B 270
18.07.02 LB

COMPENSATING CONTROLLER WITH SEASON SWITCHING

C ◄BUS C ◄RING

DCS 633 Eng. C2

- **Control of flow water temperature with season switching**
- **Communication systems** :
  – **C-Bus** for telemanagement
  – **C-Ring** for exchange of data of common interest between local controllers
- **Power supply 230 V~**
- **DIN rail mounting**

1.APPLICATION

DCS 633 controller is designed for winter and summer compensated control of flow water in centralised plants with fan coils or underfloor panels in, for example :
– public and commercial buildings;
– schools
– residential complexes

2. FUNCTIONS

The principal functions of DCS 633 are :
- Winter and summer control of flow water temperature in relation to the temperature outside or at fixed point with :
  – winter and summer minimum and maximum temperature limits
  – summer minimum temperature limit variable in relation to dew point
  – correction of origin of heating curve
  – self-adapting
  – winter and summer Eco Off
- Three-wire modulating control or On-Off in two stages
- Control plant pump according to current timed programme with delayed shut-off
- Three-point On-Off control for season switching of primary circuit
- Automatic season switching by dates or by telecontrol (as alternative to the two inputs of status or alarm)
- 24-hour and 7-day timed programming of events
- Programming with dates : 25 holiday periods; winter season; summer season; special period
- Telecontrol for modifying current timed programme
- Two On-Off inputs for signalling status or alarm (as alternative to season control)
- Alarms for short or open detector circuits and for abnormal operation of plant and controller
- C-Ring connection for local exchange of data with other controllers
- C-Bus connection for data transmission with local PCs or with remote telemanagment PC.

3. DETECTORS & TELECONTROLS

No.	Description	Type	Sensor t°	Sensor H%	Code	Data sheet
	Essential :					
1	Immersion flow temperature detector	**SIH 010**	NTC 10 kΩ	–	B1	–
1	Outside temperature detector	**SAE 001**	NTC 1 kΩ	–	B2	–
	Optional :					
1	Ambient temperature detector	**SAB 010**	NTC 10 kΩ	–	B3	–
1	Ambient humidity and temperature detector	**SAU 012**	NTC 10 kΩ	capacitive	B3-B6	–
1	Immersion boiler anticondensing temperature detector	**SIH 010**	NTC 10 kΩ	–	B4	–
1	Telecontrol for modifying current programme	**CDB 333**	–	–	R	–

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 switched voltage	250 V ~
maximum switched current	5 (1) A
Construction standards	Italian Electrotech. Comm. (CEI)
Storage data	5 years
Software	Class A

• 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

• Winter programmes & periods

24-hour programmes	**1** … 3
24-hour events	**2** … **6**
7-day programmes	**1**
Holiday periods	**0** … 15
Special period	**1**

• Summer programmes & periods

24-hour programmes	**1** … 3
24-hour events	**2** … **6**
7-day programmes	**1**
Holiday periods	**0** … 10
Special period	**1**

• Measurement ranges

Flow temperature	0 … 99 °C
Outside temperature	– 30 … + 40 °C
Ambient temperature	0 … 40 °C
Ambient humidity	20 … 80 %
Boiler anticondensing temperature	0 … 99 °C

• Winter temperature setting ranges

Design outside temperature	– 30 … **– 5** … + 20 °C
Design flow temperature	0 … **80** … 99 °C
Correction origin winter curve	**20** … 40 °C
Minimum limit flow temperature	**1** … 99 °C
Maximum limit flow temperature	1 … **99** °C
Normal ambient temperature	0 … **20** … 40 °C
Setback ambient temperature	0 … **16** … 40 °C
Frost protection ambient temperature	0 … **6** … 40 °C
Fixed flow temperature	0 … **30** … 99 °C
Winter ambient authority	**0** … +10 °C
Winter Eco Off outside temperature	0 … **20** … 40 °C
Boiler anticondensing temperature	0 … **50** … 99 °C

• Summer temperature setting ranges

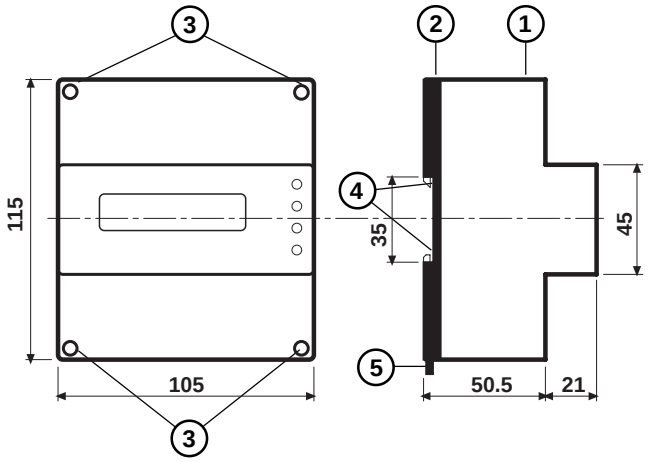
Design outside temperature	0 … **35** … + 40 °C
Design flow temperature	0 … **10** … 99 °C
Minimum limit flow temperature	**1** … 99 °C
Maximum limit flow temperature	1 … **30** °C
Normal ambient temperature	10 … **25** … 40 °C
Fixed flow temperature	0 … **12** … 99 °C
Summer ambient authority	**0** … – 3 °C
Summer Eco Off outside temperature	0 … **24** … 40 °C
Correction Dew Point	– 9 … **0** … + 9 °C

• Control setting ranges & alarms

Three-wire modulating control output :	
valve run time	30 … **630** … 3,600 sec.
proportional band	± 0,5 … **10** … 30 °C
integral time	0 … **20** … 255 min.
On-Off (1 or 2 stages) control output :	
stage differential	1 … **10** … 30 °C
integral time	0 … **20** … 255 min.
Telemanagement (setting by PC) :	
attempts alarm calls	1 … **5** … 255
interval between alarm calls	2 … **10** … 255 min.
Alarms (setting by PC) :	
threshold diff. flow temp. (B1)	0 … **5** … 99 °C
delay diff. flow temp.	2 … **30** … 255 min.
threshold diff. ambient temp.(B3)	0 … **1** … 30°C
delay diff. ambient temp.	2 … **30** … 255 min.

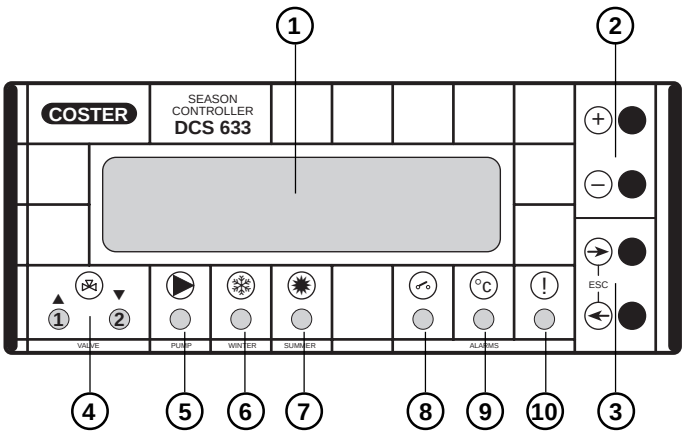
In presence of electrical disturbances the output controls of the controller may change status but this will be automatically restored

5. OVERALL DIMENSIONS



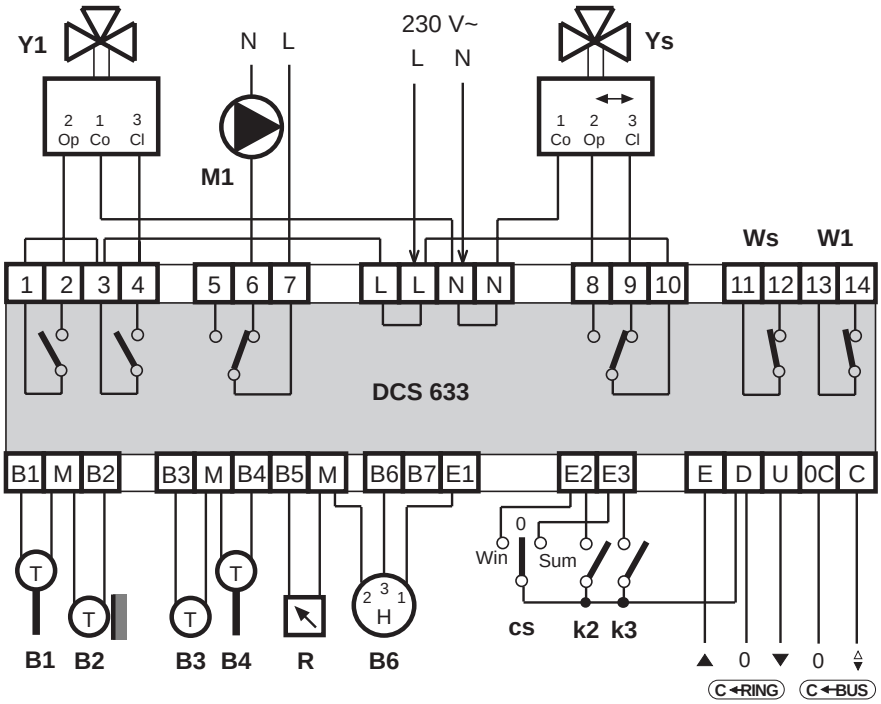
1 – Protective cover for electronic components
2 – Base with transformer, relay and terminal blocks
3 – Screws for securing cover - base
4 – DIN rail securing elements
5 – DIN rail release lever

6. FACIA

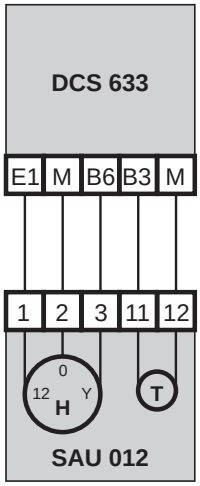


1 - Two-line backlighted alphanumeric display
2 - + and – operating keys
3 - ← and → operating keys
4 - LEDs control valve
5 - LED control pump
6 - Winter LED
7 - Summer LED
8 - On-Off alarms LED
9 - Measurement alarms LED
10 - Fault LED

7. WIRING DIAGRAM



Connection ambient humidity & temperature detector SAU 012



B1 – Flow temp. detector
B2 – Outside temp. detector
B3 – Ambient temp. detector SAB 010 or SAU 012
B4 – Anticondensing temp. detector
B6 – Ambient humidity detector SAU 012
cs – Season switch (as alternative to k2 and k3)
M1 – Plant pump
R – Telecontrol for modifying programmes
Y1 – Regulating valve

Ys – Season switching valve :
Winter = 10-9 closed ; 10-8 open
Summer = 10-9 open ; 10-8 closed
W1 – On-Off contact repetition of current mode :
On = 13-14 closed
Off = 13-14 open
Ws – On-Off contact repetition of season switch :
Winter = 11-12 closed
Summer = 11-12 open
k 2-3 – On-Off alarm contacts (as alternative to cs)

8. SITING CONTROLLER & DETECTORS

8.1 Controller

The controller must be sited in a dry space, which complies with the ambiental limits indicated in 4.TECHNICAL DATA. If sited in premises classified as “Dangerous” it must be installed in an enclosure for electrical appliances constructed according to the regulations in force for the danger class involved.
It can be installed on a DIN rail or in a DIN modular enclosure.

8.2 Flow temperature detector B1

With plant pump on flow it must be installed downstream of this; with pump on return it must be installed at least 1.5 meters downstream of the 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, sheltered from the direct rays of the sun and as far as possible from windows, doors, chimneys or other possible causes of thermal disturbances.

8.4 Ambient temperature and/or humidity detector B3 or B6

This must be installed at a point which represents the average temperature and / or humidity of a significant space (eg living room), at a height of 1.5 ... 1.6 meters from the floor ; on an internal wall as far as possible from windows, doors and heat sources and avoiding recesses, shelving and curtains.

8.5 Boiler anticondensing temperature detector B4

This can only be used if the boiler is fitted with an anticondensing pump and must be installed on the boiler return pipe between the connection of the anticondensing pump and the boiler itself.

9. WIRING

Proceed as follows :

- Separate the base from the 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 as in the diagram above and in accordance with the regulations in force and using the following cable types :
  - 1.5 mm^2 for power and for the relay controlled outputs.
  - 1 mm^2 for detectors and telecontrol.
  - 1 mm^2 for C-Bus and for C-Ring. For limits on length of cables please see technical data sheets T 021 and T 022.
- Switch on power (230 V ~) and check voltage across terminals L and N.
- Switch off power, replace cover on base and secure with the four screws supplied.

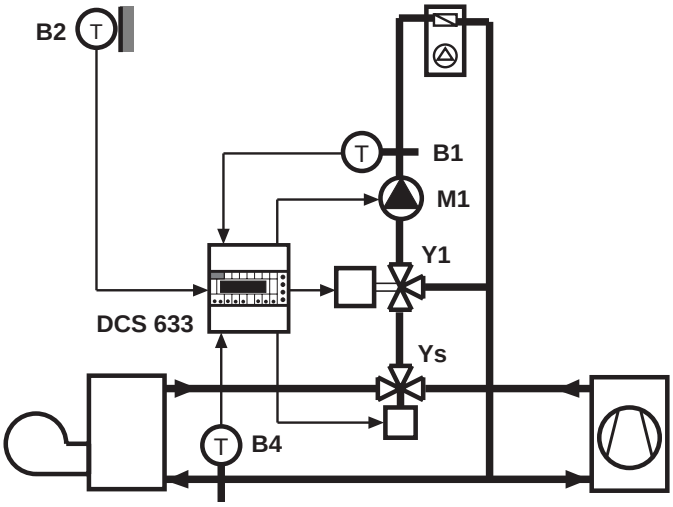
It is recommended not to insert more than two cables in a single terminal of the controller and if necessary to make use of external junction boxes.

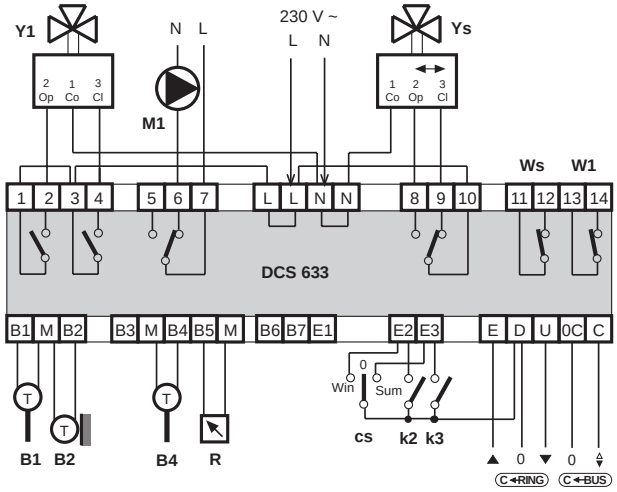
10. EXAMPLES OF CONTROL PLANTS

10.1 Winter and summer compensated control of flow water with fan coils

Configuration :

25.1	25.3
Type of plant FAN COIL	Config detectors 1 2 4 5





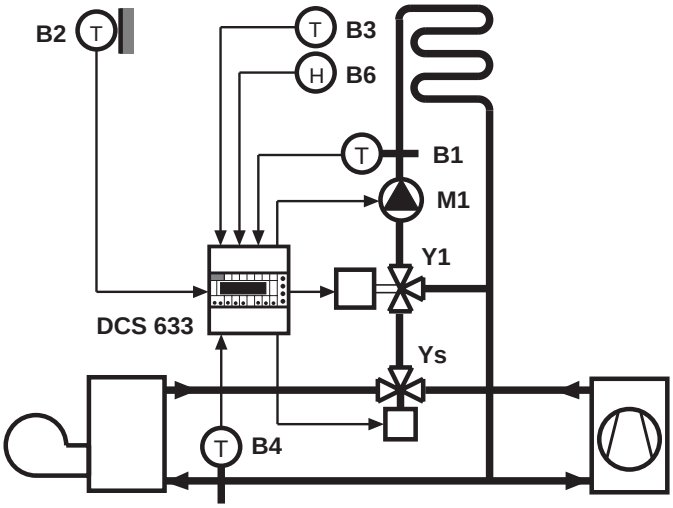
B1 – Flow temp. detector
B2 – Outside temp. detector
B4 – Anticondensing temp. detector
cs – Season switch (as alternative to k2 and k3)
R – Telecontrol for modifying programmes

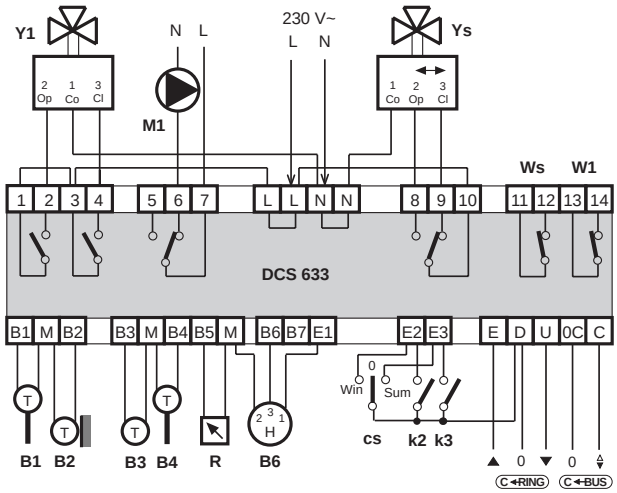
M1 – Plant pump
Y1 – Regulating valve
Ys – Season switching valve
W1 – On-Off contact repetition of programme
Ws – On-Off contact repetition of season switch
k 2-3 – On-Off alarm contacts (as alternative to cs)

10.2 Winter and summer compensated control of underfloor panels with ambient authority and dew point control

Configuration :

25.1	25.3
Type of plant PANELS	Config detectors 1 2 3 4 5 6





B1 – Flow temp. detector
B2 – Outside temp. detector
B3 – Ambient temp. detector
B4 – Anticondensing temp. detector
B6 – Ambient humidity detector
cs – Season switch (as alternative to k2 and k3)
R – Telecontrol for modifying programmes

M1 – Plant pump
Y1 – Regulating valve
Ys – Season switching valve
W1 – On-Off contact for repetition programme
Ws – On-Off contact for repetition season switch
k 2-3 – On-Off alarm contacts (as alternative to cs)

11. COMMUNICATION

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

DCS 633 controller can be **"Primary"** or **"Secondary"**.
In C-Ring the following signals are transmitted :

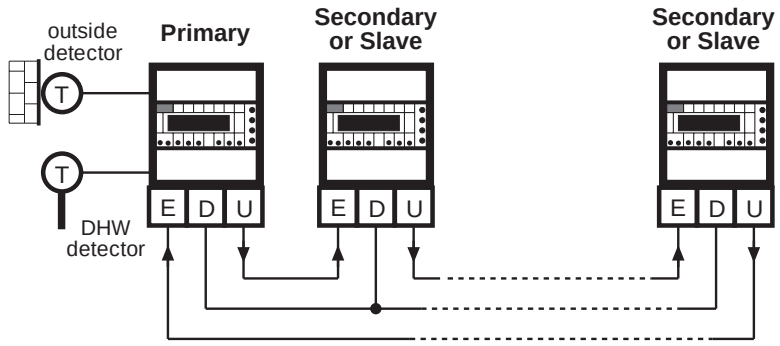
- agreement to operation of **Slave** controllers
- measurement of **outside temperature** using a single detector for several controllers
- value of **flow temperature** requested by zone controllers, used by "PRIMARY" controller for control of temperature boilers (if scheduled).
- **DHW priority** and / or **anticondensing** = progressive closure of valves in heating zones.

25.6

```
CRing connection
NO
```

NO = connection in C-Ring not scheduled
PRIMARY = connected in C-Ring and configured as "Primary"
SECONDARY = connected in C-Ring and configured as "Secondary"

11.2 C-Ring wiring diagram

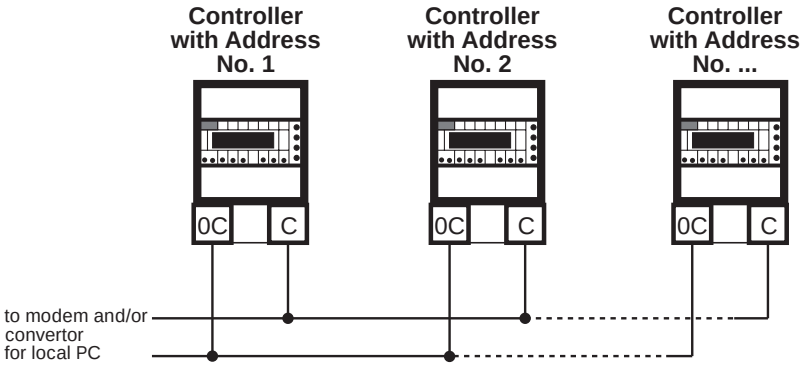


11.3 C-Bus communication for telemanagment (for detailed information please see technical data sheet T 021)

By means of its C-Bus output DCS 633 can be telemanaged : two-way data transmission, using one or more local PCs and / or a remote central PC via the telephone network.
From the PC or PCs it is possible to see displayed and / or modify :

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

11.4 C-Bus wiring



11.5 Address for telemanagment

25.5

```
Address  :  –
Group    :  –
```

In telemanagement, so that the controllers can be identified by the central PC and/or by the local PCs, they must have a progressive address number.
If required, it is possible to divide the controllers in groups.

Notes

When telemanagement is not scheduled, leave the address in memory (–).
To cancel the values, keep pressed the + and – keys at the same time.

11.6 Sending alarms

25.4

```
Send alarms   :NO
PassWTeleman  :NO
```

- **Sending alarms** : NO = alarms not sent
  YES= alarms sent to central PC and indicated by appearance of "ALARM" on display.
- **PassWTeleman** : NO = password disabled
  YES= password enabled

11.7 Recording data

The controller memorises 32 series of all the operational data of the plants controlled.
The last recording brings about the cancellation of the oldest one.
The recordings are made automatically at a change of mode both as a result of timed programming and of the intervention of the plant supervisor.

12. OPERATION

DCS 633 is a digital controller with microprocessor for the winter and summer compensated control of the flow water temperature.
Controls a modulating 3-wire control valve or an On-Off electrical device with 1 or 2 stages.

25.3
```
Config detectors
1 2 – – – –
```

It is indispensable to configure the controller according to the detectors and controls connected.

12.1 Type of plant

25.1
```
Type of plant
FAN COIL
```

The controller must be configured according to the type of plant controlled :
- *Type of plant :* *FAN COIL*
  PANELS

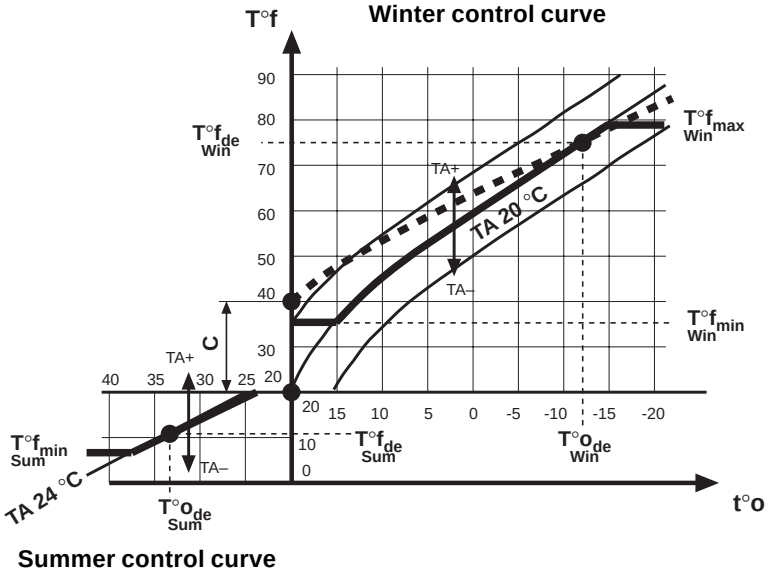
of type of control required :

25.2
```
Control: VALVE
Time :     630sec
```

- *Control :* *VALVE* = control valve with 3-wire modulating actuator
  ON-OFF = On-Off control in 1 or 2 stages
- *Time : .... seconds* = if *Control :* VALVE, enter complete run time (open/closed) of actuator valve, **useful** for correct functioning of control.

12.2 Control curve

The flow temperature requested by the controller (detector B1) is adjusted in relation to the *outside* temperature (detector B2 or value transmitted by C-Ring) and to the *heating control curve* , for the winter period, or the *cooling control curve* for the summer period.



Summer control curve

C	= correction curve origin
T°f	= desired flow temperature
T°fde Win	= winter design flow temperature
T°ode Win	= winter design outside temperature
T°fmax Win	= winter maximum limit flow temperature
T°fmin Win	= winter minimum limit flow temperature
T°fdeSum	= summer design flow temperature
T°odeSum	= summer design outside temperature
T°fmaxSum	= summer maximum limit flow temperature
T°fminSum	= summer minimum limit flow temperature
t°o	= outside temperature

The *winter heating control curve*, with reference to a desired ambient temperature of 20 °C, is defined by :

23.1
```
Win: Design
outside T:– 5.0c
```

– *winter design outside temperature* , used for calculating winter heat losses from building; depends on climatic zone in which building is situated.

23.2
```
Win: Design flow
temp      : 80.0c
```

– *winter design flow temperature*, used for designing plant (eg. fan coils = 80 °C, panels = 40 °C); depends on climatic zone in which building is situated

– *origin of heating curve* = temperature of winter flow with outside temperature of 20 °C.

The *summer cooling control curve* , with reference to a desired ambient temperature of 24 °C, is defined by :

24.1
```
Sum: Design
outside T:+35.0c
```

– *summer design outside temperature* , used to calculate summer warming effects from building; depends on the climatic zone in which building is situated.

24.2
```
Sum: Design flow
temp      : 10.0c
```

– *summer design flow temperature*, used for designing the plant (eg : fan coils = 10 °C ; panels = 14 °C).

The winter or summer flow temperature requested by the controller also depends on the value of the *desired ambient temperature* requested by the winter or summmer mode *Normal* , *Setback* or *Frost Protection* (parallel adjustment +/- of the curve).

The controller measures the *difference* between the actual and requested flow temperature and to cancel this it produces an output signal :

23.6
Win:PrBand:10.0c
Integ time : 20m
24.6
Sum:PrBand:10.0c
Integ time: 20m

– three-wire modulating in relation to the proportional bands and to the winter and summer integral times set, if has been chosen

25.2
Control: VALVE
Time : 630sec

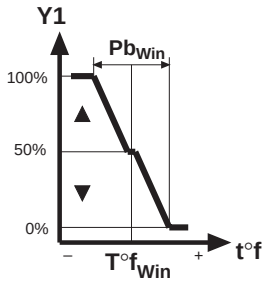
23.6
Win:Diff :10.0c
Integ time: 20m
24.6
Sum:Diff :10.0c
Integ time: 20m

– On-Off in 2 stages in relation to the temperature differential and to the winter and summer integral times set, if has been chosen

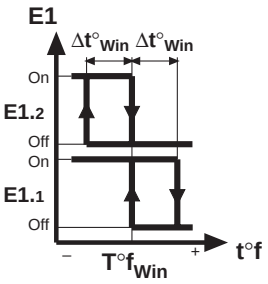
25.2
Control: ON-OFF

Winter control output

Modulating

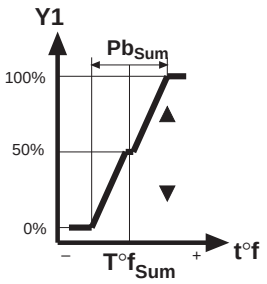


On-Off in 2 stages

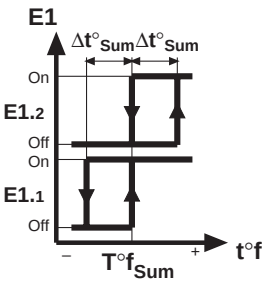


Summer control output

Modulating



On-Off in 2 stages



Y1 – 3-wire modulating output
E1 – On-Off output in two stages
E1.1 – Control 1st stage
E1.2 – Control 2nd stage

Pb Win – Winter prop. band
Pb Sum – Summer prop. band
Δt° Win – Winter stage differential
Δt° Sum – Summer stage differential

t°f – Actual flow temp.
T°f Win – Winter desired flow temperature
T°f Sum – Summer desired flow temperature

12.3 Origin of heating curve

23.3
CurveOrigin TO20
Flow T : 20.0c

The conventional point of origin of the heating curve (+ 20 °C flow with +20 °C outside) can be adjusted by an increase in the flow temperature (max. + 20 °C).
The adjustment may be necessary in order to avoid possible variations in the output of the heat emitters at high outside temperatures (intermediate seasons).

12.4 Minimum and maximum limit of flow temperature

23.4
Win:Flow limits
Min: 1c Max:99c
24.3
Sum:Flow limits
Min: 1c Max:30c

When the desired winter or summer flow temperature exceeds one of the limits set it is kept constant at that value.
Examples : – winter minimum limit to avoid the circulation of cold air in the fan coils.
– winter maximum limit to avoid dangerous overtemperatures in the panels.
– summer minimum limit to avoid condensation on the floors with panel installations.

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

12.5 Ambient authority

23.5
Win:AmbientAuth
on flow :----c
24.5
Sum:AmbientAuth
on flow :----c

When ambient detector B3 is connected, the controller is able to adjust the desired winter and summer flow temperature according to the ambient authority set.

– *Ambient authority on flow* = value in °C of adjustment (increase/decrease) of flow temperature for each degree of difference between the actual ambient temperature and that desired.

12.6 Eco Off

Permits excluding the plant either in winter or summer operation when the weather conditions do not require the supply or withdrawal of heat :

19.7
Win:Eco Off :NO
Outside T: 20.0c

- *Win : Eco Off :* *NO* = disabled
  YES = enabled for winter heating
- *Outside T : 20.0c* = value of outside temperature above which the valve is closed and the pump is idle

19.8
Sum:Eco Off :NO
Outside T: 24.0c

- *Sum : Eco Off :* *NO* = disabled
  YES = enabled for summer cooling
- *Outside T : 24.0c* = value of outside temperature below which the valve is closed and the pump is idle

12.7 Control of dew point

In underfloor panel installations with summmer cooling it is necessary to avoid condensation on the floor by controlling the dew point; this can be done in two ways :

– by the *minimum flow temperature limit* set at a value to prevent an excessive cooling of the floor.

24.3
```
Sum: Flow limits
Min: 18c  Max: 30c
```

– by the use of the humidity detector and ambient temperature detector B6 and B3 which permits adjusting automatically the *minimum flow temperature limit* so that the floor never reaches the dew point.

- *Dew point :* *NO* = automatic control dew point disabled
  YES = automatic control dew point enabled
- *14.0 c* = calculated dew point
- Var : + 0.0 c = correction of value of dew point (max. ± 9 °C)

24.4
```
Dew point :   NO
14.0c  Var:+0.0c
```

12.8 Operating programmes

It is possible to programme separately, for the winter season and for the summer season, the operation of the plant according to use requirements :

18.2
```
Site:----------
Win: 7DAY
```

Winter (Win) season :
– *7DAY (Win)* ; – *24HOUR 1 ...3 (Win)* ; – *NORMAL (Win)* ; – *SETBACK (Win)* ;
– *FLOW (Win)* ; – *FROSPROT* ; – *OFF*.
When in place of the programme appears :
– *HOLIDAY* = one of holiday periods is current.
– *SPECIAL* = special period is current.
– *TELENORMAL* = telecontrol R is in "NORMAL position
– *TELESETBACK* = telecontrol R is in “SETBACK” position.
– *TELEFROSPROT* = telecontrol R is in “FROSTPROT” position.
– *TELEOFF* = telecontrol R is in “OFF” position

18.4
```
Site ----------
Sum: 7DAY
```

Summer (Sum) season
– *7DAY (Sum)* ; – *24HOUR 1 ...3 (Sum)* ; – *NORMAL (Sum)* ; – *FLOW (Sum7* ;
– *OFF*.
When in place of programme appears :
– *HOLIDAY* = one of holiday periods is current.
– *SPECIAL* = the special period is current
– *TELENORMAL* = telecontrol R is in “NORMAL” position.
– *TELEOFF* = telecontrol R is in “OFF” position.

12.9 Mode of operation

The current mode depends on the programme set in 18.2 `Site----------` `Win: 7DAY` or in 18.4 `Site----------` `Sum: 7DAY`

according to the season and is shown on a page of the display :

- *Win*= winter season
  Sum = summer season
- Current mode : *NORMAL ; SETBACK ; FLOW ; FROSPROT ; OFF.*
- *Td* – – . – : Temperature desired by current mode.
- Var + – . – c : Manual adjustment of desired temperature (± 2 °C).

18.3
```
Win: NORMAL
Td21.0c  Var+0.0c
```

12.10 Control plant pump

The plant pump can be controlled in two ways

- *Pump* : MAN = Pump always in operation.
  AUT = Pump controlled by current programme times.
- *Delay Off :* *- - min* = Delay time in switching off to allow heat accumulated in plant to dissipate.

19.9
```
Pump       : AUT
Delay Off  : 60min
```

12.11 Modifying programmes by telecontrol

The telecontrol R (CDB 333) allows remote modification of a current operating programme :
Winter season :
1 – *OFF* = plant excluded.
2 – *FROSTPROT* = continuous operation at desired *Frostprot* ambient temperature.
3 – *SETBACK* = continuous operation at desired *Setback (Win)* ambient temperature.
4 – *NORMAL* = continuous operation at desired *Normal (Win)* ambient temperature.
5 – TAd +2c = increase of 2 °C in desired ambient temp. of current mode.
6 – *AUTO* = operation with chosen programme on controller.
Summer season :
1...3 – *OFF* = plant excluded.
4 – *NORMAL* = continuous operation at desired *Normal (Sum)* ambient temperature.
5 – TAd – 2c = decrease of 2 °C in desired ambient temp. of current mode.
6 – *AUTO* = operation with chosen programme on controller.

12.12 Season switching

25.7
Inputs E2-E3:
SEASON SWITCH

The controller changes its type of operation (winter heating or summer cooling) and the position of the season switching valve Ys in relation to the position of the *season switch* **cs** (terminals D-E2-E3) :

– D-E2 closed and D-E3 open = winter control ;
Ys opens heating circuit (10-9 closed; 10-8 open).
– D-E2 open and D-E3 closed = summer control ;
Ys opens cooling circuit (10-9 open ; 10-8 closed).

When **cs** :
– *is not connected*
– *is in position 0* (contacts open)

21.18
Winter season
Fr 15.10to 15.04
22.18
Summer season
Fr 15.06to 15.09

the controller follows the settings of the two seasons

21.18 Winter season Fr 15.10to 15.04 | 22.18 Summer season Fr 15.06to 15.09

In this situation the following conditions can be present :

– *seasons cancelled* : Winter season Fr --.--to --.-- | Summer season Fr --.--to --.--

Result : = control Off ; Ys : idle in last position assumed

– *sequential seasons* : Winter season Fr 15.10to 15.04 | Summer season Fr 16.04to 14.10

Result : without intermediate periods
From 15.10 to 15.04 = winter control ; Ys : heating circuit open
From 16.04 to 14.10 = summer control ; Ys : cooling circuit open

– *shortened seasons* : Winter season Fr 15.10to 15.04 | Summer season Fr 15.05to 15.09

Result : intermediate periods with plant Off
From 15.10 to 15.04 = winter control ; Ys : heating circuit open
From 16.04 to 14.05 = control Off ; Ys : heating circuit open
From 15.05 to 15.09 = summer control ; = Ys : cooling circuit open
From 16.09 to 14.10 = control Off ; = Ys : cooling circuit open

The sequential periods are possible only if 19.7 Win:Eco Off :YES Outside T: 20.0c | 19.8 Sum:Eco Off :YES Outside T: 24.0c

– *overlapping seasons* : Winter season Fr 01.09to 15.05 | Summer season Fr 15.03to 01.11

Result : overlapping periods in relation to outside temperature
From 02.11 to 14.03 = winter control ; Ys : heating circuit open
From 16.05 to 31.08 = summer control ; Ys : cooling circuit open
From 15.03 to 15.05 and from 01.09 to 01.11 :
– with actual outside temperature > *WinterEcoOff Outside T* and < *SummerEco Off Outside T*
= control Off; Ys : idle in last position assumed
– with actual outside temperature < *WinterEcoOff Outside T*
= winter control ; Ys : heating circuit open
– with actual outside temperature > *SummerEcoOff Outside T*
= summer control ; Ys : cooling circuit open

– *coinciding seasons* : Winter season Fr 01.01to 31.12 | Summer season Fr 01.01to 31.12

Result : switching only in relation to outside temperature for whole year :
– with actual outside temperature > *WinterEcoOff Outside T* and < *SummerEcoOff Outside T*
= control Off ; Ys : idle in last position assumed
– with actual outside temperature < *WinterEcoOff Outside T*
= winter control ; Ys : heating circuit open
– with actual outside temperature > *SummerEcoOff Outside T*
= summer control ; Ys : cooling circuit open

12.13 On-Off contact for repetition current mode (W1)

The output contact W1 (terminals 13-14), when the controller is in winter or summer control, repeats with On-Off action the current mode :

– *NORMAL* = On, contact closed
– *SETBACK* = On, contact closed
– *FLOW* = On, contact closed
– *FROSPROT* = Off, contact closed
– *OFF* = Off, contact open

12.14 Control boiler anticondensing temperature

The anticondensing function prevents the formation of condensation in the combustion chamber of the boiler. It sets a decrease of 4 °C in the desired flow temperature for each °C decrease in the actual return to boiler temperature (detector B4) in respect of the value set thereby bringing about the progressive closure of the regulating valve.

19.10

```
Anticondense: NO
Desired T: 50.0c
```

- *Anticondens :* *NO* = Function disabled
  YES = Function enabled
- *Desired T :* *- - .- °C* = Value of minimum limit of return to boiler temperature

If there is a C-Ring connection the differential value is transmitted to all the controllers connected which are thus able to carry out the anticondensing function with a single detector. The minimum limit value considered is that set on the controller to which the anticondensing detector is connected. On the other controllers appears Desired T : – – . – c.

13. PROGRAMMES & PERIODS WITH DATES

*All the programmes with timed events and with dates operate independently in respect of the **winter** and the **summer** season.*

13.1 24-hour programmes

21.1

```
Win: How many
24hour progs ? 1
```

22.1

```
Sum: How many
24hour progs ? 1
```

Enter number of 24-hour progrmmes you wish to use (from 1 to 3) for the winter season and for the summer season so as to avoid viewing unused display pages.

21.2

```
P 1WinEv1    06.00
NORMAL       21.0c
```

⇓ ⇓

21.7

```
P 1WinEv6    22.00
OFF
```

In each 24-hour programme for winter (**WinP1 ... WinP3**) and summer (**SumP1 ... SumP3**) you can enter a maximum of six event start times (**Evnt1 ... Evnt6**) assigning to each one of the following modes :

Winter season :
– *NORMAL* : compensated control with winter NORMAL ambient temperature
– *SETBACK* : compensated control with winter SETBACK ambient temperature
– *FLOW* : control with winter fixed FLOW temperature
– *FROSPROT* : control with FROSPROT ambient temperature
– *OFF* : plant Off, valve closed and pump idle

22.2

```
P 1SumEv1    06.00
NORMAL       25.0c
```

⇓ ⇓

22.7

```
P 1SumEv6    22.00
OFF
```

Summer season
– *NORMAL* : compensated control with summer NORMAL ambient temperature
– *FLOW* : control with summer fixed FLOW temperature
– *OFF* : plant Off, valve closed and pump idle

The Event start times must be entered in increasing order.
The Events not used are excluded by pressing + and – keys at the same time (- - -).
You must not leave unused times (- - -) between the programmed Events .

13.2 7-day programmes

One 7-day programme is available for the winter season and one for the summer season.

21.8

```
Win7dayMONDAY
24HOUR   1
```

⇓ ⇓

21.14

```
Win7daySUNDAY
24HOUR   1
```

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

Winter season :
– *24HOUR 1 …3 (Win)* ;
– *NORMAL (Win)* ;
– *SETBACK (Win)*;
– *FLOW (Win)*;
– *FROSPROT* ;
– *OFF*

22.8

```
Sum7dayMONDAY
24HOUR   1
```

⇓ ⇓

22.14

```
Sum7daySUNDAY
24HOUR   1
```

Summer season :
– *24HOUR 1…3 (Sum)* ;
– *NORMAL (Sum)* ;
– *FLOW (Sum)*;
– *OFF*.

13.3 Holiday periods

21.15
```
Win:How many hol
periods     ? 0
```
22.15
```
Sum:How many hol
periods     ? 0
```

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

Enter the number of holiday periods or bank holidays which you wish to use for the *winter season* (max 15) and for the *summer season* (max 15) so as to reduce the number of display pages dedicated to the entering of the dates.
If left at 0 the programming pages do not appear.

Choose the programme to be used during *all the holiday periods* :

21.16
```
Win:Holiday prog
FROSPROT  6.0c
```
22.16
```
Sum:Holiday prog
OFF
```

Winter season :
– *7DAY (Win)* ; – *24HOUR 1 …3 (Win)* ; – *NORMAL (Win)*; – *SETBACK (Win)* ;
– *FLOW (Win)* ; – *FROSPROT* ; – *OFF*.

Summer season :
– *7DAY (Sum)*; – *24HOUR1 …3 (Sum)*; – *NORMAL (Sum)* ; – *FLOW (Sum)* ;
– *OFF*.

Enter the dates of each single period for the winter season and the summer season.

21.17 - 22.17
```
Hol 01 Start  NO
Fr --.--to --.--
```

21.15
```
Win:How many hol
periods ? --
```
22.15
```
Sum:How many hol
periods ? --
```

- Hol 01 = choice of periods made available by
- Start : – *NO* = holiday period not used
  – *00* = start period at 00.00 hours
  – *12* = start period at 12.00 noon
- From - - . - - 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 pressed + and – keys at the same time.

13.4 Special period

18.5
```
Win:Special prog
24HOUR  1
```
18.7
```
Sum:Special prog
24HOUR  1
```

A period, one for the *winter season* and one for the *summer season* , for which is set an operating programme which temporarily overrides the programme in current use in order to meet particular requirements :
Winter season :
– *7DAY (Win)* ; – *24HOUR 1 …3 (Win)* ; – *NORMAL (Win)* ; – *SETBACK (Win)*;
– *FLOW (Win)*; – *FROSPROT* ; – *OFF*.
Summer season :
– *7DAY (Sum)* ; – *24HOUR 1 …3 (Sum)*; – *NORMAL (Sum)* ; – *FLOW (Sum)*;
– *OFF*.

18.6
```
Win:Spec period
Fr --.--to --.--
```
18.8
```
Sum:Spec period
Fr --.--to --.--
```

Enter the day and month of start and end of the special periods for the winter season and the summer season.

13.5 Seasons

21.18
```
Winter season
Fr 15.10 to 15.04
```
22.18
```
Summer season
Fr 15.06 to 15.09
```

Establish the *winter* and *summer* seasons.

Enter the day and month of start and end of *winter* season, period in which the controller is in the heating stage.

Enter the day and month of start and end of *summer* season, period in which the controller is in the cooling stage.

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

For the use of the seasons see section 12.12 *Season switch*

13.6 Summer time

21.19 - 22.19
```
Summer time
Fr 29.03 to 26.10
```

The controller is able to change automatically the current time in relation to the summer time period.
– *From - -.- -* = the night of the last Saturday of March the clock is put forward automatically one hour.
– *to - -.- -* = the night of the last Saturday of October the clock is put back automatically one hour.
To cancel the period keep pressed + and – keys at the same time.

14. COMPLEMENTARY FUNCTIONS

14.1 Access keynumber

25.11

```
Choice keynumber
      ----
```

Choice and enabling of the access keynumber which prevents the use of + and – keys thereby preventing any tampering with the data. Enter the number (1900 ... 1999) using + and – keys.

To cancel the keynumber, press + and – keys at the same time until the dashes re-appear.

```
Access keynumber
      ----
```

When the keynumber is enabled, if you press + and – keys there will appear on the display the request to introduce the access keynumber. Only after having entered the correct keynumber is it possible to use + and – keys.
If for 15 minutes no key is pressed the keynumber is re-enabled automatically.

14.2 Site (Plant) name

25.12

```
Site(Plant)name
  ----------
```

Composition of site (plant) name which appears on the first page of display.
Using + and – keys, each dash can be replaced by a letter of the alphabet (A ... Z) or by a number (0 ... 9). The → key serves to position the cursor.

14.3 Display measurements

The controller displays all the measurements made by the detectors and other data useful for monitoring the operational status of the plant.

20.1

```
Des amb T :21.0c
Act amb T :21.0c
```

Appears only if detector **B3** is connected and configured.
- *ambient* temperature *desired* by current mode.
- *actual* temperature measured by detector **B3**.

20.2

```
Des flow T:80.0c
Act flow T:80.0c
```

- *flow* temperature *desired* by current mode.
- *actual* temperature measured by detector **B1**.

20.3

```
Outside temp
actual   :– 2.0c
```

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

20.4

```
DesAnticon:50.0c
ActAnticon:58.0c
```

- *desired anticondensing* temperature.
- *actual anticondensing* temperature. If detector **B4** is not connected to the controller in place of "actual" appears "C-Ring and in place of the measurement appears – –.– C.

20.5

```
Humidity : 60.0%
Dew point: 14.0c
```

Appears only if detector **B6** is connected and configured.
- *ambient humidity* measured by detector **B6**.
- *dew point* calculated by controller

15. ALARMS

The alarms processed by the controller are of three types :
- alarms for abnormal functioning of the controller (LED 6.10) and of the HVAC zones controlled (LED 6.9)
- alarms for short or open circuits in respect of the detectors connected (LED 6.9)
- alarms by external contacts (LED 6.8)

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

By means of the C- Bus connection the alarms can be sent to a local PC and / or to the central telemanagement PC.

15.1 Functional alarms

25.8
```
FunctionalAlarms
–  –          8
```

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

Factory setting : all disabled except that of the real time clock alarm (8)
Using + and – keys enable the alarms which are of interest by replacing the dashes with the 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 and cause of alarm :
- **1** = difference *flow* temperature (B1)
  - enabled with pump M1 in operation
  - triggered when actual temperature below or above that desired.
- **3** = difference *ambient* temperature (B3)
  - enabled when pump M1 in operation
  - triggered when actual temperature less or greater than that desired.
- **8** = internal real time clock; *cannot be disabled*
  - triggered when clock asumes meaningless values.

15.2 Detector alarms

25.9
```
Detector  alarms
– – – –        –
```

The detector alarms are triggered in the event of **breaks** or **shorts** in the circuits of the detectors connected.

The effect of the alarm status is delayed by one minute.

Factory setting : all disabled.
Using + and – keys enable the alarms which are of interest by replacing the dashes with the numbers.

Type and effect of alarm :
- **1** = *Flow* detector (B1) : valve stops where it is and pump M1 operated by timed programme.
- **2** = *Outside* detector (B2) : valve stops where it is and pump M1 operated by timed programme. In C-Ring last value measured continues to be transmitted
- **3** = *Ambient* detector (B3) : ambient authority is excluded.
- **4** = *Anticondensing* detector (B4) : anticondensing function cancelled also in C-Ring.
- **8** = C-Ring : break in electrical connection or fault in a controller in ring.

15.3 Alarms or status of external contacts (k)

25.10
```
K alarms
  – –
```

Only if configured

25.7
```
Inputs   E2-E3:
ALARMS
```

Alarms triggered by closure of voltage-free contacts **k2** or **k3** by plant components (pumps, burners, etc).

The presence of the alarm is signalled after about 60 seconds.

Factory setting : all disabled.
Using + and – keys enable the alarms which are of interest by replacing the dashes with the numbers.
If not used for alarm they can be used for signalling status.

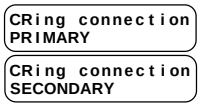
16. COMMISSIONING PLANT

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

16.1 Testing C-Ring

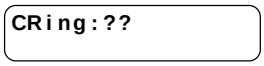
The page of C-Ring testing appears only if configured in

25.6



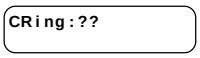
Ensure that all the other controllers connected in C-Ring are :

26.1



– correctly mains powered (230 V~).

– Slave controllers or those configured as SECONDARY in 

– chosen on testing page 

The “PRIMARY” controller sends via C-Ring a signal every 10 seconds: on all the displays appears “??”. If the connection is positive the word “YES” replaces “??” on all the displays. If on one or more displays “YES” does not appear, this means that there is a break between the last controller with “YES” and the first with “??”.
Examples of testing a C-Ring with four controllers :

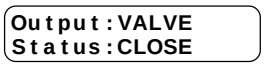
– Cont.1 "YES" – Cont.2 "YES" – Cont.3 "YES" – Reg.4 "YES" : *Wiring positive*
– Cont.1 "??" – Cont.2 "YES" – Cont.3 "YES" – Reg.4 "YES" : *Break between 4 & 1*
– Cont.1 "??" – Cont.2 "YES" – Cont.3 "??" – Reg.4 "??" : *Break between 2 & 3*
– Cont.1 "??" – Cont.2 "??" – Cont.3 "??" – Reg.4 "??" : *Break between 1 & 2*

16.2 Testing outputs

With + and – keys choose :

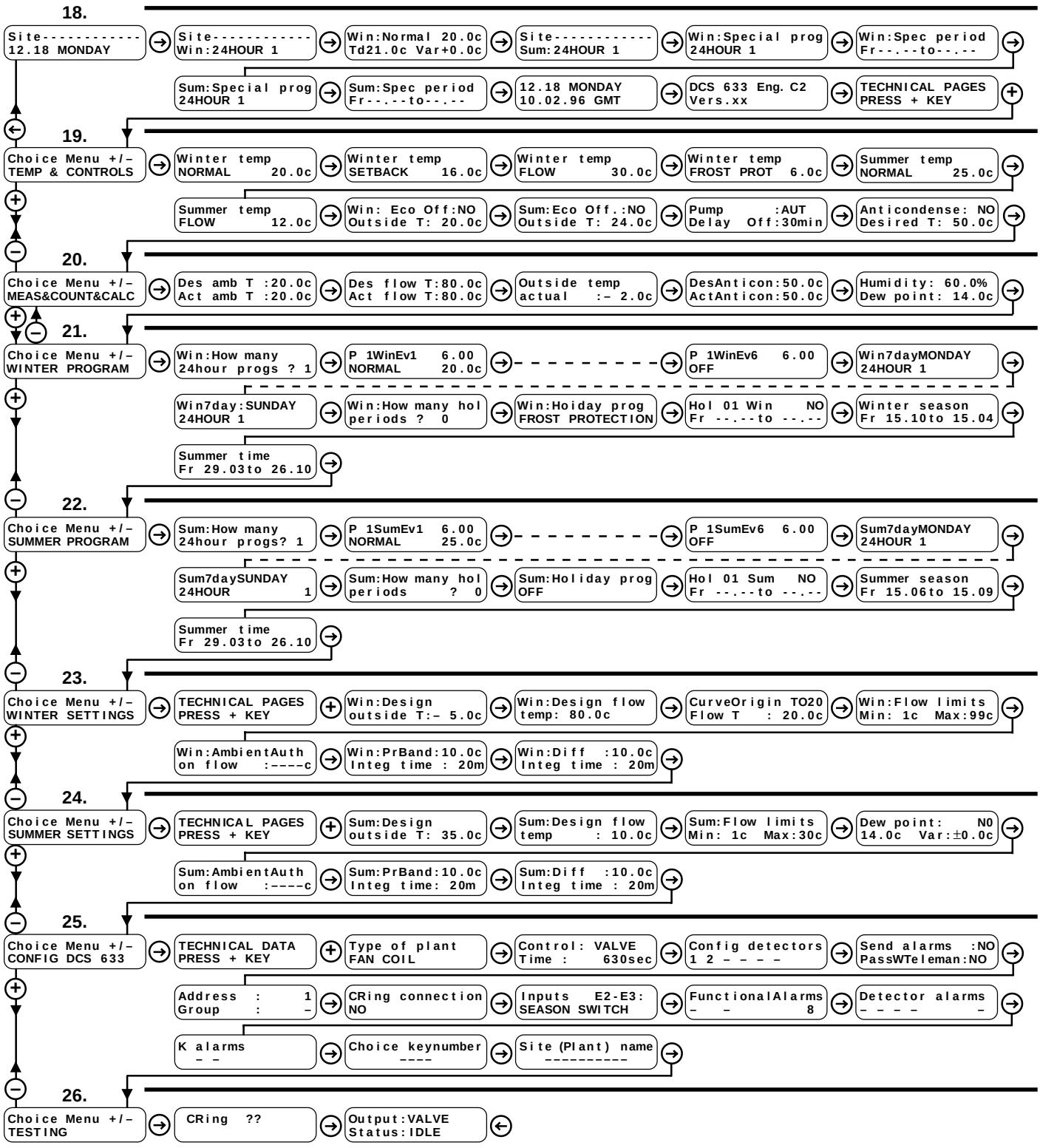
- Output to test :
  – *VALVE* ;
  – *PUMP* ;
  – *Ys* ;
  – *Ws* ;
  – *W1*.
- Status :
  – with VALVE : *IDLE* ; *CLOSES* ; *OPENS*
  – PUMP , Ys , Ws , W1 : *ON* ; *OFF*.

26.2



Check the result.

17. SEQUENCE DISPLAY PAGES (the data and the functions are those set by the factory)



⊖ ⊕ Keys for scrolling the pages on the display and positioning the cursor ▮ on data which can be adjusted on the pages.

Adjustable data, 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 returns to the display

Site----------
12.18 MONDAY

⊖ ⊕ Keys for : – adjusting the values indicated by the cursor ▮

– viewing the possibility of configuring a function, for example :

Type of plant
FAN COIL

or

Type of plant
PANELS

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

18. NORMAL USE

Ref.	Display	Description	Notes	Sect.
18.1	Site---------- 12.18 MONDAY	Site (Plant) name. Current time and day	Entered in **25.12** Entered in **18.9**	
18.2	Site---------- Win:7DAY 1	Choice winter programme : *7DAY; 24HOUR 1…3; NORMAL; SETBACK; FLOW; FROSPROT; OFF*.	In winter season page is in position **18.4**. Instead of programme can appear : *HOLIDAY; SPECIAL; TELENORMAL; TAd + 2c; SEASON OFF; TELESETBACK; TELEFROSPROT; TELEOFF*.	**12.8**
18.3	Win:NORMAL 20.0c Td20.0c Var+0.0c	*Winter* (Win) or *Summer* (Sum) mode in use. *Td*: Temperature desired by mode + telecontrol R. *Var* : Variation of desired temp. (max ± 2 °C)	Winter modes : *NORMAL; SETBACK; FLOW; FROSPROT; OFF*. Summer modes : *NORMAL; FLOW; OFF*.	**12.9**
18.4	Site---------- Sum:24HOUR 1	Choice summer programme : *7DAY; 24HOUR 1…3 ; NORMAL ; FLOW ; OFF*.	In summer season the page is in position **18.2**. Instead of programme can appear: *HOLIDAY; SPECIAL; TELENORMAL; TAd – 2C; SEASON OFF; TELEOFF*.	**12.8**
18.5	Win:Special prog 24 HOUR 1	Choice programme for special winter period: *7DAY; 24HOUR 1…3; NORMAL; SETBACK; FLOW; FROSPROT; OFF*.	Programmes set are for winter	**13.4**
18.6	Win:Spec period Fr --.-- to --.--	Dates of start and end of winter Special period Choice programme for summer Special period:	Press + and – together to cancel	**13.4**
18.7	Sum:Special prog 24HOUR 1	*7DAY; 24HOUR 1…3 ; NORMAL; FLOW; OFF*.	Programmes set are for summer	**13.4**
18.8	Sum Spec period Fr --.--to --.--	Dates of start and end of summer Special period	Press + and – together to cancel	**13.4**
18.9	12.18 MONDAY 10.02.96 GMT	Settings : Time, day of week and date Current time period : GMT or Summer	Dates summer time set in **21.19** or **22.19**	
18.10	DCS 633 Eng. C2 Vers.xx	Identifying data of controller		

19. TEMPERATURES & CONTROLS

Ref.	Display	Description	Notes	Sect.
19.1	Winter temp NORMAL 20.0c	Value of desired NORMAL ambient temperature for winter season.		**13.1**
19.2	Winter temp SETBACK 16.0c	Value of desired SETBACK ambient temperature for winter season		**13.1**
19.3	Winter temp FLOW 30.0c	Value of desired FLOW temp. for winter season		**13.1**
19.4	Winter temp FROST PROT 6.0c	Value of desired FROSPROT ambient temperature for winter season.		**13.1**
19.5	Summer temp NORMAL 25.0c	Value of desired NORMAL ambient temperature for summer season		**13.1**
19.6	Summer temp FLOW 12.0c	Value of desired FLOW temperature for summer season		**13.1**
19.7	Win Eco Off: NO Outside T: 20.0c	Winter Eco Off: *YES* ; *NO* Value for Eco Off outside temperature	With higher outside temperatures = valve closed and pump idle	**12.6**
19.8	Sum Eco Off: NO Outside T: 24.0c	Summer Eco Off: *YES* ; *NO* Value of Eco Off outside temperature	With lower outside temperatures = valve closed and pump idle	**12.6**
19.9	Pump :AUT Delay Off :30min	Control of plant pump : *MAN* ; *AUT*. Delay in switching off pump	*MAN* : always On ; *AUT* : On with current programme events.	**12.10**
19.10	Anticondense: NO Desired T: 50.0c	Anticondensing function: *YES* ; *NO* Value of desired boiler anticondensing temp.	With lower temperatures = progessive closure valve. If B4 not configured & if value comes from C-Ring appears – – . –.	**12.14**

20. MEAS&COUNT&CALC

Ref.	Display	Description	Notes	Sect.
20.1	Des amb T :20.0c Act amb T :20.0c	Ambient temp. desired by current mode. Temp. measured by ambient detetcor B3.		**14.3**
20.2	Des flow T:80.0c Act flow T:80.0c	Flow temperature desired by current mode Temp. measured by flow detector B1		**14.3**
20.3	Outside temp actual :– 2.0c	*Actual* outside temp. measured by B2 or coming from *C-Ring*	If outside detector B2 not connected & value comes from C-Ring, *Actual* is replaced by *C-Ring* & – – . – appears.	**14.3**
20.4	DesAnticon:50.0c ActAnticon:58.0c	Desired anticondensing temp. Temp. measured by anticondensing detector B4	If outside detector B2 not connected & value comes from C-Ring, *Actual* is replaced by *C-Ring* & – – . – appears.	**14.3**
20.5	Humidity: 60.0% Dew point: 60.0%	Ambient humidity measured by B6	Page appears only if detector B6 is configured in **25.3** .	**14.3**

21. WINTER PROGRAMMES

Ref.	Display	Description	Notes	Sect.
21.1	Win:How many 24hour progs? 1	Choice of number of 24-hour programmes to be used (1…3) in winter season	Eliminate unused display pages	13.1
21.2 ⇓ ⇓ 21.7	P 1WinEv1 6.00 NORMAL 21.0c P 1W inEv6 22.00 OFF	Number of programme, number of event & time of start period in programming. Choice type of mode to assign to period : *NORMAL ; SETBACK ; FROSPROT ; FLOW ; OFF*. **Other groups of 6 pages according number in 21.1**	Max. 6 periods. To eliminate an unused period press + and – keys together : there will appear **- - . - -** The events must be increasing order. You must not leave **- - . - -** between programmed events. The modes set are for winter.	13.1
21.8 ⇓ ⇓ 21.14	Win7dayMONDAY 24HOUR 1 Win7daySUNDAY 24HOUR 1	Choice of winter programme for each day of week: *24HOUR 1…3 ; NORMAL ; SETBACK; FROSPROT ; FLOW ; OFF*.		13.2
21.15	Win:How many hol periods ? 0	Choice number of holiday periods to be used (0…15) in winter season	Eliminate unused display pages	13.3
21.16	Win:Holiday prog FROST PROTECTION	Choice programme for all holiday periods : *7DAY ; 24HOUR 1…3 ; NORMAL ; SETBACK ; FROSPROT ; FLOW ; OFF*.	Appears only if in **21.15** number is greater than O. The programmes set are for winter.	13.3
21.17	Hol 01 Win NO Fr --.--to --.--	*NO*=unused period; *00*=start at 00 hrs; *12*=start at 12 noon; Dates of start and end holiday period. **Other pages according to number in 21.15**	Appears only if in **21.15** number is greater than 0.	13.3
21.18	Winter season Fr 15.10to 15.04	Dates of start & end winter season		13.5
21.19	Summer time Fr 29.03to 26.10	Dates of start & end summer time period		13.6

22. SUMMER PROGRAMMES

Ref.	Display	Description	Notes	Sect.
22.1	Sum: How many 24hour progs ? 1	Choice of number of 24-hour programmes (1…3) to be used in summer season	Eliminate the unused display pages	13.1
22.2 ⇓ ⇓ 22.7	P 1Sum Ev1 6.00 NORMAL 25.0c P 1Sum Ev6 22.00 OFF	Number of programme, number and start time of event. Choice of mode to assign to period: *NORMAL; FLOW; OFF*. **Other groups of 6 pages according to number in 22.1**	Max. 6 periods. To cancel an unused period press + and – keys together : there will appear **- - . - -** The events must be increasing order. You must not leave **- - . - -** between programmed events The modes set are for summer.	13.1
22.8 ⇓ ⇓ 22.14	Sum7dayMONDAY 24HOUR 1 Sum7daySUNDAY 24HOUR 1	Choice of summer programme for each day of the week *24HOUR 1…3 ; NORMAL ; FLOW ; OFF*.		13.2
22.15	Sum:How many hol periods ? 0	Choice of number of holiday periods to be used (0…10) in summer season.	Eliminate the unused display pages.	13.3
22.16	Sum:Holiday prog OFF	Choice of programme for all the holiday periods. *7DAY ; 24HOUR 1…3 ; NORMAL ; FLOW ; OFF*.	Appears only if in **22.15** number is greater than 0. The programmes set are for summer	13.3
22.17	Hol.01 Sum NO Fr --.--to --.--	*NO*=unused period; *00*=start at 00 hours; *12*=start at 12 noon; Dates of start and end of holiday period. **Furher pages according to choice made in 22.15**	Appear only if in **22.15** number is greater than 0.	13.3
22.18	Summer season Fr 15.06to 15.09	Dates of start and end of summer season		13.5
22.19	Summer time Fr 29.03to 26.10	Dates of start and end of summer time period		13.6

23. WINTER SETTINGS

Ref.	Display	Description	Notes	Sect.
23.1	Win: Design outside T:– 5.0c	Value of design outside temp. for winter compensated control		12.2
23.2	Win:Design flow temp : 80.0c	Value of design flow temperature for winter compensated control	If in **25.1** choice is PANELS 40.0 c will appear.	12.2
23.3	CurveOriginT020 Flow T : 20.0c	Correction of origin of heating curve		12.3
23.4	Win:Flow limits Min: 1c Max:99c	Value of minimum & maximum limits of flow temperature		12.4
23.5	Win:AmbientAuth on flow :----c	Ambient authority. Variation in ± °C of flow temp. with ± 1 °C difference ambient T.	Appears only if in **25.3** ambient detector B3 is configured.	12.5
23.6	Win:PrBand :10.0c Integ time :20m	Proportional band & Integral time for winter control	Appears if in **25.2** choice is *VALVE*. To cancel Integral time press + and – together	12.2
	Win:Diff :10.0c Integ time: 20m	Stage differential & Integral time for winter control	Appears if in **25.2** choice is *ON-OFF*. To cancel Integral time press + and – together	

24. SUMMER SETTINGS

Ref.	Display	Description	Notes	Sect.
24.1	Sum: Design outside T: 35.0c	Value of design outside temp. for summer compensated control.		12.2
24.2	Sum:Design flow temp : 10.0c	Value of design flow temp. for summer compensated control		12.2
24.3	Sum:Flow limits Min: 1c Max:30c	Value of minimum & maximum limits of summer flow temperature	*Min:xx c* = minimum limit which can be set at fixed or variable value in relation to ambient humidity (only if B6 configured).	12.3
24.4	Dew point : NO 14.0c Var:±0.0c	Enabling control dew point : *YES* ; *NO*. Value calculated. Correction of desired value	Appears only if detector B6 configured. Maximum correction of ± 9 °C.	12.7
24.5	Sum:AmbientAuth on flow :----c	Ambient authority. Variation in ±°C of flow temp. with 1 °C difference ambient T.	Appears only if ambient detector B3 connected & configured.	12.5
24.6	Sum:PrBand:10.0c Integ time : 20m	Proportional band & integral time for summer control.	Appears if in **25.2** choice is *VALVE*. To cancel Integral time press + and – together.	12.2
	Sum:Diff. :10.0c Integ time: 20m	Stage differential & Integral time for summer control.	Appears if in **25.2** choice is *ON-OFF*. To cancel Integral time press + and – together.	

25. CONFIGURATION CONTROLLER

Ref.	Display	Description	Notes	Sect.
25.1	Type of plant FAN COIL	Choice type of plant : *FAN COIL* ; *PANEL*S.		12.1
25.2	Control: VALVE Time : 630sec	Choice type of control : *VALVE* ; *ON-OFF*. Run time of valve (only if VALVE).	*VALVE* = 3-wire modulating control *ON-OFF* = On-Off control in 1 or 2 stages	12.1
25.3	Config detectors 1 2 – – – –	Configuration detectors connected (inputs B-M). – = detector not connected; number = detector connected. Factory setting : configured only B1 & B2.	1 : Flow temperature detector **B1**. 2 : Outside temperature detector **B2**. 3 : Ambient temperature detector **B3**. 4 : Boiler anticondens. temperature detector **B4**. 5 : Telecontrol variation programmes **R**. 6 : Ambient humidity detector **B6**.	12.
25.4	Send alarms :NO PassWTeleman :NO	Enabling alarms to send to telemanagement PC Enabling telemanagement access keynumber	Only if connected in C-Bus	11.5
25.5	Address : – Group : –	Telematic address of controller Group to which controller belongs	Only if connected in C-Bus.	11.4
25.6	CRing connection NO	*NO* : Not connected C-Ring. *PRIMARY* : Connected as Primary *SECONDARY* : Connected as Secondary		11.1
25.7	Inputs E2-E3: SEASON SWITCH	Configuration inputs E2 -E3 : *SEASON SWITCH* ; *ALARMS*.	*SEASON SWITCH* = when cs is connected *ALARMS* = when k1 and/or k2 connected.	12.12 15.3
25.8	FunctionalAlarms – – 8	Enabling functional alarms Factory setting : only 8 enabled (cannot be disabled)	1 : Flow temperature alarm **B1**. 3 : Ambient temperature alarm **B3**. 8 : Internal real time clock alarm	15.1
25.9	Detector alarms – – – – –	Enabling alarms for short or open detector circuits Factory setting : all disabled	1 : Flow detector **B1**. 2 : Outside detector **B2**. 3 : Ambient detector **B3**. 4 : Anticondensing detector **B4**. 8 : C-Ring alarm.	15.2
25.10	K alarms – –	Enabling On-Off alarms. Factory setting : all disabled	Appears only if in **25.7** choice is *ALARMS* 2 : Input E2, alarm with k2 closed. 3 : Input E3, alarm with k3 closed.	15.3

25. CONFIGURATION CONTROLLER

Ref.	Display	Description	Notes	Sect.
25.11	**Choice keynumber** **- - - -**	Choice keynumber to prevent use + and – keys. *– 1901 … 1999*	To cancel keynumber press + and – together.	**14.1**
25.12	**Site(Plant)name** **- - - - - - - - - -**	Entering site (plant) name	Use + and – to enter letters or numbers. Use ← and → to position cursor.	**14.2**

26. TESTING

Ref.	Display	Description	Notes	Sect.
26.1	**CRing:??**	Page of testing C-Ring connections. *??* = C-Ring test in progress or test result negative *YES* = test positive	Appears only if in **25.6** choice *PRIMARY* or *SECONDARY.*	**16.1**
26.2	**Output: VALVE** **Status: CLOSE**	Choice output to test. Choice status of output.	Choice output : *VALVE* ; *PUMP* ; *Ys* ; *Ws* ; *W1.* Choice status: With VALVE : *IDLE* ; *CLOSE* ; *OPEN.* With PUMP, Ys , Ws , W1 : *ON* ; *OFF.*	**16.2**

LB 21/01/99 Rev.: LB 18/07/02

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