D 511
10.02.05 LB

TEMPERATURE PROGRAMMING CONTROLLER

C ←BUS C ←RING

UPT 678 C4 Eng.

- **Control of five heating zones with time programming for:**
  – On-Off control
  – Temperature adjustment On-Off differential
- **Temperature adjustment On-Off proportional with possible starting optimization**
- **On-Off control of boiler in relation to request from zones**
- **Eco Off and Frost Protection functions**
- **Communication systems:**
  – **C-Bus** for telemanagement;;
  – **C-Ring** for data sharing between local controllers.
- **Power supply 230 V~ ; DIN rail installation.**

CE

2. FUNCTIONS

The principal functions of UPT 678 are:
- Control of 5 heating zones with 24-hour, 7-day and annual timed event programming for:
  – On-Off control
  – control of temperature by On-Off differential
- On-Off control of boiler in relation to demand from heating zones
- Eco off
- Frost Protection
- Anticondensation
- Alarm for short/open circuit detectors and for abnormal operation of heating zones and associated devices
- Simulation of operation for testing electrical connections at commissioning stage.
- C-Ring and C-Bus compatible
- Data recording with automatic download to telemanagement PC

3. DETECTORS

No.	Description	Model	Sensing element	Code	Data sheet
1…5	Ambient detectors (0 ... 40 °C)	**SAB 010**	NTC 10 kΩ	B1…5	–
	or				
	Immersion temperature detectors (0 … 99 °C)	**SIH 010**	NTC 10 kΩ	B1…5	–
1	Immersion boiler temperature detector (0 … 99 °C)	**SIH 010**	NTC 10 kΩ	B6	–
1	Outside detector (–30 … 40 °C)	**SAE 001**	NTC 1 kΩ	B7	–

4.TECHNICAL DATA (factory-settings are shown in bold type)

• Electrical

Power supply	230 V ~ ± 10%
Frequency	50 … 60 Hz
Consumption	3 VA
Protection	IP40
Radio disturbance	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 Electrotech. Committee (CEI)
Memorisation data	5 years
Software	Class A

• Mechanical

Case	DIN 6E module
Installation	DIN 35 rail
Materials:	
base	NYLON
cover	ABS
Ambient temperature:	
operation	0 … 45 °C
storage	– 25 … + 60 °C
Ambient humidity	Class F DIN 40040
Weight	0.6 kg

• Programmes and annual periods

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

• Measurement ranges

Temperature heating zones	0 … 99 °C
Outside temperature	– 30 … + 40 °C
Boiler temperature	0 … 99 °C

• Setting ranges control heating zones

Type of control heating zones: – Timed events
– Differential control
– Proportional control

Normal temperature	0 … **20** … 99 °C
Setback temperature	0 … **16** … 99 °C
Frost Protection temperature	0 … **6** … 99 °C
Outside temperature for Frost Protection	–30 … **0** … 40 °C
Outside temperature for Eco Off	0 … **18** … 40 °C
Differential control :	
temperature differential	0.5 … **5** … 50 °C
Proportional control :	
proportional band	±0.5 … **±5** … ±50 °C
half-load cycle time	1 … **10** … 30 min.
Inertia switch-On	1…**60**…255 min/°C
Max Time 'Normal'	0…**2**…12 hours
Max Time 'Ann. P.'	0…**10**…40 hours
Minimum On time	**0** … 255 s
Minimum Off time	**0** … 255 s

• Boiler control setting ranges

Boiler temperature with heating zones On	0 … **80** … 99 °C
Boiler temperature with heating zones Off	**0** … 99 °C
Boiler temperature for Frost Protection	0 … **50** … 99 °C
Outside temperature for Frost Protection	–30 … **–2** … 20 °C
Boiler temperature differential	1 … **5** … 50 °C
Minimum On time (fixed)	**1** min.
Minimum Off time (fixed)	**1** min.

• Data transmission setting ranges (setting from display)

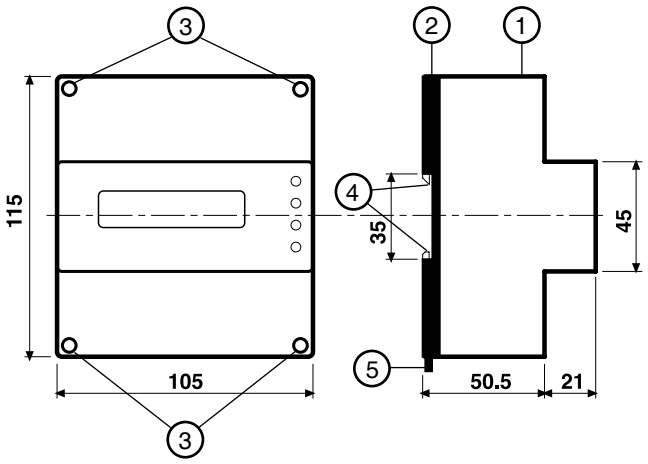
C-Bus telemanagement address	**- - -** … 239
C-Bus telemanagement group	**- - -** … 9
C-Ring :	**No** ; Primary ; Secondary

• Setting ranges telemanagement (setting by PC)

Telemanagement password	**0** … 65535
Site code	**0** … 65535
Telemanagement connections: :	– **Direct to PC**
	– Telephone line with tones
	– Telephone line with pulses
Alarm calls	**Always** ; Never: Only in winter
Call end alarm	Yes ; **No**
Attempts alarm calls	1 … **5** … 255
Interval between alarm calls	2 … **10** … 255 min.
Functional alarms for each temperature (B1…6) :	
difference	0 … **5** … 99 °C
delay logging alarm	2 … **30** … 255 min.
Recorder :	
call for automatic downloading data	Yes ; **No**
data content for automatic downloading	50 … **90**%
Recording interval	15 min …**1 hour** … 24 hours

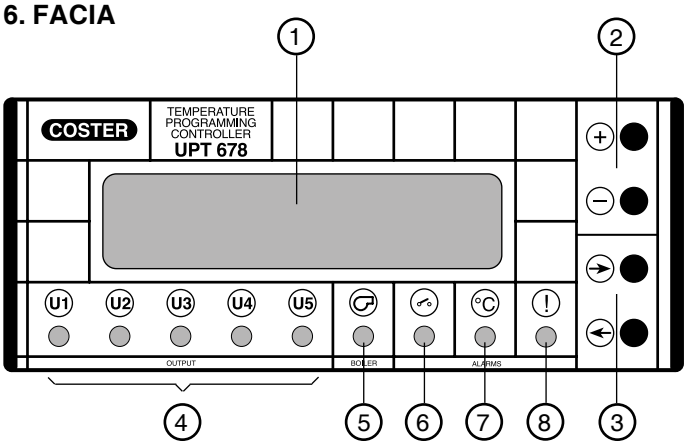
In the presence of electrical disturbances the output controls of the controller may change status but this situation will right itself automatically.

5. OVERALL DIMENSIONS



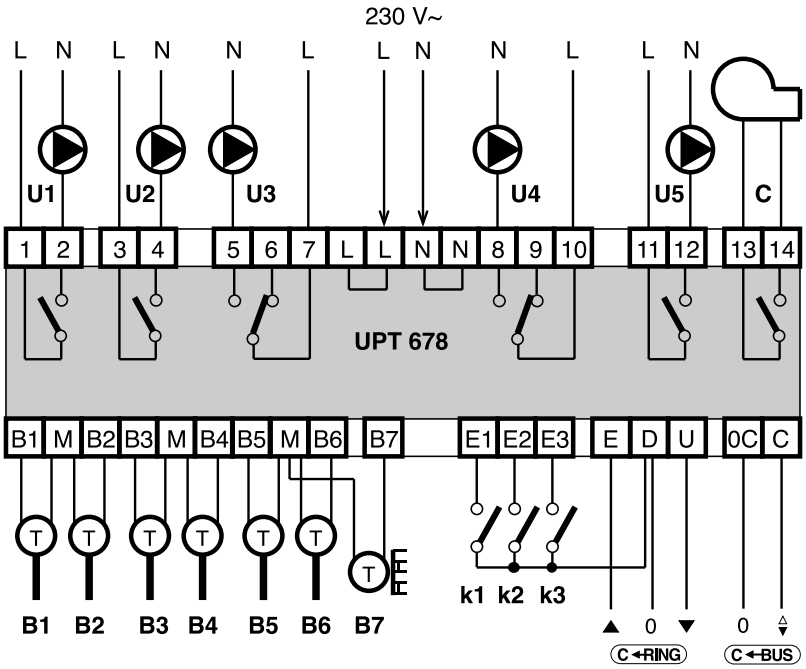
1 – Protective cover for electronic components
2 – Base with transformer, relay and terminal block
3 – Screws for securing base/cover
4 – DIN rail securing elements
5 – DIN rail release lever

6. FACIA



1 – Backlit two-line alphanumeric display
2 – + and – operating keys
3 – ← and → operating keys
LEDs :
4 – Control heating zones
5 – Control boiler
6 – On-Off alarms
7 – Measurement alarms
8 – Controller fault alarm

7. WIRING DIAGRAM



B 1…5 – Temperature detectors heating zones water (0 ... 99 °C) or ambient (0…40 °C)
B 6 – Boiler temperature detector (0…99 °C)
B 7 – Outside detector (–30…+40 °C)
U 1…5 – Control outputs
C – Control boiler
k 1…3 – On-Off alarm contacts
C-Bus – Telemanagement data transmission

8. SITING CONTROLLER & DETECTORS

8.1 Controller

The controller must be sited in a dry space which meets the relevant ambiental conditions included under 4.TECHNICAL DATA. If sited in a space classified as "Dangerous" it must be installed in a cabinet for electrical devices constructed according to the regulations in force for the danger class involved.
The controller can be installed on a DIN rail or in a DIN modular enclosure.

8.2 Boiler temperature detector B6

This must be installed on the flow pipe within 50 cm of the boiler-attachment flange and upstream of the recycling pump derivation.
Anticondensation: can only be used if the boiler has an anticondensation pump. It must be installed on the return pipe of the boiler between the pipe fitting of the anticondensation pump and the boiler itself.

8.3 Outside temperature detector B7

This must be installed outside the building on the north or northwest side, at least three meters from the ground, and sheltered from direct sunlight and as far as possible from windows, doors, fireplaces and other possible sources of thermal disturbances.

8.4 Temperature detectors B1…5

- Ambient: must be installed at a point which represents the average temperature of a typical space (e.g. living room) at a height of 1.5 ... 1.6 meters from the ground, on an internal wall and as far as possible from windows, doors and other possible sources of thermal disturbance; corners, shelving and curtains must be avoided.
- DHW calorifier: must be installed on the calorifier, preferably on the lower part (1/3 of height) using cable-type detector with deep pocket.
- Water: must be installed downstream of the pumps.

9. ELECTRICAL WIRING

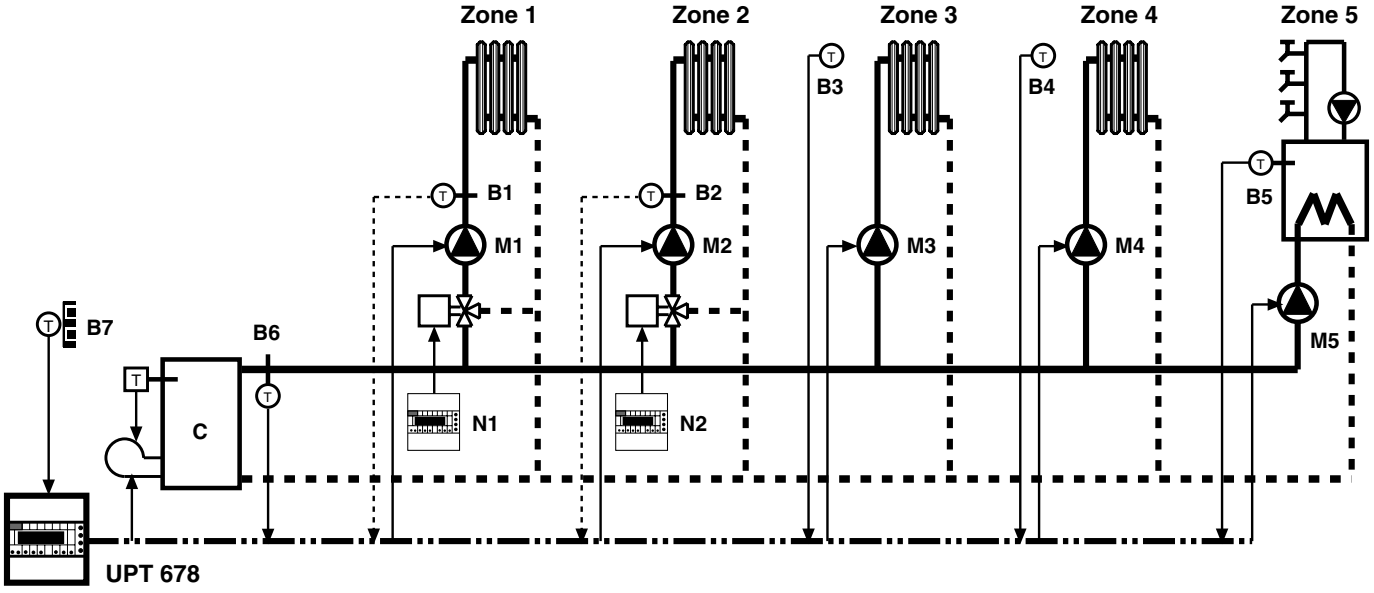
Proceed as follows:

- Separate base and cover
- Install base on 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 safety regulations in force. Use following cable types :
  - 1.5 mm^2 for power and the relay outputs;
  - 1 mm^2 for detectors;
  - 1 mm^2 for C-Bus and for C-Ring. For length limits please see data sheets T 021 and T 022.
- Apply power (230 V~) and check the voltage across terminals L and N.
- Remove power, replace cover on base and secure it with the four screws provided (5.3).

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

10. EXAMPLE OF APPLICATION

Heating zones 1 - 2 : Heating zones with independent compensating controllers and timed event programming by UPT 678
Heating zone 3 : Heating zone with proportional ambient regulation and timed event programming by UPT 678
Heating zone 4 : Heating zone with proportional ambient regulation and timed event programming with switch-on optimisation by UPT 678
Heating zone 5 : Hot water plant with differential regulation and timed event programming by UPT 678



Shared Adjustments

T boiler for zones On :80c
T boiler for zones Off : 0c
T boiler for Frosprot :50c
Boiler :Temp differential: 5c
Frosprot zones T outside: 0.0c
Frosprot boiler T outside:– 2.0c
Eco Off T outside: 18.0c

Output Adjustment

U1:Control type TIMED EVENTS
U1: Eco Off :YES Frosprot :YES

U2:Control type TIMED EVENTS
U2: Eco Off: YES Frosprot: YES

U3:Control type: PROPORTIONAL
U3: Eco Off: YES Frosprot: YES

U4:Control type: TIMED EVENTS
U4: Eco Off: YES Frosprot: YES
U4:Opt.on: NO Inertia : 60m/c
U4:Opt.on normal Max time : 60m/c
U4:Opt.onHoliday Max time :10.00h

U5:Control type: DIFFERENTIAL
U5: Eco Off: NO Frosprot: NO

B 1 - 2 – Flow temperature immersion detector for heating zones
B 3 – Ambient detector for proportional control
B 4 – Ambient detector for proportional control and switch-on optimisation
B 5 – Immersion detector for differential control
B 6 – Boiler control detector
B 7 – Outside detector
C – Boiler
M1...5 – Heating zones pumps
N 1 - 2 – Plant controllers

11. COMMUNICATION

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

UPT 678 can be **"Primary"** or **"Secondary"**.

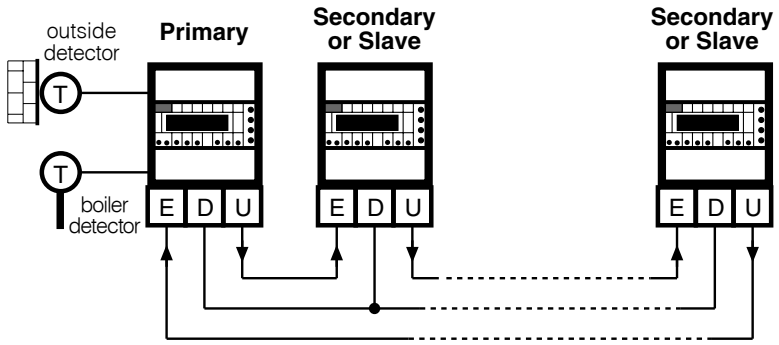
M5.5

```
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".

In C-Ring the following signals are transmitted:
- permission for **Slave** controllers to operate;
- measurement of **outside temperature**: use of a single detector for several controllers;
- value of **ow temperature** required by heating zones: used by "PRIMARY" controller to regulate temperature of boilers (if set accordingly)

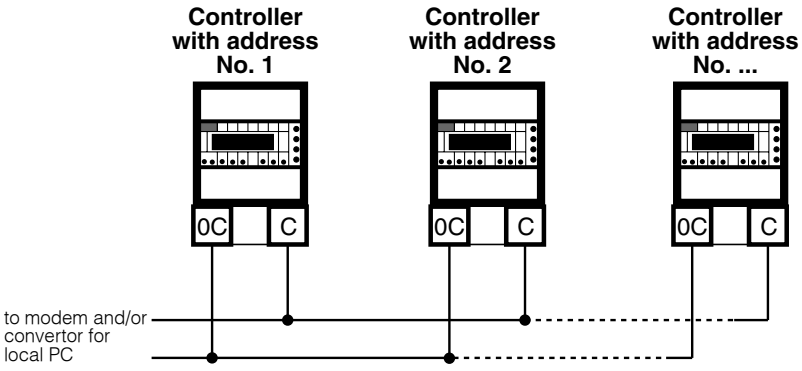
11.2 C-Ring electric wiring



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

By means of its C-Bus interface, UPT 678 can be telemanaged i.e. bidirectional communication of data, with one or more local PC and/or, via the telephone network, with a central supervising PC.
From the PC(s) it is possible to display and/or adjust:
- data and values set on the display pages of the controller and the configuration data dedicated exclusively to telemanagement (see 4. TECHNICAL DATA)
- functional status of plant components (pumps, auxiliaries in general);
- log the alarms originating in the heating zones;
- read detector measurements (temperatures: outside, flow, boiler, etc)

11.4 C-Bus electric wiring



11.5 Address for telemanagement

M5.4

```
Address  :  ---
Group    :  -
```

With telemanagement, the controllers, in order to be identified by the central PC and/or by the local PC(s) must each have a progressive address number.
Moreover, it is possible to divide the controllers into groups.

Note: When telemanagement not used it is not necessary to enter an address.
To cancel the address numbers keep pressed + and – keys at the same time.

11.6 Sending alarms

M5.3

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

- **Send Alarms** : NO = alarms not sent.
  YES = alarms sent to central PC and indicated by word "ALARM" appearing on the display.
- **PassWTeleman**: NO = password control not enabled
  YES = password enabled.

12. OPERATION

UPT 678 is a digital controller with microprocessor designed to regulate and telemanage sites with several heating/DHW zones:

- Control of five heating zones "**U1 ... 5**":
  - by temperature control, On-Off differential with timed event programming
  - by ambient temperature control (Proportional On-Off);
  - by ambient temperature control, On-Off proportional with timed event programming and possible switch-on optimisation
- Control boiler "**C**": to optimise operation according to demand from zones.

M5.1
```
Config detectors
 – – – – – – –
```

It is essential to configure the controller according to the detectors connected.

13. OUTPUTS "U 1...5"

The outputs for control zones **U1 ... 5** can be :

M3.1
```
U.:Type control:
TIMED EVENTS
```

– TIMED EVENTS	= On-Off control with timed events programming.
– DIFFERENTIAL	= On-Off differential control of a water temperature with timed event programming.
– PROPORTIONAL	= On-Off proportional control of an ambient temperature with timed event programming.

13.1 Timed events control

M3.1
```
U.:Type control:
TIMED EVENTS
```

It can be used for a timed event programming On-Off control of an electric device (e.g. plant pump controlled by another controller)

Set : Type of control : TIMED EVENTS

M0.2
```
U.: ------------
24HOUR      1
```

The UPT 678 can be programmed according to the requirements of the heating zones:

– 7DAY 1-2	= timed events operation with 7-day programme 1 or 2
– 24HOUR 1 ...7	= timed events operation with one of the seven 24-hour programmes
– ON	= always ON (contact closed)
– OFF	= always OFF (contact open)

when in place of programme appears :

– SUMMER	= Summer period in use
– SPECIAL	= Special period in use
– ANN PERIOD 1...15	= one of Annual periods (1 ... 15) in use.

If detector B1...5 is connected and configured according to output, this serves only to display the actual temperature of the zone (e.g. zone flow, ambient, etc).

M5.1
```
Config detectors
1 2 3 4 5 – –
```

The operational mode in use depends on the programme set:

- U. : ON = zone on
  OFF = zone off

If M3.9
```
U..:Eco Off :
Frosprot:YES
```
can be shown in the display:

Frosprot zone = only when the oprational mode is Off zone On when outside temperature is below M4.5
```
Frosprot zones
T OUTSIDE :xx.xc
```

M0.3
```
U..:On
ActualTemp:xx.xc
```

If M3.9
```
U..:Eco Off :YES
Frosprot:
```
can be shown in the display:

Eco Off = zone Off when outside temperature is above M4.7
```
Eco off
T outside :xx.xc
```

If M3.10
```
U.:Anticond.
Function
```
can be shown in the display:

Anticondensation = zone Off when outside temperature is below M4.8
```
Des anticond.
temp      :xx.xc
```

Act. temp : xx.xc = temperature measured by detector B1...5
(it appears only if the corresponding detector has been set)

13.2 ON-OFF DIFFERENTIAL control

It can be used for On-Off differential control of a temperature with possible timed events programming (e.g. DHW storage tank temperature)

M5.1
```
Config detectors
1 2 3 4 5 – –
```

Connect and configure detector B 1...5 relative to output

M3.1
```
U..:Control type:
DIFFERENTIAL
```

Set the type of control : DIFFERENTIAL CONTROL

It is possible to programme the type of operation according to the requirements of the zones:

– 7-DAY 1-2 = timed event operation with 7-day programme 1 or 2
– 24-HOUR 1 ...7 = timed event operation with one of the seven 24-hour programmes

M0.2
```
U..:(name)-------
24 HOUR      1
```

– T NORMAL xx.x c = continuous operation with desired temperature

M0.4
```
U..:(name)
T NORMAL  :xx.xc
```

– T SETBACK xx.x c = continuous operation with desired temperature

M0.5
```
U..:(name)
T SETBACK :xx.xc
```

– T FROSPROT xx.x c = continuous operation with desired temperature

M0.6
```
U..:(name)
T FROSPROT:xx.xc
```

– ON = always On (contact closed)
– OFF = always Off (contact open)

When in place of programme appears:
– SUMMER = summer period in use
– SPECIAL = special period in use
– ANN 1...15 PERIOD 1...15 = one of the Annual (1...15) periods in use

The operating mode in use depends on the programme set:

- U.. : Normal xx.x c = control with Desired Normal Temperature
  Setback xx.x c = control with Desired Setback Temperature
  Frosprot xx.x c = control with Desired Frosprot Temperature
  On = zone On
  Off = zone Off

M0.3
```
U..:Normal   xx.xc
ActualTemp:xx.xc
```

M3.9
```
U1: Eco Off :
    Frosprot:YES
```
If the display can show :

Frosprot. zones = only when operating mode is “Off” zone on when outside temperature is below

M4.5
```
Frosprot zones
T Outside :xx.xc
```

M3.9
```
U1: Eco Off :YES
    Frosprot:
```
If the display can show:

Eco Off = zone Off when outside temperature is above

M4.7
```
Eco Off
T Outside :xx.xc
```

M3.10
```
U..:Anticond.
Function   :YESI
```
If the display can show

Anticondensation = zone Off when boiler temperature is below

M4.8
```
Des Anticond.
temp       :xx.xc
```

- Act. Temp : xx.x c = temperature measued by detector B1...5.

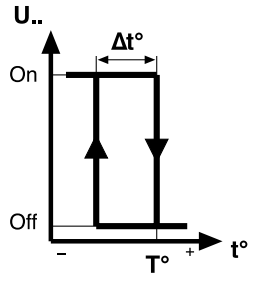
It is possible to set minimum On and Off times of the output

M3.7
```
U..:Minimum On
time       : xxs
```

M3.8
```
U..:Minimum Off
time       : xxs
```

The controller compares the temperature required T° by the mode in use with the temperature t° measured by detector B1...5 and switches On-Off according to Differential ht° set

M3.2
```
U..:Temperature
diff       : xx.xc
```



13.3 ON-OFF PROPORTIONAL control

It can be used for the On-Off Proportional control of an ambient temperature with possible timed events programming.

M5.1
Config detectors
1 2 3 4 5 – –

Connect and configure the detector B1...5 relative to output

M3.1
U..:Control type:
PROPORTIONAL

Set the type of control : PROPORTIONAL CONTROL

It is possible to programme the type of operation according to the requirements of the zones:
- 7-DAY 1-2 = timed event operation with 7-day programme 1 or 2
- 24-HOUR 1 ...7 = timed event operation with one of the seven 24-hour programmes

M0.2
U..:(name)-------
24 HOUR 1

- T. NORMAL xx.x c = continuous operation with desired temperature

M0.4
U..:(name)
T.NORMAL :xx.xc

- T. SETBACK xx.x c = continuous operation with desired temperature

M0.5
U..:(name)
T.SETBACK :xx.xc

- T. FROSPROT xx.x c = continuous operation with desired temperature

M0.6
U..:(name)
T.FROSPROT:xx.xc

- ON = always On (contact closed)
- OFF = always Off (contact open)

When in place of programme appears:
- SUMMER = summer period in use
- SPECIAL = special period in use
- ANN. 1...15 PERIOD = one of the Annual (1...15) periods in use

The operating mode in use depends on the programme set:

- U.. : Normal xx.x c = control with Desired Normal Temperature
  Setbackxx.x c = control with Desired Setback Temperature
  Frosprot xx.x c = control with Desired Frosprot Temperature
  On = zone On
  Off = zone Off
  Optimum start = zone On in advance by function

M0.3
U..:Normal xx.xc
ActualTemp: xx.xc

M3.4
U..:Opt m.Acc: Sl
Inertia : xxm/c

  If M3.9 U1: Eco Off / Frosprot:YES the display can show:

  Frosprot. zones = only when operating mode is Off
  zone On when outside temperature is below

M4.5
Frosprot zones
T.Outside :xx.xc

  If M3.9 U1: Eco Off :YES / Frosprot: the display can show:

  Eco Off = zone Off when outside temperature is above

M4.7
Eco off
T.Outside :xx.xc

  If M3.10 U1: Anticond. / Function : YES the display can show :

  Anticondensation = zone Off when boiler temperature is below

- Act. temp : xx.x c = temperature measured by detector B1...5

It is possible to set minimum On and Off times of the output

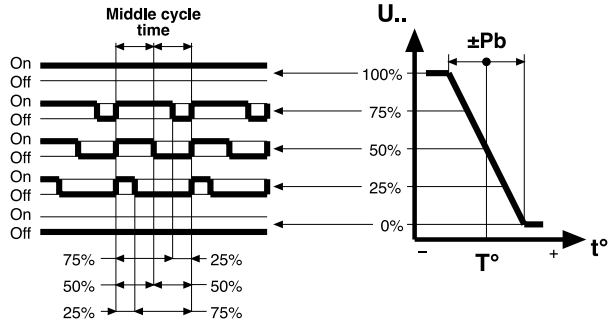
M3.7
U..:Minimum On
time : xxs

M3.8
U..:Minimum Off
time : xxs

The controller compares the temperature required **T°** by the mode in use with the temperature **t°** measured by detector B1...5 and switches On-Off according to Proportional Band **Pb** and the **set Half-load cycle time**
The set Half-load cycle time is the output On time and Off time when the actual temperature is the same as the desired one.

M3.2
U..:Proportionl
band : ± xxc

M3.3
U..:Half loas
mdl cycle T: xxm



13.4 Optimisation start of zone

When the output is used for the On-Off Proportional control of an ambient temperature with timed event programming it is possible to apply the Optimisation start of zone. This function authomatically varies the start time of the zone, either after a non-operational period, or night setback period or after a holiday period in order to get the desired ambient temperature at the first start time.
Its use finds specific practical application especially for schools, offices, places open to public and so on.

M3.4

```
U..:Opt On   :YES
Inertia  : xxm/c
```

- Optimisation start : NO = disabled ; – YES = enabled.
- Inertia = Necessary time in minutes to increase the ambient temperature by 1°C
  If at the first start time the actual ambient temperature is lower than the desired one the 'inerthia' value must be increased whereas if it is higher it must be decreased.

This function is only applicable in the period F (see diagram below) which is before the first start time h1 of the 24-hour programme.The start time is given by the meeting point of the descending actual ambient temperature curve measured by the detector (B1...5) when the zone is OFF or SET-BACK or FROSPROTECTION, and the ascending desired ambient temperature curve defined by the parameter 'Inertia' (manual setting only).

M3.5

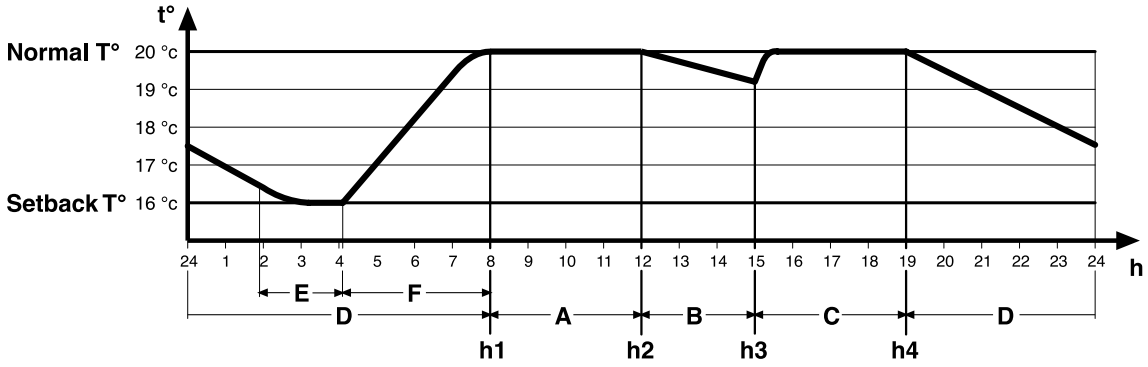
```
U..:Opt On Normal
Max time :xx.xxh
```

Maximum advance of the first start time of the zone when the controller uses one of the 7-day and/or 24-hour available programmes, which is to say at the start after a night period with Off, Setback or Frosprotection mode.

M3.6

```
U..:Opt On Ann P
Max time :xx.xxh
```

Maximum advance of the first zone start after an annual period.



E – On zone time to keep temperature at 16°C
F – Optimum start period given by the Optimisation function
h1 – 1st time (start time) : beginning of period A with Normal temperature 20°C
h2 – 2nd time : beginning of period B with Setback temperature 16°C
h3 – 3rd time : beginning of period C with Normal temperature 20°C
h4 – 4th time : beginning of period D with Setback temperature 16°C

14. OUTPUT "C"

The boiler control output “C” has a minimum On time and a minimum Off time of 1 minute.

14.1 Boiler control without detector B6

The output control boiler “C” is:
- On (contact 13-14 closed):
  – when at least one of the outputs U1...5 is On
  – when C-Ring - if scheduled - communicates a desired flow temperature above 0.
  – when outside temperature is below the set value in **M4.6**.
- Off (contact 13-14 open):
  – when all the outputs U1...5 are Off
  – when C-Ring - if scheduled - communicates a desired flow temperature equal to 0.

14.2 Boiler control with detector B6

The output control boiler “C” controls On-Off with differential

M4.4
```
Boiler temp
differential: 5c
```

M5.2
```
Conf B6 Detector
BOILER
```
```
Conf B6 Detector
BOILER+ANTICOND
```

- With desired temperature set on page M4.1 `T Boiler for zones On :xxc` when one of the outputs U1...5 is On. It is possible to set the temperature value even if the control boiler “C” is not accessible but the C-Ring is connected and on page M5.5 we read SECONDARY. The set temperature on page M4.1 is the value to be sent to the C-Ring as a desired value when one of the outputs U1...5 is On.
- With set temperature on page M4.2 `T Boiler for zones Off:xxc` when all the outputs U1...5 are Off
- With C-Ring connection, the boiler temperature value used by the controller will be the higher value between the set one on page M4.1 or M4.2 and that received by the C-Ring.

14.3 Anticondensation

This function can be used for each single output U1...5

M3.10
```
U..: Anticond
function    : YES
```

This function can be used when:

- the B6 detector is connected

M5.2
```
Conf B6 Detector
BOILER+ANTICOND
```
```
Conf B6 Detector
ANTICOND
```

  – for the control of the boiler temperature (detector on boiler flow). The controller progressively switches off from 1 to 5 the outputs with the enabled function, one for every 2°C of decrease in the real value in relation to T°v – 3Δt°.
  – only for the Anticondensation control (detector on return pipe).
  The controller calculate the deviation between the measure of the detector B6 and the value set on page M4.1. It can also consider the value sent by the C-Ring and then progressively switches off - from 1 to 5 - the outputs with the enabled function. The controller switches one output off every 1°C of increase of the deviation and it switches the outputs on when the deviation decreases in value.

- The detector B6 is not connected and therefore the UPT678 receives the anticondensation deviation value from another controller with an anticondensation detector via C-Ring connection

15. ECO OFF

This function can be used only if outside detector B7 is connected and configured

M5.1
```
Config detectors
7
```

M3.9
```
U..: Eco Off  :YES
     Frosprot: NO
```

When the outside temperature exceeds the value set, the outputs control zones U1...5, with Eco Off On, are switched Off (contact open). It is disabled when the outside temperature falls by 1°C below the threshold value set.

M4.7
```
Eco Off
T outside: xx.xc
```

16. FROST PROTECTION FUNCTION

This function can be used only if outside detector B7 is connected and configured

M5.1
```
Config detectors
7
```

M3.9
```
U..: Eco Off : NO
     Frosprot:YES
```

- When the outside temperature falls below the value set, the outputs control zones U1...5, with function On and mode Off, are switched On (contact closed).

M4.5
```
Frosprot zones
T Outside:-xx.xc
```

- When the outside temperature falls below the value set

M4.6
```
Frosprot boiler
T Outside:-xx.xc
```

  – If the detector B6 is not connected, the output control boiler “C” switches On the boiler with temperature controlled by its own thermostat.

  – If detector B6 is connected and configured, the output control boiler “C” is on On-Off control with differential

M4.4
```
Boiler temp
differential: 5c
```

and desired temperature

M4.3
```
T Boiler for
Frosprot    :xxc
```

The Frost Protection Function is disabled when the outside temperature rises by 1°C above the values of the relative thresholds set.

17. TIMED EVENTS PROGRAMMES

The timed events programmes are independent for each single output.

M1.1

```
U..:24hour      :1
   7day         :0
```

- U .. = enter output number (1...5)
- 24 hour : x = enter number of 24-hour programmes you wish to use (max 7)
- 7 day: x = enter number of 7-day programmes you wish to use (max 2)

17.1 24hour programmes

M1.2

```
U..:24H1 E1  6.00
T NORMA L    20.0c
```

⇩

M1.7

```
U..:24H1 E6  22.00
OFF
```

- U .. = output number (1...5) set on page **M1.1** .
- G .. = number of 24-hour programmes (1...7)
- E1 from xx.xx = event number and start time (2...6)

In each 24-hour programme you can set a maximum of 6 event start times (E1...E6) assigning to each of them one of the following modes:

If on page **M3.1** DIFFERENTIAL or PROPORTIONAL is set:

– T NORMAL xx.x c = period with control at desired temperature

M0.4

```
U..:(name)
T NORMA L   :xx.xc
```

– T SETBACK xx.x c = period with control at desired temperature

M0.5

```
U..:(name)
T SETBACK  :xx.xc
```

– T FROSPROT xx.x c = period with control at desired temperature

M0.6

```
U..:(name)
T FROSPROT:xx.xc
```

– ON = period On (contact closed)

– OFF = period Off (contact open)

If on page **M3.1** TIMED EVENTS is set :
– ON = period On (contact closed)
– OFF = period Off (contact open)

The event start times must be entered in increasing order.
The unused events must be excluded by pressing + and – keys at the same time (– – –).
Unused times (– – –) must not be left between programmed times.

17.2 7day programmes

M1.8

```
U..: 7D1- MONDAY
24hour  1
```

⇩

M1.14

```
U..:7D1-SUNDAY
24hour  1
```

- U .. = output number (1...5) set on page **M1.1** .
- D .. = number of 7-day programme (1-2)
- MONDAY = day of week (from Moday to Saturday)

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

If on page **M3.1** DIFFERENTIAL or PROPORTIONAL is set:

– 24 HOUR1…7 =day with 24-hour 1...7 programme

– T NORMAL xx.x c = day with control at desired temperature

M0.4

```
U..:(name)
T NORMA L   :xx.xc
```

– T SETBACK xx.x c = day with control at desired temperature

M0.5

```
U..:(name)
T SETBACK  :xx.xc
```

– T FROSPROT xx.x c = day with control at desired temperature

M0.6

```
U..:(name)
T FROSPROT:xx.xc
```

– ON = day On (contact closed)

– OFF = day Off (contact open)

If on page **M3.1** TIMED EVENTS is set::
– 24HOUR 1…7 = day with 24-hour programme 1...7
– ON = day On (contact closed)
– OFF = day Off (contact open)

17.3 Copying programmes

For each output it is possible to make a full copy of the 24-hour and 7-day programmes of any other output.

M1.15

```
U..:Progs from U..
PRESS → KEY
```

- U .. = output number (1...5) set on page **M1.1** .
- Progs from U .. = enter number output (1...5) from which to copy programmes.
- Press → key = press → key. There will appear : "U.. : TO COPY KEEP + PRESSED". press + key until there appears: "RELEASE + KEY" If the type of control of the two outputs, set on page M3.1, is the same the copy will be made, otherwise "COPY DENIED" will appear.

18. ANNUAL PERIODS WITH DATES

18.1 Annual Programming Periods

The annual periods are independent for each single output.

Set an operating programme which overrides that in use.
At the end of each Annual Period the controller returns to its normal operation.

M2.1

```
U..:Number of
periods ?      x
```

- U .. = enter output number (1...5)
- How many annual periods? ? x = enter number of periods you wish to use (max 15)

If left at 0 the pragramming pages do not appear.

M2.2

```
Ux:Ann.xx:OFF
frm xx.xxtoxx.xx
```

- U .. = output number (1...5) entered on page **M2.1** .
- Ann. xx : 24HR 1 = progressive number of Annual period (1...15) and choice of programme to assign to the period.

If on page **M3.1** DIFFERENTIAL or PROPORTIONAL is set :

– 7DAY 1-2 = period with 7-day 1 or 2 programme
– 24HR 1…7 = period with 24-hour 1...7 programme
– NORMAL = period with control at desired temperature

M0.4

```
U..:(name)
T NORMA L   :xx.xc
```

– SETBACK =period with control at desired temperature

M0.5

```
U..:(name)
T SETBACK :xx.xc
```

– FROSPROT = period with control at desired temperature

M0.6

```
U..:(name)
T FROSPROT:xx.xc
```

– ON = period On (contact closed)

– OFF = period Off (contact open)

If on page **M3.1** TIMED EVENTS is set :
– 7DAY 1-2 = period with 7-day 1 or 2 programme
– 24HR 1…7 = period with 24-hour 1...7 programme
– ON = day On (contact closed)
– OFF = day Off (contact open)

– frm - - . - - t o - - . - - = day and month of start and end of Annual Period.

For each output it is possible to make complete copy of the Annual Periods of any other output.

M2.3

```
U..:Periods frmU..
PRESS  → KEY
```

- U .. = output number (1...5) set on page **M2.1** .
- Periods frm U.. = enter number of output (1...5) from which to copy the programmes
- Press → key = press →.key. The display will show: U..: TO COPY KEEP + PRESSED. Press + key until RELEASE + KEY appears. If the type of control of the 2 outputs, set on page **M3.1** is the same the copy is made, otherwise COPY DENIED will appear.

18.2 Special Period

Period which sets for each single output an operating programme which overrides the one in use in order to meet special circumstances :

M0.7

```
U..:Spec.  :OFF
frm:xx.xxto:xx.xx
```

– 7DAY 1 - 2; – 24HOUR1 …7; – NORMAL ; – SETBK. ; – FROSPR ; – ON; – OFF.
– frm x x.x x to x x.x x = day and month of start and end of Special Period.

This programme has priority over all the other programmes.

18.3 Heating Season

Establishes the Winter Season Heating Period.

M4.9

```
Heating season
frm:xx.xxto:xx.xx
```

– frm x x.x x = day of start of Winter season (controller On from 00.00 hours)
– to x x.x x = day of end of Winter season (controller Off from 24.00 hours)

To cancel the period keep + and–- keys pressed at the same time.
When the period is cancelled the controller remains in operation for all the year.

18.4 BST (British Summer Time)

The controller can change the actual time automatically according to the BTS period. Please set:
– frm x x.x x = night of the last Saturday in March - the clock advances one hour automatically
– to x x.x x = night of the last Saturday in October - the clock goes back one hour automatically.

M4.10

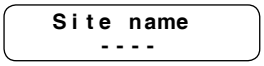
```
BST
frm:xx.xxtoxx.xx
```

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

19. COMPLEMENTARY FUNCTIONS

19.1 Access keynumber

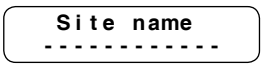
M5.9



Choice and enabling of access keynumber which disables use of + and - keys thereby preventing any modification of data.
Enter the number (1900...1999) using + and – keys.
To cancel keynumber press + and – keys at the same time until dashes reappear
When keynumber is enabled, if you press + or – keys the display will show the request to enter keynumber. Only after having entered the correct keynumber can + and – keys be used.
If no key is pressed for a period of 15 minutes or more, the keynumber will be automatically re-activated.

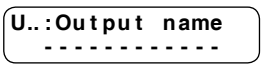
19.2 Denomination of site and outputs

M5.10



Entering name of site which appears on first display page **M0.1**.
Each dash can be replaced, using + and - keys, by a letter of the alphabet (A...Z) or by a digit (0...9).
The → key serves to position the cursor. Entering name of each single ouput which appears on display pages **M0.4, M0.5, M0.6.**

M3.11

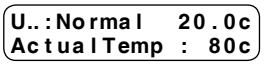


Each dash can be replaced, using + and - keys, by a letter of the alphabet (A...Z) or by a digit (0...9).
The → skey serves to position the cursor.

19.3 Displaying measurements

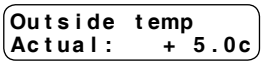
The controller displays all measurements made by the detectors and the data which serve to monitor the operational status of the plant/zones:

M0.3



- Mode in use for outputs U1...5 :
  - If on page **M3.1 DIFFERENTIAL** or **PROPORTIONAL** is set, desired temperature will appear.
  - If on page **M3.1 TIMED EVENTS** is set, there will appear : - On ; - Off
- Actual temperature measured by detectors B1...5, only if connected and configured on page **M5.1**.

M0.8



- Actual : outside temperature measured by detector B7, if connected and configured on page **M5.1**
- C-Ring : outside temperature coming via C-Ring (if not B7 configured)

M0.9

Only if connected and configured on page **M5.1** the detector B6:
- desired temperature Boiler : if on page **M5.2** BOILER or BOILER + ANTICOND. is set
- actual temperature Boiler : if on page **M5.2** BOILER or BOILER + ANTICOND. is set
- desired temperature Anticon. : if on page **M5.2** ANTICONDENSATION is set
- actual temperature Anticon. : if on page **M5.2** ANTICONDENSATION is set

19.4 Recording data

The controller memorises 70 series of all the operational data of the zones controlled.
The last recording causes the cancellation of the previous one.
The recordings take place automatically at **change of mode** of the control zones outputs **U1...5** and of the control boiler C output, and after each **period of time** set by the telemanagement PC (15min. ; 30 min. ; 1...24 hours)
The memorised data are sent to the telemanagement PC when the conteny reaches the percentage of memory set (50...90%)

20. ALARMS

The alarms processed by the controller are of three types:
- alarms for abnormal operation of the controller: "fault" (LED 6.8) and of zones controlled (LED 6.7)
- alarms for short/open circuits to detectors connected (LED 6.7)
- alarms from external contacts (LED 6..6)

The alarm status is indicated by LEDs on the controller facia and on the configuration page by the alternating appearance of the letter 'A' and the number of the alarm concerned. Instead, when the alarm is transmitted to the PC, the word "ALARM" will appear on the display.
With C-Bus connection the alarms can be transmitted to a local PC and/or to the telemanagement central PC.

20.1 Functional alarms

The functional alarms are triggered in a situation of continuing differences between actual and desired measurements.
Except for the real time clock alarm (8) they do not affect the normal operation of the controller.

M5.6

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

"Factory setting" : all disabled except real time clock alarm (8).
It is possible to enable the alarms only if on page M3.1 DIFFERENTIAL or PROPORTIONAL is set.
It is possible to enable the alarms of interest by replacing the dashes with numbers, using + and – keys.

The values for limits and delay times for sending alarms can be adjusted only by PC.

Type of alarms and causes:

1…5 = temperature difference, zones (B1...5)
- enabled in control mode with desired temperature ...
- triggered when actual temperature below the one desired.

6 = temperature difference, boiler (B6)
- enabled in control mode with desired temperature ...
- triggered when actual temperature below the one desired.

8 = internal real time clock - cannot be disabled
- triggered when timeswitch assumes meaningless values.

20.2 Detector alarms

The detector alarms are triggered in the event of short/open circuits to the detectors connected.

M5.7

```
Detector Alarms
– – – – – – – –
```

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

Factory setting": all disabled.
It is possible to enable the alarms of interest by replacing the dashes with numbers, using + and – keys.

Type of alarm and its effect:

1…5 = detectors zones (B1...5); outputs U1...5 Off
6 = boiler detector (B6): output "C" On, boiler controlled by own thermostat
7 = outside detector (B7): no effect
8 = C-Ring: open electric connection or faulty controller in ring.

20.3 Alarms or status from outside contacts (K)

Alarms triggered by closure of voltage-free contacts K1...3 by site/heating zone components (pumps, burners, and so on)

M5.8

```
K alarms
– – –
```

Alarm is triggered after about one minute.

Factory setting : disabled
It is possible to enable the alarms of interest by replacing the dashes with numbers, using + and – keys.
If not used for alarms, it can be used for signalling status.

21.COMMISSIONING

Testing to be carried out at the conclusion of installation and after electric wiring and configuration has been completed and tested.

21.1 Testing C-Ring

The page of C-Ring testing appears only if on page M5.5 PRIMARY or SECONDARY is set.

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

M6.1

```
CRing:??
```

– correctly powered

– slave controllers or configured as SECONDARIES on page

```
CRing connection
SECONDARY
```

– selected on testing page

```
CRing ??
```

UPT 678 sends via C-Ring a signal every five seconds: on all the displays appears “??” If connections are correct the word “YES” replaces “??” on the displays. If on one or more displays “YES” does not appear this mean that there is a break in the wiring between tha 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" – Cont..4 YES" : Wiring correct
– Cont.1 "??" – Cont..2 "YES" – Cont..3 "YES" – Cont..4 "YES" : Break between 4 & 1
– Cont.1 "??" – Cont..2 "YES" – Cont..3 "??" – Cont..4 "??" : Break between 2 & 3
– Cont.1 "??" – Cont..2 "??" – Cont..3 "??" – Cont..4 "??" : Break between 1 & 2

21.2 Testing boiler control outputs

M6.2

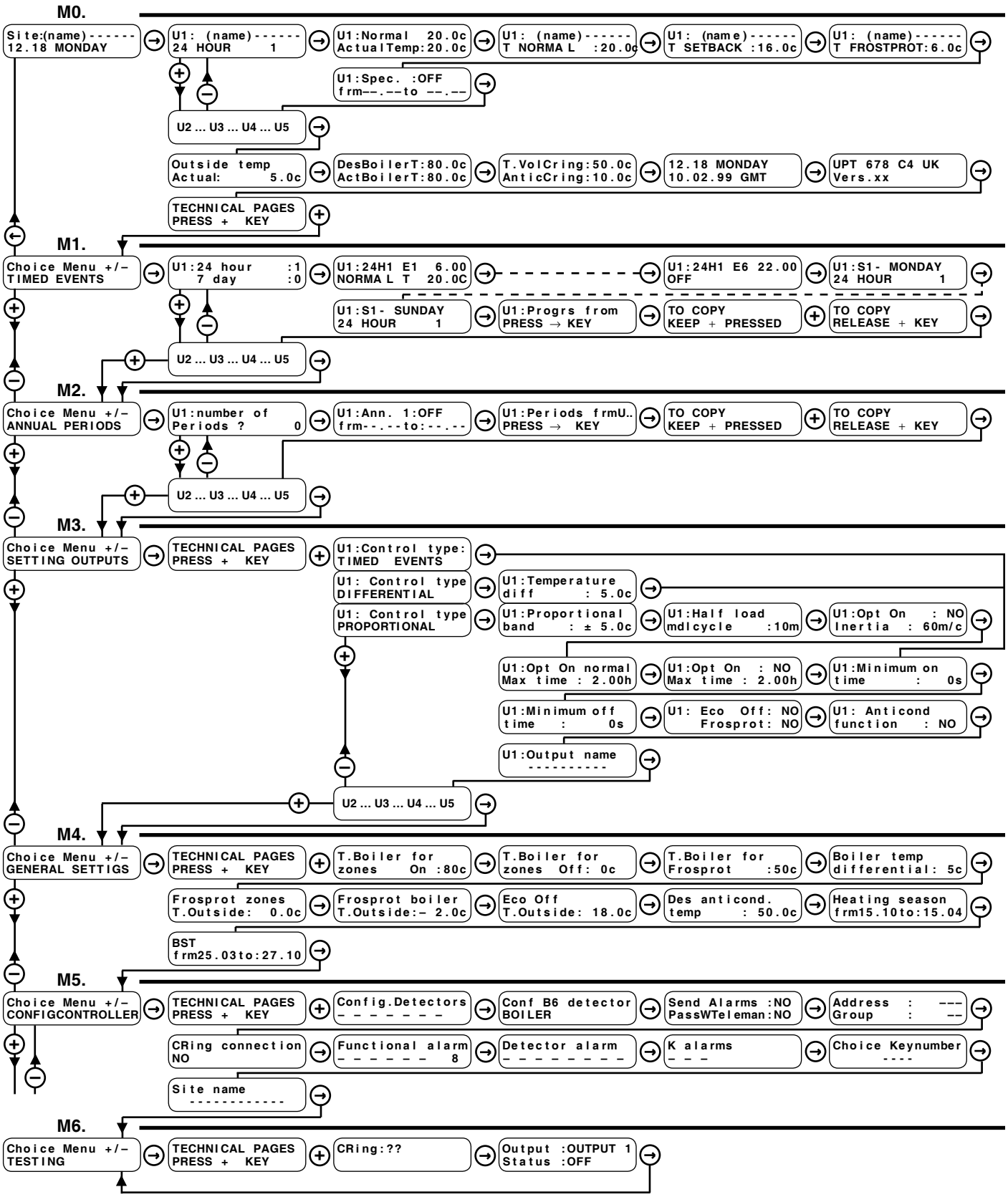
```
Output :OUTPUT 1
Status :OFF
```

With + and – keys select:

- Output : OUTPUT 1…5
  BOILER
- Status : – OFF = Output off
  – ON = Output on

Check the result.

22. SEQUENZA DELLE PAGINE DISPLAY (i dati e le funzioni sono quelli in memoria alla consegna)



⊖ ⊕ Keys for scrolling the display pages and positioning the cursor ▮ on adjustable data on the pages.
The adjustable data, in the following descriptive tables of display pages, are highlighted by

By pressing these keys together, or in any event after 15 minutes, the first page returns to the display

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

⊖ ⊕ Keys for : – adjusting the values highlighted by the cursor ▮
– displaying the configuration options of a function e.g.
– pass directly from one menu (block of pages) to another.

```
U1:Control type
DIFF CONTROL
```

or

```
U1: Control type
PROP CONTROL
```

M0. NORMAL USE

Ref.	Display	Description	Notes	Sect.
M0.1	Site:(name)----- 12.18 MONDAY	Name site Current time and day	Name site entered on page **M5.10**	.
M0.2	U1: (name)------ 24HR 1	Output U1...5. Choose with + or – Choice programme : - If on page **M3.1** is DIFFERENTIAL or PROPORTIONAL is set, options are: 7 DAY 1-2 ; 24 HOUR 1…7 ; T. NORMAL 20.0 c ; T. SETBACK 16.0 c ; T. FROSTPROT 6.0 c ; ON; OFF. - If on page **M3.1** TIMED EVENTS is set, options 7 DAY 1-2 ; 24 HOUR 1…7 ; ON ; OFF.	Name output entered on page **M3.11** Instead of programme you can read: SUMMER = Summer period in use SPECIAL = Special period in use ANNUAL 1...15 PERIOD=annual period 1…15 in use.	**13.1.2.3**
M0.3	U1:NORMA L 20.0c ActualTemp:20.0c	Output U1...5. Mode in use: NORMAL--.- c ; SETBACK --.- c ; FROSTPROT --.- c ; ON ; OFF ; FROSPROT ZONE ; ECO OFF . Actual temperature measured by detector B1...5 (if not configured on page **M5.1**).	In the display you can read: OPTIMUM START: optimum start period caused by optimization. ANTICONDENSATION : desired temperature modified by Anticond. function FROSTPROT. ZONE : frosprot. function in use. ECO OFF : eco off function in use.	**13.1.2.3**
M0.4	U1: (name)------ T.NORMA L :20.0c	Output number (1…5). Choose with + or –. Entering desired NORMAL temperature.	Does not appear if on page **M3.1** TIMED EVENTS is set	**13.2.3 17.**
M0.5	U1: (name)------ T.SETBACK :16.0c	Output number(1…5). Entering desired SETBACK temperature	Does not appear if on page **M3.1** TIMED EVENTS is set	**13.2.3 17.**
M0.6	U1: (name)------ T.FROSPROT: 6.0c	Output number (1…5). Entering desired SETBACK temperature	Does not appear if on page **M3.1** TIMED EVENTS is set	**13.2.3 17.**
M0.7	U1:Spec. :OFF frm--.--to --.--	Output number U1…5. Choice programme forS-pecil period - If on page **M3.1** DIFFERENTIAL or PROPORTIONAL is set, options are: 7 DAY 1-2; 24 HOUR 1…7 ; NORM. ; SETB. ; FROSP. ; ON ; OFF. - If on page **M3.1** TIMED EVENTS is set options are 7 DAY 1-2 ; 24 HOUR 1…7 ; ON ; OFF. Dates of start and end of Special Period.	To cancel period press + and – keys at the same time	**18.2**
M0.8	Outside temp Actual: 5.0c	Temperature measured by outside detector B7 or coming via C-Ring.	Appears if B7 is configured on page **M5.1**.If value comes via C-Ring, Actual is replaced by C-Ring.	**19.3**
M0.9	DesboilerT:80.0c ActboilerT:80.0c	Boiler temperature required by controller Boiler temperature measured by detector B6.	Compare se B6 è configurata in **M5.1** and if on page **M5.2** BOILER or BOILER + ANTICOND. is set	**19.3**
	DesAnticon:50.0c ActAnticon:50.0c	Anticond. temperature required by controller. Anticond. temperature set on page **M4.8**.	Appears if B6 is configured on page **M5.1** and if on **M5.2** page ANTICOND. is set.	**19.3**
M0.10	Des.Cring:50.0c AnticCring:10.0c	Required flow temperature from C-Ring. Anticond. deviation from C-Ring.	Appears if C-Ring is enabled.	**19.3**
M0.11	12.18 MONDAY 10.02.99 GMT	Setting: time, day of week and date. Time period in use: GMT or BST.	According dates BTS entered on page **M4.10**	
M0.12	UPT 678 C4 UK Vers.xx	Identifying data of controller.		

M1. TIMED EVENTS PROGRAMMES

Ref.	Display	Description	Notes	Sect.
M1.1	U1:24 hour :1 7day :0	Output number (1 ... 5). Chose with + or –. Choice of number of 24hour (1 ...7) & 7day (0 ... 2) programmes to be used.	Eliminates unnecessary display pages.	17.
M1.2 ⇓ ⇓ M1.7	U1:24H1 E1 6.00 ON U1:24H1 E6 22.00 OFF	Number of programme, number of event & start time of period in programme. Choice type of mode to assign to period. - If on page **M3.1 DIFFERENTIAL** or **PROPORTIONAL** is set,options are: T NORMAL 20.0 c ; T SETBACK 16.0 c ; T FROSPROT 6.0 c ; ON ; OFF. - If on p. **M3.1 TIMED EVENTS** is set,options are: ON ; OFF. **Other groups 6 pages according figure p. M1.1**	Max. 6 periods. To cancel an unused period press + and - together, there will appear **- - . - -** The times must be in increasing order. You must not leave - - . - - between programmed events.	17.1
M1.8 ⇓ ⇓ M1.14	U1:S1- MONDAY 24 HOUR 1 U1:S1- SUNDAY 24 HOUR 1	Programme for each day of week: - If on page **M3.1 DIFFERENTIAL** or **PROPORTIONAL** is set, options are : 24 HOUR 1…7 ; T NORMAL 20.0 c ; T SETBACK 16.0 c ; T FROSPROT 6.0 c ; ON ; OFF. - If on page **M3.1 TIMED EVENTS** is set,options are: 24 HOUR 1…7 ; ON ; OFF. **Further 7 pages for 7D2 if on page M1.1** is 2.	It appears only if on page **M1.1** number >0.	17.2
M1.15	U1:Progrs frm – PRESS → KEY U1:TO COPY KEPP + PRESSED	With + or – keys replace dash with no. output from which to copy programmes. Press→ Appears : U1 : TO COPY KEEP + PRESSED. Press + key for several seconds. Appears: RELEASE + KEY. If type control on p. **M3.1** of two outputs concerned are equal the copy is made. If not, appears : COPY DENIED		17.3

M2 ANNUAL PERIODS

Ref.	Display	Description	Notes	Sect.
M2.1	U1:Number of periods ? 0	Output No. (1 ... 5). Choose with + or –. Choice number Annual periods to be used (0…15).	Eliminates unnecessary display pages.	18.1
M2.2	U1:Ann. 1:24HR 1 frm--.--to --.--	Output number (1 ,,, 5). Period number (1 ... 15). Programme to be used in period: - If on page **M3.1 DIFFERENTIAL** or **PROPORTIONAL** is set, options are: 7 DAY1-2 ; 24 HOUR 1…7 ; NORM ; SETB; FROSPROT ; ON; OFF. - If on page **M3.1 TIMED EVENTS** is set, options are : 7DAY 1-2 ; 24 HOUR 1…7 ; ON ; OFF. Dates of start and end of Annual period. **Other pages according number on p. M2.1**	It appears only if on p. **M2.1** number > 0.	18.1
M2.3	U1:Periods frmU– PRESS → KEY U1:TO COPY KEPP + PRESSED	With + or – keys replace dash with No. output from which copy periods. Press → . Appears : U1 : TO COPY KEEP + PRESSED. Press + keys for several seconds. Appears: RELEASE + KEY. If type control on p. **M3.1** of the two outputs are equal the copy is made. If not, appears: COPY DENIED.	.	18.1

M3. SETTING OUTPUTS

Ref.	Display	Description	Notes	Sect.
M3.1	U1:Control type TIMED EVENTS	Output number (1...5). Select with + or –. Type of output control : TIMED EVENTS; DIFFERENTIAL; PROPORTIONAL.	If B1...B5 is not configured on page M5.1 only TIMED EVENTS appears. With TIMED EVENTS if one detector is set on page **M5.1** the detector can only be used for temperature readout.	13.
M3.2	U1:Temperature diff : 5.0c	Output number (1...5). Temperature differential for control output.	Appears if on page **M3.1** DIFFERENTIAL is set.	13.2
	U1:Proportional band : ± 5.0c	Output number (1...5). Proportional band for control output.	Appears if on page **M3.1** PROPORTIONAL is set.	13.3
M3.3	U1:Half load mdl cycle :10m	Output number (1...5). Half-load cycle time for control output.	Appears if on page **M3.1** PROPORTIONAL is set.	13.3
M3.4	U1:Opt On : NO Inertia : 60m/c	Output number (1...5). Start optimisation function: –YES; –NO. Inertia of start optimisation in minutes per °C. It appears only if Optim. Start: YES.	Appears if on page **M3.1** PROPORTIONAL is set.	13.4
M3.5	U1:Opt On normal Max time: 2.00h	Output number (1...5). Max duration of optimum start with 24HOUR and 7DAY programmes.	Appears if on page **M3.1** PROPORTIONAL is set and if on page **M3.4** there is YES	13.4
M3.6	U1:Opt On Max time:10.00h	Output number (1...5). Max duration of optimum start after an annual period.	Appears if on page **M3.1** PROPORTIONAL is set and if on page **M3.4** there is YES .	13.4
M3.7	U1:Minimum On time : 0s	Output number (1...5). Minimum duration period On.	Appears if on page **M3.1** DIFFERENTIAL or PROPORTIONAL is set	13.2.3
M3.8	U1:Minimum Off time: 0s	Output number (1...5). Minimum duration period Off.	Appears if on page **M3.1** DIFFERENTIAL or PROPORTIONAL is set	13.2.3
M3.9	U1: Eco Off : NO Frosprot: NO	Output number(1…5). Eco Off: – YES; – NO. Frosprotection: – YES; – NO.	Appears if B7 is configured on page **M5.1** or **M5.** C-Ring connection is configured.	15. 16.
M3.10	U1: Anticond Function : NO	Output number(1…5). Frosprotection: – YES ; – NO.	Appears if B6 is configured on page **M5.1**. or **M5.2** BOILER+ANTICOND. or ANTICOND. is set or if the C-Ring has been enabled.	14.3
M3.11	U1:Output name ----------	Output number (1...5). Select with + or -. Entering output number.	Use + and – to enter letters or digits. Use ← and → to position cursor.	19.2

M4. GENERAL SETTING

Ref.	Display	Description	Notes	Sect.
M4.1	T.Boiler for zones On :80c	Desired temp. boiler with zones On.	It appears if C-Ring is enabled or if B6 is set on page **M5.1** and if on page **M5.2** BOILER or BOILER + ANTICONDENSATION is set.	14.2
M4.2	T.Boiler for zones Off: 0c	Desired temp. boiler with zones Off	It appears if C-Ring is enabled or if B6 is set on page M5.1 and if on page **M5.2** BOILER or BOILER + ANTICONDENSATION is set.	14.2
M4.3	T.Boiler for Frosprot :50c	Desired temp. boiler with Frost Protection.	It appears if C-Ring is enabled or if B6 and B7 are set on page **M5.1** and if on page **M5.2** BOILER or BOILER + ANTICONDENSATION is set.	16.
M4.4	Boiler temp differential: 5c	Temperature differential for control	It appears if B6 is set on page **M5.1** and if on page **M5.2** BOILER or BOILER + ANTICONDENSATION is set.	14.2
M4.5	Frosprot zones T.Outside: 0.0c	Frost Protection: outside temperature for switching On zones.	It appears if C-Ring is enabled or if B7 is set on page **M5.1**. It does not appear if for all the outputs on page **M3.9**. Frost Protection : NO is set.	16.
M4.6	Frosprot boiler T.Outside:– 2.0c	Frost Protection: outside temperature for switching On boiler.	It appears if C-Ring is enabled or if B7 is set on page **M5.1**and if on page **M5.2** BOILER or BOILER + ANTICONDENSATION is set .	16.
M4.7	Eco Off T.Outside: 18.0c	Eco Off: outside temperature for switching Off pumps.	It appears if C-Ring is enabled or if B7 is set on page **M5.1**.It does not appear if for all the outputs on page **M3.9** Eco Off: NO is set.	15.
M4.8	Des Anticond. temp : 50.0c	Setting desired temperature for anticondensation.	It appears if B6 is set on page **M5.1**. and if on page **M5.2** ANTICONDENSATION is set.	14.3
M4.9	Heating season frm15.10to 15.04	Dates of start and end of heating season.	In Summer period the 5 outputs are Off.	18.3
M4.10	BST frm25.03to 27.10	Dates of start and end of BTS period.		18.4

M5. CONFIGURATION UPT 678

Ref.	Display	Description	Notes	Sect.
M5.1	Config.Detectors – – – – – – –	Configuration connected detectors (inputs B-M) – = detector not connected; number = detector connected.	1…5 : Detectors to control temp. outputs B1...5 6 : Detector for boiler or anticond. temp. B6 7 : Detector external temp. B7	**12.**
M5.2	Conf B6 detector BOILER	Type of configuration detector B6: BOILER : when detector B6 is used to control only the boiler temperature (output C). BOILER + ANTICOND. : when detector B6 is used to control the boiler temperature (output C) and the anticondensation temperature. ANTICONDENSATION : when detector B6 is used only for anticondensation temperature.	It appears if B6 is set on page **M5.1**.	**14.**
M5.3	Send Alarms : NO PassWTeleman : NO	Enabling alarms to send to telemanagement PC. Enabling telemanagement password.	Necessary only if connected in C-Bus.	**11.6**
M5.4	Address : --- Group : –	Telemanagement address of controller. Assigned group of controller.	Necessary only if connected in C-Bus.	**11.5**
M5.5	CRing connection: NO	NO : controller not connected in C-Ring. PRIMARY : connected as Primary. SECONDARY : connected as Secondary.		**11.1**
M5.6	Functional alarm – – – – – – 8	Enabling functional alarms. Factory setting : enabled only 8 (cannot be disabled)	1…5 : Difference zones temp. **B1...5** 6 : Difference boiler temp. **B6** 8 : Alarm internal clock.	**20.1**
M5.7	Detector alarm – – – – – – – –	Enabling alarms for short/open circuits detectors. Factory setting : all disabled.	1…5 : Detectors zones temp. **B1...5** 6 : Difference boiler temp. **B6** 7 : Detector external temp. **B7** 8 : C-Ring alarm	**20.2**
M5.8	K alarms – – –	Enabling On / Off alarms Factory setting : all disabled.	.	**20.3**
M5.9	Choice Keynumber ----	Choice keynumber to prevent use + and – keys: 1901 … 1999	To cancel keynumber press + and – keys to-	**19.1**
M5.10	Site name ------------	Entering name site.	Use + and – to enter letters or digits. Use ← and → to position cursor.	**19.2**

M6. TESTING

Ref.	Display	Description	Notes	Sect
M6.1	CRing:??	?? = C-Ring testing in progress or C-Ring faulty YES = test OK	Appears if on page **M5.5** PRIMARY or SECONDARY is set.	**21.1**
M6.2	Output : OUTPUT 1 Status : OFF	Choice output to set Choice output status	Output :– OUTPUT 1 … 5; – BOILER. Status : – OFF = Output Off – ON = Output On.	**21.2**

LB 10.02.05

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