

# SLAVE OPTIMISING COMPENSATOR FOR CONTROL TWO ZONES

OPTIONAL

**C ← BUS**

**C ← RING**

## XSE 602 C1 Eng.



- **Slave optimising compensator for two zones**  
– functions only if connected in C-Ring with a "PRIMARY" controller
- **Communication systems :**  
– **C-Ring** for exchanging data between local controllers.  
– **C-Bus** : XSE 602 Telemangement optional;  
to enable Telemangement use the "C-Bus Plug-in" type **ACB 400 C1** or later,  
to be ordered separately as accessory
- **Power supply 230 V AC (or 240 for UK market) ; DIN rail mounting**

### 1. APPLICATION

XSE 602 controller can function only if connected in C-Ring with a "Primary" controller and is able to exchange data of common interest with other controllers.  
XSE 602 is designed for compensated/optimised control of two heating zones in :  
– commercial and public buildings  
– schools  
– residential complexes  
By means of C-Bus interface it can be inserted in a telemangement system.

### 2. FUNCTIONS

- The principal functions of XSE 602 are :
- Compensated control of two heating zones by three-wire control of valves :  
– optimisation of start and stop times of plants  
– control of plant pumps (with delay in switching off) according current programme of event times  
– minimum and maximum temperature limits of flows  
– correction of heating curve origin  
– self-adjusting  
– Eco Off
  - Timed programming: twentyfive 24Hour programs & two 7Day periods
  - Programming with dates : twentyfive holiday periods ; winter season ; special period.
  - Summer plant exercise of valves and pumps
  - Automatic change GMT / BST
  - Metering of degree-days
  - Remote control for modifying current timed programme of events
  - Three On-Off inputs for signalling status or alarm
  - Alarms for detector short or open circuits and for irregular operation of plants and components
  - C-Ring connection for exchange of data with other local controllers
  - C-Bus connection for exchange data with local PCs or remote telemangement PC
  - Optional C-Bus transmission of data with local PCs or remote Telemangement PC.
- To enable data transmission and Telemangement use the "C-Bus Plug-in" type ACB 400 C1 or later**  
**To communicate locally with a PC use the test Plug-in type ACX 232**

### 3. DETECTORS, REMOTE CONTROLS & ACCESSORIES

No.	Description	Type	Sensing element	Code	Data sheet
1	Heating flow surface <sup>(1)</sup> temperature detector	<b>SCH 010</b>	NTC 10 kΩ	B1-B5	N 130
1	Outside temperature detector	<b>SAE 001</b>	NTC 1kΩ	B2	N 120
<b>Accessories :</b>					
1	Ambient temperature detector	<b>SAB 010</b>	NTC 10 kΩ	B3-B6	N 111
1	Boiler anticondensing immersion detector	<b>SIH 010</b>	NTC 10 kΩ	B4	N 140
1	Remote control for modifying current programme	<b>CDB 300</b>	–	R	–
<b>Options :</b>					
1	1) Immersion temperature detector	<b>SIH 010</b>	NTC 10 kΩ	B1-B5	N 140
<b>Accessory for Telemangement</b>					
1	Plug-in for communicating via C-Bus	<b>ACB400C1</b>	–	–	T 433

**4. TECHNICAL DATA**

**• Electrical**

Power supply	230 V AC ± 10% or 240 V AC for UK market
Frequency	50 ... 60 Hz
Consumption	5 VA
Protection	IP40
Radio disturbances	VDE0875/0871
Vibration test	with 2g (DIN 40 046)
Voltage-free output contacts:	
maximum switching voltage	250 V ~
maximum switching current	5 (1) A
Construction standards	Italian Electrotec. Committee (CEI)
Data storage	5 years

**• Mechanical**

Case	DIN 6E module
Mounting	DIN 35 rail
Materials:	
base	NYLON
cover	ABS
Ambient temperature:	
operation	0 ... 45°C
storage	- 25 ... + 60°C
Ambient humidity	Class F DIN 40040
Dimensions	105 x 115 x 71,5
Weight	1.0 kg

**• Programmes & periods**

24-hour programmes	1 ... 25
24-hour events	2 ... 6
7-day programmes	0 ... 2
Holiday periods	0 ... 25
Special period	1
Remote Extension period	0 ... 3 ... 72 h

**• Measurement ranges**

Flow temperature	0 ... 99 °C
Outside temperature	- 30 ... + 40 °C
Ambient temperature	0 ... 30 °C
Anticondensing temperature	0 ... 99 °C

**• Heating**

Flow temperature:	
radiators	40 ... <b>70</b> ... 99 °C
fan coil	40 ... <b>80</b> ... 99 °C
panels	20 ... <b>40</b> ... 50 °C
minimum limit	1 ... 99 °C
maximum limit	1 ... <b>99</b> °C
Design outside temperature	- 30 ... - <b>5</b> ... + 20 °C
Correction curve origin	<b>20</b> ... 40 °C
Boiler anticondensing temp.	0 ... <b>50</b> ... 99 °C
Delay switching off pump	2 ... <b>30</b> ... 60 minutes
Ambient Authority	<b>0</b> ... 20 °C/°C
Mode temperatures :	
ambient 5 Normal	0 ... <b>19-21</b> ... 30 °C
ambient 2 Setback	0 ... <b>14-16</b> ... 30 °C
ambient Frostprot	0 ... <b>6.0</b> ... 30 °C
ambient Remote Extension	0 ... <b>21.0</b> ... 30 °C
water 2 Flows	0 ... <b>20-30</b> ... 99 °C
Valve actuator run time	30... <b>630</b> ...3,600 s
Optimisation of operating times:	
start inertia	0.00 ... <b>1.00</b> ... 7.45 h
limit "Normal" optimisation	0.00 ... <b>2.00</b> ... 12.00 h
limit "Holidays" optimisation	0.00 ... <b>10.00</b> ... 40.00 h
boosting	0.0 ... <b>3.0</b> ... 10.0 °C
reduction ambient temp. optimum stop	0.00 ... <b>0.5</b> ... 3.5 °C
time constant	1 ... <b>48</b> ... 255 h

**• Telemanagement**

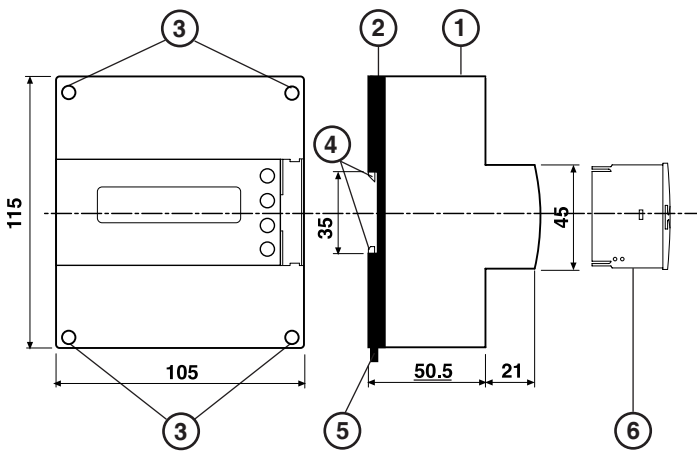
Speed C-Bus chosen from **1200**, 2400, 4800, 9600 bauds

**• Telemanagement (setting by PC)**

Attempts send alarms	1 ... <b>5</b> ... 255
Interval between attempts	2 ... <b>10</b> ... 255 min.
Alarms (setting by PC):	
threshold diff. flow 1 temperature (B1)	0.5... <b>5</b> ...99 °C
delay diff. flow 1 temperature	2... <b>30</b> ...255 min.
threshold diff. flow 2 temperature (B5)	0.5... <b>5</b> ...99 °C
delay diff. flow 2 temperature	2... <b>30</b> ...255 min.
threshold diff. ambient 1 temperature	0.5... <b>1</b> ...30 °C
delay diff. ambient 1 temperature	2... <b>30</b> ...255 min.
threshold diff. ambient 2 temperature (B6)	0.5... <b>1</b> ...30 °C
delay diff. ambient 2 temperature	2... <b>30</b> ...255 min.

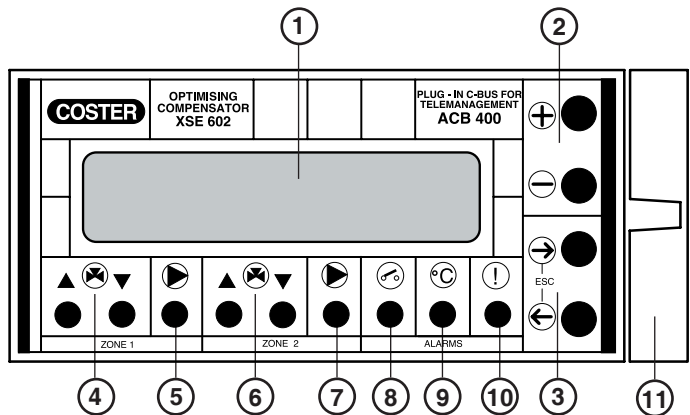
WARNING : in presence of electrical disturbances the output controls of the controller may change status but this will be restored automatically.

**5. OVERALL DIMENSIONS**



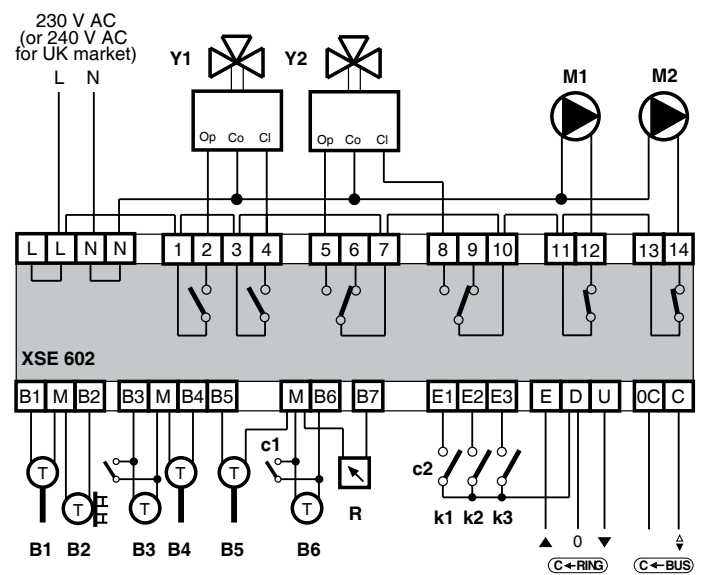
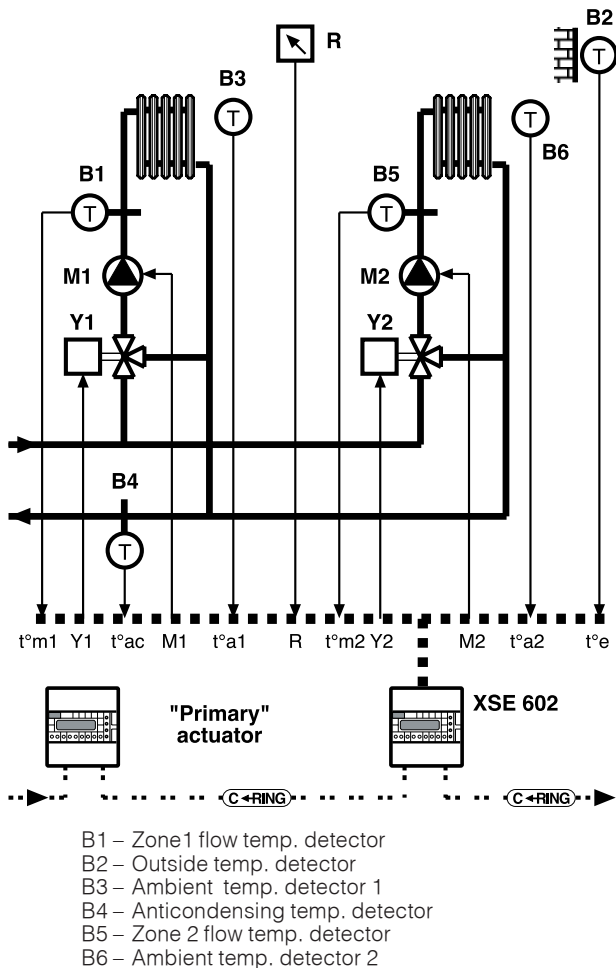
- 1 – Protective cover for electronic components
- 2 – Base with transformer, relay & terminal blocks
- 3 – Screws for fixing cover- base
- 4 – DIN rail securing elements
- 5 – DIN rail release lever
- 6 – Plug-in for C-Bus communication

**6. FACIA**



- 1 - Two-line backlighted alphanumeric display
- 2 - + and - operating keys
- 3 - ← and → operating keys
- 4 - Valve 1 control LEDs
- 5 - Zone 1 pump control LED
- 6 - Valve 2 control LEDs
- 7 - Zone 2 pump control LED
- 8 - On-Off alarms LED
- 9 - Measurement alarms LED
- 10 - Controller fault LED
- 11 - Plug-in type ACB 400 C1 for C-Bus communication

**7. SCHEMATIC & WIRING DIAGRAMS**



- c1 – Zone 1 Remote Extension SPST switch
- c2 – Zone 2 Remote Extension SPST switch
- k1...3 – On-Off alarm contacts
- L – Line 230 V AC (or 240 V AC for UK market)
- N – Neutral
- M1 – Heating pump 1
- M2 – Heating pump 2
- R – Remote control for modifying programmes Zone 1 and /or 2
- Y1 – Heating valve 1
- Y2 – Heating valve 2
- C-Bus – Transmission data via Telemangement; C-Bus is enabled using the Plug-in type ACB 400 C1
- C-Ring – Transmission data between controllers

**8. SITING OF CONTROLLER & DETECTORS**

**8.1 Controller**

The controller must be sited in a dry space which meets the permitted ambiantal limits shown under 4. TECHNICAL DATA. If positioned in a space classified as "Dangerous" it must be enclosed in a cabinet for electrical apparatus constructed according to the regulations in force for the class of danger involved. It can be installed on a DIN rail or in a DIN modular enclosure.

**8.2 Plant flow temperature detectors B1 and B5**

With plant pump on flow they must be installed downstream of this ; with pump on return they must be installed at least 1.5 meters downstream of regulating valve.

**8.3 Outside temperature detector B2**

This must be installed outside the building, on the north or north-west side, at least three meters from the ground and protected from direct sunlight, and as far as possible from windows, doors, chimneys or other possible direct thermal disturbances.

**8.4 Ambient temperature detectors B3 and B6**

These must be installed at a point which represents the average temperature of a representative space (eg : living room) at a height of 1.5 ... 1.6 metres from the floor, on an internal wall as far as possible from windows, doors and sources of heat ; corners, shelving and curtains must be avoided.

**8.5 Anticondensing detector B4**

Can be used only if the boiler is provided with an anticondensing pump and must be installed on the boiler return pipe between the anticondensing pump connection and the boiler itself.

**9. WIRING**

Proceed as follows :

- Separate base and cover
- Mount base on DIN rail and check that securing elements (5.4) hold it firmly in place.
- Carry out wiring according to the diagram and in observance of the relevant regulations in force, and using cables of :
  - 1.5 mm<sup>2</sup> for power and relay control outputs
  - 1 mm<sup>2</sup> for sensors and remote control
  - 1 mm<sup>2</sup> for C-Bus and C-Ring. For wire length limits please see technical data sheets T 021 and T 022
- Reposition the cover on the base / terminal block and fasten with the 4 screws supplied (5.3).
- Check that voltage is correct and supplied by the dedicated auxiliary line, measuring it upstream of the protection (circuit breaker, fuse....).
- Power up the device.

You are advised not to insert more than two cables in a single terminal of the controller and if necessary to use external junction boxes.

**10. COMMUNICATION**

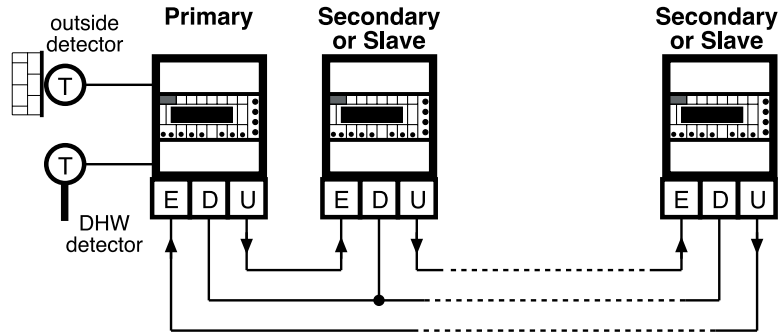
**10.1 C-Ring : communication between controllers** (for detailed information please see technical data sheet T 022)

XSE 602 controller can only be “Slave”.

In C-Ring the following signals are transmitted :

- permission for controllers to operate.
- value of the **outside temperature** (use of a single detector for several controllers)
- value of **flow temperature** requested by controllers; used by “PRIMARY” controller for control of temperature boilers (if foreseen).
- **DHW priority** and / or **anticondensing** = closure valves heating zones by modulating control action.

**10.2 C-Ring wiring diagram**



**10.3 C-Bus communication for telemangement** (for detailed information please see technical data sheet T 021)

XSE 602 provides :

- remote Telemangement by when enabled by **C-Bus Plug-in type ACB 400 C1**
- local communication (e.g. setting via PC) when enabled with Test **Plug-in ACX 232**

Telemangement is bidirectional, with one or more local PCs and/or the remote central PC via PSTN.

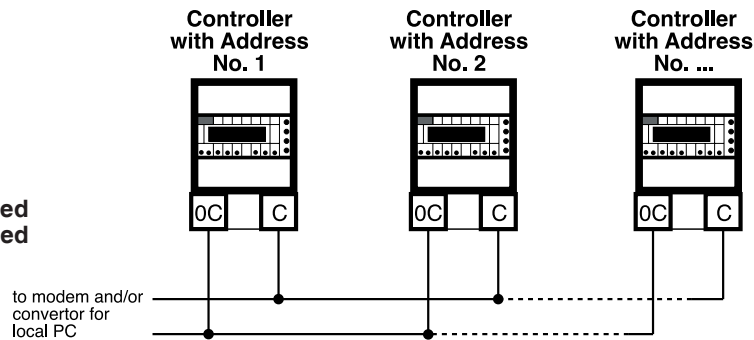
Local communication is direct to a portable PC to be connected directly to the unit.

From PC or PCs it is possible to display and/or change :

- the data and values entered on display pages of the controller and those of configuration dedicated exclusively to telemangement (see 4.TECHNICAL DATA)
- operational status of plant components (pumps, auxiliaries in general)
- acquire alarms coming from boiler plant
- read the measurements of the detectors (temperatures : outside, flow, boiler, etc)

**10.4 C-Bus electrical connection for local or remote Telemangement**

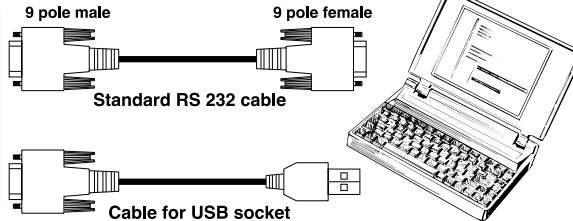
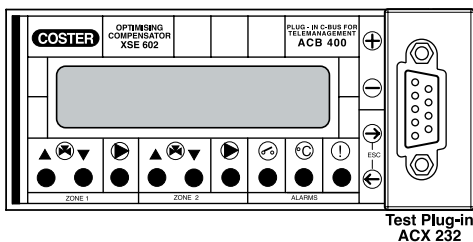
Each controller must be equipped with the C-Bus Plug-in of the required type for the controller in question



**10.5 Connection to PC for local communication via test Plug-in ACX 232**

Extract the C-Bus Plug-in and insert the test Plug-in ACX 232; use a standard cable to connect the RS232 plug to the PC (the cables are included in the “CONVENIENCE KIT”).

If the PC has only USB inputs use a standard RS232 to USB conversion cable.



**ACCESSORIES:**

- Test Plug-in = **ACX 232**
- Convenience kit = **KIT RS 232**

The “Convenience kit” contains the 2 cables & other useful accessories.

**Observations :** - Before communicating, ensure that the address entered in the controller is the address with which you wish to communicate via PC.

- It is advisable to use a portable PC powered by battery with the connection to 230 Volts unplugged (or 240 V AC for UK market), since the earth (0 volts) of the controller is connected to that of the RS 232 and so to that of the PC. By connecting the two earths together you could have dispersed currents, if the earths have not been well made and if the PC has its 0 volt connected directly to the central pole of the plug (as is usual)

**11. OPERATION**

XSE 602 is a slave digital controller with microprocessor which, order to function, has to be connected to a primary controller (XCC or XTE). It is designed for :

- compensated control, with or without ambient authority, of two heating zones. Three-wire control of motorised valves and On-Off control of circulation pumps.
- the acquisition of status and / or alarms regarding plant components

To configure the controller, please see "18. SEQUENCE OF DISPLAY PAGES"

**12. HEATING ZONE**

**12.1 Type of installation**

23.1 - 24.1

**Heat Emitters  
RADIATORS**

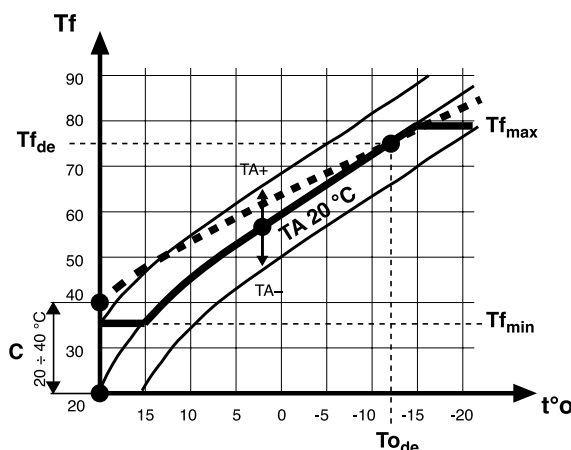
The controller must be configured according to the type of heat emitters used:

- Type heat emitters : RADIATORS  
PANELS  
FAN COILS

**12.2 Heating control curve**

For each heating zone controlled, the flow temperature requested by the controller (detector B1 and B5) is adjusted according to the outside temperature (detector B2 or value transmitted via C-Ring) and to the heating control curve .

The controller compares the actual value of the flow temperature with the corresponding one on the curve, and, in the event of a difference, regulates with PI control action (pre-set proportional band Pb and integral time It), the motorised valve to eliminate it.



- C = correction curve origin
- T<sup>of</sup> = desired flow temperature
- T<sup>ofde</sup> = design winter flow temperature
- T<sup>ode</sup> = design winter outside temperature
- T<sup>ofmax</sup> = maximum limit winter flow
- T<sup>ofmin</sup> = minimum limit winter flow
- t<sup>o</sup> = outside temperature

The heating control curve , having reference to to a desired ambient temperature of 20 °C, is established, for each heating zone, by :

23.2 - 24.2

**Design Outside  
Temp : - 5.0c**

- design outside temperature , used for calculation of winter heat losses from building and depends on the climatic zone in which building is situated.

**Note :** appears in the setting of both the heating zones controlled but the value is common to both.

23.3 - 24.3

**Design Flow  
Temp : 70.0c**

- design flow temperature , used for determining thermal requirements of heating zones (eg: radiators = 70 °C ; fan coils = 80 °C ; panels = 40 °C).

- heating curve origin = winter flow temperature with outside temperature of 20 °C

The flow temperature required by controller depends also on value of ambient temperature required by operating mode Normal , Setback , Frostprot (parallel + / - adjustment of curve).

**12.3 Origin of heating curve**

23.4 - 24.4

**CurveOrigin TO20  
Flow T : 20.0c**

The conventional point of origin of the heating curve (+ 20 °C flow at 20 °C with + 20 °C outside) can be adjusted by an increase in the flow temperature (Max. + 20 °C).

The adjustment may be necessary to avoid possible unbalances in the output of the heat emitters with high outside temperatures (intermediate seasons).

## 12.4 Operating temperatures

20.1-20.5

Desired Temp
NORMAL 1 20.0c

20.6-20.7

Desired Temp
SETBACK 1 16.0c

20.8

Desired Temp
FROSTPROT 6.0c

20.9-20.10

Desired Temp
FLOW 1 30.0c

XSE 602 permits configuring, with different desired temperature values, the various operating modes available, namely :

- 5 NORMAL = operation with compensated control to provide comfortable ambient temperatures (daytime or when building occupied)
- 2 SETBACK = operation with compensated control to provide economical ambient temperatures (at night or when building not occupied)
- FROSTPROT = operation with control providing safety temperature (holidays or when building not occupied)
- 2 FLOW = operation with control providing flow temperature at a constant value (heating curve not taken into consideration)
- OFF = valve closed and pump idle

## 12.5 Minimum and maximum flow temperature limits

23.5-24.5

Flow T Limits
Min: 1c Max: 99c

When the desired flow temperature reaches one of its limit values it is kept constant at that value.  
eg : - minimum limit to avoid circulation of cold air in fan coils  
- maximum limit to avoid dangerous overtemperatures in panels

Warning : The maximum limit temperature does not substitute observance of the safety measures in force.

## 12.6 Actuator run time

23.6-24.6

Control : VALVE
Time : 630sec

This is the time taken for a complete run (open / close) of the valve actuator **necessary** for correct control operation.

## 12.7 Ambient authority

23.7-24.7

Ambient Authority
POSITIVE: + - - - - c

When ambient sensor B3 is connected, the controller is able to adjust the desired flow temperature in accordance with the ambient authority set.

When sensor B3 is not connected, the adjustment is made only in the Setback / Frostprot modes using the value of the ambient temperature calculated in relation to the time constant.

- POSITIVE: **increase** of flow temperature for each °C difference between measured room temperature and the desired room temperature, when the measured room temperature is **below** the desired room temperature.

23.8-24.8

Ambient Authority
NEGATIVE: - - - - - c

- NEGATIVE: **reduction** of the flow temperature for each °C difference between the measured room temperature and the desired room temperature, when the measured room temperature is **higher** than the desired room temperature..

## 12.8 Eco Off

20.13

Eco Off
Htg1: NO Htg2: NO

For each heating zone, permits excluding heating when weather conditions do not require it :

- NO = disabled
- YES = enabled

Functions only in Normal /Setback modes for :

$$T_{fc} - T_{ac} \leq 2^{\circ}\text{C} = \text{Eco Off On}$$

$$T_{fc} - T_{ac} \geq 4^{\circ}\text{C} = \text{Eco Off Off}$$

where :  $T_{fc}$  =calculated flow temperature  
 $T_{ac}$  =actual or calculated ambient temperature

## 12.9 Operating programmes

19.2

Htg 1: - - - - -
24HOUR 1

Choice of operating programme for each heating zone according to requirements :  
- 24 HOUR 1...7; - 7DAY1 - 2, - NORMAL 1...5; - SETBACK 1 - 2; FROSTPROT;  
- FLOW 1 - 2; OFF

19.3

Htg 2: - - - - -
24HOUR 1

In place of programme the following may appear :

- SUMMER = controller is in summer period
- HOLIDAY = controller is in holiday period
- SPECIAL = controller is in special period
- REMOTE EXTENSION = "Remote Extension" period has been activated.  
To cancel this function, on first page press ← and → keys together
- REMOTENORMAL 1 = remote control "R" is in "Normal" position
- REMOTESETBACK 1 = remote control "R" is in "Setback" position
- REMOTE FROSTPROT = remote control "R" is in "Frostprot" position
- REMOTE OFF = remote control "R" is in "Off" position
- REMOTE+2c = remote control "R" is in "TAd + 2°C" position

**12.10 Operating mode and adjustment of temperature**

19.4  
**Mode1 : NORMAL**  
**Td20.0c Var+0.0c**

19.5  
**Mode2 : NORMAL**  
**Td20.0c Var+0.0c**

The modes in use depend on the programmes set in 19.2  
Htg 1 :-----  
24HOUR 1 and 19.3  
Htg 2 :-----  
24HOUR 1 and can be seen on the two pages of the display :

- NORMAL Td -.- c
- SETBACK Td -.- c
- FLOW Td -.- c
- FROSTPROT Td -.- c
- OFF
- ECO OFF

In the NORMAL / SETBACK operating modes it is possible to adjust the value of the desired temperature :

- Var + = variation of ± 3°C

**12.11 Modifying programmes by remote control**

25.3  
**Enable Remote**  
**NO**

The remote control R (CDB300) can be configured to act on a single heating zone or on both heating zones controlled :

- NO = remote control excluded
- ZONE 1 = modifications by remote control affect only zone 1
- ZONE 2 = modifications by remote control affect only zone 2
- ZONES 1 & 2 = modifications by remote control affect both zones

The remote control permits selecting at a distance the operating programmes :

- OFF = plant excluded
- FROSTPROT = continuous operation at desired Frostprot ambient temp.
- NORMAL = continuous operation at desired Normal 1 ambient temp.
- SETBACK = continuous operation at desired Setback 1 ambient temp.
- TAd +2c = increase of 2 °C in temp. desired by mode in use
- AUTOMATIC = operation with programme chosen for controller

**12.12 Control zone pump**

23.16 - 24.16  
**Heating Pump: AUT**  
**Delay Off : 30min**

The heating zone pumps can be controlled in two ways :

- MAN = Pump in continuous operation (always On)
- AUT = Pumps M1 and M2 controlled according to modes in use :
  - Off : pump always Off
  - Eco Off : pump always Off
  - Extension : pump always On
  - Normal : pump always On
  - Setback, Frostprot & Optimum Stop :  
 pump Off after Optimum Stop .  
 Pump On when actual or calculated ambient temperature is below  
 calculated flow temperature
  - Boosting : pump always On
  - Flow : pump always On

- Delay Off : 30 min = delay time in switching off to dissipate heat accumulated in plant

**12.13 Metering degree-days**

22.7 - 22.8  
**Degree - Days**  
**20 : xxxx Amb: xxxx**

For each zone controlled XSE 602 meters degree-days in two ways

- 20 = metering of degree-days with reference to conventional ambient temperature of 20 °C
- Amb = metering of degree-days with reference to the actual ambient temperature (with detector B3 or B6) or to that calculated (without B3 or B6)

**13. OPTIMISATION**

Start and stop at variable times so as to obtain desired ambient temperatures in coincidence with times of start and end of occupancy.  
 Useful for buildings with discontinuous occupancy such as schools and offices.  
 The method of establishing the time of optimised start depends on the presence or not of the ambient detector.

**13.1 Optimisation with ambient detector**

The start time, for both heating zones controlled, is established by the meeting point of the descending curve of the actual ambient temperature, with plant OFF or in the SETBACK / FROSTPROT mode, and the ascending curve of ambient temperature, defined by the parameter "Start inertia ."  
 With "Start inertia" on AUTOMATIC : if the desired ambient temperature is obtained too soon or too late in respect of the time required, the controller adjusts the start time for the following day by ± 15 minutes until the desired time is obtained.

**13.2 Optimisation without ambient detector**

"Start inertia " set on MANUAL : the start time is established by the controller on the basis of the "Cooling time constant " (23.13 - 24.13)

**13.3 Enabling of the function**

20.14

Optimis Htg 1  
On :NO Off :NO

- Optimum start = automatic change of start time of plant after stop / night setback or after holidays.
  - On : NO = optimum start function disabled
  - YES = optimum start function enabled

20.15

Optimis Htg 2  
On :NO Off :NO

- Optimum stop = stop before end of NORMAL (day) mode on condition that temperature at end of event is not below that set in 23.14 - 24.14.
  - Off : NO = optimum stop function disabled;
  - YES = optimum stop function enabled.

- The functions are not enabled in FLOW 1 and 2 modes and are operative only at first and last event of programme.

**13.4 Start inertia**

23.9-24.9

Start Inertia  
MANUAL 1.00h/c

Time necessary (hours / °C) for plant to increase ambient temperature by 1 °C.

- MANUAL = value can be adjusted only manually
- AUTOMATIC = only with ambient detector; automatic daily adjustment of ± 15 minutes.

**13.5 Duration of normal optimisation**

23.19-24.10

Opt Start Normal  
Max Durat : 2.00h

Maximum period before start occupancy for first startup of plant when controller uses one of 7-day and/or 24-hour programmes available ; in practice, startup after being switched off for a night.

**13.6 Duration optimisation after holiday**

23.11-24.11

Opt Start Holiday  
Max Durat : 10.00h

Maximum period before start occupancy for first startup of plant after a holiday period.

**13.7 Boosting**

23.12-24.12

Optimum Start  
Boosting : 3.0c

Increase in desired ambient temperature, and consequently in flow temperature, during optimum start period, so as to reduce time for heating zone(s) to reach required temperature.

With ambient detector, if desired ambient temperature is reached before required time the controller switches to compensated control according to programme.

**13.8 Cooling time constant**

23.13-24.13

Cooling Time  
Constant : 48 hrs

Time taken by ambient temperature, with heating zone(s) excluded, to fall by 2/3 its initial value. It is used by controller to calculate ambient temperature (in SETBACK / FROSTPROT modes) when plant is without ambient detector.

**13.9 Reduction of temperature for optimum stop**

23.14-24.14

Optimum Stop  
DecreaseTA: 0.5c

Maximum reduction in ambient temperature permitted at time of end of occupancy in respect of desired ambient temperature.

**13.10 Maximum optimum stop**

23.15-24.15

Optimum Stop  
Max Durat : 1.00h

Maximum period before end occupancy permitted for stopping plant.

23.14-24.14

The time is calculated in relation to temperature reduction set in Optimum Stop  
DecreaseTA 0.5c with

ambient detector and to "Cooling time constant" without ambient detector.

With ambient detector: if ambient temperature falls, by the reduction value set, before the time occupancy ends, the controller returns to operating according to programme.

**14. PROGRAMMES & PERIODS WITH DATES**

All programmes with timed events and periods with dates are available for both heating zones.

**14.1 24-hour programmes**

21.1

How many 24hour  
Programmes ? 1

Enter the number of 24-hour programmes you wish to use (from 1 to 25).

In each 24-hour programme (**P1 ... P25**) you can set a maximum of 6 event start times (**Event 1 ... Event 6**) assigning to each one of following modes :

21.2

P1 Event 1 06.00  
NORMAL 3 21.0c

- NORMAL 1..5 = compensated control with NORMAL ambient temperature
- SETBACK 1 - 2 = compensated control with SETBACK ambient temperature
- FLOW 1 - 2 = control with fixed FLOW temperature
- FROSTPROT = compensated control with FROSTPROT ambient temperature
- OFF = plant Off, valve closed and pump idle

21.7

P1 Event 6 22.00  
SETBACK 1 16.0c

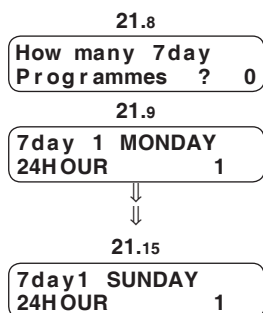
The event start times must be entered in increasing order.

Events not used must be excluded by pressing + and - keys at the same time (---).

Unused times (---) must not be left between programmed events.



**14.2 7-day programmes**

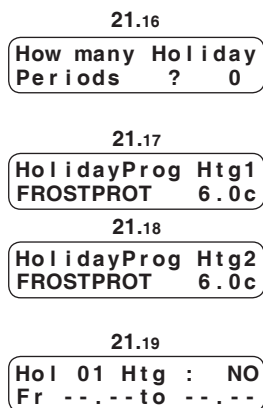


Enter the number of programmes you wish to use (max. 2)

In each 7-day programme you can assign to each day of the week one of following programmes :

- 24HOUR 1 ...25;
- NORMAL 1...5;
- SETBACK 1 - 2;
- FLOW 1 - 2;
- FROSTPROT ;
- OFF.

**14.3 Holiday periods**



These establish, for each zone, an operating programme, the same for all holiday periods, which overrides the programme in use. At the end of each holiday period the controller returns to normal operation.

To reduce the number of display pages dedicated to entering the dates, enter the number of holiday periods or of bank holidays you wish to use (max. 25). If left at 0 the programming pages do not appear.

Choose the programme to be used during all the holiday periods.

- 7DAY 1 - 2; - 24HOUR 1 ...25; - NORMAL 1 ... 5; - SETBACK 1 - 2;
- FLOW 1 - 2; - FROSTPROT ; - OFF.

Enter the dates for each single holiday period and assign it to each zone concerned

- 21.16
- Hol. 01 = choice of periods made available by **How many Holiday Periods ? 0**
  - Htg : - NO = unused holiday period
    - 1 = holiday period used only by heating zone 1
    - 2 = holiday period used only by heating zone 2
    - 1+2 = holiday period used by heating zones 1 & 2
  - Fr - - . - - to - - . - - = day and month of start and end of holiday period

For a single day of holiday enter the same date for start and end. To cancel the holiday period keep + and - keys pressed at the same time.

**14.4 Special period**

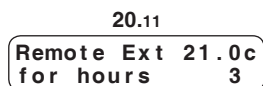


Period in which, for each heating zone, an operating programme to meet particular requirements is set which substitutes temporarily the one in use :

- 7DAY 1 - 2; - 24HOUR 1 ...7; - NORMAL 1 ... 5; - SETBACK 1 - 2;
- FLOW 1 - 2; - FROSTPROT; - OFF.

- Fr - - . - - to - - . - - = day and month of start and end of special period.

**14.5 Extension period**

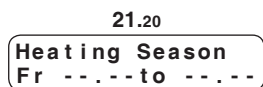


The Extension period overrides all programmes and modes in use, causing the heating zones to operate for the time and at the temperature set. To activate the Extension period, close the switch **c1** ( for heating zone 1) or **c2** (for heating zone 2), for at least five seconds and then open it. At the expiry of the period set the controller will resume its automatic operation.

- Extension 21.0c = setting of desired ambient temp. during Extension period
- for hours : 3 = setting of duration of Extension period

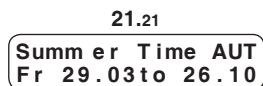
To interrupt the Extension period before the duration set expires press ← and → keys together.

**14.6 Heating season**



Establishes the winter heating season for both heating zones. Enter the day and month of start and end of heating season. To cancel the period keep pressed + and - keys at the same time.

**14.7 Summer time**



The controller can automatically change the current time of day at the beginning and end of the daylight saving period.

- AUT = The change from BST to GMT and *viceversa* is automatic.
- MAN = you can set date different from that of European Community

To cancel the period, press + and - keys simultaneously

## 15. COMPLEMENTARY FUNCTIONS

### 15.1 Anticondensing function

20.12

Anticondens : NO  
Desired T : 50.0c

Choice of enabling or not anticondensing function

- NO = function disabled
- YES = When the return to boiler temperature (measured by detector B4) falls below the desired anticondensing temp. the controller closes the heating plant valve with modulating control action.

- Desired T. : - . - . - c = value of anticondensing temperature.

### 15.2 Summer plant exercise

20.16

Summer Plant  
Exercise : NO

This function, which is applicable to both heating zones, prevents lockouts of valves and pumps when plant is not used for prolonged periods.

- NO = function excluded
- YES = every Sunday at 11.00 the valves are opened for 15 minutes and at 12.00 the pumps are run for 5 minutes.

### 15.3 Access keynumber

25.7

Choice Keynumber  
- - - -

Choice and enabling of access keynumber which prevents any modification of data by means of + and - keys. Enter the number (1900 ... 1999) using + and - keys.

To cancel keynumber, press + and - at the same time until the dashes reappear.

Access Keynumber  
- - - -

When the keynumber is enabled, if + or - keys are pressed on the display appears the request to enter the keynumber. Only after having entered the correct keynumber can + and - keys be used. If for 15 minutes no key is pressed the keynumber is automatically re-enabled.

### 15.4 Denomination of heating zones

23.16

NameHtgPlant 1  
- - - - -

Composition of name of heating zones.

Each dash can be replaced, using + and - keys, by a letter of the alphabet (A ...Z) or by a number (0 ... 9). The ← and → keys serve to position the cursor .

24.16

NameHtgPlant 2  
- - - - -

### 15.5 Display of measurements

22.1-22.2

Des Amb T : 21.0c  
Act Amb T : 21.0c

The controller displays, for each heating zone, all the values measured by the detectors and the data necessary to monitor the operational status of the plant :

- **ambient temperature** desired by modes in use and actual measured by detectors B3 and B6. If the detectors are not connected, in place of Act Amb T appears Cal Amb T .

22.3-22.4

Des Flow T : 65.0c  
Act Flow T : 64.0c

- **flow temperatures** desired by modes in use and actual measured by detectors B1 and B5.

22.5

Outside Temp  
Actual : - 2.0c

- **outside temperatures** actual. If detector B2 is not connected to controller, in place of "actual" appears "C-Ring" and the value is that coming via C-Ring.

22.6

Des AnticT : 50.0c  
Act AnticT : 58.0c

- **anticondensing temperature** desired by mode in use and actual measured by detector B4. If detector B4 is not connected there appears Act AnticT: - . - .

### 16.5 Data recording

For each heating zone controlled the controller, at each change of mode and every two hours, records a series of data indicating the operational status of the heating zones controlled :

- Current time, day and type of recording (change of mode or expiry of two-hour period); current mode , actual outside temp., compensated flow temp., desired and actual flow temp., desired and actual ambient temp., anticondensing temp.
- Relay outputs status

The controller can memorise 28 complete recordings and the last recording brings about the cancellation of the oldest one.

If the display does not show the first page, the controller makes the recording at the expiry of the two-hour period, but not that of change of mode because it presumes changes to the setting data are in progress.

The recordings can be displayed only by the telemanagement PC.

**16. ALARMS**

The alarms processed by the controller are of three types :  
 – alarms for the irregular operation of the controller and of the heating zones controlled  
 – alarms for short or open circuits detectors connected  
 – alarms by external contacts

The alarm status is indicated by the LEDs on the controller facia and by the word ALARM appearing on the display when alarm is sent to PC, and is identified, on the configuration page, by the letter "A" alternating with the number of the alarm concerned.

With C-Bus setup the alarms can be sent to a local PC and / or to the telemanagement central PC.

**16.1 Functional alarms**

The functional alarms are triggered in the presence of prolonged differences between actual and desired values.  
 These alarms, with the exception of the real time clock alarm (8), do not affect the normal operation of the controller.

Factory setting : all disabled except for real time clock alarm (8)  
 Using + key enable alarms of interest replacing dashes with numbers.

When the number blinks = alarm triggered  
 The limit values and the delay times for sending the alarms can only be modified by PC.

Type of alarm and causes :

- 1** = temperature difference heating zone 1 flow (B1)  
 – enabled with pump M1 in operation  
 – triggered when actual temperature less than that desired.
- 3** = temperature difference ambient (B3)  
 – enabled with NORMAL modes and with outside temperature below desired ambient temperature.  
 – triggered when actual temperature below or above that desired.
- 5** = temperature difference heating zone 2 flow 2 (B5)  
 – enabled when pump M2 in operation
- 6** = temperature difference ambient (B6)  
 – enabled with NORMAL modes and with outside temperature below desired ambient temperature.  
 – triggered when actual temperature below or above that desired.
- 8** = internal real time clock : cannot be disabled  
 – triggered when clock assumes meaningless values.

25.4

<b>Functional Alarms</b>
- - - 8

**16.2 Detector alarms**

The detector alarms are triggered in the event of open or short detector circuits.

Factory setting : all enabled.

With + and – keys disable the alarms which are not of interest by substituting dashes for the numbers.

Type of alarm and effect :

- 1** = flow 1 detector (B1) : valve Y1 stops where it is and pump M1 maintains its status at moment of alarm.
- 2** = outside detector (B2) : valves stop where they are and pumps maintain their status at moment of alarm. In C-Ring last value continues to be transmitted.
- 3** = ambient 1 detector (B3) : with pump M1 On, ambient temp. = desired ambient temp.; with pump M1 Off, value of ambient temp. calculated by controller.
- 4** = anticondensing detector (B4) : anticondensing function disabled.
- 5** = flow 2 detector (B5) : valve Y2 stops where it is and pump M2 maintains its status at moment of alarm.
- 6** = ambient 2 detector (B6) : with pump M2 On, ambient temp. = desired ambient temp.; with pump M2 Off, value of ambient temp. calculated by controller.
- 8** = C-Ring : open electric circuit or fault in one of controllers in ring.

The triggering of the alarm is delayed by one minute .

**16.3 Alarms or status from external contacts (k)**

25.6

<b>K Alarms</b>
- - - - -

Alarms triggered by closure of voltage-free contacts **k1** ... **k3** regarding plant components (pumps, burners, etc).

The triggering of the alarm is delayed by one minute.

Factory setting : all disabled.  
 With + key enable alarms which are of interest by substituting numbers for dashes.

When number blinks = alarm triggered.  
 If not used as alarms they can be used as status indicators .

**17. COMMISSIONING**

Testing to be carried out when installation concluded, wiring and configuration completed and checked.

**17.1 Testing C-Ring**

26.1

CRing : ??

Ensure that all the other controllers connected in C-Ring are :

– correctly powered by 230 V AC (or 240 V AC for UK market)

– Slave controllers or configured as SECONDARIES in **CRing Connection SECONDARY**

– selected on testing page **CRing : ??**

The "PRIMARY" controller sends a signal every 5 seconds via C-Ring. On all the displays appears "??". If the connection is positive, "OK" replaces "??" on all the displays. If on one or more displays "OK" does not appear, this means that there is a break between the last controller with "OK" and the first with "??".

Examples of testing a C-Ring setup with four controllers :

- Cont. 1 "OK" – Cont. 2 "OK" – Cont. 3 "OK" – Cont. 4 "OK" : Wiring positive
- Cont. 1 "??" – Cont. 2 "OK" – Cont. 3 "OK" – Cont. 4 "OK" : Break between 4 and 1
- Cont. 1 "??" – Cont. 2 "OK" – Cont. 3 "??" – Cont. 4 "??" : Break between 2 and 3
- Cont. 1 "??" – Cont. 2 "??" – Cont. 3 "??" – Cont. 4 "??" : Break between 1 and 2

**17.2 Testing outputs**

26.2

Output : VALVE 1  
Status : IDLE

With + and – keys choose :

- output to be tested :
  - VALVE 1 ; VALVE 2;
  - PUMP 1 ; PUMPA 2;
- status :
  - with VALVE : IDLE ; CLOSES ; OPENS
  - with PUMP: ON or OFF

Check the result

**18. SEQUENCE OF DISPLAY PAGES (the data and the functions are those in memory at time of delivery)**

⬅ ➡ Keys for scrolling the pages on the display and positioning the cursor ■ on the data which can be changed. The data which can be changed, in the following descriptive list of display pages, are highlighted thus  . By pressing these keys at the same time, or in any event after 15 minutes, the first page appears on the display.

Htg: -----  
12.18 MONDAY

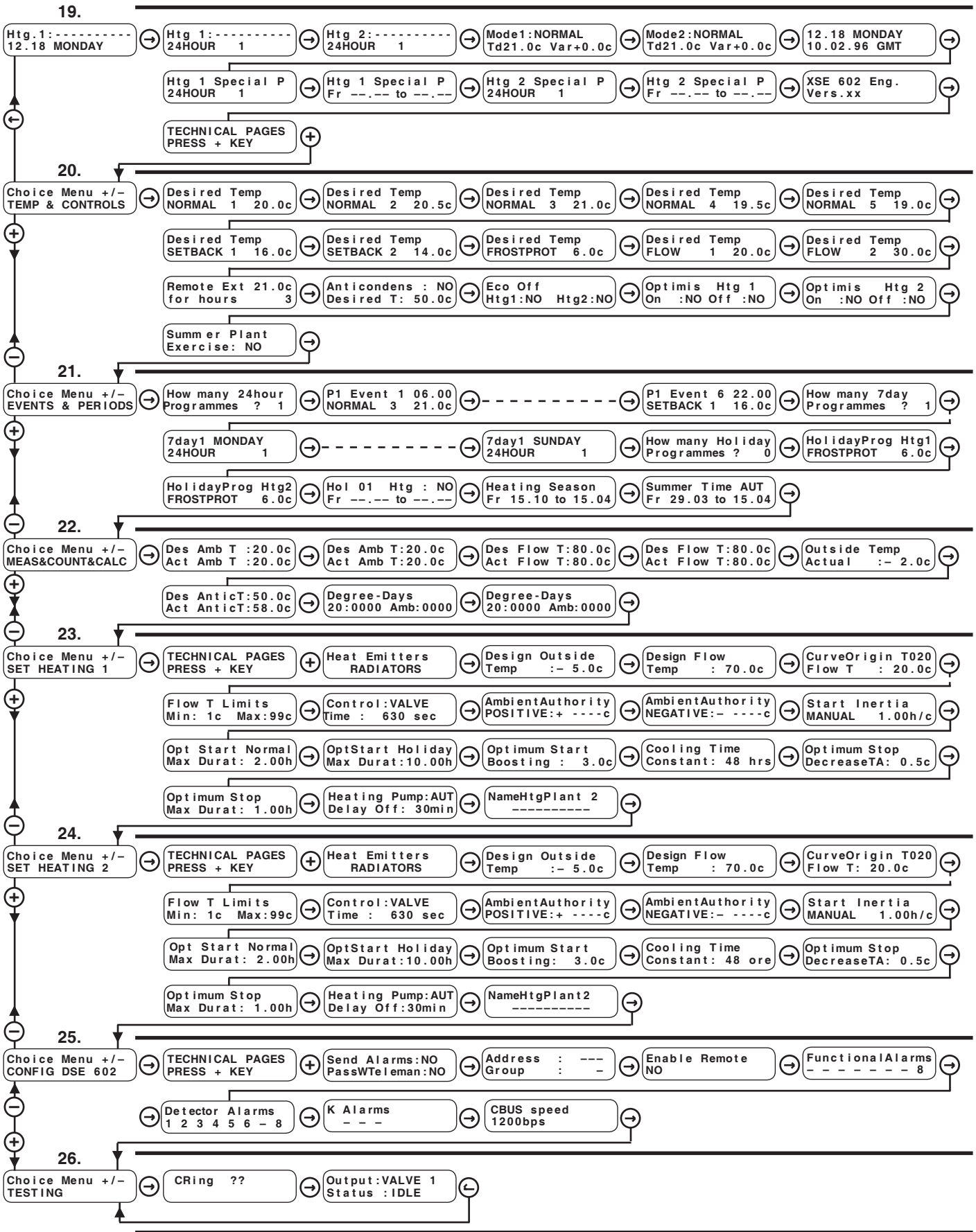
⊖ ⊕ Keys for : - changing the values highlighted by the cursor ■  
– viewing the configuration options of a function, for example :  
– passing directly from one menu (series of pages) to another

Heat Emitters  
FAN COILS

or

Heat Emitters  
PANELS

**18. SEQUENCE OF DISPLAY PAGES (the data and the functions are those in memory at time of delivery)**



**WARNING:** to indicate to which heating zone the data displayed refer, "Htg 1" or "Htg 2" appear on the display. Where these indications do not appear the heating zone is indicated by the blinking of the corresponding "Valve" and "Pump" LEDs. If no indication appears the data displayed are common to both heating zones.

**19. NORMAL USE**

Ref.	Display	Description	Notes	Sect.
19.1	Htg 1:----- 12.18 MONDAY	Name heating zone 1. Current time and day	Set in <b>23.16</b> Set in <b>19.6</b>	
19.2	Htg 1:----- 24HOUR 1	Choice programme for heating zone 1: 7DAY 1-2; 24HOUR 1...25; NORMAL 1... 5; SETBACK 1...2; FROSTPROT; FLOW 1-2; OFF.	Instead of programme may appear: REMOTE NORMAL 1; REMOTE SETBACK; REMOTE + 2c; REMOTE FROSTPROT; REMOTE OFF; SUM- MER; HOLIDAY; SPECIAL; REMOTE EXTENSION	12.9
19.3	Htg 2:----- 24HOUR 1	Choice programme for heating zone 2: 7DAY 1-2; 24HOUR 1...25; NORMAL 1... 5; SETBACK 1...2; FROSTPROT; FLOW 1-2; OFF.	Instead of programme may appear: REMOTE NOR- MAL 2; REMOTE SETBACK; REMOTE + 2c; REMO- TE FROSTPROT; REMOTE OFF; SUMMER;HOLIDAY; SPECIAL; REMOTE EXTENSION	12.9
19.4	Mode 1:NORMAL Td21.0c Var+0.0c	Mode in use heating zone 1 Td: Mode desired temperature Var: Variation of desired temp. (max ± 3 °C)	Modes in use: NORMAL; SETBACK; BOOSTING; OPTIMSTOP; FROSTPROT; FLOW; OFF; EXTEN- SION; ECO OFF.	12.10
19.5	Mode 2:NORMAL Td21.0c Var+0.0c	Mode in use heating zone 2. Td: Mode desired temperature. Var: Variation of desired temp. (max ± 3 °C)	Modes in use: NORMAL; SETBACK; BOOSTING; OPTIMSTOP; FROSTPROT; FLOW; OFF; EXTEN- SION; ECO OFF.	12.10
19.6	12.18 MONDAY 10.02.96 GMT	Setting: Time, Day of week and Date. Current time period: BST or GMT	Dates summer time set in <b>21.21</b> .	
19.7	Htg 1 Special P 24HOUR 1	Choice programme special period heating zone 1: 7DAY 1-2; 24HOUR 1...25; NORMAL 1... 5; SETBACK 1-2; FROSTPROT; FLOW 1-2; OFF.		14.4
19.8	Htg 1:Special P Fr --. --. to --. --.	Dates of start and end special period heating zone 1		14.4
19.9	Htg 2:Special P 24HOUR 1	Choice programme special period heating zone 2: 7DAY 1-2; 24HOUR 1... 25; NORMAL 1... 5; SETBACK 1-2; FROSTPROT; FLOW 1-2; OFF.		14.4
19.10	Htg 2:Special P Fr --. --. to --. --.	Dates of start and end special period heating zone 2		14.4
19.11	XSE 602 Eng. Vers.xx	Identifying data of controller		

**20. TEMPERATURES & CONTROLS**

Ref.	Display	Description	Notes	Sect.
20.1 20.5	Desired Temp NORMAL 1 20.0c	Value of desired ambient temp. NORMAL 1... 5 to be used in 24-hour programmes in <b>21.2</b> .		12.4
20.6 20.7	Desired Temp SETBACK 1 16.0c	Value of desired ambient temp. SETBACK 1-2 to be used in 24-hour programmes in <b>21.2</b> .		12.4
20.8	Desired Temp FROSTPROT 6.0c	Value of desired ambient temp. FROSTPROT to be used in 24-hour programmes in <b>21.2</b> .		12.4
20.9 20.10	Desired Temp FLOW 1 20.0c	Value of desired ambient temp. FLOW 1 - 2 to be used in 24-hour programmes in <b>21.2</b> .		12.4
20.11	Remote Ext 21.0c for hours 3	Desired temp. during EXTENSION period. Duration of EXTENSION period.	To activate EXTENSION period close switch c1 or c2 for at least 5 seconds and then open it (see wiring diagram). To deactivate EXTENSION period keep pressed at the same time for several seconds ← and →keys.	14.5
20.12	Anticondens : NO Desired T: 50.0c	Enabling of anticondensing function: NO; YES. Setting value anticondensing temperature.	NO: function excluded YES: When return to boiler temp. (B4) < desired an- ticondensing temp. controller closes heating valve with modulating control action.	15.1
20.13	Eco Off Htg1:NO Htg2:NO	Eco Off: NO; YES.	In Normal or Setback modes with • Desired flow temp. - measured or calculated temp. ≤ 2 °C = ECO OFF On, valve closed & heating pump Off. • Tfd - Ta meas. or calc. ≥ 4 °C = ECO OFF Off	12.8
20.14	Optimis Htg 1 On :NO Off :NO	Functions of Optimum Start and Optimum Stop heating zone 1: NO; YES.		13.3
20.15	Optimis Htg 2 On :NO Off :NO	Functions of Optimum Start and Optimum Stop heating zone 2: NO; YES.		13.3
20.16	Summer Plant Exercise: NO	Function of summer plant exercise: NO; YES.	During summer period, to prevent lockouts, control- ler switches on periodically valves & pumps.	15.2

21. EVENTS & PERIODS				
Rif.	Display	Description	Notes	Sect.
21.1	How many 24hour Programmes ? 1	Choice of number of 24-hour programmes to be used (1...25).	Avoids scrolling unnecessary pages	14.1
21.2	P1 Event 1 06.00 NORMAL 3 21.0c	Number of programme, number of event & start time of period in programme.	Max. 6 periods. To eliminate unused period press + and - together: - - . - - appears. The events must be in increasing order. Do not leave - - . - - between programmed events.	14.1
21.7	P1 Event 6 22.00 SETBACK 1 16.0c	Choice of type of mode to assign to period : NORMAL 1...5 ; SETBACK 1 - 2 ; FROSTPROT ; FLOW 1 - 2 ; OFF. <b>Further groups of 6 pages according choice in 21.1</b>		
21.8	How many 7day Programmes ? 0	Choice of number of 7-day programmes to be used (1- 2).		
21.9	7day1 MONDAY 24HOUR 1	Choice of programme for each day of week : 24 HOUR 1...25 ; NORMAL 1...5 ; SETBACK 1 - 2 ; FROSTPROT ; FLOW 1 - 2 ; OFF.		14.2
21.15	7day1 SUNDAY 24HOUR 1			
21.16	How many Holiday Periods ? 0			
21.17	HolidayProg Htg1 FROSTPROT 6.0c	Choice of programme for all the holiday periods heating zone1: 7DAY1-2; 24HOUR1...25; NORMAL 1 ... 5; SETBACK 1-2; FROSTPROT; FLOW 1 - 2; OFF.	Appears only if in 21.16 number is greater than 0	14.3
21.18	HolidayProg Htg2 FROSTPROT 6.0c	Choice of programme for all the holiday periods heating zone 2: 7DAY1-2; 24HOUR1...25; NORMAL 1...5; SETBACK 1-2; FROSTPROT; FLOW1 - 2; OFF.	Appears only if in 21.16 number is greater than 0	14.3
21.19	Hol 01 Htg : NO Fr - - . - - to - - . - -	NO = period not used 1 = period used by heating zone 1 2 = period used by heating zone 2 1+2 = period used by heating zones 1 & 2 Dates of start and end of holiday period. <b>Further pages according choice in 21.16.</b>	Appears only if in 21.16 number is greater than 0	14.3
21.20	Heating Season Fr 15.10to 15.04	Dates of start and end of heating season.		14.6
21.21	Summer Time AUT Fr 29.03to 26.10	Dates of start and end of summer time period.		14.6

22. MEAS&COUNT&CALC				
Ref.	Display	Description	Notes	Sect.
22.1	Des Amb T :20.0c Act Amb T :20.5c	Ambient T desired by mode in use - heating zone 1 Temp. measured by ambient detector B3.	Valve and pump LEDs of heating zone 1 blink	15.5
22.2	Des Amb T :20.0c Act Amb T :20.5c	Ambient T desired by mode in use - heating zone 2 Temp. measured by ambient detector B6.	Valve and pump LEDs of heating zone 2 blink	15.5
22.3	Des Flow T :80.0c Act Flow T :80.0c	Flow temp. desired by mode in use - heating zone 1 Temp. measured by flow detector B1	Valve and pump LEDs of heating zone 1 blink	15.5
22.4	Des Flow T :80.0c Act Flow T :80.0c	Flow temp. desired by mode in use - heating zone 2 Temp. measured by flow detector B5	Valve and pump LEDs of heating zone 2 blink	15.5
22.5	Outside Temp Actual :- 2.0c	Actual outside temp. measured by B2 or coming via C- Ring .	If outside detector B2 not connected & value comes via C- Ring , Actual is replaced by C-Ring	15.5
22.6	Des AnticT:60.0c Act AnticT:58.0c	Desired anticondensing temp. Temp. measured by anticondensing detector B4.		15.5
22.7	Degree-Days 20:0000 Amb:0000	20: referred to fixed ambient temp. of 20 °C Amb: referred to actual ambient temp. heat. zone 1	Valve and pump LEDs of heating zone 1 blink	12.13
22.8	Degree-Days 20:0000 Amb:0000	20: referred to fixed ambient temp. of 20 °C Amb: referred to actual ambient temp. heat. zone 2	Valve and pump LEDs of heating zone 2 blink	12.13

23. SETTING HEATING ZONE 1				
Ref.	Display	Description	Notes	Sect.
23.1	Heat Emitters RADIATORS	Choice type heat emitters: RADIATORS ; PANELS ; FAN COILS.	Valve and pump LEDs of heating zone 1 blink	12.1
23.2	Design Outside Temp : - 5.0c	Design outside temp. for compensated control. See also 24.2	Valve and pump LEDs of heating zone 1 blink	12.2
23.3	Design Flow Temp : 70.0c	Design flow temp. for compensated control	Valve and pump LEDs of heating zone 1 blink	12.2
23.4	CurveOrigin TO20 Flow T : 20.0c	Correction heating curve origin	Valve and pump LEDs of heating zone 1 blink	12.3
23.5	Flow T Limits Min: 1c Max: 99c	Minimum and maximum limits flow temperature	Valve and pump LEDs of heating zone 1 blink	12.5
23.6	Control: VALVE Time : 630sec	Actuator run time	Valve and pump LEDs of heating zone 1 blink	12.6
23.7	AmbientAuthority POSITIVE: + ----c	Ambient authority. Variation in + °C flow temp. with - 1 °C difference in ambient temp.		12.7
23.8	AmbientAuthority NEGATIVE: - ----c	Ambient authority. Variation in - °C flow temp. with + 1 °C difference in ambient temp.		12.7
23.8	Start inertia MANUAL 1.00h/c	Optimum start inertia	Valve and pump LEDs of heating zone 1 blink MANUAL = correction of value manually AUTOMAT = correction of value automatically	13.4
23.9	Opt Start Normal Max Durat: 2.00h	Maximum duration optimum start after period of 24-hour or 7-day operation	Valve and pump LEDs of heating zone 1 blink	13.5
23.10	OptStart Holiday Max Durat: 10.00h	Maximum duration optimum start after a holiday period	Valve and pump LEDs of heating zone 1 blink	13.6
23.11	Optimum Start Boosting 3.0c	Increase in desired ambient temp. during optimum start period	Valve and pump LEDs of heating zone 1 blink	13.7
23.12	Cooling Time Constant 48.00h	Used when ambient detector B3 not installed to calculate decrease in ambient temp.	Valve and pump LEDs of heating zone 1 blink	13.8
23.13	Optimum Stop DecreaseTA 0.5c	Reduction in desired ambient temp. at last event end occupancy	Valve and pump LEDs of heating zone 1 blink	13.9
23.14	Optimum Stop Max Durat: 1.00h	Maximum duration period optimum stop	Valve and pump LEDs of heating zone 1 blink	13.10
23.15	Heating Pump: AUT Delay Off: 30min	Control plant pump : MAN ; AUT Delay switching off pump	Valve and pump LEDs of heating zone 1 blink MAN: always On; AUT: On with times of current programme.	12.12
23.16	NameHtgPlant 1 -----	Entering name heating zone 1	Use + and - to enter letters or numbers Use ← or → to position cursor	15.4
24. SETTING HEATING ZONE 2				
Ref.	Display	Description	Notes	Sect.
24.1	Heat Emitters RADIATORS	Choice type heat emitters: RADIATORS ; PANELS ; FAN COILS.	Valve and pump LEDs of heating zone 2 blink	12.1
24.2	Design Outside Temp : - 5.0c	Design outside temp. for compensated control. See also 23.2.	Valve and pump LEDs of heating zone 2 blink	12.2
24.3	Design Flow Temp : 70.0c	Design flow temp. for compensated control	Valve and pump LEDs of heating zone 2 blink	12.2
24.4	CurveOrigin TO20 FLOW T : 20.0c	Correction of heating curve origin	Valve and pump LEDs of heating zone 2 blink	12.3
24.5	Flow T Limits Min: 1c Max: 99c	Minimum and maximum limits flow temperature	Valve and pump LEDs of heating zone 2 blink	12.5
24.6	Control: VALVE Time : 630sec	Actuator run time	Valve and pump LEDs of heating zone 2 blink	12.6
23.7	AmbientAuthority POSITIVE: + ----c	Ambient authority. Variation in + °C flow temp. with - 1 °C difference in ambient temp.		12.7
23.8	AmbientAuthority NEGATIVE: - ----c	Ambient authority. Variation in - °C flow temp. with + 1 °C difference in ambient temp.		12.7
24.8	Start Inertia MANUAL 1.00h/c	Optimum start inertia	Valve and pump LEDs of heating zone 2 blink MANUAL = correction of value manually AUTOMAT = correction of value automatically	13.4
24.9	Opt Start Normal Max Durat: 2.00h	Maximum duration optimum start after a period of 24-hour or 7-day operation	Valve and pump LEDs of heating zone 2 blink	13.5
24.10	OptStart Holiday Max Durat: 10.00h	Maximum duration optimum start after a holiday period	Valve and pump LEDs of heating zone 2 blink	13.6



24. SETTING HEATING ZONE 2				
Ref.	Display	Description	Notes	Sect.
24.11	Optimum Start Boosting 3.0c	Increase in desired ambient temp. during optimum-start period	Valve and pump LEDs of heating zone 2 blink	13.7
24.12	Cooling Time Constant: 48.00h	Used when ambient detector B3 not installed to calculate decrease in ambient temp.	Valve and pump LEDs of heating zone 2 blink	13.8
24.13	Optimum Stop DecreaseTA 0.5c	Reduction in desired ambient temp. at last event end occupancy	Valve and pump LEDs of heating zone 2 blink	13.9
24.14	Optimum Stop Max Durat: 1.00h	Maximum duration period optimum stop	Valve and pump LEDs of heating zone 2 blink	13.10
24.15	Heating Pump:AUT Delay Off :30min	Control plant pump: MAN; AUT. Delay switching off pump	Valve and pump LEDs of heating zone 2 blink MAN: always On AUT: On with events of current programme	12.12
24.16	NameHtgPlant 2	Entering name heating zone 2	Use + and - to enter letters or numbers Use ← and → to position cursor	15.4
25. CONFIGURATION CONTROLLER				
Ref.	Display	Description	Notes	Sect.
25.1	Send Alarms :NO PassWTeleman :NO	Enabling alarms to send to telemanagement PC Enabling telemanagement keynumber	Only if connected in C-Bus	10.5
25.2	Address : ---- Group : -	Telemanagement address of controller Group to which controller assigned	Only if connected in C-Bus	10.4
25.3	Enable Remote NO	NO = remote control excluded HEATING ZONE 1= remote control zone 1; HEATING ZONE2= remote control zone 2; HEATING ZONES= remote control for both zones		12.11
25.4	Functional Alarms - - - - 8	Disabling functional alarms Factory setting : only 8 enabled (cannot be disabled)	1 : Alarm difference temp. flow 1 B1 3 : Alarm difference temp. ambient 1 B3 5 : Alarm difference temp. flow 2 B5 6 : Alarm difference temp. ambient 2 B6 8 : Alarm internal real time clock	16.1
25.5	Detector Alarms 1 2 3 4 5 6 8	Enabling alarms detector short or open circuits. Factory setting : all enabled.	1 : Flow 1 detector B1 2 : Outside detector B2 3 : Ambient 1 detector B3 4 : Anticondensing detector B4 5 : Flow 2 detector B5 6 : Ambient 2 detector B6 8 : C-Ring alarm	16.2
25.6	K Alarms - - -	Enabling On-Off alarms. Factory setting : all disabled.		16.3
25.7	CBUS speed 1200 bps	The speed of the communication bus (C-Bus) can be chosen from: 1200, 2400, 4800, 9600 bouds.		
25.8	Choice Keynumber - - - -	Choice keynumber for preventing modification data by + and - keys. - 1901 ... 1999	To eliminate keynumber press + and - together.	15.3
26. TESTING				
Ref.	Display	Description	Notes	Sect.
26.1	CRing : ??	Page of testing C-Ring connections. ?? = C-Ring test in progress or test negative YES = test positive		17.1
26.2	Output : VALVE 1 Status : IDLE	Choice outputs to be tested Choice status of output.	Choice output : VALVE1 ; PUMP1 ; VALVE2 ; PUMP2 ; Choice status: With VALVE1 & 2 : IDLE ; CLOSES ; OPENS. With PUMP 1 & 2 : ON ; OFF.	17.2





**Amendment to data sheet**

Date	Revision No.	Page	Section	Details of amendments	Firmware version	Software version
24.04.06 DA		3-4	WIRING DIAGRAMS	Amendments on wiring diagrams		
15.09.09 VM	<b>01</b>	various	various	Change to version C1		≥ 0.99.2650
22.11.10 VM	<b>02</b>	3	9. Wiring	Wiring procedure modified		≥ 0.99.2650

**Head Office & Sales**

Via San G.B. De La Salle, 4/a Tel. +39 022722121  
20132 - Milano Fax +39 022593645  
Orders Fax +39 0227221239

**Reg. Off. Central & Southern**

Via S. Longanesi, 14 Tel. +39 065573330  
00146 - Roma Fax +39 065566517

**Shipping**

Via Gen. Treboldi, 190/192 Tel. +39 0364773200  
25048 - Edolo (BS) Tel. +39 0364773202

E-mail: [info@coster.eu](mailto:info@coster.eu) Web: [www.coster.eu](http://www.coster.eu)



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