

- Regulation in systems with hot water at max 120°C or cooled to min 2°C (max glycol 50%).

#### TECHNICAL SPECIFICATIONS

- Valve body Rg5 bronze
- Stem steel
- Shutter steel
- Joints with ISO 228/1 female threaded mouths
- Control feature straight way = equipercantage, angle way = linear
- Control range DN 15 = 50 : 1 , DN 20÷50 = 100 : 1
- Internal leakage straight way ≤ 0,05% Kvs ; PH fluid : 7 ÷ 10



Code		DN body mm	DN valve joint	DN pipe joint	Kvs <sup>(1)</sup> m³/h	Run mm	Suitable Actuators				Data sheet
							CLNV... 3.75/7.5 s./mm		CLNF U... <sup>(4)</sup> 7.5 s./mm		
			male	female			bar <sup>(2)</sup>	sec <sup>(3)</sup>	bar <sup>(2)</sup>	sec <sup>(3)</sup>	
VOBG 311		15	1"1/8	1/2"	0.63	15	4	56/112	4	112	M 984
VOBG 312		15	1"1/8	1/2"	1.0	15	4	56/112	4	112	M 984
VOBG 313		15	1"1/8	1/2"	1.6	15	4	56/112	4	112	M 984
VOBG 314		15	1"1/8	1/2"	2.5	15	4	56/112	4	112	M 984
VOBG 315		15	1"1/8	1/2"	4.0	15	4	56/112	4	112	M 984
VOBG 320		20	1"1/4	3/4"	6.3	15	4	56/112	4	112	M 984
VOBG 325		25	1"1/2	1"	10	15	4	56/112	4	112	M 984
VOBG 332		32	2"	1"1/4	16	15	4	56/112	4	112	M 984
VOBG 340		40	2"1/4	1"1/2	25	15	4	56/112	4	112	M 984
VOBG 350		50	2"3/4	2"	40	15	3.5	56/112	2.8	112	M 984

(1) : Kvs = Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

100 kPa = 10 mWG = 1 bar

(2) : bar = Maximum pressure differential (Δp max) permitted by actuator.

(3) : sec = Time (seconds) necessary for actuator to make the whole valve run.

(4) : actuator with emergency closure

#### ACCESSORIES FOR VOBG 3....

Code	Description
ARS 454	Stem heaters for fluid temperatures up to –10 °C , 24 VAC , 45 W (DN15÷50)

## FEMALE CAPS TO TRANSFORM THE VOBG... VALVES FROM 3-WAY TO 2-WAY

### TVG ...

- GG25. cast iron. Made up of female cap and washer.
- Pack of 3 items.



Code	Description	Valves VOBG (DN)
TVG G15	1"1/8 female cap with washer.	311 ÷ 315 (15)
TVG G20	1"1/4 female cap with washer.	320 (20)
TVG G25	1"1/2 female cap with washer.	325 (25)
TVG G32	2" female cap with washer.	332 (32)
TVG G40	2"1/4 female cap with washer.	340 (40)
TVG G50	2"3/4 female cap with washer.	350 (50)

## 3-WAY FLANGED SEAT VALVES PN 6 (–10 ... 120 °C)

### VORF 3...

#### GENERAL

- Regulation in systems with hot water at max 120°C or cooled to min 2°C (max glycol 50%)

#### TECHNICAL SPECIFICATIONS

- Valve body GG 25 cast iron
- Stem stainless steel
- Shutter stainless steel
- Joints PN 6 flanged (ISO 7005/2)
- Control feature straight way = equipercantage, angle way = linear
- Control range DN 15 = 50 : 1 , DN 20÷100 = 100 : 1
- Internal leakage straight way ≤ 0,05% Kvs, angle way ≤ 1% Kvs ; PH fluid 7 ÷ 10



Code		DN mm	Kvs <sup>(1)</sup> m³/h	Run mm	Suitable actuators						Datal sheet
					CLNV... 3,75/7,5 s./mm		CLNF U... <sup>(4)</sup> 7,5 s./mm		CLAV... 3,75/7,5 s./mm		
VORF 314		15	1,6	15	bar <sup>(2)</sup>	sec <sup>(3)</sup>	bar <sup>(2)</sup>	sec <sup>(3)</sup>	bar <sup>(2)</sup>	sec <sup>(3)</sup>	M 985
VORF 315		15	4,0	15	4	56/112	4	112	—	—	M 985
VORF 320		20	6,3	15	4	56/112	4	112	—	—	M 985
VORF 325		25	10	15	4	56/112	4	112	—	—	M 985
VORF 332		32	16	15	4	56/112	4	112	—	—	M 985
VORF 340		40	25	15	4	56/112	4	112	—	—	M 985
VORF 350		50	40	15	3,5	56/112	2,8	112	—	—	M 985
VORF 364		65	58	18	2,0	67/135	1,6	135	—	—	M 985
VORF 379		80	90	18	1,35	67/135	1,0	135	—	—	M 985
VORF 3100		100	145	30	—	—	—	—	1,6	112/225	M 985

(1) : Kvs = Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

100 kPa = 10 mWG = 1 bar

(2) : bar = Maximum pressure differential (Δp max) permitted by actuator.

(3) : sec = Time (seconds) necessary for actuator to make the whole valve run.

(4) : actuator with emergency closure

#### ACCESSORIES FOR VORF 3....

Code	Description
<b>ARS 454</b>	Stem heaters for fluid temperatures up to –10 °C , 24 VAC , 45 W (DN15÷50)
<b>ARS 604C</b>	Stem heaters for fluid temperatures up to –10 °C , 24 VAC , 60 W (DN65÷100)

### 3-WAY FLANGED SEAT VALVES PN 16 (–10 ... 120 °C)

## VONF 3...

#### GENERAL

- Regulation in systems with hot water at max 120°C or cooled to min 2°C (max glycol 50%)

#### TECHNICAL SPECIFICATIONS

- Valve body GG 25 cast iron
- Stem stainless steel
- Shutter stainless steel
- Joints PN 16 flanged (ISO 7005/2)
- Control feature straight way = equipercantage, angle way = linear
- Control range DN 15 = 50 : 1 , DN 20÷100 = 100 : 1
- Internal leakage straight way ≤ 0,05% Kvs, angle way ≤ 1% Kvs ; PH fluid 7 ÷ 10

Code		DN mm.	Kvs <sup>(1)</sup> m³/h	Run mm.	Suitable actuators						Data sheet
					CLNV... 3,75/7,5 s./mm		CLNF U... <sup>(4)</sup> 7,5 s./mm		CLAV... 3,75/7,5 s./mm		
VONF 314		15	1,6	15	bar <sup>(2)</sup>	sec <sup>(3)</sup>	bar <sup>(2)</sup>	sec <sup>(3)</sup>	bar <sup>(2)</sup>	sec <sup>(3)</sup>	M 986
VONF 315		15	4,0	15	4	56/112	4	112	—	—	M 986
VONF 320		20	6,3	15	4	56/112	4	112	—	—	M 986
VONF 325		25	10	15	4	56/112	4	112	—	—	M 986
VONF 332		32	16	15	4	56/112	4	112	—	—	M 986
VONF 340		40	25	15	4	56/112	4	112	—	—	M 986
VONF 350		50	40	15	3,5	56/112	2,8	112	—	—	M 986
VONF 364		65	58	18	2,0	67/135	1,6	135	—	—	M 986
VONF 365		65	63	30	—	—	—	—	4,0	112/225	M 986
VONF 379		80	90	18	1,35	67/135	1,0	135	—	—	M 986
VONF 380		80	100	30	—	—	—	—	2,7	112/225	M 986
VONF 3100		100	145	30	—	—	—	—	1,6	112/225	M 986
VONF 3125		125	220	40	—	—	—	—	0,9	150/300	M 986
VONF 3150		150	320	40	—	—	—	—	0,6	150/300	M 986

(1) : Kvs = Flow coefficient: Flow in m³/h with valve open and pressure drop of 100 kPa.

100 kPa = 10 mWG = 1 bar

(2) : bar = Maximum pressure differential (Δp max) permitted by actuator.

(3) : sec = Time (seconds) necessary for actuator to make the whole valve run.

(4) : actuator with emergency closure

#### ACCESSORIES FOR VONF 3....

Code	Description
ARS 454	Stem heaters for fluid temperatures up to –10 °C , 24 VAC , 45 W (DN15÷50)
ARS 604C	Stem heaters for fluid temperatures up to –10 °C , 24 VAC , 60 W (DN65÷100)
ARS 604D	Stem heaters for fluid temperatures up to –10 °C , 24 VAC , 60 W. (DN125-150)

## LINEAR ACTUATORS FOR VOBG ... - VORF ... - VONF ...

### CLNV ...

#### GENERAL

- Linear actuators with direct coupling to the valves and manual drive.

#### TECHNICAL SPECIFICATIONS

- Power supply see table
- Electric control see table
- Auxiliary microswitches see table
- Protection IP 54

Code		Power supply V (VA)	Control	Position signal	Aux microswitches	Max run mm.	Force N	Speed sec./mm	Data sheet
<b>CLNV 118</b>		230 VAC (7)	3 points	No	No	20	1.000	3,75 - 7,5	M 510
<b>CLNV 114</b>		24 VAC (5)	3 points	No	No	20	1.000	3,75 - 7,5	M 510
<b>CLNV 154/C</b>		24 VAC (5)	3 points	2÷10 V	2	20	1.000	7,5	M 510
<b>CLNV 150</b>		24 VAC (5)	0÷10 V	2÷10 V	No	20	1.000	7,5	M 510
<b>CLNV 150/C</b>		24 VAC (5)	0÷10 V	2÷10 V	2	20	1.000	7,5	M 510

## LINEAR ACTUATORS FOR VORF ... - VONF ...

### CLAV ...

#### GENERAL

- Linear actuators with direct coupling to the valves and manual drive.

#### TECHNICAL SPECIFICATIONS

- Power supply see table
- Electric control see table
- Auxiliary microswitches see table
- Protection IP 54



Code		Power supply V (VA)	Control	Position signal	Aux microswitch	Max. run mm.	Force N	Speed sec./mm	Data sheet
<b>CLAV 118</b>		230 VAC (15)	3 points	No	No	40	2.000	3,75 - 7,5	M 511
<b>CLAV 114</b>		24 VAC (10)	3 points	No	No	40	2.000	3,75 - 7,5	M 511
<b>CLAV 154/C</b>		24 VAC (12)	3 points	2÷10 V	2	40	2.500	3,75	M 511
<b>CLAV 150</b>		24 VAC (12)	0÷10 V	2÷10 V	No	40	2.500	3,75	M 511
<b>CLAV 150/C</b>		24 VAC (12)	0÷10 V	2÷10 V	2	40	2.500	3,75	M 511

## LINEAR ACTUATORS FOR VOBG ... - VORF ... - VONF ... WITH EMERGENCY CLOSURE

### CLNF ...

#### GENERAL

- Linear actuators with direct coupling to the valves and manual drive and stoppage when no power available

#### TECHNICAL SPECIFICATIONS

- Power supply see table
- Electric control see table
- Emergency closure up
- Protection IP 54



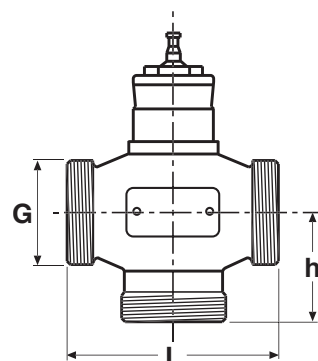
Code		Power supply V (VA)	Control	Position Signal	Aux microswitch	Max run mm.	Force N	Speed sec./mm	Emer. speed sec./mm	Data sheet
<b>CLNF U154</b>		24 VAC (10)	3 points	2÷10 V	No	20	800	7,5	1,5	M 512
<b>CLNF U154/C</b>		24 VAC (10)	3 points	2÷10 V	2	20	800	7,5	1,5	M 512
<b>CLNF U150</b>		24 VAC (10)	0÷10 V	2÷10 V	No	20	800	7,5	1,5	M 512
<b>CLNF U150/C</b>		24 VAC (10)	0÷10 V	2÷10 V	2	20	800	7,5	1,5	M 512

**COUPLING BRACKETS FOR LINEAR ACTUATORS WITH SEAT VALVES: OTHER BRANDS**

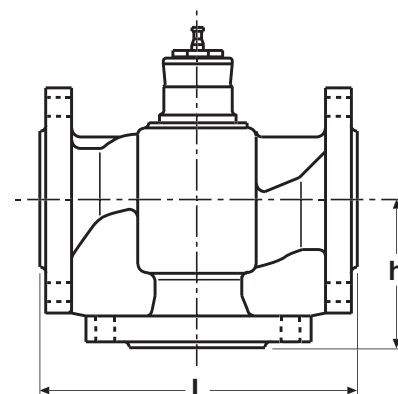
Actuator + joint		Valves Brand and type	DN
CLNV... ÷ CLNF...	standard actuator	Coster RV3P - RV3F - RV3B (1992÷1999)	15÷65
CLAV...	standard actuator	Coster RV3B (1992÷1999)	80-100
CLAV...	standard actuator	Coster VL - VF (2000÷2010)	65÷150
CLNV... ÷ CLNF... / UNV038		Coster VRG - VRB - VL - VF - VE - VS (2000÷2009)	15÷50
CLNV... ÷ CLNF... / UNV032		Coster VRGN - VRBN - VLN - VFN (2010)	15÷50
CLNV... ÷ CLNF... / UNV031		Coster VLN - VFN (2010)	65-80
CLNV... ÷ CLNF... / UNV036		Controlli VSB - VMB - VSB..F - VMB..F	15÷50
CLNV... ÷ CLNF... / UNV015		Honeywell V5011R - V5013R Honeywell V5015 Honeywell V5049A - V5050A Honeywell V5095A Honeywell V5328A - V5329A - V5329C	15÷50 25÷80 15÷65 20÷80 15÷80
CLAV... ÷ ZAV015		Honeywell V5015A	100÷150
CLAV... ÷ ZAV044		Honeywell V5049A - 5050A	80÷150
CLNV... ÷ CLNF... / UNV003		Siemens VVF61 - VXF61 Siemens VPF52E/F - VVF52 - VXF41 Siemens VVG41 - VXG41 Siemens VVF21 - VVF40 Siemens VXF21 - VVF31 - VXF31	15÷25 15÷40 15÷50 15÷80 25÷80
CLAV... ÷ ZAV003		Siemens VVF21 - VXF21 Siemens VVF31 - VXF31 - VVF40 - VXF40 Siemens VVF41 - VVF45 Siemens VVF61 Siemens VXF41 Siemens VXF61	100 100÷150 50÷150 40÷150 65÷150 32÷150
CLNV... ÷ CLNF... / UNV041		Johnson VB7216 Johnson VG7201 - VG7401 - VG7804 Johnson VG7203 - VG7403 - VG7802	15÷25 15 15÷20
CLNV... ÷ CLNF... / UNV045		Johnson VB7816	15÷25
CLNV... ÷ CLNF... / UNV030		Johnson VB7216 - VB7816 Johnson VB7201-VG7203-VG7401-VG7403-VG7802-VG7804	32÷50 25÷50
CLNV... ÷ CLNF... / UNV034		Johnson VBD-4xx 4 - VBD-4xx 8 - VG82/84/88/89 Johnson VBF-0xx 4 - VBF-0xx 8 - VBF-2xx 4 - VBF-2xx 8	15÷40 15÷50
CLAV... / ZAV034		Johnson VBD-4xx 4 - VBD-4xx 8 - VG82/84/88/89 Johnson VBF-0xx 4 - VBF-0xx 8 - VBF-2xx 4 - VBF-2xx 8	50÷150 65÷100
CLNV... ÷ CLNF... / UNV018		Sauter B6F..F - B6G..F - B6R..F - B6S..F - BXD..F - BXE..F Sauter V6F..F - V6G..F - V6R..F - V6S..F - VXD..F - VXE..F Sauter B4F..F	15÷50 15÷50 20÷32
CLNV... ÷ CLNF... / UNV043		Sauter BT43B Sauter V1T	15÷40 15
CLAV... / ZAV018		Sauter B6F..F - B6S..F - BXD..F - BXE..F Sauter V6F..F - V6S..F - VXD..F - VXE..F	65÷150 65÷150
CLNV.../CLNF... + UNV023		Satchwell MJF - VSF Satchwell VZ - MZ	15÷25 15÷50
CLAV... / ZAV031		Satchwell MZF - VZF (filetto perno 3/8")	65÷150
CLAV... / ZAV023		Satchwell MZF - VZF (filetto perno 1/4")	65÷150
CLNV... ÷ CLNF... / UNV017		TAC V241- V341 - V348 TAC V294	15÷50 20÷32
CLNV... ÷ CLNF... / UNV050		TAC V294	15
CLAV... ÷ ZAV017		TAC V241 TAC V265 TAC V295 TAC V395-1	65÷150 40÷65 40÷65 40÷100

**Comparison table of dimensions**

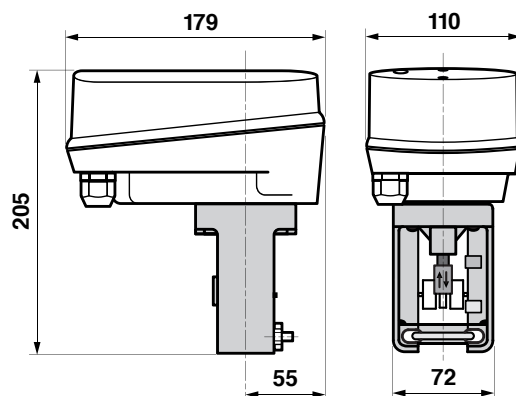
COSTER codes up to 2009 price list	COSTER codes for 2010 price list	New COSTER codes	DN inches	G inches	L mm	h mm
<b>VR.. 311÷315</b>	<b>VR..N 311÷315</b>		1/2"	1"	80	40
			1/2"	1"	80	40
		<b>VOBG 311÷315</b>	1/2"	<b>1" 1/8</b>	80	<b>55</b>
<b>VR.. 320</b>	<b>VR..N 320</b>		3/4"	1"1/4	80	55
			3/4"	1"1/4	80	<b>45</b>
		<b>VOBG 320</b>	3/4"	1"1/4	<b>90</b>	55
<b>VR.. 325</b>	<b>VR..N 325</b>		1"	1"1/2	95	60
			1"	1"1/2	95	<b>50</b>
		<b>VOBG 325</b>	1"	1"1/2	<b>110</b>	<b>55</b>
<b>VR.. 332</b>	<b>VR..N 332</b>		1"1/4	2"	112	66
			1"1/4	2"	112	<b>58</b>
		<b>VOBG 332</b>	1"1/4	2"	<b>120</b>	<b>55</b>
<b>VR.. 340</b>	<b>VR..N 340</b>		1"1/2	2"1/4	132	75
			1"1/2	2"1/4	132	75
		<b>VOBG 340</b>	1"1/2	2"1/4	<b>130</b>	<b>60</b>
<b>VR.. 350</b>	<b>VR..N 350</b>		2"	2"3/4	160	85
			2"	2"3/4	160	<b>83</b>
		<b>VOBG 350</b>	2"	2"3/4	<b>150</b>	<b>65</b>



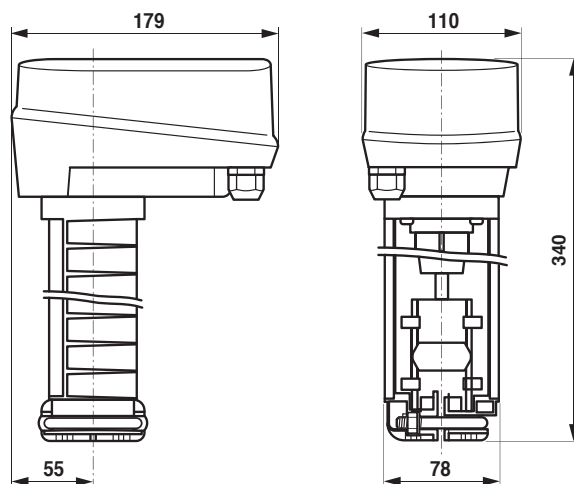
COSTER codes up to 2009 price list	COSTER codes for 2010 price list	New COSTER codes	DN mm	L mm	h mm
<b>VL/F 314-315</b>	<b>VL/F N 311÷315</b>		15	130	65
			15	130	<b>63</b>
		<b>VORF/NF 315</b>	15	130	65
<b>VL/F 320</b>	<b>VL/F N 320</b>		20	150	70
			20	150	70
		<b>VORF/NF 320</b>	20	150	70
<b>VL/F 325</b>	<b>VL/F N 325</b>		25	160	75
			25	160	75
		<b>VORF/NF 325</b>	25	160	75
<b>VL/F 332</b>	<b>VL/F N 332</b>		32	180	80
			32	180	80
		<b>VORF/NF 332</b>	32	180	<b>95</b>
<b>VL/F 340</b>	<b>VL/F N 340</b>		40	200	90
			40	200	90
		<b>VORF/NF 340</b>	40	200	<b>100</b>
<b>VL/F 350</b>	<b>VL/F N 350</b>		50	230	100
			50	230	100
		<b>VORF/NF 350</b>	50	230	100
<b>VL/F 365</b>	<b>VL/F N 365</b>		65	290	120
			65	290	120
		<b>VORF/NF 365</b>	65	290	120
<b>VL/F 380</b>	<b>VL/F N 380</b>		80	310	155
			80	310	155
		<b>VORF/NF 380</b>	80	310	<b>130</b>
<b>VL/F 3100</b>	<b>VL/F 3100</b>		100	350	175
		<b>VORF/NF 3100</b>	100	350	<b>150</b>
<b>VL/F 3125</b>	<b>VL/F 3125</b>		125	400	250
		<b>VORF/NF 3125</b>	125	400	<b>200</b>
<b>VL/F 3150</b>	<b>VL/F 3150</b>		150	480	300
		<b>VORF/NF 3150</b>	150	480	<b>210</b>



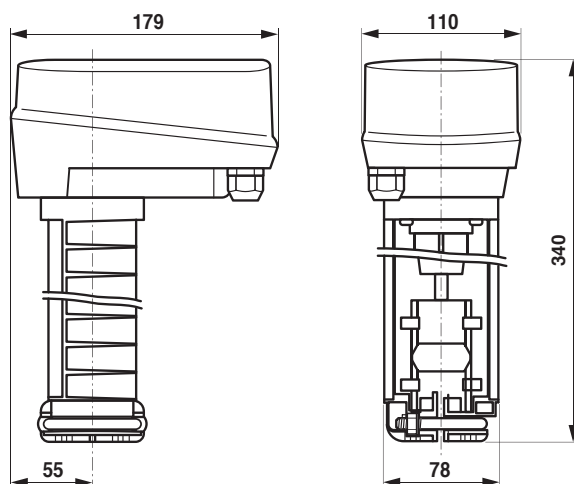
**CLNV... AND CLNF... OVERALL DIMENSIONS  
WITH STANDARD BRACKET**



**CLAV.. OVERALL DIMENSIONS**

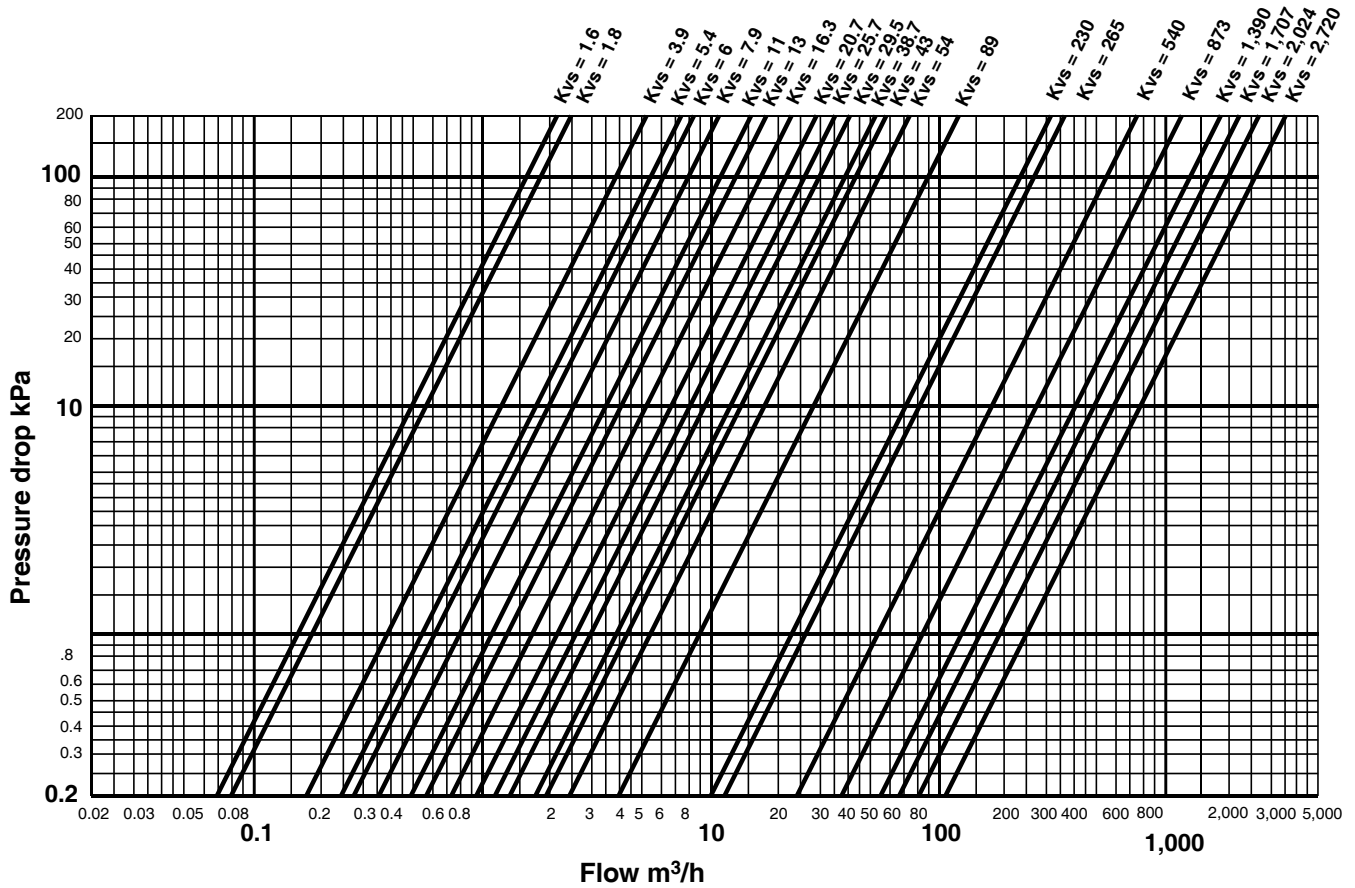


**CLNV... E CLNF... OVERALL DIMENSIONS  
WITH UNV031 - UNV032 - UNV038 BRACKETS**

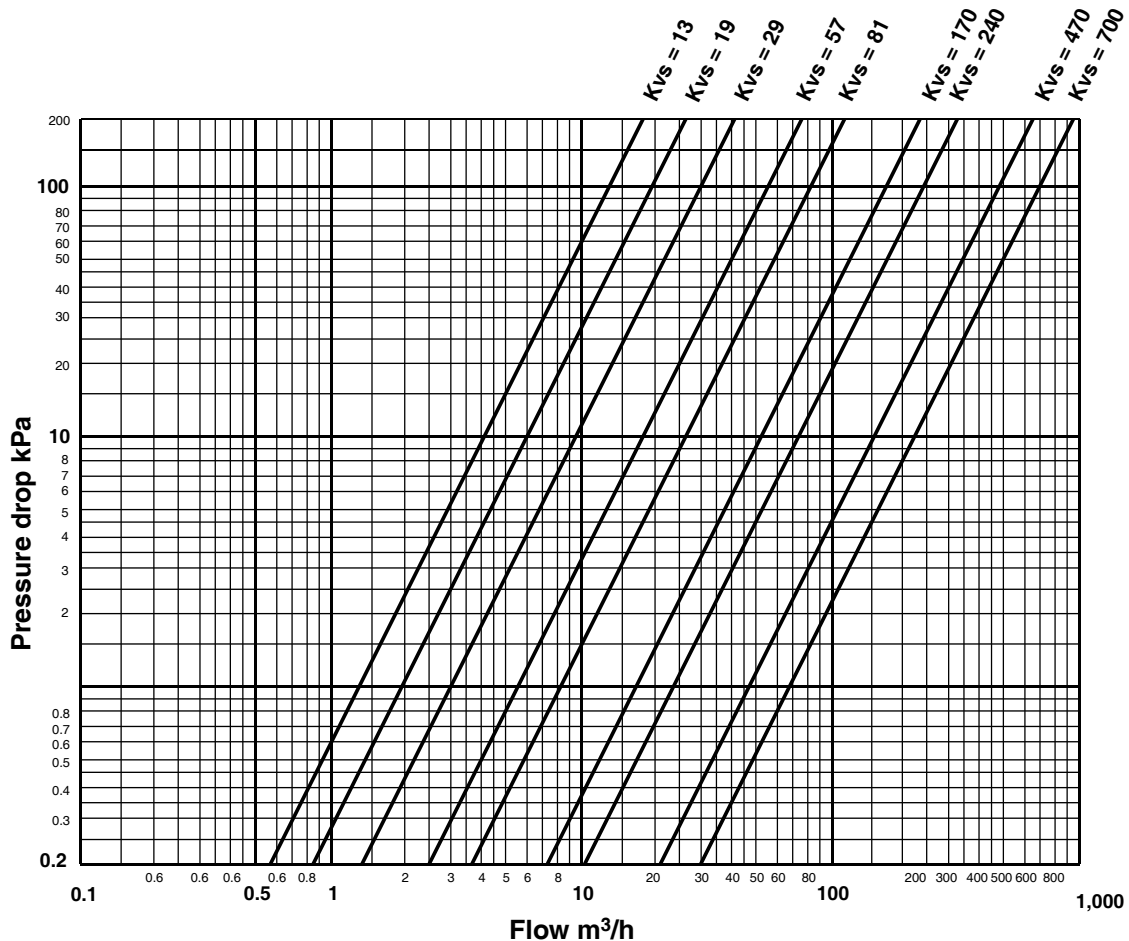




## PRESSURE DROP IN BALL VALVES AND CERAMIC DISC VALVES



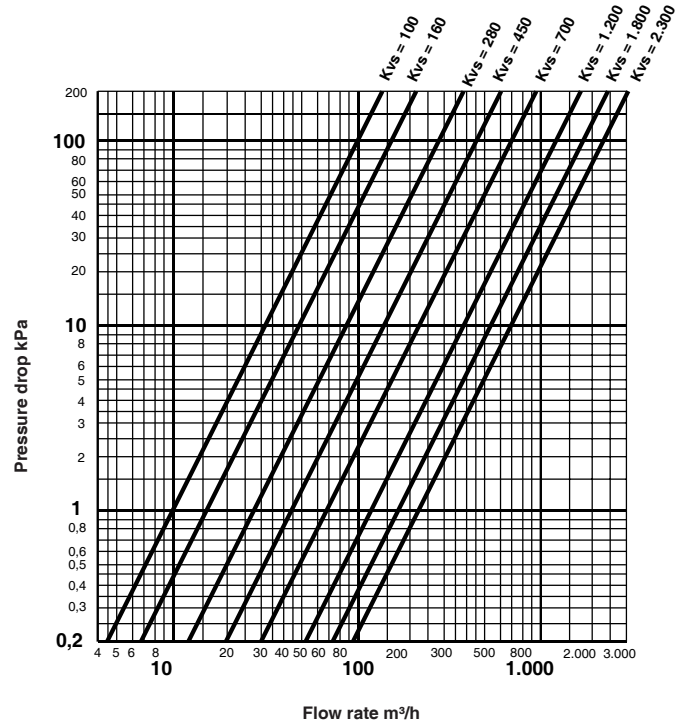
## PRESSURE DROP IN SLIPPER VALVES



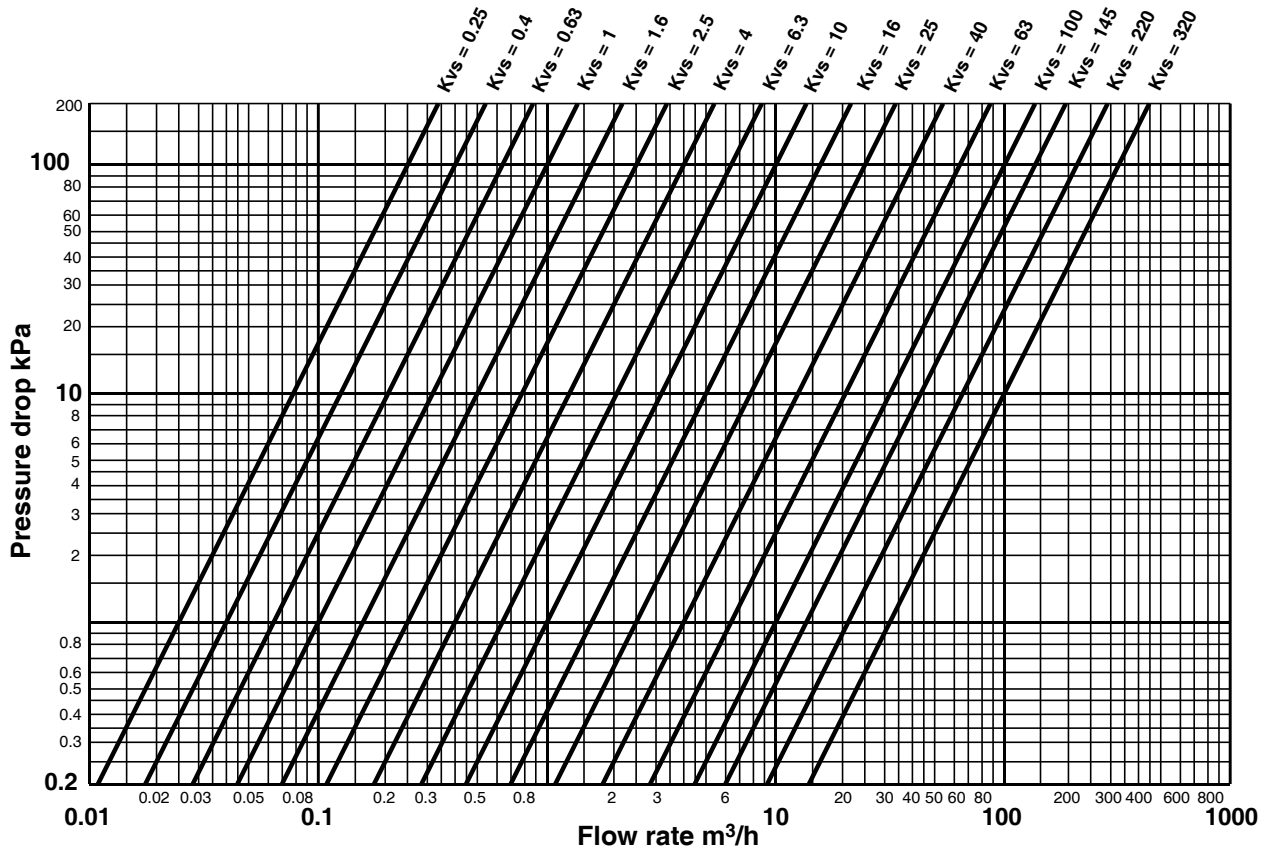
Kvs = Flow coefficient: Flow in m<sup>3</sup>/h with valve open and pressure drop of 100kPa

100 kPa = 10mWG = 1 bar

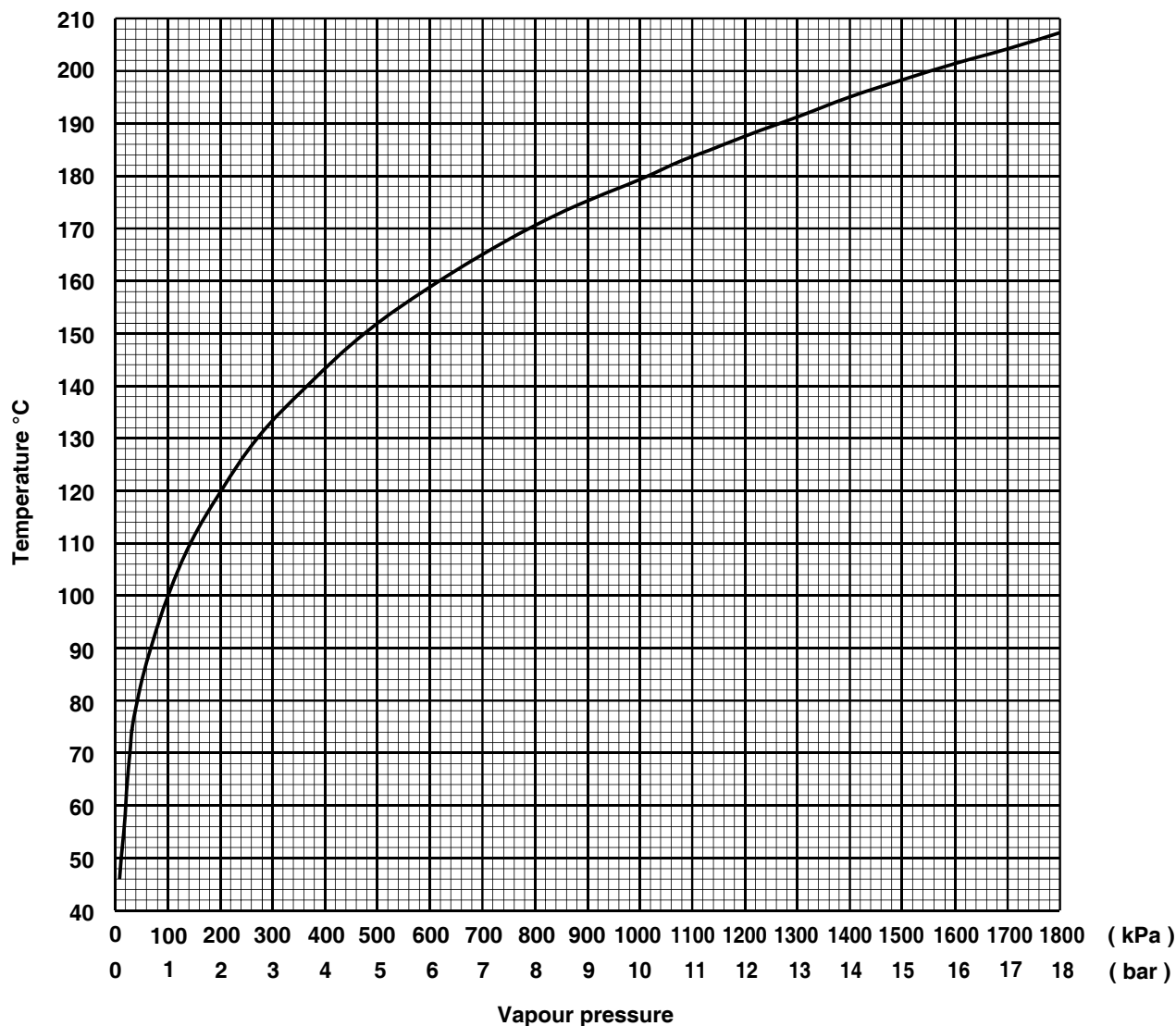
## PRESSURE DROP IN BUTTERFLY VALVES



## PRESSURE DROP IN SEAT VALVES



## PRESSURE - TEMPERATURE DIAGRAM FOR SATURATED STEAM



## USING SIZING CHART FOR STEAM VALVES (page 8.21).

## SATURATED STEAM

Known data: Absolute pressure at valve entry  $P_v = 6.5$  bar; Flow of saturated steam  $G_v = 1,200$  kg/h; Desired pressure drop:  $\Delta p = 1$  bar.

Data to be found: Diameter and  $K_v$  of valve.

Draw a vertical straight line from the value 6.5 bar on the scale  $P_v$  until it meets the sloping straight line corresponding to the value of  $\Delta p = 1$  bar. From this point draw a horizontal straight line until it meets the vertical straight line corresponding to the value 1,200 kg/h on the scale  $G_v$ . This point corresponds to the required  $K_v$  value; in case of an intermediate value, choose the valve with the greater DN:  $K_v = 25$ ; DN = 40.

## SUPERHEATED STEAM

Known data: Absolute pressure at valve entry  $P_v = 2.8$  bar; Flow of superheated steam  $G_s = 100$  kg/h;

Temperature of superheated steam  $T_s = 190$  °C; Desired pressure drop  $\Delta p = 0.8$  bar;

Data to be found: Diameter and  $K_v$  of valve.

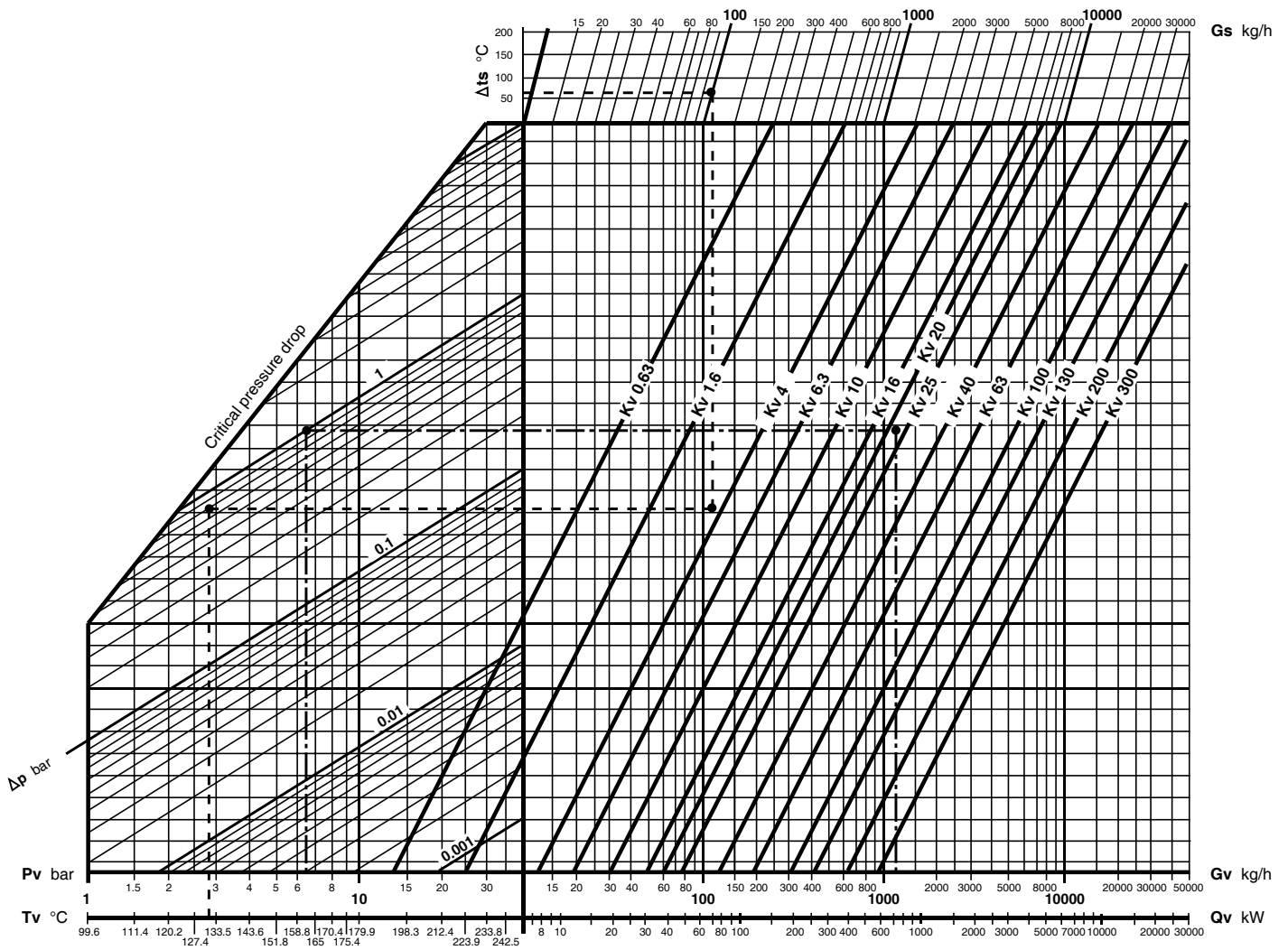
In correspondence with value of absolute pressure on scale  $P_v$  find value of temperature on scale  $T_v$  (or use the pressure - temperature diagram on page 8.25):  $T_v = 131$  °C.

Find the degree of superheating  $\Delta t_s = T_s - T_v = 190 - 131 = 59$  °C.

Draw a vertical straight line from the value 2.8 bar on the  $P_v$  scale until it meets the sloping straight line at the value of  $\Delta p = 0.8$  bar. From this point draw a horizontal straight line until it meets the vertical straight line generated from the meeting point of the horizontal straight line with the value of 59 °C on the  $\Delta t_s$  scale and the sloping straight line with the value  $G_s = 100$  kg/h.

This point corresponds to the required value of  $K_v$ ; in case of an intermediate value choose the valve with the greater DN:  $K_v = 4$ ; DN = 15.

## -sizing chart for steam valves



$P_v$  – Absolute pressure of saturated steam in bar at valve entry.  
 $T_v$  – Temperature of saturated steam in °C at valve entry.  
 $G_v$  – Flow of saturated steam in kg/h.  
 $G_s$  – Flow of superheated steam in kg/h.  
 $Q_v$  – Quantity of heat contained in saturated steam in kW.  
 $\Delta t_s$  – Overtemperature of superheated steam in °C.  
 $\Delta p$  – Pressure drop of valve in bar.

Description	Code	Communication	Page
<b>"COSTERWIRELESS"</b> WIRELESS TEMPERATURE SENSORS			
ROOM TEMPERATURE SENSORS	SAR 010		9.2
WIRELESS EXTERNAL SENSOR	SER 001		9.2
UNIVERSAL WIRELESS RECEIVER	URX 918		9.2
UNIVERSAL WIRELESS REPEATER	UTR 908		9.2
<b>TEMPERATURE &amp; HUMIDTY SENSORS</b>			
ROOM TEMPERATURE SENSORS INDUSTRIAL-TYPE ROOM TEMPERATURE SENSORS	SAB - SCB SAA		9.3
IRRADIATED TEMPERATURE SENSOR	SAI ... SCI ...		9.3
OUTSIDE TEMPERATURE SENSOR	SAE 001		9.3
OUTSIDE TEMPERATURE SENSOR WITH METERING DEGREE-DAYS NTC 1 kΩ	SGE 001		9.3
OUTSIDE TEMPERATURE SENSOR WITH METERING DEGREE-DAY Pt 1 KΩ	SGG 001		9.3
IMMERSION TEMPERATURE SENSOR S	SIH - STH SIR ...		9.4
CABLE-TYPE TEMPERATURE SENSOR	SAF - SHF		9.4
TEMPERATURE SENSOR FOR IET 7... INTEGRATORS.	SPT ...		9.5
SURFACE TEMPERATURE SENSOR	SCH 010		9.5
FAN-COILS AIR TEMPERATURE SENSOR	STT 010		9.5
AIR DUCT TEMPERATURE SENSOR S	STA ...		9.6
GLAZED SURFACES TEMPERATURE SENSOR	STV 010		9.6
FLUE GASES TEMPERATURE SENSOR	STF 001		9.6
RELATIVE HUMIDITY SENSOR S FOR AIR DUCTS	SUR 704		9.6
RELATIVE HUMIDITY & TEMPERATURE SENSOR FOR AIR DUCTS	SUT 714		9.7
ROOM TEMPERATURE & RELATIVE HUMIDITY SENSOR	SAU 914		9.7
ROOM TEMPERATURE & RELATIVE HUMIDITY SENSOR	SAU 724		9.7
<b>SENSORS FOR PRESSURE, LEVELS &amp; WATER LOSS</b>			
ACTIVE PRESSURE SENSORS FOR LIQUIDS	SPW ...		9.8
ACTIVE DIFFERENTIAL PRESSURE SENSORS FOR LIQUIDS	SDW ...		9.8
ACTIVE DIFFERENTIAL PRESSURE SENSORS FOR AIR	SDA ...		9.7
<b>REMOTE CONTROLS &amp; VARIOUS ACCESSORIES</b>			
REMOTE CONTROLS PERMIT MODIFYING THE DESIRED PHYSICAL VALUES CONTROLLED OR CHANGING THE PROGRAMMES IN USE.	CDB ...		9.8
ACCESSORY FOR MOUNTING ON FACE OF DIN MODULAR CONTAINERS PERMITS MOUNTING DIN 6 UNIT OR 3 UNIT MODULAR DEVICES IN FRONT OF CABINET IN REPLACEMENT OF 144 x 144 TYPE.	ACD 644		9.9
ACCESSORY FOR MOUNTING ON FACE OF DIN MODULAR CONTAINERS PERMITS MOUNTING DIN 6 UNIT OR 3 UNIT MODULAR DEVICES IN FRONT OF CABINET IN REPLACEMENT OF 144 x 144 TYPE.	ACD 655		9.9
ACCESSORY FOR MOUNTING ON FACE OF DIN MODULAR CONTAINERS PERMITS MOUNTING DIN 6 UNIT OR 3 UNIT MODULAR DEVICES IN FRONT OF CABINET IN REPLACEMENT OF 144 x 144 TYPE.	ACD 31. 61		9.9

## “COSTERWIRELESS” UNIVERSAL REPEATER

### WIRELESS ROOM SENSOR

#### SAR 010

##### APPLICATION

Measures and transmits the room temperature by means of an NTC sensing element without the need for electric cabling..

##### FEATURES

- Range of use 0 ... 40 °C; Protection: IP 30; Power supply: lithium battery (life at least 7 years).

Code		Description	Sensing element	Data sheet
SAR 010		COSTERWIRELESS room sensor	NTC 10 kΩ	N 310



### EXTERNAL WIRELESS SENSOR

#### SER 001

##### APPLICATION

Receives temperature measurements from several sensors (up to 16) of the same type.

##### FEATURES

- Range of use: – 50 ... + 50°C; Protection: IP 55; Power supply: lithium battery (life at least 7 years).

Code		Description	Sensing element	Data sheet
SER 001		COSTERWIRELESS outside sensor	NTC 1 kΩ	N 320



### UNIVERSAL WIRELESS RECEIVER

#### URX 918

C ←BUS

##### APPLICATION

Receives temperature measurements from several sensors (up to 16) of the same type..

##### FEATURES

- Calculates the minimum, mean and maximum values of the temperatures received
- Provided with an output compatible with all the sensor inputs of COSTER controllers
- Records all the measurements on a powerful Data Logger
- Telemanagement by means of the incorporated C-Bus
- Protection: IP 40; Power supply: 230 V~ ± 10%; Consumption: 1 VA.

Code		Description	Data sheet
URX 918 URX 918/S1		COSTERWIRELESS universal receiver COSTERWIRELESS universal receiver with external antenna	N 351 N 351



### ACCESSORIES

Code		Description	Data sheet
ASA 050		Temperature measurements corrector (5 Volt power supply adaptor)	N 351

### UNIVERSAL WIRELESS REPEATER

#### UTR 908

##### APPLICATION

Receives and repeats all the signals from any COSTER transmitter.

##### FEATURES

- Re-transmits the same signals amplified.
- Doubles the distance between transmitter & receiver.
- Provided with anti-interference logic for complex systems
- Protection: IP 40; Power supply: 230 V~ ± 10%; Consumption: 1V.

Code		Description	Data sheet
UTR 908		COSTERWIRELESS universal repeater	N 350



## ROOM TEMPERATURE SENSORS

### SAB ... - SCB ... - SCI 110

#### APPLICATION

Monitor room temperature by means of a NTC sensor.

**N.B :** SCB ...and SCI ... sensors must be used with **COSTERZONE** sysem (RTB ...)

#### FEATURES

- Operating range: 0 ... 40 °C; Protection: IP 30.



Code	Description	Sensing element	Data sheet
<b>SAB 010</b>	In wall mounting case 80 x 80 x 32.	NTC 10 kΩ	N 111
<b>SAB 020</b>	With double sensor in wall mounting case 80 x 80 x 32.	NTC 20 kΩ	N 111
<b>SAB 011</b>	With internal setting in wall mounting case 80 x 80 x 32.	NTC 10 kΩ	N 111
<b>SAB 210</b>	With key + 1 hour in wall mounting case 80 x 80 x 32.	NTC 10 kΩ	N 111
<b>SCB 110</b>	With adjuster (−5 ... +5 °C) in wall mountig case 80 x 80 x 32.	NTC 10 kΩ	N 111
<b>SCB 210</b>	With adjuster and key + 1 hour in wall mounting case 80 x 80 x 32.	NTC 10 kΩ	N 111
<b>SAI 010</b>	Irradiated sensor in 80 x 80 x 26 housing for wall mounting	NTC 10 kΩ	N 111
<b>SCI 110</b>	Irradiated sensor + adjuster, in 80 x 80 x 32 housing for wall	NTC 10 kΩ	N 111

## INDUSTRIAL-TYPE TEMPERATURE SENSORS

### SAA ...

#### APPLICATION

Monitor room temperature by means of a NTC sensor. Wall mounting.

#### FEATURES

- Case in shockproof plastic material: 45 x 80 x 35 mm.; Protection: IP 54; Cable entry gland: PG 11.



Code	Description	Application range	Sensing element	Data sheet
<b>SAA 010</b>	Industrial type temperature sensor.	0 ... 100 °C	NTC 10 kΩ	N 115
<b>SAA 001</b>	Industrial type temperature sensor.	−40 ... 40 °C	NTC 1 kΩ	N 115

## OUTSIDE TEMPERATURE SENSOR

### SAE 001

#### APPLICATION

Monitors room temperature by means of a NTC sensor. Wall mounting.

#### FEATURES

- Case in shockproof plastic material: 45 x 80 x 35 mm.; Protection: IP 54; Cable entry gland: PG 11.



Code	Description	Application range	Sensing element	Data sheet
<b>SAE 001</b>	Outside temperature sensor.	−40 ... 40 °C	NTC 1 kΩ	N 120

## OUTSIDE TEMPERATURE SENSORS FOR METERING DEGREE-DAYS WITH ANTI-RADIATION THERMAL SCREEN

### SGE 001 - SGG 001

#### APPLICATION

Measurements of outside temperature for metering degree-days.

Not influenzed by thermal conditions of wall on which installed.

Wall mounting with spacer.

#### FEATURES

- Shock-proof plastic enclosure; Protection: IP 54; Cable entry gland: PG 11.



Code	Description	Range	Sensing element	Data sheet
<b>SGE 001</b>	Outside temperature sensor for measurement degree-days. Compatible with all compensating controllers.	−40 ... 40 °C	NTC 1 kΩ	N 121
<b>SGG 001</b>	Outside temp. sensor for measuring degree-days (XGG 618).	−50 ... 40 °C	Pt 1 kΩ	N 121



## IMMERSION TEMPERATURE SENSORS (WITHOUT POCKET)

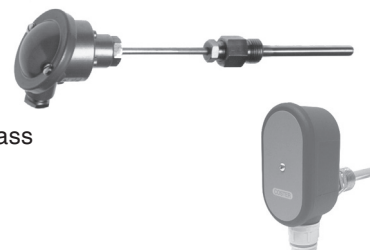
## SIH 010 - STH 001 - SIR 010

## APPLICATION

Measure the temperature of the circulating fluid in a pipe by means of a sensor housed in a brass sheath immersed in a threaded pocket insert in the pipe.

## FEATURES

- Shock-proof plastic case: 45 x 80 x 35; Protection: IP54; Cable entry gland: PG11.
- Brass or stainless steel well: 1/2" x 80 mm (\*); Sensor pocket: Ø 7 x 68 mm.
- (\*) Length shown includes 15 mm threading.



Code		Description	Application range	Sensing element	Data sheet
<b>SIH 010</b>		Immersion sensor with brass pocket.	0 ... 100 °C	NTC 10 kΩ	N 140
<b>SIH 010/Inox</b>		Immersion sensor with stain. steel pocket.	0 ... 100 °C	NTC 10 kΩ	N 140
<b>SIR 010</b>		Direct immersion rapid sensor.	0 ... 100 °C	NTC 10 kΩ	N 140
<b>STH 001</b>		Immersion sensor with stain. steel pocket.	0 ... 300 °C	Pt 1 kΩ	N 140

## ACCESSORIES

Code		Description	Data sheet
<b>APV 100</b>		Accessory for adapting to old Coster pockets.	—

## CABLE-TYPE TEMPERATURE SENSOR (WITHOUT POCKET)

## SAF ... - SHF ...

## APPLICATION

Measures the temperature by means of an NTC sensing element protected by a brass sheath and connected directly to a bipolar cable.

**THESE SENSORS MUST BE FITTED WITH TYPE GIS ... POCKETS AND WITH TYPE ACM 103 TERMINAL BLOCK.**

## FEATURES

- Standard connecting cable: 2 x 0.5 mm<sup>2</sup> x 1.5 m.



Code		Description	Application range	Sensing element	Data sheet
<b>SAF 010</b>		Cable-type temperature sensor.	0 ... 100 °C	NTC 10 kΩ	N 145
<b>SAF 110</b>		Duble cable-type temperature sensor (2 sensors-4 wires).	0 ... 100 °C	2 NTC10 kΩ	N 145
<b>SAF 001</b>		Cable-type temperature sensor.	-40 ... 40 °C	NTC 1 kΩ	N 145
<b>SHF 001</b>		Cable-type temperature sensor with 3-metre cable.	0 ... 180 °C	Pt 1 kΩ	N 145

## SPECIAL VERSIONS

Code		Description
—		<b>ALL THE CABLE TYPE TEMPERATURE SensorS (EXCEPT SHF 001) HAVE A STANDARD CABLE LENGTH OF 1.5 METRES. FOR LONGER CABLES (UP TO 10 METRES) THE EXTRA CHARGE.</b>

## ACCESSORIES

Code		Description	Data sheet
<b>GIS 090</b>		Brass pocket 1/2" x 90 mm (*) including grommet.	N 145
<b>GIS 090/Inox</b>		Stainless steel pocket 1/2" x 90 mm (*) including grommet.	N 145
<b>GIS 160</b>		Brass pocket 1/2" x 160 mm (*) including grommet.	N 145
<b>GIS 160/Inox</b>		Stainless steel pocket 1/2" x 160 mm (*) including grommet.	N 145
<b>GIS 500</b>		Brass pocket 1/2" x 500 mm (*) including grommet.	N 145
<b>GIS 500/Inox</b>		Stainless steel pocket 1/2" x 500 mm (*) including grommet.	N 145
		(*) Length shown includes 15 mm threading.	
<b>APS 150</b>		Extension pocket (15 cm) for fluid temperature > 130 °C.	—
<b>ACM 103</b>		Housing terminal block and adapter for old-type Coster pockets.	—

## TEMPERATURE SENSOR FOR IET 7... INTEGRATORS

### SPT ...

Connected to IET 7... integrators, SPT... sensors measure send and return temperatures (T° delta) in hydraulic circuits, to calculate heating and cooling energy

**Sensors and accessories compliant with directive MID 2004/22/CE**

**Sensor cables must not be lengthened or shortened**

#### TECHNICAL DATA

• Conductor sections	2 x 0,35 mm <sup>2</sup>
• Cable length	See table
• Protection	IP 54
• Time constant :	25 seconds with pockets 4 seconds with direct immersion



Code	Description	Application range	Sensings element	Data sheet
<b>SPT 001</b>	Pair of sensors with 75-centimetre cable	0 ... 150 °C	Pt 1000	N 146
<b>SPT 031</b>	Pair of sensors with 3-metre cable	0 ... 150 °C	Pt 1000	N 146
<b>SPT 101</b>	Pair of sensors with 10-metre cable	0 ... 150 °C	Pt 1000	N 146

#### Accessories for assembly with pockets or direct immersion

Code	Description	Attacchi	Tubazione DN	Profondità + filetto
<b>GIS 062</b>	Pair of brass pockets for sensors..	1/4"	1" 1/4 ... 4"	62 + 18
<b>GIS 112</b>	Pair of brass pockets for sensors.	1/4"	oltre i 4"	112 + 18

#### ACCESSORIES FOR DIRECT IMMERSION ASSEMBLY

• GIS 001 + ART ... Pair of direct immersion sensor assembly kits using T-joints (see N 146 data sheet)

Code	Description	Joints	DN pipe	Overall dimensions
<b>GIS 001</b>	Pair of kits for direct immersion sensor assembly.	1/2"	max 1"	—
<b>ART 015</b>	Pair of T-joints for kit GIS 001.	1/2"	1/2"	56 mm
<b>ART 020</b>	Pair of T-joints for kit GIS 001.	3/4"	3/4"	56 mm
<b>ART 025</b>	Pair of T-joints for kit GIS 001.	1"	1"	62 mm

## SURFACE TEMPERATURE SENSOR

### SCH 010

#### APPLICATION

Measures the temperature in a pipe with a NTC sensing element housed in a brass plate fixed in contact with the pipe.

#### FEATURES

• Shock-proof plastic case: 45 x 80 x 32 mm.; Protection: IP 54; Cable entry gland: PG 11.



Code	Description	Application range	Sensing element	Data sheet
<b>SCH 010</b>	Surface temperature sensor.	0 ... 100 °C	NTC 10 kΩ	N 130

## TEMPERATURE SENSORS FOR HEATING/COOLING COILS

### STT 010

#### APPLICATION

Monitors temperature of the air intake of fan coils by means of a NTC sensor directly connected with a dual pole cable. For easy mounting a flexible support is provided.

#### FEATURES

• Connecting cable: 2 x 0.5 mm<sup>2</sup> x 1.5 m.



Code	Description	Application range	Sensing element	Data sheet
<b>STT 010</b>	Temperature sensor for fan-coil.	0 ... 40 °C	NTC 10 kΩ	N 155

## TEMPERATURE SENSORS FOR AIR DUCTS

### STA ...

#### APPLICATION

Monitors the air temperature in ventilation ducts by means of a NTC sensor housed in a brass sheath. For easy mounting a connecting flange is provided.

#### FEATURES

- Case in shockproof plastic material: 45 x 80 x 35 mm; Protection: IP 54; Cable duct: PG 11;
- Adjustable deep sensor sheath:  $\varnothing$  9 x 20 ... 130 mm.

Code		Description	Application range	Sensing element	Data sheet
<b>STA 010</b>		Temperature sensor for air ducts.	0 ... 100 °C	NTC 10 k $\Omega$	N 150
<b>STA 001</b>		Temperature sensor for air ducts.	-40 ... 40 °C	NTC 1 k $\Omega$	N 150



## GLAZED SURFACES TEMPERATURE SENSOR

### STV 010

#### APPLICATION

Monitors the temperature of glazed surfaces for calculation of the Dew Point, by means of a NTC-sensor housed in a plastic case to be stuck directly on the glass.

#### FEATURES

- Connecting cable: 2 x 0.5 mm<sup>2</sup> x 1.5 m.

Code		Description	Application range	Sensing element	Data sheet
<b>STV 010</b>		Glazed surfaces temperature sensor.	0 ... 40 °C	NTC 10 k $\Omega$	N 160



## FLUE GAS TEMPERATURE SENSOR

### STF 001

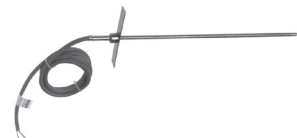
#### APPLICATION

Monitors the temperature of the boiler flue gases by a Pt sensor housed in a sheath for installation in the stack. For easy mounting a loose connecting flange is provided.

#### FEATURES

- Connecting cable: 2 x 0.5 mm<sup>2</sup> x 1.5 m.

Code		Description	Application range	Sensing element	Data sheet
<b>STF 001</b>		Flue gas temperature sensor.	0 ... 500 °C	Pt 1 k $\Omega$	N 165



## RELATIVE HUMIDITY SENSOR FOR AIR DUCTS

### SUR 704

#### APPLICATION

Measures the relative humidity in air ducts by means of a capacitive sensor. The sensing element is housed in a PVC sheath and the electronic circuit with the terminal blocks in a water-proof container. Installation is simplified by the use of a separate fixing flange.

#### FEATURES

- Power supply: 24 V~ (2.5 VA) or 12 V~ (15 mA).
- Enclosure in shockproof plastic: 83 x 105 x 46 mm; Pocket  $\varnothing$  30,5 x 270 mm; Protection: IP 55; Cable entry gland: PG 7.
- Relative humidity output signal: 0 ... 10 V~ or 0 ... 5 V~.

Code		Description	Humidity range	Humidity accuracy	Data sheet
<b>SUR 704</b>		Relative humidity sensor.	10 ... 90 %RH	2.5 %RH	N 221



## RELATIVE HUMIDITY &amp; TEMPERATURE SENSOR FOR AIR DUCTS

## SUT 714

## APPLICATION

Measures the relative humidity by means of an integrated sensor and the temperature by means of an NTC 10 k $\Omega$  sensing element.

The sensing elements are housed in a PVC sheath and the electronic circuit with the terminal blocks in a water-proof container.

Installation is simplified by the use of a separate fixing flange.

## FEATURES

- Power supply: 24 V~ (2.5 VA) or 12 V~ (15 mA).
- Enclosure in shockproof plastic: 83 x 105 x 46 mm; Pocket:  $\varnothing$  30,5 x 270 mm; Protection: IP 55; Cable entry gland: PG 7.
- Relative humidity output signal: 0 ... 10 V– or 0 ... 5 V–.



Code		Description	Humidity range	Humidity accuracy	Temperature range	Data sheet
<b>SUT 714</b>		Relative humidity and temperature sensor.	10 ... 90 %RH	1.5 %RH	0 ... 60 °C	N 222

## ROOM TEMPERATURE &amp; RELATIVE HUMIDITY SENSOR

## SAU 914

## APPLICATION

Measures room temperature and relative humidity by means of a NTC 10 k $\Omega$  temperature sensing element and a capacitive humidity sensing element. Domestic-type enclosure for wall mounting.

## FEATURES

- Plastic enclosure: 130 x 80 x 37 mm; Protection: IP 42.
- Humidity output signal: 1 ... 10 V–.



Code		Description	Humidity range	Humidity accuracy	Temperature range	Data sheet
<b>SAU 914</b>		Temperature & relative humidity sensor.	10 ... 90 %	2.5 %	0 ... 40 °C	N 227

## ROOM TEMPERATURE &amp; RELATIVE HUMIDITY SENSOR

## SAU 724

## APPLICATION

Measures room temperature and relative humidity by means of a NTC 10 k $\Omega$  temperature sensing element and by an integrated humidity sensing element. Waterproof enclosure for wall mounting.

## FEATURES

- Plastic enclosure: 85 x 105 x 48 mm; Protection: IP 55.
- Humidity output signal: 0 ... 10 V–.



Code		Description	Humidity range	Humidity accuracy	Temperature range	Data sheet
<b>SAU 724</b>		Temperature & relative humidity sensor.	10 ... 90 %	1.5 %	0 ... 40 °C	N 228

## DIFFERENTIAL PRESSURE TRANSMITTER FOR AIR

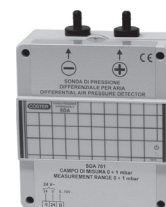
## SDA ...

## APPLICATION

Measures the differential pressure, by means of a diaphragm sensor, in air handling installations.

## FEATURES

- Connection to air: 2 hose fittings  $\varnothing$  6 mm; Protection: IP 54; Dimensions: 105 x 83 x 46 mm.
- Output signal: 0 ... 10 V–.



Code		Description	Application range	Max. pressure	Data sheet
<b>SDA 701</b>		Differential pressure transmitter for air.	0 ... 1 mbar	220 mbar	N 430
<b>SDA 703</b>		Differential pressure transmitter for air.	0 ... 3 mbar	220 mbar	N 430
<b>SDA 705</b>		Differential pressure transmitter for air.	0 ... 5 mbar	220 mbar	N 430
<b>SDA 730</b>		Differential pressure transmitter for air.	0 ... 30 mbar	220 mbar	N 430

## PRESSURE TRANSMITTER FOR LIQUIDS AND STEAM

### SPW ...

#### APPLICATION

For pressure detection in liquid mediums for the airconditioning, heating and water technic.

#### FEATURES

- Pipe connection: male 1/2";
- Protection: IP 65; Output signal: 0 ... 10 V–.



Code		Description	Application range	Max. pressure	Data sheet
<b>SPW 204</b>		Pressure transmitter for liquids and steam.	0 ... 4 bar	???	N ...
<b>SPW 210</b>		Pressure transmitter for liquids and steam.	0 ... 10 bar	???	N ...
<b>SPW 216</b>		Pressure transmitter for liquids and steam.	0 ... 16 bar	???	N ...

## DIFFERENTIAL PRESSURE TRANSMITTER FOR LIQUIDS

### SDW ...

#### APPLICATION

Measures the differential pressure, by means of a ceramic sensor, in hot or cold water plants.

#### FEATURES

- Piping connection: two 1/8" screwed female; When the fluid temperature is higher than 80 °C a spiral spacer has to be used.
- Protection: IP 54; Output signal: 0 ... 10 V–.



Code		Description	Application range	Max. pressure	Data sheet
<b>SDW 201</b>		Differential pressure transmitter for liquids.	0 ... 1 bar	????	N ...
<b>SDW 202</b>		Differential pressure transmitter for liquids.	0 ... 2.5 bar	????	N ...
<b>SDW 206</b>		Differential pressure transmitter for liquids.	0 ... 6 bar	????	N ...

## REMOTE CONTROLS

### CDB ...

#### APPLICATION

Resetting units for physical values control and change of programme in use.

#### FEATURES

- Case in shockproof plastic material: 80 x 80 x 26 mm. Wall mounting.



Code		Description	Compatible controllers	Application range	Data sheet
<b>CDB 100</b>		Temperature setpoint adjuster with NTC 10 kΩ room sensor.	DRU 314 / 614; DTF / RTF 31; DTT 318; RTB 645; XTU 614 / 618; XTU 644; XTU 664 XTA 624; XTR 628;	–5 ... +5 °C	N 710
<b>CDB 200</b>		Humidity setpoint adjuster NTC 10 kΩ room sensor.	XTU 614; XTU 644; XTU 664.	–10 ... +10 %	N 710
<b>CDB 300</b>		Change of programme in use.	RTC 604; RTE 643; XTP 600. XTT 608; XTE 611; XTE 600 / 602; XSE 600 / 602.	–	N 710
<b>CDB 300/S1</b>		Change of programme in use with NTC 10 kΩ room sensor	RTC 604; RTE 643; XTP 600. XTT 608; XTE 611; XTE 600 / 602; XSE 600 / 602.	–	N 710
<b>CDB 301</b>		Change of programme (DIN 3 units).	RTC 604; RTE 643; XTP 600. XTT 608; XTE 611; XTE 600 / 602; XSE 600 / 602.	–	N 711
<b>CDB 333</b>		Change of programme in use.	XCS 633; XSS 633; XTU 618.	–	N 710
<b>CDB 340</b>		Temperature setpoint adjuster.	RTE 98.	–5 ... +5 °C	N 710

## HOUSINGS FOR DIN MODULAR EQUIPMENT

## ACD 644

## APPLICATION

It allows the mounting of DIN modular equipment with either 6 or 3 units on the front panel, in replacement of 144 x 144 equipment.

## FEATURES

- Hollow size: 138 x 138 m.



Code		Description	No. of devices		Data sheet
			6 units	3 units	
<b>ACD 644</b>		Accessory for fascia mounting.	1	1 or 2	—

## HOUSINGS FOR DIN MODULAR EQUIPMENT

## ACD 655

## APPLICATION

It allows the mounting of DIN modular equipment with either 6 or 3 units on the front panel, in replacement of 144 x 144 equipment.

## FEATURES

- Hollow size: 138 x 138 m.



Code		Description	No. of devices		Data sheet
			6 units	3 units	
<b>ACD 655</b>		Accessory for fascia mounting.	1	1 or 2	—

## HOUSINGS FOR DIN MODULAR EQUIPMENT

## UK PRODUCT ONLY

## ACD 31. - 61.

## APPLICATION

It allows the mounting of DIN modular equipment with either 6 or 3 units on the front panel, in replacement of 144 x 144 equipment.

## FEATURES

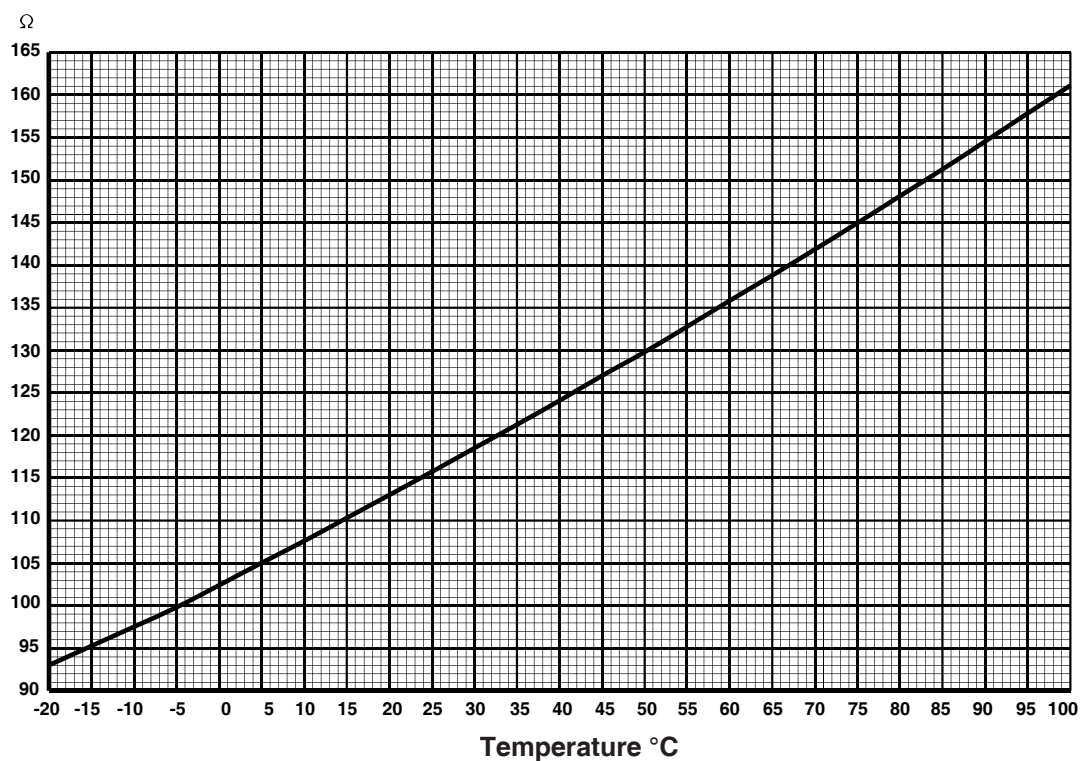
- Hollow size: 138 x 138 m.



Code		Description	No. of devices		Data sheet
			6 units	3 units	
<b>ACD 315</b>		Wall mounting kit enclosure for 3 module wide controllers .	—	1	—
<b>ACD 316</b>		Panel mounting kit for 3 module wide controllers	—	1	—
<b>ACD 615</b>		Wall mount enclosure for 6 module wide controllers.	1	1 or 2	—
<b>ACD 616</b>		Wall mount enclosure for 12 module wide controllers.	1 or 2	1,2,3 or 4	—

## TEMPERATURE - RESISTANCE DIAGRAM FOR Ni 100 $\Omega$ SENSORS

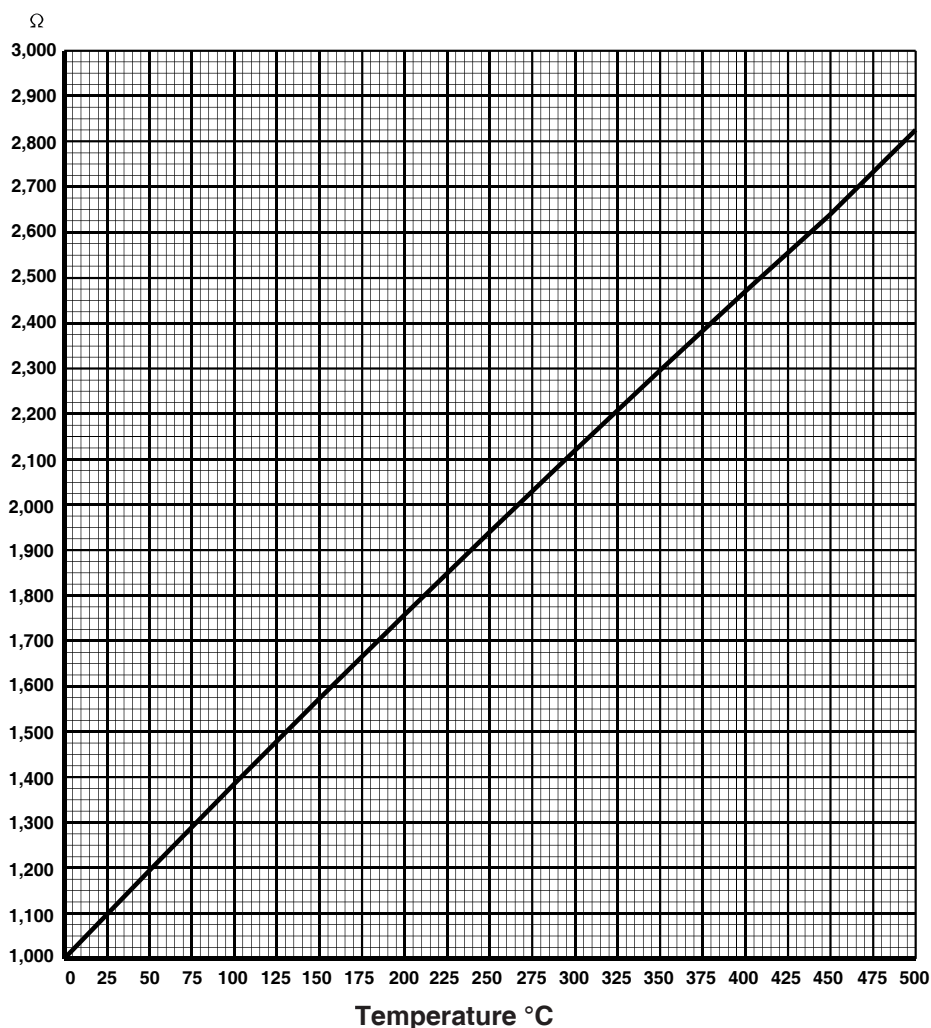
IS NOT LONGER MANUFACTUR



CODE:

SAA 100  
SAB 100  
SAC 100  
SAE 100  
SAF 100  
SCH 100  
SIH 100  
STA 100

## TEMPERATURE - RESISTANCE DIAGRAM FOR Pt 1 k $\Omega$ SENSORS

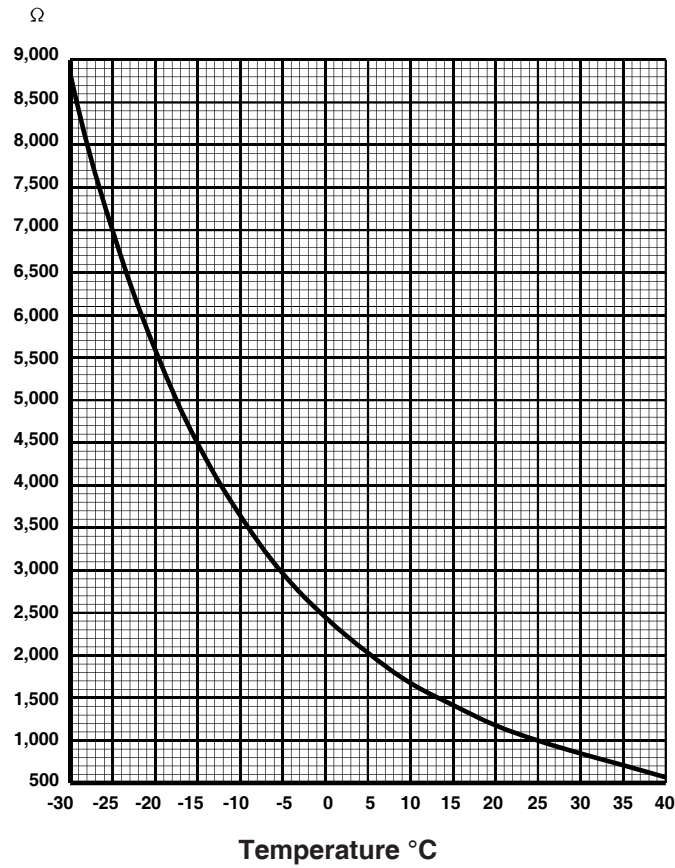


CODE:

SGG 001  
SHF 001  
STF 001  
STH 001



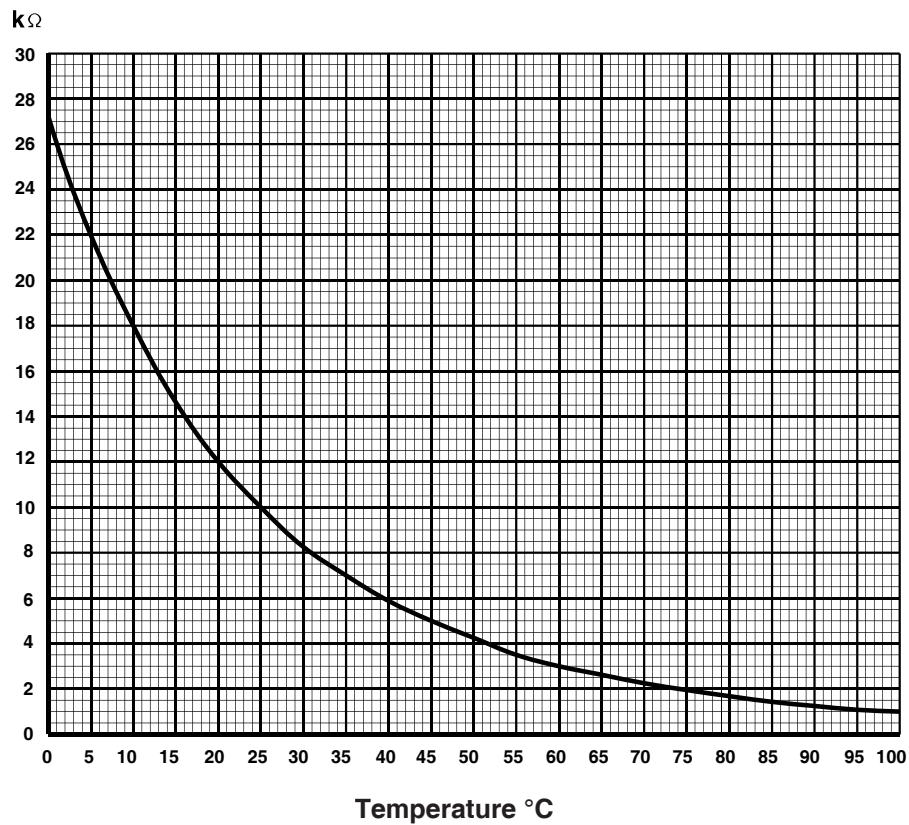
TEMPERATURE - RESISTANCE DIAGRAM FOR NTC 1 kΩ SENSORS



CODE:

SAA 001  
SAE 001  
SAF 001  
SGE 001  
STA 001

TEMPERATURE - RESISTANCE DIAGRAM FOR NTC 10 kΩ SENSORS



CODE:

SAA 010  
SAB 010  
SAB 011  
SAB 210  
SAF 010  
SAF 110  
SAU 012  
SCB 110  
SCB 210  
SCH 010  
SHF 010  
SIH 010  
SIR 010  
STA 010  
STT 010  
STV 010

NOTES

Lined area for notes.

Description	Code	Communication	Page
<b>"TELECOSTER" TELEMAGEMENT SYSTEM FOR BOILER PLANTS"</b> THE SYSTEM PERMITS TELEMAGING, FROM A CENTRAL COMPUTER, ALL THE CONTROL DEVICES IN THE PLANTS AND FACILITATES THE PROVISION OF A COMFORTABLE TEMPERATURE & HUMIDITY IN ALL THE OFFICES AND/OR DWELLINGS CONCERNED. ALL ALARMS ARE ACQUIRED AND LOGGED AND CAN BE FORWARDED VOCALLY TO CELLULAR TELEPHONES ON THE MONITORE ARE DISPLAYED ALL IMPORTANT VALUES E.G. TEMPERATURE, GAS OIL LEVEL, PLANT PRESSURE, ETC.			
<b>TELEMAGEMENT SOFTWARE</b> APPLICATION SOFTWARE FOR MANAGING COMMUNICATIONS BETWEEN THE CENTRAL COMPUTER AND THE BOILER PLANTS CONNECTED VIA MODEM - TELEPHONE LINE OR DIRECTLY.	<b>SWC 701</b>		<b>10.4</b>
<b>MODEM ANALOGUE LINES, GSM &amp; UNITS FOR ETHERNET</b>			
<b>CENTRAL DESKTOP MODEM: WITH VOCAL FORWARDING</b> CONNECTS CENTRAL COMPUTER TO ANALOGUE TELEPHONE LINE.	<b>MCV 712</b>	<b>(RS 232)</b>	<b>10.4</b>
<b>GSM CENTRAL OR REMOTE MODEM</b> CONNECTS DIRECTLY THE CENTRAL TELEMAGEMENT COMPUTER TO THE GSM TELEPHONE LINE OR, BY MEANS OF AN RS 232 / C-BUS CONVERTOR, THE REMOTE COSTER DEVICES WITH C-BUS AND/OR RS 232.	<b>GSM 723</b>	<b>(RS 232)</b>	<b>10.5</b>
<b>MINI TELEMAGEMENT KIT INCLUDING GSM MODEM (SINGLE PACKAGE)</b> TELEMAGEMENT RS232: ALREADY ENABLED BY THE KIT. TELEMAGEMENT C-BUS: CAN BE ENABLED WITH ACB 400 ACCESSORY.	<b>XCO 428 + GSM 723</b>	OPTIONAL <b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.5</b>
<b>GSM DESKTOP MODEM FOR USB CONNECTION</b> CONNECTS THE CENTRAL COMPUTER, VIA USB CABLE, TO GSM TELEPHONE LINE.	<b>GSM 724</b>	<b>(RS 232)</b>	<b>10.5</b>
<b>REMOTE GSM DUAL BAND MODEM</b> CONNECTS COSTER REMOTE DEVICES WITH C-BUS AND/OR RS 232 TO TE GSM (900/1, 800 MHz).	<b>GSM 648</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.6</b>
<b>REMOTE PANEL-MOUNTING MODEM</b> CONNECTS COSTER REMOTE DEVICES BY C-BUS AND/OR RS 232 TO A DEDICATED ANALOGUE TELEPHONE LINE.	<b>MPD 412</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.6</b>
<b>AMPLIFIER &amp; CONVERTORS FOR C-BUS</b>			
<b>MEDIUM-POWER C-BUS AMPLIFIER &amp; INTERFACE CONVERTOR</b> AMPLIFIES C-BUS SIGNAL (MAX. 239 DEVICES IN MAX. IN 7 Km LINE).	<b>PCB 332</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.8</b>
<b>HIGH-POWER C-BUS AMPLIFIER &amp; INTERFACE CONVERTOR</b> AMPLIFIES C-BUS SIGNAL (MAX. 239 DEVICES IN MAX. IN 7 Km LINE).	<b>PCB 432</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.8</b>
<b>CONVERTOR C-BUS - "SLAVE" TO RS 232 (3 DIN ENCLOSURE)</b> A UNIT MOUNTED, ON 3 DIN ENCLOSURE, WHICH PERMITS CONNECTION OF ANY DEVICE WITH C-BUS TO A MODEM OR A PC..	<b>ACB 332</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.14</b>
<b>ETHERNET - C-BUS CONVERTOR</b> CONNECTS COSTER REMOTE DEVICES WITH C-BUS TO ETHERNET NETWORK	<b>ARE 338</b>	<b>(C ↔ BUS)</b>	<b>10.6</b>
<b>RADIO MODEM WIRELESS BLUETOOTH</b> CONVERTS C-BUS TO BLUETOOTH MODE & PERMITS EXTENDING THE C-BUS NETWORK VIA RADIO.	<b>CBR 118</b>	<b>(C ↔ BUS)</b>	<b>10.8</b>
<b>CONVERTOR CABLE C-BUS - "SLAVE" TO RS 232 FOR PC)</b> A UNIT, ATTACHED TO A CABLE, WHICH PERMITS CONNECTING ANY DEVICE WITH C-BUS TO A PC (NOT TO A MODEM).	<b>ACB 232</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.13</b>
<b>CONVERTOR CABLE C-BUS - "SLAVE" TO RS 232 FOR MODEM</b> A UNIT, ATTACHED TO A CABLE, WHICH PERMITS CONNECTION TO ANY DEVICE WITH C-BUS AND WITH AN AUXILIARY POWER OUTPUT (e.g. UCO 318), TO A MODEM WITH SUITABLE ACCESSORY CONNECTORS CAN BE USED ALSO FOR PC.	<b>ACB 232/S1</b>	<b>(C ↔ BUS)</b> <b>M-BUS (RS 232)</b>	<b>10.13</b>
<b>CONVERTOR M-BUS - "SLAVE" TO C-BUS (3 DIN ENCLOSURE)</b> A UNIT THAT PERMITS CONNECTING M-BUS OUTPUT OF COMMONEST TYPES OF COMMERCIAL HEAT METERS TO C-BUS. MAKES DEVICE COMPATIBLE WITH COSTER TELEMAGEMENT SYSTEM.	<b>CMC 328</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.12</b>
<b>CONVERTOR RS 232 - "SLAVE" TO C-BUS (3 DIN ENCLOSURE)</b> A UNIT THAT PERMITS CONNECTING ANY DEVICE WITH RS 232 OUTPUT TO C-BUS. CAN BE USED BOTH FOR PC AND FOR MODEM, PROVIDED DEVICE IN QUESTION IS ALREADY INCLUDED IN COSTER TELEMAGEMENT PROGRAM.	<b>CCB 332</b>	<b>(C ↔ BUS)</b> <b>(RS 232)</b>	<b>10.12</b>
(C ↔ BUS) = communication with telemagement <sup>OPTIONAL</sup> (C ↔ BUS) = optional telemagement    (C ↔ RING) = data exchange between controllers			

Description	Code	Communication	Page
<b>UNIT FOR ALARMS, STATUS, COUNTS &amp; TEMPERATURES</b>			
<b>UNIT FOR LOGGING ALARMS, STATUS AND COUNTS</b> PERMITS ACQUIRING & LOGGING 8 SIGNALS OF ALARM, STATUS OR COUNT OF TIMES & NUMBER OF PULSES.	<b>UAC 32.</b>	<b>C ← BUS</b>	<b>10.9</b>
<b>CONSUMPTION METERING UNIT</b> 1 UNIT EVERY 16 METERS; CAN METER OTHER TYPES OF CONSUMPTION.	<b>UCA 668</b>	<b>C ← BUS</b>	<b>7.6</b>
<b>PULSE COUNTER UNIT</b> 1 UNIT EVERY 2 METERS.	<b>UCI 328</b>	<b>C ← BUS</b>	<b>7.6</b>
<b>DEGREE-DAYS METERING UNIT OPTIONAL TELEMAGEMENT</b> METERING WINTER DEGREE-DAYS FOR EACH INDIVIDUAL BUILDING; CALCULATES HEATING COSTS; MONITORS GLOBAL EFFICIENCY OF SITES PROGRAMS FUEL SUPPLIES.	<b>XGG 618</b>	<small>PREDISPOSTO</small> <b>C ← BUS</b>	<b>7.3</b>
<b>UNIT FOR ACQUISITION WATER &amp; FLUE GAS TEMPERATURES</b> PERMITS ACQUIRING 2 TEMPERATURE READINGS & 2 FLUE GASES TEMPERATURE READINGS WITH MINIMUM & MAXIMUM THRESHOLDS TO SEND ALARM TO TELEMAGEMENT SYSTEM.	<b>UAF 322</b>	<b>C ← BUS</b>	<b>10.8</b>
<b>UNIT FOR MEASUREMENT, ALARM &amp; RECORDING FLUE GAS TEMPERATURES</b> PERMITS RECORDING FOUR TEMPERATURE MEASUREMENTS (0 ... 500 °C), WITH MINIMUM AND MAXIMUM THRESHOLDS AND SENDING ALARMS TO TELEMAGEMENT SYSTEMS VIA C-BUS CONNECTION.	<b>UBF 348</b>	<b>C ← BUS</b>	<b>10.8</b>
<b>UNIT FOR MEASURING &amp; RECORDING 0...5 V–, 0...10 V–, 4...20 mA SIGNAL AND TRIGGERNG ALARMS</b> CONVERT AN ANALOGUE SIGNAL 0 ... 5 V–, 0 ... 10 V–, 4 ... 20 mA INTO A MEASUREMENT OF PHYSICAL MAGNITUDE.	<b>UML 318</b>	<b>C ← BUS</b>	<b>10.9</b>
<b>TEMPERATURE RECORDING UNIT</b> PERMITS RECORDING FOUR MINIMUM AND MAXIMUM TEMPERATURE THRESHOLDS FOR SENDING ALARMS TO TELEMAGEMENT SYSTEM.	<b>ULT 3.. ULT 348/S1</b>	<b>C ← BUS</b>	<b>10.10</b>
<b>ACTIVE SIGNALS MEMORIZATION UNIT</b> PERMITS RECORDING 4 ACTIVE SIGNAL WITH MINIMUM & MAXIMUM THRESHOLD TO SEND ALARMS TO TELEMAGEMENT SYSTEM.	<b>ULA 348</b>	<b>C ← BUS</b>	<b>10.10</b>
<b>TIMED PROGRAMMER WITH TWO OUTPUTS &amp; ALARM INPUTS OPTIONAL TELEMAGEMENT</b> FOR ON-OFF CONTROL OF TWO ELECTRICAL DEVICES & RECEIVING TWO ALARM SIGNALS.	<b>XCO 428</b>	<small>OPTIONAL</small> <b>C ← BUS</b> <b>RS 232</b>	<b>4.4</b>

**C ← BUS** = communication with telemanagement    OPTIONAL **C ← BUS** = optional telemanagement    **C ← RING** = data exchange between controllers

Description	Code	Communication	Page
<b>ACCESSORIES</b>			
<b>3-CORE CABLE WITH DB MALE RS 232 (FOR MODEM)</b> A 0.5 m CABLE THAT HAS AT ONE END 3 WIRES FOR CONNECTION TO AN RS 232 TERMINAL, AND AT THE OTHER A DB 9 MALE CONNECTOR FOR DIRECTLY CONNECTION TO A MODEM, WITH SUITABLE ACCESSORY CONNECTORS CAN ALSO BE USED FOR A PC.	<b>ACS 232</b>	<b>RS 232</b>	<b>10.11</b>
<b>TEST PLUG-IN FOR DIN WITH SLOT FOR COMMUNICATION BUS</b> A PLUG-IN WHICH IS INSERTED IN THE SLOT OF DEVICES ENABLED FOR PLUG-IN COMMUNICATION (E.G. XGG 618). THE PLUG-IN TEST OUTPUT IS A DB 9 FEMALE CONNECTOR WHICH CAN BE CONNECTED DIRECTLY TO A PC USING A STANDARD CABLE FOR DB 9 OR USB SOCKET. WITH SUITABLE ACCESSORY CONNECTORS CAN ALSO BE USED FOR MODEM.	<b>ACX 232</b>	<b>RS 232</b>	<b>10.13</b>
<b>TEST CABLE FOR CONVERTING RJ PLUG TO RS 232 FOR PC OR MODEM.</b> INSERTED IN RJ SOCKET ON FACIA OF SERIES F... (144 x 96) DEVICES PERMITS REMOTE OR LOCAL TELEMAGEMENT WITH A PC OR MODEM.	<b>RJS 232</b>	<b>RS 232</b>	<b>10.13</b>
<b>PLUG-IN C-BUS FOR SERIES X ... DEVICES</b> INSERTED IN THE SLOT OF SERIES X ... DEVICES PERMITS TELEMAGEMENT VIA C-BUS OF THE SAME.	<b>ACB 4..</b>	<b>C ← BUS</b>	<b>10.13</b>
<b>TESTER CABLE WITH ROUND SOCKET</b> A CABLR THAT IS CONNECTED WITH ROUND SOCKET ON FRONT PANEL. CAN TEST THE TELEPHONE LINE, THE ETHERNET LINE AND THE C-BUS LINE. CAN BE CONNECTED ONLY TO A PC.	<b>TCB 908</b>	<b>RS 232</b>	<b>10.13</b>
<b>GALVANIC INSULATOR FOR RS 232 LINES (3 DIN ENCLOSURE)</b> A UNIT THAT IS INSERTED BETWEEN TWO RS 232 SOCKETS TO INSULATE GALVANICALLY THE UPSTREAM ZONE FROM THE DOWNSTREAM ZONE. THE OUTPUTS ARE TERMINALS AND SO PRS 332 CAN BE USED FOR EITHER PC OR MODEM.	<b>PRS 332</b>	<b>RS 232</b>	<b>10.16</b>
<b>GALVANIC INSULATING CABLE FOR RS 232 LINES</b> A UNIT WHICH IS INSERTED BETWEEN TWO RS 232 SOCKETS IN ORDER TO INSULATE GALVANICALLY THE UPSTREAM ZONE FROM THE DOWNSTREAM ZONE. THE UNIT CAN BE USED ONLY TOWARDS THE PC AND NOT TOWARDS THE MODEM.	<b>PRS 232</b>	<b>RS 232</b>	<b>10.16</b>
<b>POWER BACK-UP FOR MODEM</b> PERMITS TELEMANGED SITES TO SEND ALARM SIGNAL FOR LACK OF POWER..	<b>ALM 688</b>		<b>10.7</b>
<b>AERIAL EXTENSION CABLE</b>	<b>APA 812 C1</b>		<b>10.5/6</b>

**C ← BUS** = communication with telemangement    
 OPTIONAL  
**C ← BUS** = optional telemangement    
**C ← RING** = data exchange between controllers

## TELEMANAGEMENT OF PLANTS FOR AMBIENTAL COMFORT

### "TELECOSTER"

With this system, from a central computer, you can:

- Telemanage (remote control) all the control equipment running the boiler plants in the buildings concerned.
- Receive and log alarm situation and forward the alarms in voice mode to cellular phones.
- See displayed the following values: temperature, fuel level, plant pressure, etc.

The system comprises:

- 1 Desk Modem MCT 710, MCV 711 or GSM 724 for connecting central computer to telephone line.
- 1 Panel-mounted modem MPD 612, MPF 612, GSM 723 o GSM 648 for connecting each remote unit to the telephone line.
- From 1 to 239 C-Bus compatible devices for each remote unit.

### TELEMANAGEMENT SOFTWARE

#### SWC 701

##### APPLICATION

Application software for managing communication between the central computer and the remote boiler plants linked by modem and telephone line.

##### FEATURES

- Supplied on CD.
- Minimum recommended: Microsoft (TM) Windows 98SE, PC Pentium III 800 Mhz, RAM 256 HD, 500 HD free.



Code	Description	Data sheet
<b>SWC 701</b>	Telemanagement programs via protocols RS 232 and C-Bus.	—

### CENTRAL DESKTOP MODEM

#### MCV 712

RS 232

##### APPLICATION

Connects central computer to the analogue telephone line.  
Permits voice forwarding of alarm calls and connection with outlying GSM modems..

##### FEATURES

- Power supply: 230 V~; Consumption: 5 VA; Desktop enclosure; Protection: IP 40.



Code	Description	Data sheet
<b>MCV 712</b>	Desktop modem with voice forwarding. Permits connection with GSM modem.	T 323

### ACCESSORIES

Code	Description	Data sheet
<b>WDM 318</b>	Modem protector in DIN 53 x 115 enclosure.	T 351

## GSM CENTRAL OR REMOTE MODEM

### GSM 723

RS 232

#### APPLICATION

Connects the central telemanagement computer to the GSM telephone line.

Connects the remote Coster device to the GSM telephone line with ACB 332 or ACB 332 converters.

**Supplied with: 230V~/12V- power supply; 1 cable for modem; 1 RF Dual Band antenna;**

**1 Linkage for mounting on wall or on DIN rail.**



#### FEATUIRES

- Power supply: 12 V~ ; Protection: IP 40.
- Consumption : 12 W

Code	Description	Data sheet
<b>GSM 723</b>	GSM central modem (telemanagement PC) or remote (plant sites).	T 332

#### ACCESSORIES

Code	Description	Data sheet
<b>ACB 332</b> <b>PCB 332</b> <b>PCB 432</b> <b>APA 812 c1</b>	RS 232 / C-Bus low-power convertor for connection to C-Bus line. RS 232 / C-Bus medium-power convertor for connection to C-Bus line. Hight-power C-Bus amplifier and convertor Cable (4 metres) for antenna extension for GSM723 c1.	T 423 T 422 T 428 —

## KIT OF MINI TELEMAGEMENT INCLUDING TIMED PROGRAM

### XCO 428 + GSM 723 (SINGLE PACKAGE)

OPTIONAL  
**C ← BUS**

RS 232



**TELEMAGEMENT RS 232: already enabled by kit.**

**TELEMAGEMENT C-Bus: Enabled with ACB 400 accessory.**

Code	Description	Data sheet
<b>XCO 428+GSM</b>	Mini kit for Telemagement via RS 232, including program. timer with two outputs. (Page 4.4).	—

## GSM MODEM FOR GSM LAPTOP PCs

### GSM 724

RS 232

- Connection of peripheral unit devices to GSM telephone line
- Built-in RF Dual Band antenna
- Complete with 1 CD ROM for computer configuration

#### DATI TECNICI

- Power supply : from USB port;
- Protection : IP 40



Sigla	Descrizione	Scheda tecnica
<b>GSM 724</b>	GSM Modem for GSM laptop PCs.	T 339

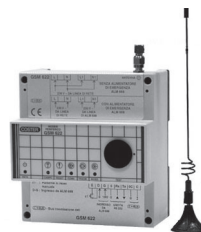


## REMOTE GSM DUAL BAND MODEM

### GSM 648

C ← BUS

RS 232



#### APPLICATION

Connects Coster remote devices with C-Bus and/or RS 232 to the GSM (900/1,800 MHz).  
Communicates with central modems MCV 711 or GSM 723 or GSM 724.  
Supplied with RF Dual Band antenna.

#### FEATURES

- Power supply: 230 V~; Consumption: 11 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Transmission speed on line: 2,400 ... 14,400 bps in non-transparent mode.

Code		Description	Inputs RS 232	Inputs C-Bus	Data sheet
<b>GSM 648</b>		Remote GSM Dual Band modem.	1	1	T 334

#### ACCESSORIES

Code		Description	Data sheet
<b>TCB 908</b> <b>ACS 232</b> <b>ALM 688</b> <b>APA 812 c1</b>		Tester for connections and telephone call-up. RS 232 cable with male DB 9. Back-up power supply. Cable (4 metres) for antenna extension for GSM 648.	— — T 350 —

## ETHERNET / C-BUS CONVERTOR

### ARE 338

C ← BUS



#### APPLICATION

Connects Coster remote units with C-Bus to Ethernet network.

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Transmission speed: 1,200 bps.

Code		Description	Data sheet
<b>ARE 338</b>		Ethernet / C-Bus convertor.	T 336

#### ACCESSORIES

Code		Description	Data sheet
<b>TCB 908</b>		Tester for connections and telephone call-up.	—

## REMOTE PANEL-MOUNTING MODEM WITHOUT DISCRIMINATOR WITH CONFIGURABLE TRANSMISSION SPEED

C ← BUS

RS 232



### MPD 412

#### APPLICATION

For connecting Coster remote devices with C-Bus and/or RS 232 to the analogue telephone line.  
Configurable transmission speed (default: 1200 bauds).

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; Modular enclosure: DIN 71 x 116; Protection: IP 40.
- Data transmission speed: configurable as required.

Code		Description	RS 232 Inputs	C-Bus Inputs	Data sheet
<b>MPD 412</b>		Panel-mounting modem.	1	1	T 337

#### ACCESSORIES

Code		Description	Data sheet
<b>ACX 232</b> <b>ACS 232</b> <b>ALM 688</b> <b>WDM 318</b>		Test plug-in to connect PC or modem to series X... devices. RS 232 cable with male DB 9. Backup power supply. Modem protector in DIN 53 x 115 enclosure.	T 432 T 440 T 350 T 351

## BACKUP POWER SUPPLY FOR MODEM

### ALM 688

#### APPLICATION

Power supply backup for permit telemanaged plants to send alarm in event of power failure.

It can be used with:

– 1 MPD 612 or MPF 612 or GSM 622 modem and a C-Bus device with On-Off alarm.

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 105 x 115 modular enclosure; Protection: IP 40.
- Can power two C-Bus devices for about 15 minutes.
- 1 On-Off output for power failure alarm.



Code	Description	Data sheet
ALM 688	Backup power supply for modem.	T 350

## HIGH-POWER AMPLIFIER & C-BUS CONVERTOR

### PCB 432

C ← BUS

RS 232

#### APPLICATION

Amplifies C-Bus and permits connecting following to C-Bus line:

- 1 local PC for Telemanagement;
- 1 COSTER modem
- 1 commercial-type modem with RS 232 input;
- Devices with RS 232 communication system..

#### FEATURES

- Power supply: 230 V~; Consumption: 5 VA; Modular enclosure DIN 71 x 116; Protection: IP 40.



Code	Description	Data sheet
PCB 432	Hight-power C-Bus amplifier and convertor. Speeds up to 9600 baud.	T 428

## MEDIUM-POWER C-BUS AMPLIFIER AND INTERFACE CONVERTOR

### PCB 332

C ← BUS

RS 232

#### APPLICATION

Amplifies signal (max. 130 devices distributed over 5 km of 1.5 mm<sup>2</sup> line) and permits connecting to the C-Bus line:

- 1 local telemanagement PC.
- 1 MCV 711 modem with voice mode.
- 1 non-Coster modem with RS 232 input.
- Electronic devices with RS 232 interface.

#### FEATURES

- Power supply: 230 V ~; Consumption: 4 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Supplied with 9-pole female plug.



Code	Description	Data sheet
PCB 332	Medium-power C-Bus amplifier and convertor.	T 422

## RADIO MODEM WIRELESS BLUETOOTH

### CBR 118

**C ←BUS**

#### APPLICATION

Converts C-Bus to Bluetooth mode and permits extending the C-Bus network via radio.  
Can only be used in pairs.

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; Wall-mounting enclosure 89 x 129 x 58; Protection: IP 54.
- Coverage: 100 metres without obstacles; Transmission speed: 1,200 bps.



Code	Description	Data sheet
<b>CBR 118</b>	Couple of Radio Modem Wireless Bluetooth.	T 336

## TEMPERATURES ACQUISITION UNIT FOR WATER & FLUE GASES

### UAF 322

**C ←BUS**

#### APPLICATION

Permits acquisition of two 0...99 °C temperature measurements and two 0...500°C flue gases temperatures, with minimum and maximum thresholds, for sending alarm signal to Telemanagement systems by means of C-Bus parallel connection.

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Two NTC 10 kΩ (0... 99°C) measurement inputs. Two Pt1 kΩ (0...500°C) inputs.
- One output for signalling alarm (to connect to a C-Bus device).



Code	Description	Data sheet
<b>UAF 322</b>	Unit for acquisition water and flue gas temperatures.	T 251

## ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>SAA 010</b>	Air-tight room temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 115
<b>SCH 010</b>	Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SIH 010</b>	Immersion temperature sensor with brass pocket..	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SIH 010/Inox</b>	Immersion temperature sensor with inoxidizable pocket.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SIR 010</b>	Rapid-response sensor for direct immersion.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAF 010</b>	Cable-type temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 145
<b>STA 010</b>	Air ducts temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 150
<b>STF 001</b>	Flue gas temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165

## MEASUREMENT, ALARM & FLUE GAS RECORDER (ALARM FOR LOCKOUT FOR 4 BURNERS)

### UBF 348

**C ←BUS**

#### APPLICATION

Permits recording four temperature measurements (0 ... 500 °C), with minimum and maximum thresholds and sending alarms to telemanagment systems via C-Bus connection.

Option of deactivating alarms by means of one or two external switches (as alternative to same number of sensors).

#### FEATURES

- Power supply: 230 V~; Consumption: 2 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Four measurement inputs: Pt 1 kΩ (0 ... 500 °C).
- Adjustable recording interval: 5 ... 240 minutes.



Code	Description	Data sheet
<b>UBF 348</b>	Measurement, alarm & recording unit for flue gasees temperatures.	T 256

## ACCESSORIES

Code	Description	Application range	Sensing element	Data sheet
<b>STF 001</b>	Flue gas temperature sensor.	0 ... 500 °C	Pt 1 kΩ	N 165

## ALARMS, STATUS & COUNTS RECORDING UNIT

### UAC 32.

**C ←BUS**

#### APPLICATION

Allows acquiring eight On-Off signals of alarm, status or time counts and number of pulses.  
C-Bus compatible.

#### FEATURES

- Power supply: 230 V~ / 24 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Eight On-Off inputs for voltage-free contacts.



Code		Description	Power	Data sheet
<b>UAC 328</b>		Unit for acquisition and logging alarms, status and counts.	230 V~	T 221
<b>UAC 324</b>		Unit for acquisition and logging alarms, status and counts.	24 V~	T 221

## UNIT FOR MEASUREMENT, ALARM & RECORDING

### 0 ... 5 V–, 0 ... 10 V–, 4 ... 20 mA SIGNALS

### UML 318

**C ←BUS**

#### APPLICATION

Convert an analogue signal 0 ... 5 V– or 0 ... 10 V– or 4 ... 20 mA into a measurement of physical magnitude. In conjunction with a liquid level pressure sensor it is possible to:

- Power the sensor (12 V–).
- Calibrate the measurement range off the physical magnitude and display the actual measurement.
- Set two limit values (Min. and Max.) for control of two relays.
- Record 400 measurements at the pre-set intervals (5 min ... 24 hours).
- Telemanage via C-Bus connection.

#### FEATURES

- Power supply: 230 V~; Consumption: 2 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- One input for analogue signal 0 ... 5 V– or 0 ... 10 V– or 4 ... 20 mA.
- Two relay outputs for signalling alarm.



Code		Description	Data sheet
<b>UML 318</b>		Unit for measurement & recording signals 0 ... 5 V– or 0 ... 10 V– or 4 ... 20 mA, and triggering alarms.	T 258

## TEMPERATURE RECORDING UNIT

### ULT 3..

C ← BUS



#### APPLICATION

Permits recording four temperature measurements with minimum and maximum threshold for sending alarms to telemanagement systems via C-Bus.

#### FEATURES

- Power supply: 230 V~; Consumption: 2 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- Four measurement inputs.
- Adjustable recording interval: 5 ... 240 min.

Code		Description	Suitable sensors			Data sheet
			NTC 10 kΩ 0 ... 99 °C	NTC 10 kΩ 0 ... 40 °C	NTC 1 kΩ -40 ... 40 °C	
<b>ULT 328</b>		Temperature recording unit.	2	1	1	T 257
<b>ULT 348</b>		Temperature recording unit.	4	—	—	T 257
<b>ULT 348/S1</b>		Temperature recording unit for 4 room sensors using in air-handling units	—	4	—	T 257/S1

## SENSORS & ACCESSORIES

Code		Description	Application range	Sensing element	Data sheet
<b>SAA 010</b>		Waterproof room sensor.	0 ... 99 °C	NTC 10 kΩ	N 115
<b>SAA 001</b>		Waterproof room sensor..	-40...+40°C	NTC 1 kΩ	N 115
<b>SAE 001</b>		Outside temperature sensor.	-40...+40°C	NTC 1 kΩ	N 120
<b>SCH 010</b>		Surface temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 130
<b>SIH 010</b>		Immersion temperature sensor with brass pocket.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SIH 010/Inox</b>		Immersion temperature sensor with stainless steel pocket.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SIR 010</b>		Direct immersion rapid-action temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 140
<b>SAF 010</b>		Cable-type temperature sensor.	0 ... 99 °C	NTC 10 kΩ	N 145
<b>SAF 001</b>		Cable-type temperature sensor.	-40...+40°C	NTC 1 kΩ	N 145
<b>STA 010</b>		Temperature sensor for air ducts.	0 ... 99 °C	NTC 10 kΩ	N 150
<b>STA 001</b>		Temperature sensor for air ducts.	-40...+40°C	NTC 1 kΩ	N 150
<b>SAB 010</b>		Room temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SAB 210</b>		Room temperature sensor with + 1 hour button.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SCB 110</b>		Room temperature sensor, with set-point adjuster.	0 ... 40 °C	NTC 10 kΩ	N 111
<b>SCB 210</b>		Room temperature sensor with + 1 hour button, and set-point adjuster.	-5 ... +5 °C	—	—
<b>STT 010</b>		Temperature sensor for heating/cooling coils.	0 ... 40 °C	NTC 10 kΩ	N 155
<b>STV 010</b>		Window temperature sensor.	0 ... 40 °C	NTC 10 kΩ	N 160

## SIGNALS RECORDING UNIT

### ULA 348

C ← BUS



#### APPLICATION

Permits recording 4 active signals with minimum and maximum thresholds for sending alarms to telemanagement systems via C-Bus interface.

#### FEATURES

- Power supply: 230 V~; Consumption: 3 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.
- 4 active signals inputs: two 4 ... 20 mA signals, two 0 ... 10 V- signals.
- Adjustable internal between recordings: 5 ... 240 min.

Code		Description	Data sheet
<b>ULA 348</b>		Active signals logging unit.	T 254

## THREE-CORE CABLE WITH MALE DB 9 RS 232 (FOR MODEM)

## ACS 232

RS 232



## APPLICATION

A 0.5 metre cable which at one end has 3 wires for connection to an RS 232 terminal, and at the other a DB 9 male connector.

For connecting directly to a modem. With suitable accessory (KIT RS 232) connectors can be used also for PC.

Code	Description	Data sheet
ACS 232	Three-core cable for RS 232 for modem. Length 0.5 m.	—

## LOW-POWER CONVERTOR C-BUS TO RS 232 FOR PC OR MODEM

## ACB 332

C ← BUS

RS 232



## APPLICATION

Permits connecting a C-Bus line to a modem or a PC.

The C-Bus output is of "Master" type; can be connected to a maximum of a 50 Coster C-Bus devices.

## FEATURES

- Power supply: 230 V~; Consumption: 4 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.

Code	Description	Data sheet
ACB 332	RS 232 / C-Bus signal convertor.	T 423

## LOW-POWER RS 232 / C-BUS CONVERTOR CABLE FOR PC ONLY

## ACB 232

C ← BUS

RS 232



## APPLICATION

Permits connecting a C-Bus line to a PC (not to a modem).

The C-Bus output is of the "Master" type; it can be connected to a maximum of 10 Coster devices fitted with C-Bus.

## FEATURES

- Supplied with a 9-pole female plug; Number of C-Bus devices with can be connected: max 10.

Code	Description	Data sheet
ACB 232	RS 232 / C-Bus convertor cable powered by PC.	—

## LOW-POWER RS 232 / C-BUS CONVERTOR CABLE FOR MODEM OR PC

## ACB 232/S1

C ← BUS

RS 232



## APPLICATION

Permits connecting a C-Bus line to a modem.

**At least one of the devices on the C-Bus line must be equipped with a 12 V- power back-up (e.g. UCO 318), otherwise an external power supply will be required.**

The C-Bus output is of the "Master" type; it can be connected to a maximum of 10 Coster devices fitted with C-Bus.

With suitable connectors can be used also for a PC.

## FEATURES

- Supplied with a 9-pole female plug; Number of C-Bus devices with can be connected: max 10.

Code	Description	Data sheet
ACB 232/S1	Convertor cable RS 232 / C-Bus powered by a Coster device.	—

## CONVERTOR FROM RS 232 ON ANY DEVICE TO C-BUS

## CCB 332

C ← BUS

RS 232



## APPLICATION

Converts an RS 232 serial signal from any device to be telemanaged to a C-Bus "Slave" input.

Permits connecting a device with RS 232 data communication to C-Bus line.

**WARNING:** in order to connect any NON-COSTER device to COSTER Telemanagement programs it is necessary to have details of the communication protocol.

The possibility of establishing communication depends on the characteristics of the device in question and must be examined case by case.

## FEATURES

- Power supply: 230 V~; Consumption: 4 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.

Code	Description	Data sheet
CCB 332	RS 232 / C-Bus convertor.	T 427

## NON TRANSPARENT CONVERTOR FROM M-BUS TO C-BUS "SLAVE"

## CMC 328

C ← BUS

M-BUS



## APPLICATION

Converts M-Bus output of a non-Coster heat meter to a C-Bus "Slave" output.

Mode: 1,200 Baud. "NON-TRANSPARENT".

Permits connecting: - an M-Bus line (of a non-Coster device) to a C-Bus line with, if present, a local PC.

Note: CMC 328 uses the standard M-Bus protocol.

In case of non-compatibility with some products, the specific communication protocol must be examined.

## FEATURES

- Power supply: 230 V~; Consumption: 4 VA; DIN 53 x 115 modular enclosure; Protection: IP 40.

Code	Description	Inputs			Outputs		Data sheet
		RS 232	C-Bus	M-Bus	C-Bus	M-Bus	
CMC 328	M-Bus / C-Bus "Slave" convertor.	1	1	1	1	1	T 425

## ACCESSORIES

Code	Description	Data sheet
ACB 232/S1	Convertor cable RS 232 / C-Bus powered by a Coster device. RS 232 cable with male DB 9.	—
ACS 232		—



## TEST PLUG-IN FOR DIN WITH SLOT FOR COMMUNICATION BUS (TYPE X ... UNIT)

## ACX 232

RS 232



## APPLICATION

Permits connecting temporarily a PC or a modem to a Coster device of the X ... series.

## FEATURES

- Inserted into the slot of any device of the X ... series, provides an RS 232 output with a 9 pole connector, to connect by means of a standard 9-pole-9-pole cable or a 9-pole-USB, to a local PC.
- By means of the PC you can communicate with the controllers for programming or control.
- Using suitable accessories a modem also can be connected.

Code		Description	Data sheet
ACX 232		Plug-in test for connecting PC or modem to devices of series X ...	—

## PLUG-IN C-BUS FOR SERIES X ... DEVICES

## ACB 4..

C ←BUS



## APPLICATION

Inserted in the appropriate communication slot of series X ... controllers enable Telemanagement via the C-Bus of these controllers.

Code		Description	Products	Data sheet
ACB 400		Plug-in for communication via C-Bus.	XCC 602 - XCO 428 - XCC 618 - XCC 638 XPI 438 - XSE 600 - XSE 602 - XTA 624 XTT 618 - MRL 608.	T 433
ACB 460		Plug-in for communication via C-Bus.	XGG 618 - XTC 638 - XTR 628 - XTT 608 XTU 614 -XTU 618 -XTU 644	T 433
ACB 468		Plug-in for communication via C-Bus.	XCS 633 - XTE 600 - XTE 602 - XTE 611 - XTP 600.	T 433

## CABLE TESTER WITH ROUND SOCKET

## TCB 908

RS 232



## APPLICATION

Permits complete testing of a C-Bus communication line to:

- An analogue or GSM telephone line.
- An Ethernet network.
- The C-Bus network towards the devices.

Can be used only with a PC.

Fitted with a round plug compatible with modems: GSM 622, MPD 612, MPF 612 and with ARE 338 Ethernet convertor.

## FEATURES

- Supplied with 9-pole female socket, suitable for a PC.

Code		Description	Data sheet
TCB 908		Tester for connections and telephone call-up or Ethernet.	—

## TEST CABLE CONVERTOR RJ 6 POLES/RS232 FOR PC OR MODEM

## RJS 232

RS 232



## APPLICATION

Permits connection of any device fitted with RJ6 pole socket to a PC or modem equipped with RS232 input (e.g. devices type F ... (144 x 96).

Permits temporary Telemanagement using the GSM 723 modem for temporary controls.

## FEATURES

- Power via RJ plug.

Code		Description	Data sheet
RJS 232		Cable converts RJ 6 poles to RS232 for PC or modem.	—

NOTES

Lined area for notes.



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