B 266
19.04.99

SLAVE OPTIMISING COMPENSATOR FOR CONTROL TWO ZONES

C ◄BUS C ◄RING

DSE 602 Eng. C2

- **Slave optimising compensator for two zones**
  – functions only if connected in C-Ring with a "PRIMARY" controller
- **Communication systems :**
  – **C-Bus** for telemanagment
  – **C-Ring** for exchange of data between local controllers
- **Power supply 230 V ~ ; DIN rail mounting**

CE

1. APPLICATION

DSE 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.
DSE 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 telemanagement system.

2. FUNCTIONS

The principal functions of DSE 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
- 24-hour and 7-day timed programming of events
- Programming with dates : 25 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

3. DETECTORS, REMOTE CONTROLS & ACCESSORIES

No.	Description	Type	Sensing element	Code	Data sheet
1	Heating flow surface(1) temperature detector	**SCH 010**	NTC 10 kΩ	B1-B5	–
1	Outside temperature detector	**SAE 001**	NTC 1kΩ	B2	–
	Accessories :				
1	Ambient temperature detector	**SAB 010**	NTC 10 kΩ	B3-B6	–
1	Boiler anticondensing immersion detector	**SIH 010**	NTC 10 kΩ	B4	–
1	Remote control for modifying current programme	**CDB 300**	–	R	–
	Options :				
1	1) Immersion temperature detector	**SIH 010**	NTC 10 kΩ	B1-B5	–

4. TECHNICAL DATA

• Electrical

Power supply	230 V ~ ± 10%
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** … 7
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 … 40 °C
Anticondensing temperature	0 ... 99 °C

• Heating

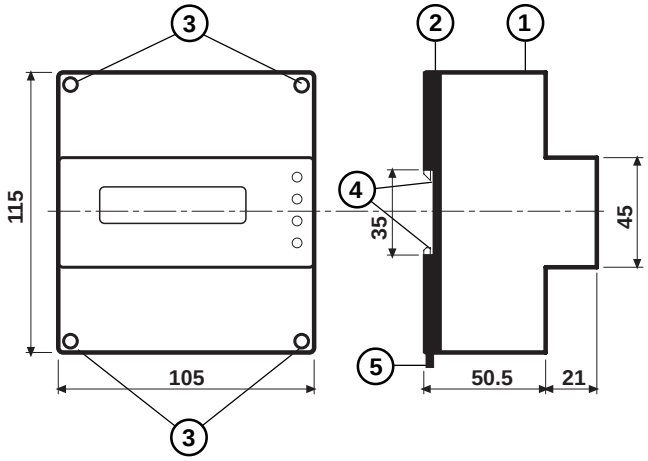
Flow temperature:	
radiators	40 ... **70** ... 99 °C
fan coil	40 ... **80** ... 99 °C
panels	20 ... **40** ... 50 °C
minimum limit	**1** ... 99 °C
maximum limit	1 ... **99** °C
Design outside temperature	– 30 … **– 5** … + 20 °C
Correction curve origin	**20** … 40 °C
Boiler anticondensing temp.	0 ...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

• Telemanagement (setting by PC)

Attempts send alarms	1 … **5** … 255
Interval between attempts	2 … **10** … 255 min.
Alarms (setting by PC):	
threshold diff. flow 1 temperature (B1)	0.5…**5**…99 °C
delay diff. flow 1 temperature	2…**30**…255 min.
threshold diff. flow 2 temperature (B5)	0.5…**5**…99 °C
delay diff. flow 2 temperature	2…**30**…255 min.
threshold diff. ambient 1 temperature	0,5…**1**…30 °C
delay diff. ambient 1 temperature	2…**30**…255 min.
threshold diff. ambient 2 temperature (B6)	0.5…**1**…30 °C
delay diff. ambient 2 temperature	2…**30**…255 min.

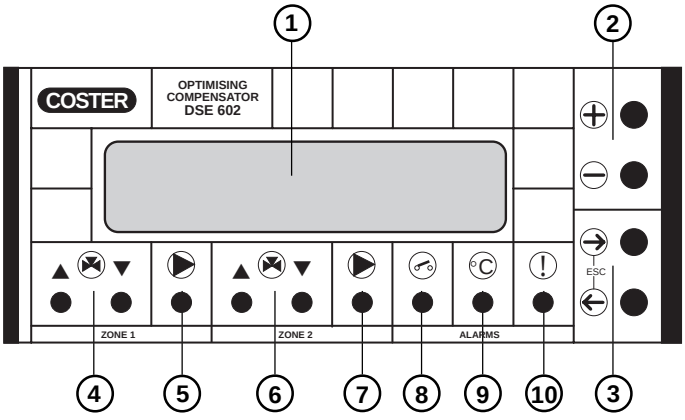
WARNING : *in presence of electrical disturbances the output controls of the controller may change status but this will be restored automatically.*

5. OVERALL DIMENSIONS



1 – Protective cover for electronic components
2 – Base with transformer, relay and terminal blocks
3 – Screws for securing cover and base
4 – DIN rail securing elements
5 – DIN rail release lever

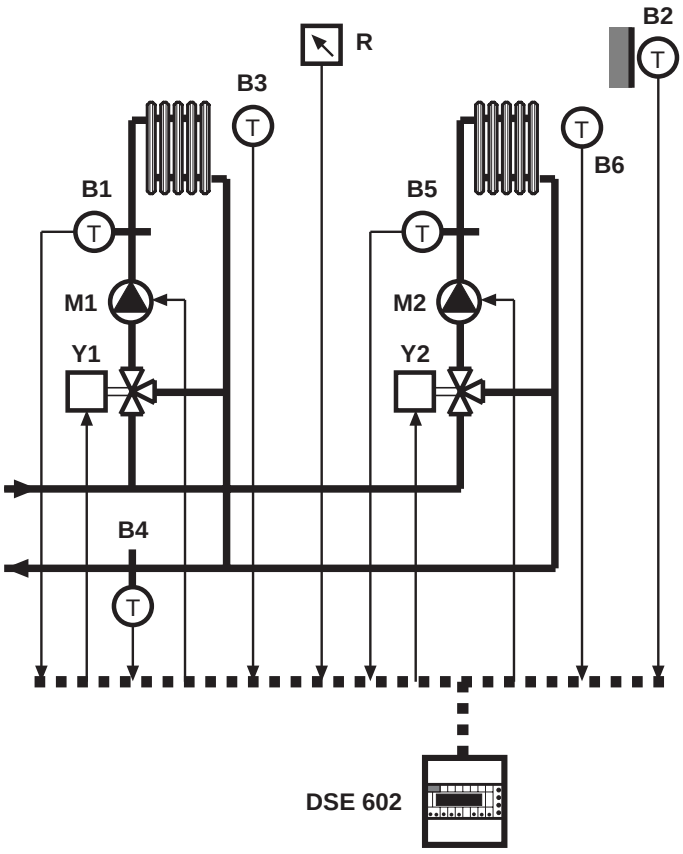
6. FACIA



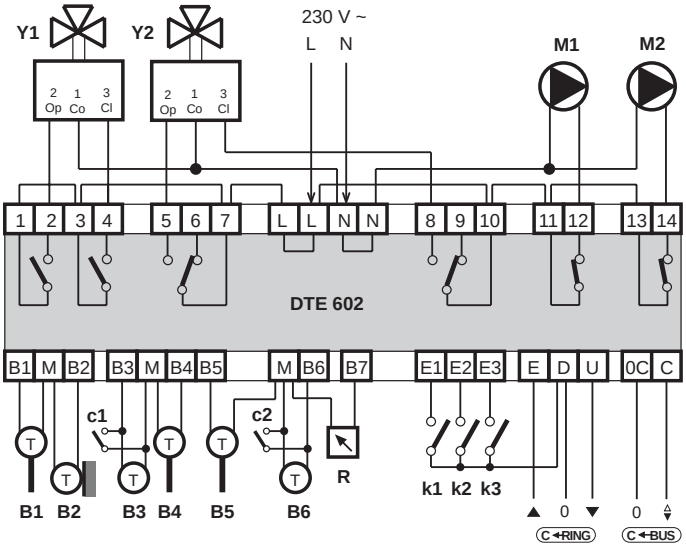
1 - Two-line backlighted alphanumeric display
2 - + and – operating keys
3 - ← and → operating keys
4 - Valve 1 control LEDs
5 - Zone 1 pump control LED
6 - Valve 2 control LEDs
7 - Zone 2 pump control LED
8 - On-Off alarms LED
9 - Measurement alarms LED
10 - Controller fault LED

We reserve the right to make changes without notice

7. SCHEMATIC & WIRING DIAGRAMS



B1 – Zone1 flow temp. detector
B2 – Outside temp. detector
B3 – Ambient temp. detector 1
B4 – Anticondensing temp. detector



B5 – Zone 2 flow temp. detector
B6 – Ambient temp. detector 2
c1 – Zone 1 Remote Extension SPST switch
c2 – Zone 2 Remote Extension SPST switch
k1...3 – On-Off alarm contacts
L – Line 230 V ~
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 – Telemanagement data transmission
C-Ring – Data transmission between controllers

8. SITING OF CONTROLLER & DETECTORS

8.1 Controller

The controller must be sited in a dry space which meets the permitted ambiental 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 downsteam 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 the base and cover
- Mount the base on the DIN rail and check that the securing elements (5.4) hold it firmly in place.
- Carry out the wiring according to the diagram and in observance of the relevant regulations in force, and using cables of :
  - 1.5 mm^2 for power and relay control outputs
  - 1 mm^2 for the detectors and remote control
  - 1 mm^2 for C-Bus and C-Ring. For wire length limits please see technical data sheets T 021 and T 022
- Switch on power (230 V ~) and check the voltage across terminals L and N
- Switch off power, replace cover on base and secure it with the four screws supplied (5.3).

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.

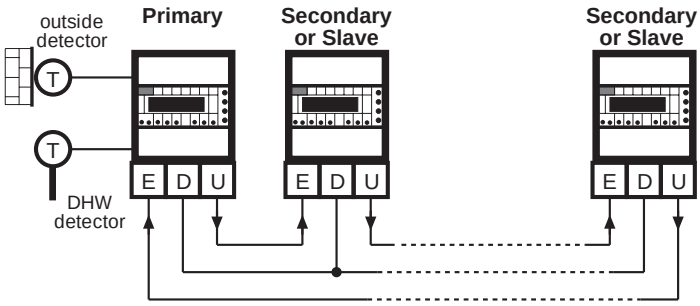
10. COMMUNICATION

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

DSE 602 controller can be only **"Slave"**.
In C-Ring the following signals are transmitted :

- permission to operate as **Slave** controllers
- 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 regulation temperature boilers (if scheduled).
- **DHW priority** and/or **anticondensing** = closure valves heating zones with modulating control action.

10.2 C-Ring wiring diagram



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

By means of C-Bus output DSE 602 can be telemanaged : two-way communication of data with one or more local PCs and/or remote central PC via telephone network.
From PC or PCs it is possible to display and / or change :

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

10.4 Address for telemanagement

25.2

Address	:	1
Group	:	–

With the telemanagement setup, in order to be identified by the central PC and / or by the local PCs, the controllers must have a progressive address number.
If required, it is also possible to subdivide the controllers in groups.

When telemanagement is not scheduled it is not necessary to modify the address in (–).
To cancel the values keep + and – keys pressed at the same time.

10.5 Sending alarms

25.1

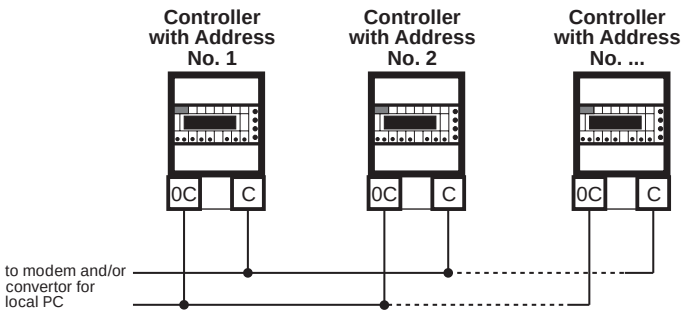
Send Alarms	: NO
PassWTeleman	: NO

- **Send alarms** : NO = alarms not sent
  YES= alarms sent to central PC and indicated by blinking of LEDs on controller.
- **PassWTeleman** : NO = keynumber disabled
  YES= keynumber enabled

10.6 Recording data

The controller can memorise 32 series of all the operational data from the heating zones controlled.
The last recording brings about the cancellation of the oldest.
The recordings take place automatically at a change of mode brought about either by the events programme or by the intervention of the operator.

10.7 C-Bus wiring diagram



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11. OPERATION

DSE 602 is a slave digital controller with microprocessor which, order to function, has to be connected to a primary controller (DCC or DTE). 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 acquistion 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

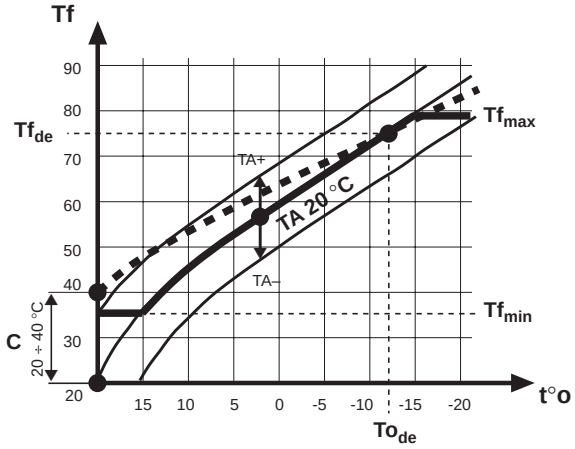
23.1 - 24.1

```
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* temperture (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°f	= desired flow temperature
T°fde	= design winter flow temperature
T°ode	= design winter outside temperature
T°fmax	= maximum limit winter flow
T°fmin	= minimum limit winter flow
t°o	= 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
```

23.3 - 24.3

```
Design Flow
Temp : 70.0c
```

- *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.

- *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

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

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
```

– *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

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

23.5- 24.5

```
Flow T Limits
Min: 1c  Max:99c
```

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

```
AmbientAuthority
on Flow    :----c
```

When ambient detectors B3 and B6 are connected, the controller is able to adjust, for each heating zone, the desired flow temperature in accordance with the ambient authority set.
When detectors B3 and B6 are 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.

• *Ambient authority on flow* = value in °C of adjustment (increase / decrease) of flow temperature for each degree of difference in ambient temperature.

12.8 Eco Off

For each heating zone, permits excluding heating when weather conditions do not require it :
– *NO* = disabled
– *YES* = enabled

20.13

```
Eco Off
Htg1:NO  Htg2:NO
```

Functions only in *Normal* / *Setback* modes for :

$Tf_c - Ta_{ac} \leq 2°C$ = Eco Off On

$Tf_c - Ta_{ac} \geq 4°C$ = Eco Off Off

where : Tf_c = calculated flow temperature
Ta_{ac} = actual or calculated ambient temperature

12.9 Operating programmes

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
In place of programme the following may appear :

19.2

```
Htg 1:----------
24HOUR        1
```

19.3

```
Htg 2:----------
24HOUR        1
```

– *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

We reserve the right to make changes without notice

12.10 Operating mode and adjustment of temperature

19.2
```
Htg 1:----------
24HOUR        1
```
and
19.3
```
Htg 2:----------
24HOUR        1
```

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 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

23.15 - 24.15
```
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 DSE 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* " (23.12 - 24.12)

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 23.13 - 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

23.8-24.8
```
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

23.9-24.9
```
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

23.10-24.10
```
OptStart Holiday
Max Durat:10.00h
```

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

13.7 Boosting

23.11-24.11
```
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

23.12-24.12
```
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

23.13-24.13
```
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

Maximum period before end occupancy permitted for stopping plant.

23.14-24.14
```
Optimum Stop
Max Durat: 1.00h
```

The time is calculated in relation to temperature reduction set in 23.13-24.13 `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 7).
In each 24-hour programme (**P1 ... P7**) 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
```
⇓⇓
21.7
```
P1 Event 6 22.00
SETBACK 1  16.0c
```

- *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

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.

We reserve the right to make changes without notice

14.2 7-day programmes

21.8
```
How many 7day
Programmes  ?  0
```

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

21.9
```
7day 1 MONDAY
24HOUR       1
```
⇓ ⇓

21.15
```
7day1 SUNDAY
24HOUR       1
```

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

– *24HOUR 1 …7*;
– *NORMAL 1...5*;
– *SETBACK 1 - 2*;
– *FLOW 1 - 2*;
– *FROSTPROT* ;
– *OFF*.

14.3 Holiday periods

21.16
```
How many Holiday
Periods   ?   0
```

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.*

21.17
```
HolidayProg Htg1
FROSTPROT   6.0c
```

21.18
```
HolidayProg Htg2
FROSTPROT   6.0c
```

– *7DAY 1 - 2*; – *24HOUR 1 …7*; – *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

21.19
```
Hol 01 Htg :  NO
Fr --.--to --.--
```

21.16
```
How many Holiday
Periods   ?   0
```

- Hol. 01 = choice of periods made available by
- Htg : – *NO* = unused holiday period
  – *1* = holiday period used only by heating zone1
  – *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

19.7
```
Htg 1: Special P
24HOUR       1
```

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

19.8
```
Htg 1: Special P
Fr --.--to --.--
```

19.9
```
Htg 2: Special P
24HOUR       1
```

19.10
```
Htg 2: Special P
Fr --.--to --.--
```

– *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.

20.11
```
Remote Ext 21.0c
for hours    3
```

- *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.

21.20
```
Heating Season
Fr --.--to --.--
```

14.7 Summer time

The controller changes automatically the time of day according to the GMT/BST time period.

– *Fr - -.- -* = the night of the last Saturday in March the real time clock is put forward automatically one hour.
– *to - - .- -* = the night of the last Saturday in October the real time clock is put back automatically one hour.

To cancel the period keep pressed + and – keys at the same time.

21.21
```
Summer Time
Fr 29.03to 26.10
```

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
    ----
```

```
Access 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.

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
----------
```

24.16
```
NameHtgPlant 2
----------
```

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 .

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 AntictT: - - .-.*

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.

We reserve the right to make changes without notice

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.

25.4
```
FunctionalAlarms
–  –  –  –  8
```

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.

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.

25.5
```
Detector Alarms
1 2 3 4 5 6  8
```

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
```
K Alarms
–  –  –  –  –
```

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 ~

– 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 :

```
Heat Emitters
FAN COILS
```

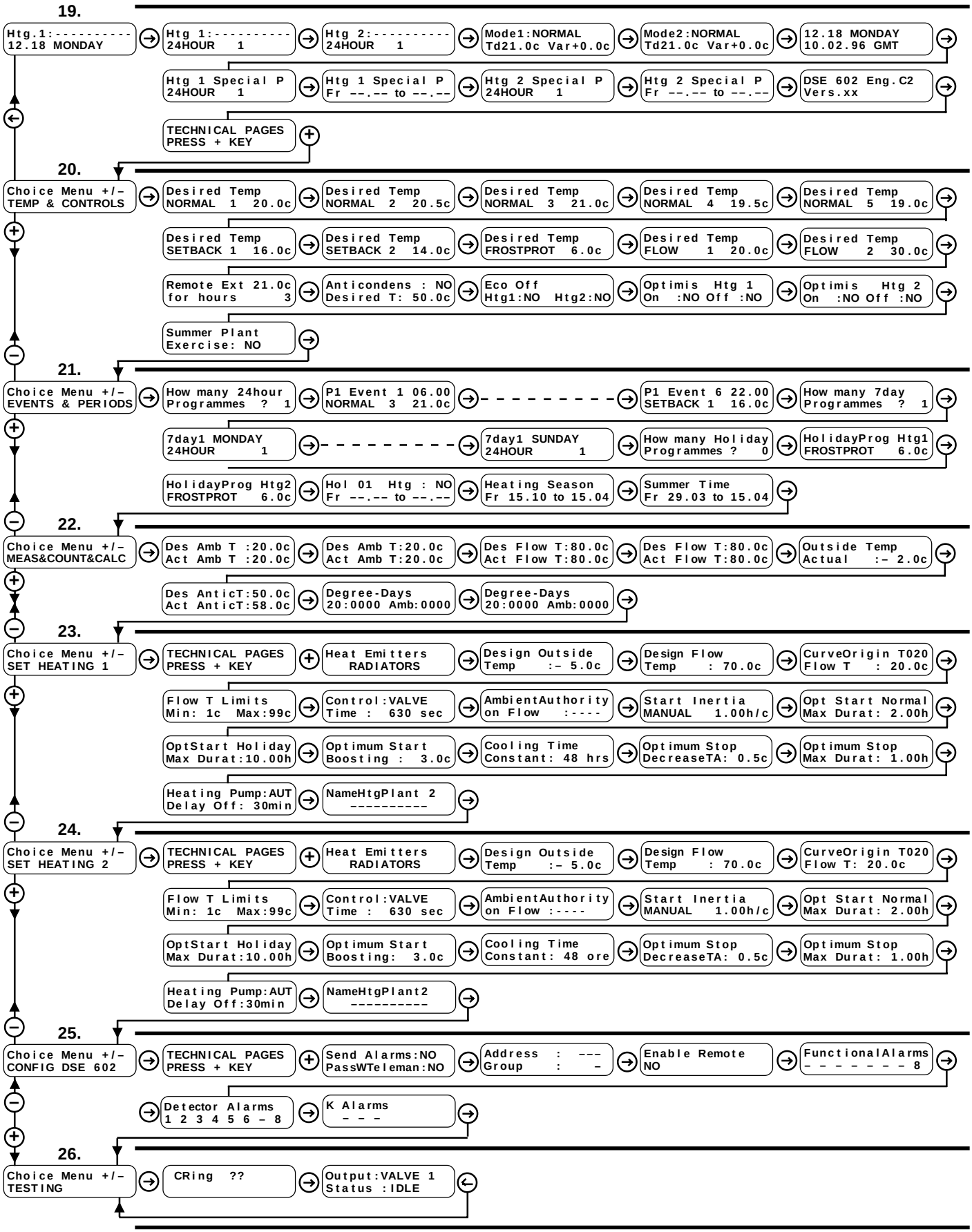
or

```
Heat Emitters
PANELS
```

– passing directly from one menu (series of pages) to another

We reserve the right to make changes without notice

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 **23.16** Set in **19.6**	
19.2	Htg 1:---------- 24HOUR 1	Choice programme for heating zone 1: *7DAY 1-2 ; 24HOUR 1 ...7 ; 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; SUMMER; HOLIDAY; SPECIAL; REMOTE EXTENSION*	**12.9**
19.3	Htg 2:---------- 24HOUR 1	Choice programme for heating zone 2 : *7DAY 1-2 ; 24HOUR 1 ...7 ; NORMAL 1... 5 ; SETBACK 1...2 ; FROSTPROT ; FLOW 1-2 ; OFF.*	Instead of programme may appear : *REMOTE NORMAL 2; REMOTE SETBACK; REMOTE + 2c; REMOTE 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 ; EXTENSION ; 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 ; EXTENSION ; 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 **21.21.**	
19.7	Htg 1 Special P 24HOUR 1	Choice programme special period heating zone 1 : *7DAY 1-2 ; 24HOUR 1 ...7 ; 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 ... 7 ; 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	DSE 602 Eng. C2 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 **21.2.**		**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 **21.2.**		**12.4**
20.8	Desired Temp FROSTPROT 6.0c	Value of desired ambient temp. *FROSTPROT* to be used in 24-hour programmes in **21.2.**		**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 **21.2.**		**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 disactivate *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 anticondensing 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, controller switches on periodically valves & pumps.	**15.2**

We reserve the right to make changes without notice

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…7).	Avoids scrolling unnecessary pages	14.1
21.2 ⇓ ⇓ 21.7	P1 Event 1 06.00 NORMAL 3 21.0c P1 Event 6 22.00 SETBACK 1 16.0c	Number of programme, number of event & start time of period in programme. Choice of type of mode to assign to period : *NORMAL 1...5 ; SETBACK 1 - 2 ; FROSTPROT; FLOW 1 - 2; OFF.* **Further groups of 6 pages according choice in 21.1**	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
21.8	How many 7day Programmes ? 0	Choice of number of 7-day programmes to be used (1- 2).	Avoids scrolling unnecessary pages	14.2
21.9 ⇓ ⇓ 21.15	7day1 MONDAY 24HOUR 1 7day1 SUNDAY 24HOUR 1	Choice of programme for each day of week : *24 HOUR 1…7 ; NORMAL 1...5;* *SETBACK 1 - 2; FROSTPROT ; FLOW 1 - 2;* *OFF.*		14.2
21.16	How many Holiday Periods ? 0	Choice of number of holiday periods to be used (0...25)	Avoids scrolling unnecessary pages	14.2
21.17	HolidayProg Htg1 FROSTPROT 6.0c	Choice of programme for all the holiday periods heating zone1: *7DAY1-2; 24HOUR1…7;* *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…7;* *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. **Further pages according choice in 21.16.**	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 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 emittters : *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 on Flow :----c	Ambient authority. Variation ± °C flow temp. with ± 1 °C difference in ambient temp.	Valve and pump LEDs of heating zone 1 blink Appears only if ambient detector B3 connected and configured	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
24.7	AmbientAuthority on Flow : ----c	Ambient authority. Variation in ± °C flow temp. with ± 1 °C difference in ambient temp.	Valve and pump LEDs of heating zone 2 blink Appears only if ambient detector B3 connected and configured	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
24.11	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

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24. SETTING HEATING ZONE 2

Ref.	Display	Description	Notes	Sect.
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 zone1; *HEATING ZONE2*= remote control zone 2; *HEATING ZONES* = remote control for both zones		12.11
25.4	FunctionalAlarms – – – – 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	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

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