

TEMPERATURE CONTROLLER WITH TIMED PROGRAMMING

OPTIONAL
C ← RING C ← BUS

XTR 628 Eng.



- 1 PI temperature controller with 3-wire modulating control or On-Off in 1 or 2 stages
- 2 temperature controllers or timed On-Off controls
- Independent timed programmes for the 3 controllers
- Communication systems :
 - C-Ring for exchanging data between local controllers.
 - C-Bus : XTR 628 Telemangement optional; to enable Telemangement use the "C-Bus Plug-in" type "C-Bus Plug-in" type ACB 460, to be ordered separately as accessory.
- Power supply: 230 V AC (or 240 V AC for UK market); DIN rail mounting



1. APPLICATION

XTR 628 controller is designed for fixed point temperature control in following plants for:

- DHW production
- heating swimming pools
- underfloor heating
- heating horticultural beds
- fan coil heating

2. FUNCTIONS

The principal functions of XTR 628 are:

- 1 temperature control at fixed point (Y1) with :
 - temperature monitoring by one or two detectors (0...99 °C);
 - PI three-wire modulating control or On-Off PI or differential control in 1 or 2 stages;
- 2 temperature controls or timed controls (M1 - M2) with:
 - measurement of temperature by one detector (0...99°C)
 - On-Off control PI or differential in one stage;
- Complementary functions of the three controllers:
 - Anticondensing (detector on another controller connected in C-Ring);
 - Priority (only if connected in C-Ring);
 - Antibacteria;
- Independent timed programmes for each of the three controllers:
 - 25 24hour programmes with 2...6 timed events and desired temperature set as required for each single event;
 - 7 7day programmes;
- 25 annual periods with the same dates at the three outputs with separate choice of programming;
- Automatic switching British Summer Time (BST) /Greenwich Mean Time (GMT).
- 1 On-Off input for changing programme of Y1 controller;
- 2 On-Off inputs for changing programmes of M1 and M2 controllers or for signalling status or alarm.
- 1 On-Off input for signalling status or alarm.
- Alarms for controller fault and for short or open detector circuits.
- Internal recording of operational data which can be displayed on local PCs or on remote Telemangement PC.
- C-Ring connection for local transmission data among other controllers.
- Optional C-Bus transmission of data with local PCs or remote Telemangement PC.

To enable data transmission and Telemangement use the "C-Bus Plug-in" type ACB 460

To communicate locally with a PC use the test Plug-in type ACX 232

3. DETECTORS & REMOTE CONTROLS

No.	Description	Type	Sensing element	Code	Data sheet
1	For controller Y1 (essential): Temp. detector immersion type Normal (0...99°C) or immersion type Rapid (0...99 °C) or room (0...40 °C) or room with set-point adjuster (0...40 °C)	SIH 010	NTC 10 kΩ	B1	N 140
		SIR 010	NTC 10 kΩ	B1	N 140
		SAB 010	NTC 10 kΩ	B1	N 111
		SCB 110	NTC 10 kΩ	B1 + Rt°	N 111
1	For controller Y1 (optional): Flow temp. detector immersion (only with B1) Temperature set-point adjuster	SIH 010	NTC 10 kΩ	B2	N 140
		CDB 100	–	Rt°	N 710
1 or 2	For controllers M1 and/or M2: Temp. detector immersion (0...99 °C) or room (0...40 °C)	SIH 010	NTC 10 kΩ	B5 - B6	N 140
		SAB 010	NTC 10 kΩ	B5 - B6	N 111
1	Accessory for Telemangement Plug-in for communicating via C-Bus	ACB 460	–	–	T 433

4. TECHNICAL DATA (factory settings in bold type)

• Electrical

Power supply	230 V AC \pm 10% or 240 V AC for UK market
Frequency	50...60 Hz
Consumption	5 VA
Protection	IP40
Radio disturbance	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. Committee(CEI)
Maximum switched current	5 years

• Mechanical

Case	DIN 6E module
Mounting	on DIN 35 rail
Materials:	
Base	NYLON
Cover	ABS
Ambient temperature:	
Operating	0...45 °C
Storage	- 25...+ 60 °C
Ambient humidity	Class F DIN 40040
Dimensions	105 x 115 x 71.5 mm
Weight	0.6 kg

• Measurements

Range	0...99 °C
Resolution	0.1 °C

• Setting ranges

Desired temperatures	1...99 °C
Increase desired T on plants T	0...40 °C
Set-point temperature adjuster (Rt°)	\pm 5 °C or \pm 10 °C
Minimum flow temp. (B2)	1...99 °C
Maximum flow temp. (B2)	1...99 °C

• Programmes

24hour programmes	1...25
24hour Events	2...6
7day programmes	0...7
Annual periods	0...25

• Control settings Y1

Type of control :	- MODULATING
	- On - Off PI 1 STAGE
	- On - Off PI 2 STAGES
	- On - Off DIFFER. 1 STAGE
	- On - Off DIFFER. 2 STAGES
Actuator run time	30... 60 ...3,600 s
Proportional Band	0.5... 10 ...99 °C
Integral Time	0... 300 ...3,600 s
On-Off differential	0.5... 10 ...99 °C
Minimum On time	0 ...990 s
Minimum Off time	0 ...990 s

Control limits min. and max.:
range :

temperature hysteresis	1 °C
calculated output hysteresis	2 %

• Settings controllers M1 - M2

Control :	- On - Off DIFFER.
	- On - Off PI
	- On - Off timed (without detectors)
Proportional band	0.5... 10 ...99 °C
Integral time	0... 300 ...3,600 s
On-Off differential	0.5... 10 ...99 °C
Minimum On time	0 ...990 sec.
Minimum Off time	0 ...990 sec.
Delay in switching Off	0 ...990 sec.

• Antibacteria function

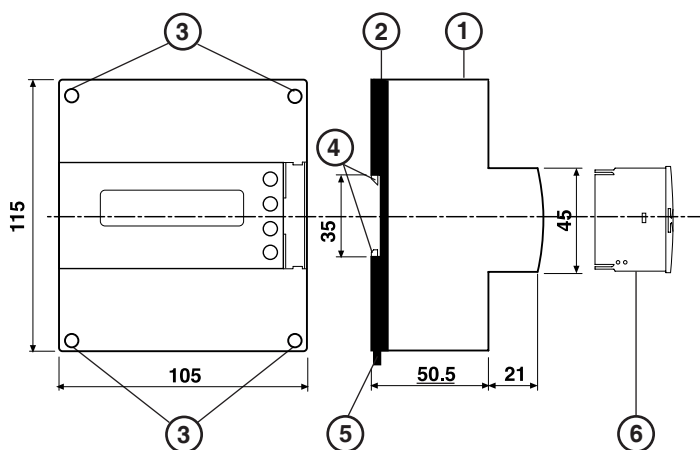
Temperature	0... 70 ...99 °C
Duration	10... 90 ...360 min

• Setting alarms

Telemangement (settings from PC):	
attempts send alarms	2... 5 ...200
interval between attempts	2... 10 ...210 min.
Alarms (settings by PC):	
thresholds diff. temp. (B1-B2-B5-B6)	1... 5 ...99 °C
delay diff. temp. (B1-B2-B5-B6)	2... 30 ...255 min.

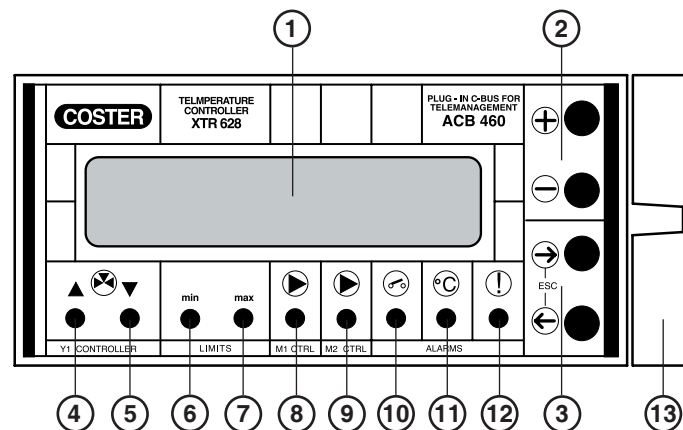
In the presence of electrical disturbances the output controls of the controller may change status but this will return to normal automatically.

5. OVERALL DIMENSIONS



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

6. FRONT PANEL

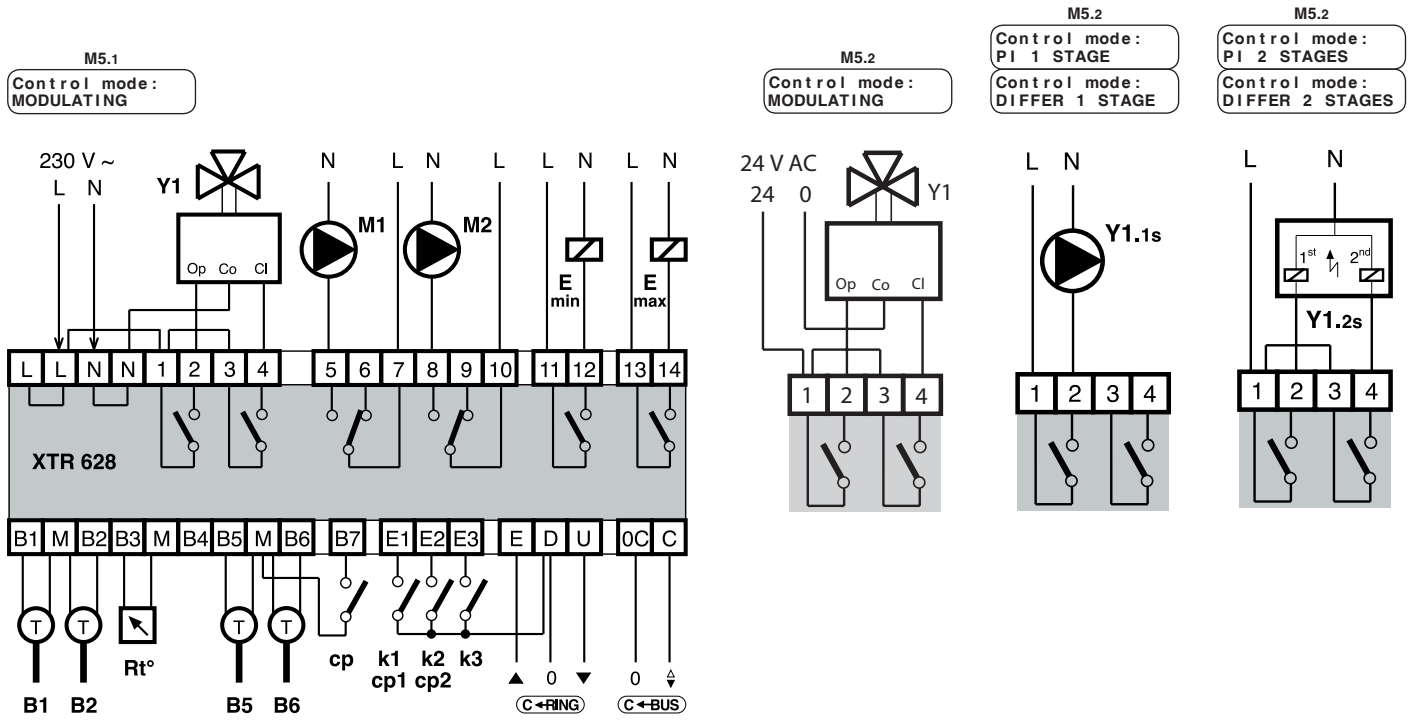


- 1 - Two-line alphanumeric display
- 2 - + and - keys
- 3 - ← and → keys

LEDs

- 4 - Valve opens or 1st stage controller Y1
- 5 - Valve closes or 2nd stage controller Y1
- 6 - Minimum limit Y1 controller
- 7 - Maximum limit Y1 controller
- 8 - On-Off control M1 controller
- 9 - On-Off control M2 controller
- 10 - On-Off alarms
- 11 - Measurement alarms
- 12 - Fault
- 13 - Plug-in type ACB 460 for C-Bus communication

7. WIRING DIAGRAMS



- B1 – Temp. detector primary controller Y1 (0...99 °C)
- B2 – Flow temp. detector controller Y1 (0...99 °C) (only with B1)
- B5 – Temp. detector On-Off controller M1 (0...99 °C)
- B6 – Temp. detector On-Off controller M2 (0...99 °C)
- cp – Change programme switch controller Y1
- cp1 – Change programme switch controller M1 (as alternative to k1)
- cp2 – Change programme switch controller M2 (as alternative to k2)
- E_{min} – Minimum limit control controller Y1
- E_{max} – Maximum limit control controller Y1

- M1 – On-Off control M1
- M2 – On-Of control M2
- Y1 – 3 wire modulating control controller 1
- Y1.1s – On-Off control in 1 stage controller 1
- Y1.2s – On-Off control in 2 stages controller 1
- Rt° – Temperature set-point adjuster controller Y1
- k 1 – On-Off alarm switch (as alternative to cp1)
- k 2 – On-Off alarm switch (as alternative to cp2)
- k 3 – On-Off alarm switch
- C-Bus – Transmission data via Telemangement; C-Bus is enabled using the Plug-in type ACB 460
- C-Ring – Transmission data between controllers

8. SITING CONTROLLER

The controller must be installed in a dry location that meets the ambient limits given under TECHNICAL DATA. If installed in spaces classified as "Hazardous" it must be mounted in a cabinet for electrical appliances constructed according to the regulations in force for the type of danger concerned. The controller can be mounted on a DIN rail and installed in a standard DIN enclosure.

9. WIRING

Proceed as follows :

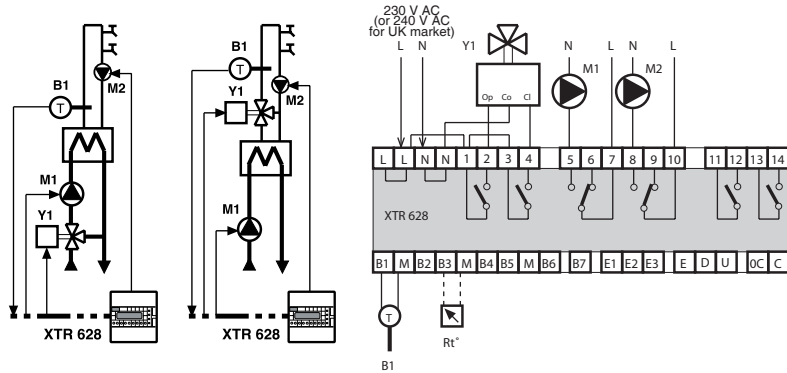
- Separate base and cover
- Mount base on DIN rail and check that securing elements (5.4) hold it firmly in place.
- Carry out wiring according to the diagram and in observance of the relevant regulations in force, and using cables of :
 - 1.5 mm² for power and relay control outputs
 - 1 mm² for sensors and remote control
 - 1 mm² for C-Bus and C-Ring. For wire length limits please see technical data sheets T 021 and T 022
- Reposition the cover on the base / terminal block and fasten with the 4 screws supplied (5.3).
- Check that voltage is correct and supplied by the dedicated auxiliary line, measuring it upstream of the protection (circuit breaker, fuse...).
- Power up the device.

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

10. EXAMPLES OF INSTALLATIONS

10.1 Plant for production of DHW with rapid heat exchanger:

– Control of DHW temp. (B1) by control valve (Y1), primary pump (M1) and DHW recycling pump (M2).

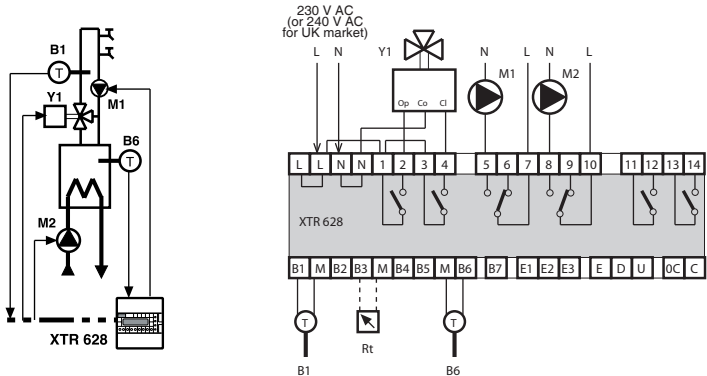


B1 – DHW temp. detector
 M1 – Primary circuit pump
 M2 – DHW recycling pump
 Y1 – DHW control valve
 Rt° – DHW temperature set-point adjuster (optional)

Config. XTR 628	Setting Y1 control	Setting M1 control	Setting M2 control	Normal use
M8.1 Config detectors 1 – 3 – –	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M7.1 Control mode: ON-OFF TIMED	M0.2 Y1 : DHW XXXXXXXXXX
	M5.2 Control mode: MODULATING			M0.8 M1 : DHW Primary As Y1 Controller
	M5.3 Valve actuator Run time xxs			M0.10 M2 : Recycle DHW As Y1 Controller
	M5.4 Prop Band ±20.0c Integ Time 60s			

10.2 Plant for production of DHW with storage heat exchanger:

– Control of DHW temp. (B1 by control valve (Y1) and distribution circuit pump (M1).
 – Control of storage temp. (B6) by On-Off differential control storage pump (M2).

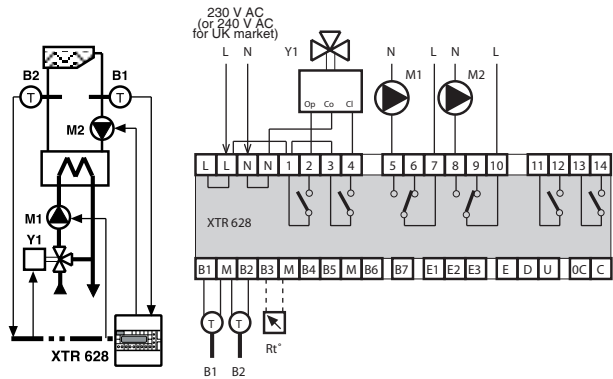


B1 – DHW temp. detector
 B6 – Storage temp. detector
 M1 – DHW recycle pump
 Y1 – DHW control valve
 M2 – Primary circuit pump
 Rt° – DHW temperature set-point adjuster (optional)

Config. XTR 628	Setting Y1 control	Setting M1 control	Setting M2 control	Normal use
M8.1 Config detectors 1 – 3 – 6	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M7.1 Control mode: ON-OFF DIFFER.	M0.2 Y1 : DHW XXXXXXXXXX
	M5.2 Control mode: MODULATING		M7.2 Different 5.0c	M0.8 M1 : Recycle DHW As Y1 Controller
	M5.3 Valve actuator Run time xxs			M0.10 M2 : Contr storage XXXXXXXXXX
	M5.4 Prop Band ±20.0c Integ Time 60s			

10.3 Swimming pool heating plant:

- Control swimming pool water temp. (B1) and maximum Flow limit (B2) by control valve (Y1) and primary pump (M1)
- Timed control swimming pool pump M2.

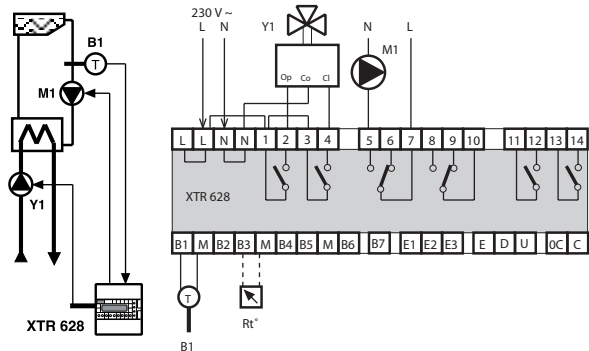


B1 – Swimming pool temp. detector
 B2 – Swimming pool flow temp. detector
 M1 – Primary pump
 M2 – Swimming pool pump
 Y – Primary control valve
 Rt° – Swimming pool temp. set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 2 3 - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1 : Swimpool XXXXXXXXXX
	M5.2 Control mode: MODULATING		M0.8 M1 :Pool primary As Y1 controller
	M5.3 Valve actuator run time xxs	M7.1 Control mode: ON-OFF TIMED	M0.10 M2:Swimpool pump XXXXXXXXXX
	M5.4 Prop Band ± 2.0c Integ Time 3600s		
	M5.5 PB Flow ±10.0c IT Flow 60s		
	M5.6 Flow temp Min: 1c Max:40c		

10.4 Swimming pool water heating plant:

- Control swimming pool water temp. (B1) by control primary circuit pump (Y1).
- Timed control swimming pool pump M2.

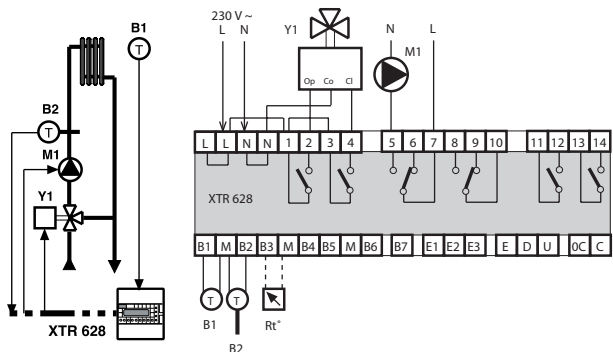


B1 – Swimming pool water temp. detector
 Y1 – Primary pump
 M1 – Swimming pool pump
 Rt° – Swimming pool water temp. set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config Detector 1 - 3 - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1:Pool primary XXXXXXXXXX
	M5.2 Control mode: PI 1 STAGE		M0.8 M1 :Swimpool pump XXXXXXXXXX
	M5.3 Prop Band ± 2.0c Integ Time 3600s		

10.5 Heating plant with radiators:

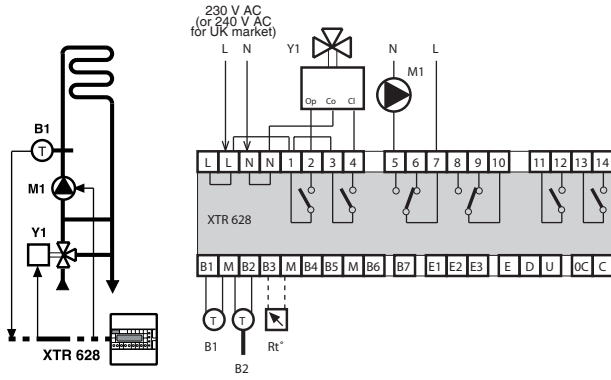
- Control room temp. (B1) and flow limit (B2) by control valve (Y1) and pump (M1)



B1 – Room temp. detector
 B2 – Flow temp. detector
 M1 – Radiators pump
 Y1 – Control valve
 Rt° – Room temp. set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 2 3 - - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1 : Radiators XXXXXXXXXX
	M5.2 Control mode: MODULATING		M0.8 M1 : Pump As Y1 Controller
	M5.3 Valve actuator run time xxs		
	M5.4 Prop Band ± 2.0c Integ Time 1200s		
	M5.5 PB Flow ±10.0c IT Flow 60s		
	M5.6 Flow temp Min: 1c Max:80c		

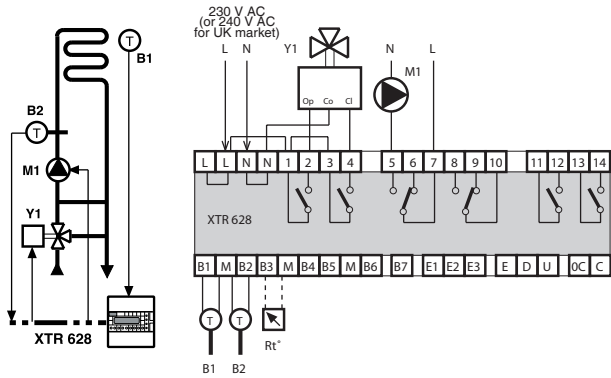
10.6 Heating plant with underfloor panels
 – Control flow temp. (B1) by control valve (Y1) and pump (M1)



B1 – Flow temp. detector
 M1 – Panels pump
 Y1 – Control valve
 Rt° – Set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 - 3 - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1 : Panels XXXXXXXXXX
	M5.2 Control mode: MODULATING		M0.8 M1 : Pump As Y1 Controller
	M5.3 Valve actuator run time xxs		
	M5.4 Prop Band ±10.0c Integ Time 60s		

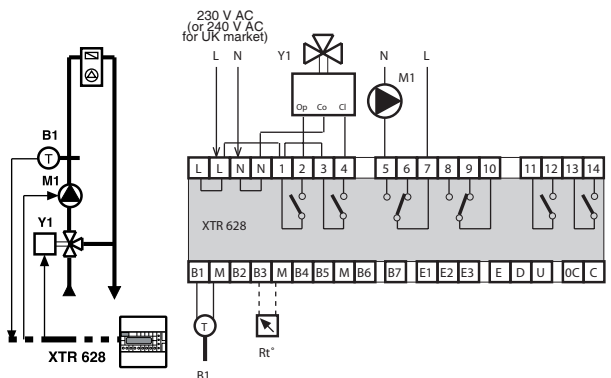
10.7 Heating plant with underfloor panels:
 – Control room temp. (B1) and flow limit (B2) by control valve (Y1) and pump (M1)



B1 – Room temp. detector
 B2 – Flow temp. detector
 M1 – Panels pump
 Y1 – Control valve
 Rt° – Temp. set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 2 3 - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1 : Panels XXXXXXXXXX
	M5.2 Control mode: MODULATING		M0.8 M1 : Pump As Y1 Controller
	M5.3 Valve actuator run time xxs		
	M5.4 Prop Band ± 2.0c Integ Time 1800s		
	M5.5 PB Flow ±10.0c IT Flow 60s		
	M5.6 Flow temp Min: 1c Max: 40c		

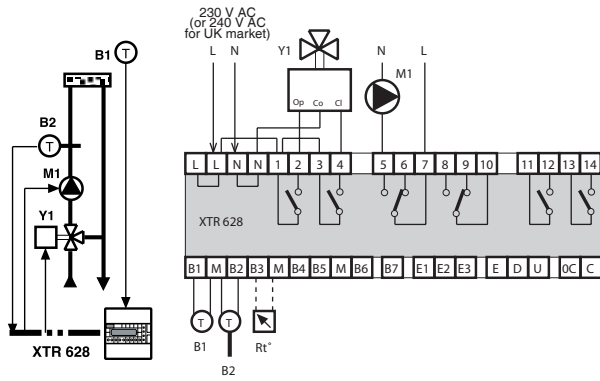
10.8 Fan coil heating plant :
 – Control flow temp. (B1) by control valve (Y1) and pump (M1)



B1 – Flow temp. detector
 M1 – Pump
 Y1 – Control valve
 Rt° – Set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 - 3 - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1 : Fan-Coil XXXXXXXXXX
	M5.2 Control mode: MODULATING		M0.8 M1 : Pump As Y1 Controller
	M5.3 Valve actuator run time xxs		
	M5.4 Prop Band ±10.0c Integ Time 60s		

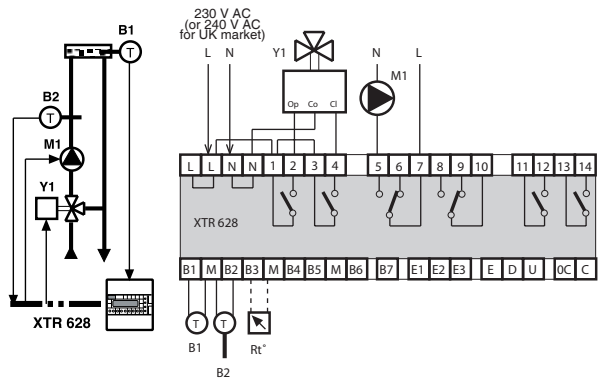
10.9 Heating plant for horticultural beds:
 – Control room temp. (B1) and flow limit (B2) by control valve (Y1) and pump (M1).



B1 – Room temp. detector
 B2 – Flow temp. detector
 M1 – Pump
 Y1 – Control valve
 Rt° – Set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 2 3 - -	M5.1 Control: FIXED POINT	M6.1 Type of control: ON-OFF TIMED	M0.2 Y1:Horticult beds XXXXXXXXXX
	M5.2 Type of control: MODULATING		M0.8 M1 : Pump As Y1 Controller
	M5.3 Valve actuator run time xxs		
	M5.4 Prop Band ± 2.0c Integ Time 1800s		
	M5.5 PB Flow ±10.0c IT Flow 60s		
	M5.6 Flow temp Min: 1c Max:40c		

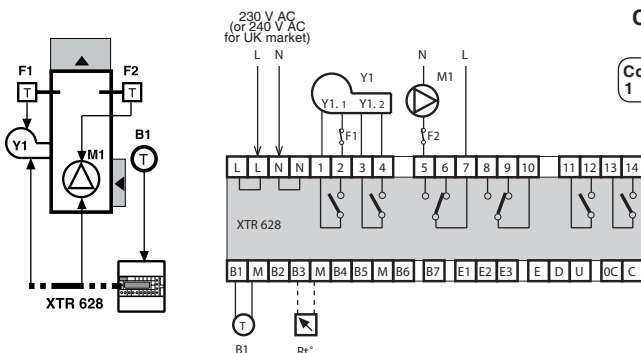
10.10 Heating plant for horticultural beds:
 – Control soil temp. (B1) and flow limit (B2) by control valve (Y1) and pump (M1).



B1 – Soil temp. detector
 B2 – Flow temp. detector
 M1 – Pump
 Y1 – Control valve
 Rt° – Set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 2 3 - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1:Horticult beds XXXXXXXXXX
	M5.2 Control mode: MODULATING		M0.8 M1 : Pump As Y1 Controller
	M5.3 Valve actuator run time xxs		
	M5.4 Prop Band ± 2.0c Integ Time 1200s		
	M5.5 PB Flow ±10.0c IT Flow 60s		
	M5.6 Flow temp Min: 1c Max:40c		

10.11 Heating plant with hot air generator :
 – Control room temp. (B1) by control two-stage burner (Y1) and fan (M1)

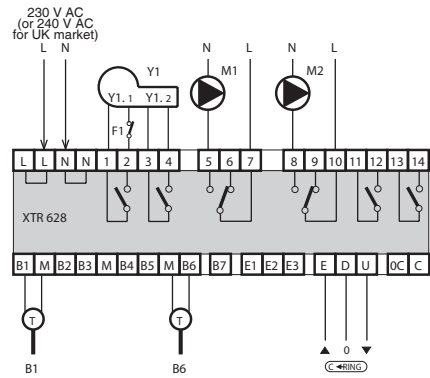
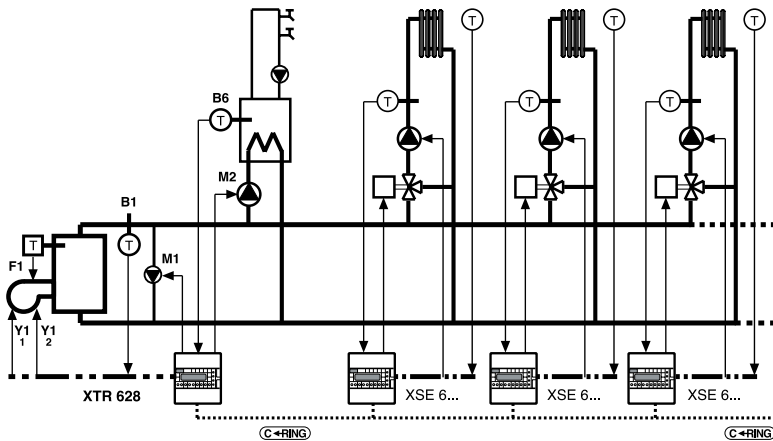


B1 – Room detector
 M1 – Fan
 Y1 – Burner
 Y1.1 – 1st stage burner
 Y1.2 – 2nd stage burner
 F1 – Safety thermostat (limit)
 F2 – Fan thermostat (fan)
 Rt° – Set-point adjuster (optional)

Config XTR 628	Setting Y1 control	Setting M1 control	Normal use
M8.1 Config detectors 1 - 3 - -	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M0.2 Y1 : Room XXXXXXXXXX
	M5.2 Control mode: PI 2 STAGES		M0.8 M1 : Fan As Y1 Controller
	M5.4 Prop Band ± 2.0c Integ Time 1200s		

10.12 Heating plant :

- Control boiler temp. (B1) in relation to temp. plants (C-Ring) by control one-stage (Y1.1) or two-stage (Y1.1 + Y1.2) burner and anticondensing pump (M1).
- Control of DHW (B6) by On-Off differential control storage pump (M2).

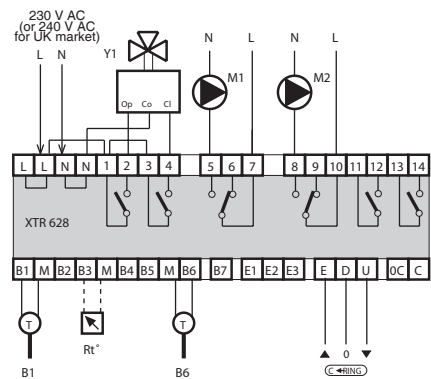
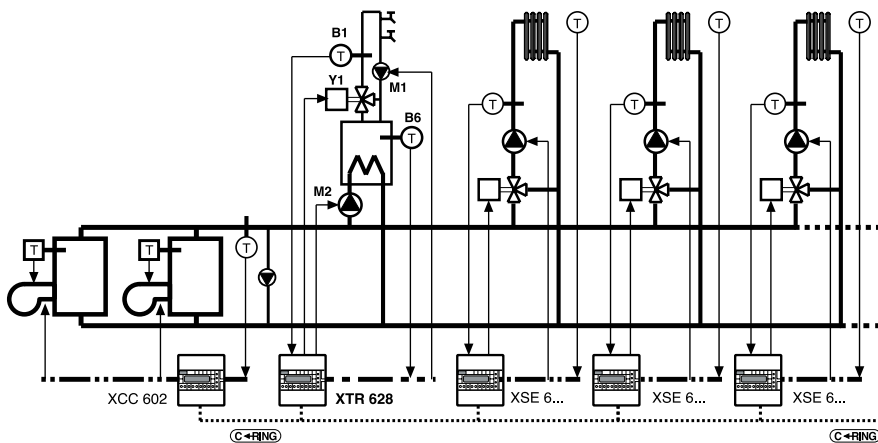


- B1 – Boiler temp. detector
- B6 – DHW temp. detector
- F1 – Boiler thermostat
- M1 – Anticondensing pump
- M2 – DHW storage pump
- Y1.1 – Control 1st stage burner
- Y1.2 – Control 2nd stage burner
- C-Bus – Transmission telemangement data (Plug-in ACB 460)
- C-Ring – Transmission data between controllers

Config. XTR 628.	Setting Y1 control	Setting M1 control	Setting M2 control	Normal use
M8.1 Config detectors 1 - - - 6	M5.1 Type of control: PLANTS	M6.1 Control mode: ON-OFF TIMED	M7.1 Control mode: ON-OFF DIFFERENT	M0.2 Y1 : Boiler PLANTS
M8.6 CRing connection PRIMARY	M5.2 Control mode: PI 2 STAGES		M7.2 Different 5.0c	M0.3 Increase Des T on plants : 5c
M8.7 Temperature in CRing: - - - M2	M5.4 Prop Band ±10.0c Integ time 600s			M0.8 M1 : Antic Pump As Y1 Controller
M8.8 Increase temp in CRing: 5c				M0.8 M2 : Pump Boiler XXXXXXXXXX

10.13 Heating plant :

- Control DHW temp. (B1) by control valve (Y1) and distribution circuit pump (M1).
- Control of storage temp. (B6) by On-Off differential control of storage pump (M2).
- Sending via C-Ring desired value of storage temp. (B1) for control of boiler temp.

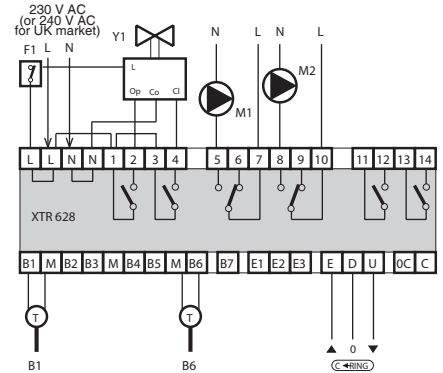
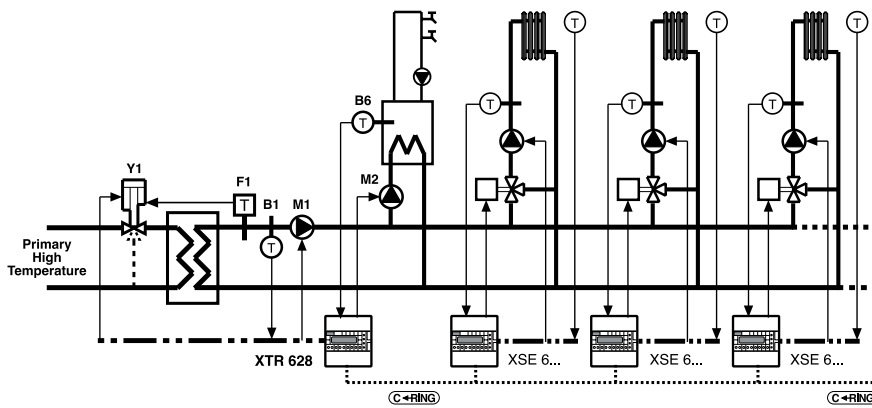


- B1 – DHW temp. detector
- B6 – Storage temp. detector
- M1 – DHW recycle pump
- Y1 – DHW control valve
- M2 – Storage pump
- Rt° – DHW set-point adjuster (optional)
- C-Bus – Transmission telemangement data (Plug-in ACB 460)
- C-Ring – Transmission data between controllers

Config. XTR 628	Setting Y1 control	Setting M1 control	Setting M2 control	Normal use
M8.1 Config detectors 1 - - - 6	M5.1 Type of control: FIXED POINT	M6.1 Control mode: ON-OFF TIMED	M7.1 Control mode: ON-OFF DIFFERENT	M0.2 Y1 : DHW XXXXXXXXXX
M8.6 CRing connection SECONDARY	M5.2 Control mode: MODULATING		M7.2 Different 5.0c	M0.8 M1 :Recycle DHW As Y1 Controller
M8.7 Temperature in CRing: - - - M2	M5.3 Valve actuator run time xxs			M0.10 M2:Contr storage XXXXXXXXXX
M8.8 Increase temp in CRing: 5c	M5.4 Prop Band ±20.0c Integ time 60s			

10.14 Heat exchanger :

- Control secondary temp. (B1) in relation to temp. of plants (C-Ring) by control primary valve (Y1) and secondary pump (M1).
- Control DHW temp. (B6) by On-Off differential control of storage pump (M2).



- B1 - Secondary detector
- B6 - DHW temp. detector
- F1 - Safety thermostat
- M1 - Secondary circuit pump
- M2 - DHW storage pump
- Y1 - Primary circuit valve
- C-Bus - Transmission telemanagement data (Plug-in ACB 460)
- C-Ring - Transmission data between controllers

Config XTR 628	Setting Y1 control	Setting M1 control	Setting M2 control	Normal use
M8.1 Config detectors 1 - - - 6	M5.1 Type of control : PLANTS	M6.1 Control mode : ON-OFF TIMED	M7.1 Control mode : ON-OFF DIFFERENT	M0.2 Y1 : Primary PLANTS
M8.6 CRing connection PRIMARY	M5.2 Control mode : MODULATING		M7.2 Different 5.0c	M0.3 Increase Des T on plant : 5c
M8.7 Temperature in CRing: - - - M2	M5.3 Valve actuator run time xxs			M0.8 M1 : Secondary pl As Y1 Controller
M8.8 Increase temp in CRing: 5c	M5.4 Prop band. ±10.0c Integ time 60s			M0.8 M2 : Pump Boiler XXXXXXXXXX

11. COMMUNICATION

11.1 C-Ring communication between controllers (for detailed information see Technical Data Sheet T 022)

Controller XTR 628 can be "Primary" or "Secondary".

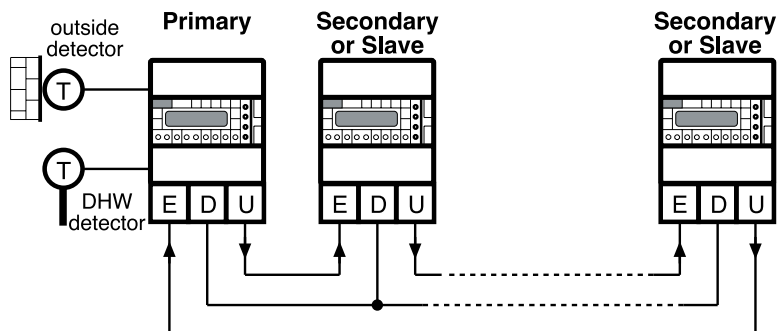
In the C-Ring circuit the following signals can be transmitted:

- permission to operate as **Slave** controllers;
- measurement of the **outside temperature**, use of a single detector for several controllers.
- value of **flow temperature** requested by consumer controllers, used by "PRIMARY" controller for control of temperature boilers or main manifold.
- **priority calorifier** (see 16.2) and/or **anticondensing** (see 16.3).

M8.6
CRing connection
NO

- NO = connection in C-Ring not scheduled
- PRIMARY = connected to C-Ring as PRIMARY controller
- SECONDARY = connected to C-Ring as SECONDARY controller

11.2 Electrical connections C-Ring



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

XTR 628 provides :

- remote Telemanagement by when enabled by **C-Bus Plug-in type ACB 460**
- local communication (e.g. setting via PC) when enabled with Test **Plug-in ACX 232**

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

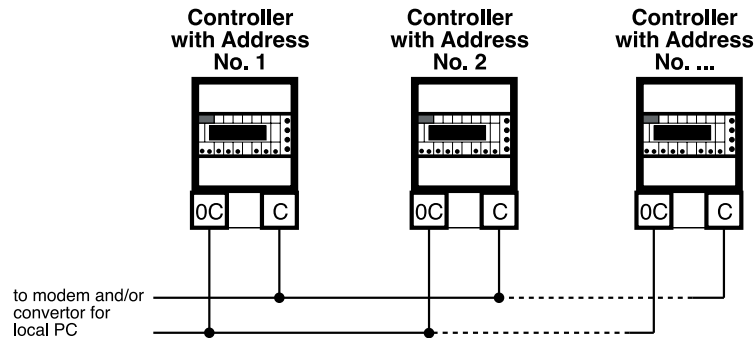
Local communication is direct to a portable PC to be connected directly to the unit.

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

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

11.4 C-Bus electrical connection for local or remote Telemanagement

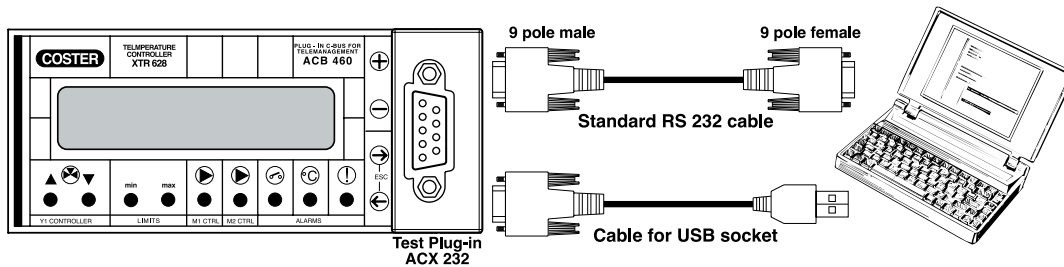
Each controller must be equipped with the C-Bus Plug-in of the required type for the controller in question



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

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

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



ACCESSORIES:

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

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

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

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

11.7 Recording data

XTR 628, at each change of mode and at each time period, set by the Telemanagement PC (5 – 10 – 15 – 30 – 60 – 120 – 240 minutes), memorises a series of data indicating the operational status of the controller Y1 and of the two On-Off M1 and M2 controllers displayed only on the Telemanagement PC:

- Current time, day of week and type of recording (change of mode or expiry time period);
- Configuration detectors.

For each controller:

- Type of control;
- Current programme;
- Current mode;
- Desired and actual primary temp.;
- Desired and actual flow temp.;
- Controller output
- Status outputs.

The controller is able to memorise 50 complete recordings and the last recording brings about the cancellation of the oldest one.

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

The recordings can be seen only by the Telemanagement computer.

12. OPERATION

XTR 628 is a microprocessor-based digital device comprising:
 – 1 temperature controller with three-wire modulating control or On-Off in one or two stages.
 – 2 temperature controllers On-Off or timed On-Off.

M8.1

Config detectors
 1 - - - -

It is important to configure the controller according to the detectors and the controls connected:
 Replace the dashes with the numbers identifying the detectors and the controls connected (+ and - keys):
 1 : Primary detector Y1 controller (**B1**).
 2 : Flow detector Y1 controller (**B2**).
 3 : Set-point temperature adjuster Y1 controller (**Rt°**).
 5 : Detector controller M1 (**B5**).
 6 : Detector controller M2 (**B6**).
 7 : Programme changer (**cp**) Y1 controller.

Change config detectors ??

To avoid occasional configuration errors, when the configuration of a detector is changed appears
 Using + or - keys choose YES to confirm or NO to return to the preceding configuration.

13. TEMPERATURE CONTROLLER Y1

The Y1 controller can function with three different measurement systems:

- With only the **B1** primary detector (room, flow, return, storage etc,
- With the **B1** primary detector (room, return water, etc) & the **B2** flow detector

M8.1

Config detectors
 1 - - - -

Config detectors
 1 2 - - - -

M5.2

Control mode:
 XXXXXXXXXXXX

The controller can instruct its control centre (Y1) as:
 – MODULATING : three-wire modulating proportional integral control
 – PI 1 STAGE : one stage On-Off proportional integral control
 – PI 2 STAGES : two stages On-Off proportional integral control
 – DIFFER 1 STAGE : one On-Off stage differential control
 – DIFFER 1 STAGES : two stages On-Off differential control

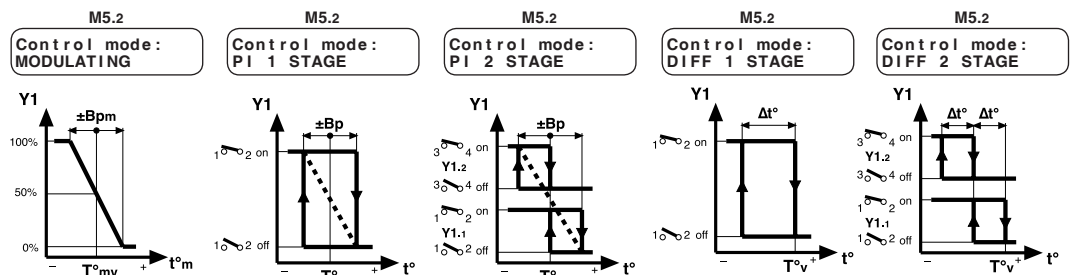
13.1 Control with only primary detector B1

The controller compares the temperature desired by the current mode **T°d** with the temperature measured by detector **B1** and operates the control **Y1** in relation to the temperature difference and the parameters set.

M5.4

Prop band ±xx.xc
Integ time xxxxs
Different xx.xc

- Prop. Band : x x .x c = Proportional Band PB in ± °C.
- Integ time : x x x x s = Integral Time in seconds
- or
- Different : x x .x c = On-Off differential of stage Δt



13.2 Control with primary detector B1 and flow detector B2

The controller compares the temperature measured by the detector B1 with the temperature required by the programme in use **T°d** and calculates the desired flow temperature **T°fd** in relation to the difference measured and the parameters set:

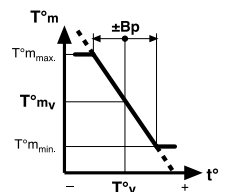
M5.4

Prop Band ±xx.xc
Integ time xxxxs

M5.6

Flow temp
Min:xxc Max:xxc

- Prop. Band ± xx.x c = Proportional Band (**PB**) in ± °C of prim temperature
 $T^{\circ}f \text{ PB}$
- Integ Time xxx x s = Integral Time in seconds of primary temperature.
- Min: xx c Max: xx c = Minimum and maximum limits of flow temp, which establish PB range of primary temperature (**M5.4**).

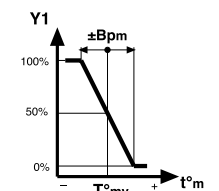


M5.5

PB Flow ±xx.xc
IT Flow xxxxs

The controller compares the temperature measured by flow detector B2 with the calculated value **T°fd** and responds with control **Y1** in relation to difference measured and parameters set:

- PB ± xx.x c = Proportional Band (**PBf**) in ± °C of flow temperature.
- IT xxx x s = Integral Time in seconds of flow temperature.



13.3 Y1 control output

M5.2
Valve actuator run time xxxs

If in **M5.2** is : – MODULATING
you must set :
• complete run time (open/closed) of valve actuator, indispensable for correct control operation.

M5.6
Minimum times
On: xxs Off: xxs

If in **M5.2** is : – PI 1 STAGE ; – PI 2 STAGES ; – DIFFER 1 STAGE ; – DIFFER 2 STAGES
it is possible to set, if necessary for the electric component controlled:
• On : xx s = minimum time switched on in seconds of On control
• Off : xx s = minimum time switched off in seconds of Off control

13.4 Desired temperature

The operation of Y1 controller can be configured for temperature control at:

– FIXED POINT = Control of temperature at value set in **M0.2**
Y1 : -----
TEMPER xx.xc
or in drawing up 24hour progs where, for each Event **M1.2...7**
24Hx Evx xx.xx
TEMPER xx.xc

M5.1
Type of Control :
XXXXXXXXXX

– PLANTS = XTR 628 must have the setting **M8.6**
CRing connection PRIMARY
To use XTR 628 as temperature controller of a manifold from which are derived plants controlled by devices connected in C-Ring (see Examples Plants 10.12 e 10.14).

The desired manifold temp. increased by **M0.3**
Increase Des T on plants T : xxc
is the greater value between:

- that sent by C-Ring (maximum requested by plant controllers);
- those requested by internal controllers M1 and/or M2, if in **M8.7**
Temp to send to CRing: -- M1 M2
increased by **M8.8**
Increase temp to CRing: + xxc

13.5 Temperature set-point adjuster

M5.11
Adjuster range
± xxc

If the set-point adjuster Rt° is configured in **M8.1**, it is possible to adjust, from a distance, the value of the desired temp. in use within the limits set in **M5.11** (– 5...+5 °C or – 10...+10 °C).

The value of the adjustment made is shown on the display page **M0.4**
Y1:Temp set by adjuster: ± x.xc

13.6 Limit controls

M5.8
Limits action on PRIMARY TEMP

The controller is able to process two On-Off relay controls to be used as minimum limit (11 - 12) and maximum limit (13 - 14) with reference to:

- Limits on : – PRIMARY TEMP. = if B1 or B1 and B2 connected & configured.
- FLOW TEMP = if B1 and B2 connected & configured.
- CONTROLLER OUTPUT = value of controller output (0... 100%).

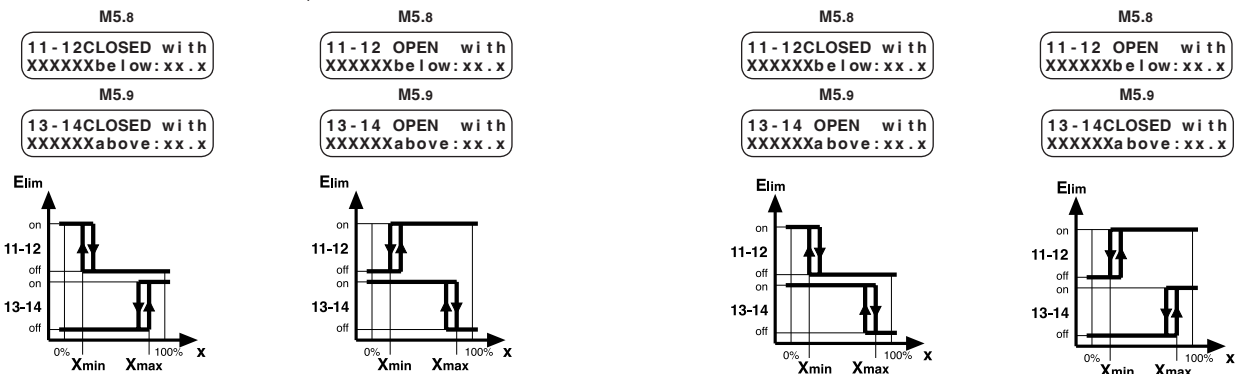
M5.9
11-12 OPEN with Temp below: xx.xc

- Choice of type of action of minimum limit relay 11-12: - CLOSED; - OPEN
- Setting of Temp or Output value below which minimum limit relay intervenes.

M5.10
13-14 CLOSED with Temp above: xx.xc

- Choice of type of action of maximum limit relay 13 - 14: - CLOSED; - OPEN
- Setting of Temp or Output value above which maximum limit relay intervenes.

The possible combinations are:



Olim – On-Off limit outputs
x – Calculated temperature or output

Xmin – Minimum limit temperature or calculated output
Xmax – Maximum temperature limit or calculated output

14. ON-OFF CONTROLLERS M1 - M2

M8.1

Config detectors
- -
Config detectors
5 6

XTR 628 provides two On-Off controllers **M1** and **M2** that can be:

- Without detectors B5 and/or B6: On-Off controls for independent timed programming or identical to controller Y.
- With detectors B5 and/or B6: On-Off controls for temperature control with independent timed programming.

M1 or M2 can be used to regulate the pump of the circuit controlled by Y1.

The possibility of having separate timed event programming for control and for the relative pump permits more elastic management of the plants. E.g. DHW distribution circuit with continuous temperature control and timed operation of the circulation pump to save energy.

14.1 Temperature control (B5 and/or B6 detectors connected and configured)

M6.1 - M7.1

Control mode:
ON-OFF DIFFER

The control outputs M1 and M2 can be:

- ON-OFF PI : controller On-Off proportional integral
- ON-OFF DIFFER : controller On-Off differential

If the detectors B5 and/or B6 are not connected and configured, there will appear:
- ON-OFF TIMED : timed On-Off control.

The desired temperature **T°d** :

- if timed programmes not used, it must be set in Mx :-----
TEMPER xx . xc

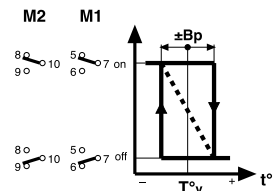
- if timed event programmes used, it must be entered when setting the 24hour programmes where, for each timed event, a different temperature can be set. M1.2...7 - M2.2...7
Dayxx hx dxxx.xx
TEMPER xx . xc

The controller compares the desired temperature **T°d** for the current mode with the temperature measured by detector B5 or B6 and responds with **M1** and/or **M2** control in relation to the difference in temperature and the parameters set:

M6.1 - M7.1

With Type of Control:
ON-OFF PI

- Prop Band : xx.x c = proportional band **Bp** in ± °C.
- Integ Time : xxxx s = Integral Time in seconds.



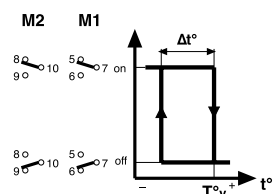
M6.2 - M7.2

Prop Band ±xx.xc
Integ time xxxxs

M6.1 - M7.1

With Type of Control:
ON-OFF DIFFER

- Differ. : x x . x c = On-Off differential of stage **Δt°**



M6.2 - M7.2

Different xx.xc

14.2 Control outputs M1 and M2

M6.3 - M7.3

Minimum times
On: xxs Off: xxs

If necessary for the electric device controlled (e.g. burner), it is possible to set:

- On : xx s = minimum switching on time in seconds of On switch ?
- Off : xx s = minimum switching off time in seconds of Off switch ?

For plant requirements (e.g. delay in switching off calorifier loading pump to reduce thermal load of the boiler piloted by the temperature required by plants), it is possible to set:

M6.4 - M7.4

Switching Off delay : xxs

- : xx s = delay time in switching off after the Off instruction given by timed programme or by the temperature control.

15. PROGRAMMES & PERIODS WITH DATES

The controller **Y1** controller and of the two On-Off controllers **M1** and **M2** can each be programmed independently and can use:

- 25 24hour programmes
- Seven 7day programmes
- 25 annual periods with dates

15.1 Assigning programmes

You can assign separate operating programmes to the **Y1** controller and to the On-Off controllers **M1** and **M2**.

M0.2

Y1 : -----
24 HOUR 1

- Y1 : ----- : name of Y1 controller (set in **M8.14**)
- XXXXXXXXXXXXX : programme assigned:
 - 7 DAY 1...7 = one of seven 7day prog.s (**M1.9...15**).
 - 24 HOUR 1...25 = one of 25 24hour prog.s (**M1.2...7**).
 - TEMPER xx.x c = desired temp. always set as required.
 - OFF = always off (valve closed or stages off)

instead of the programme there may appear one of the following (non-adjustable) indications:

 - PLANTS = when **M5.1** is PLANTS
 - ANNUAL 1...25 = one of annual periods in use (**M4.**).
 - ANTIBACTERIA = Antibacteria function in use (**M5.14**).
 - Rem XXXXXXXXXXXX = switch **cp** is closed & imposes the programme set in **M5.12**:
 - TEMPER xx.x c;
 - 24 HOUR.1...25 ; - 7 DAY.1...7 ;
 - OFF;

M0.8

M1 : -----
24 HOUR 1

- M 1 : ----- : name of On-Off controller **M1**(set in **M8.15**)
- XXXXXXXXXXXXX : programme assigned :
 - As Y1 controller = same prog. as **Y1** control. (only if B5 not configured).
 - 7 DAY 1...7 = one of seven 7day progs (**M2.9...15**).
 - 24 HOUR1...25 = one of 25 24hour programmes (**M2.2...7**).
 - TEMPER xx.x c = desired temp. always set as required. (only if **B5** is configured).
 - ON = always on. (only if B5 is not configured).
 - OFF = always off.

Instead of programme there may appear one of following (non-adjustable) indications:

 - PLANTS = when **M5.1** is PLANTS
 - ANNUAL 1...25 = one of annual periods in use (**M4.**).
 - ANTIBACTERIA = Antibacteria function in use (**M6.7**).
 - Rem XXXXXXXXXXXX = switch **cp1** closed & imposes the programme set in **M6.5**: - TEMPER xx.x c; - 24 HOUR.1...25 ; - 7 DAY.1...7 ; - ON; - OFF;

M0.10

M2 : -----
24 HOUR 1

- M 2 : ----- : name of On-Off controller M2 (set in **M8.16**)
- XXXXXXXXXXXXX : programme assigned :
 - As Y1 controller = same prog. as **Y1** control. (only if B6 not configured).
 - 7 DAY. 1...7 = one of seven 7day prog.s (**M3.9...15**).
 - 24 HOUR.1...25 = one of 25 24hour programmes(**M3.2...7**).
 - TEMPER xx.x c = desired temp.always set as required. (only if B6 is configured).
 - ON = always on (only if B6 not configured).
 - OFF = always off

Instead of programme there may appear one of following (non-adjustable) indications:

 - PLANTS = when **M5.1** is PLANTS
 - ANNUAL 1...25 = one of annual periods in use (**M4.**).
 - ANTIBACTERIA = Antibacteria function in use (**M6.7**).
 - Rem XXXXXXXXX =switch cp2 closed & imposes the programme **M7.5**:
 - TEMPER xx.x c;
 - 24 HOUR 1...25 ; - 7 DAY1...7 ;
 - ON; - OFF;

15.2 24 hour programmes

M1.1

Number of 24HOUR programmes : x

M1.2...7

**24H x Evx xx.xx
XXXXXXXXX xx.xc**

M2.1

Number 24HOUR programmes : x

M2.2...7

**24H x Evx xx.xx
XXXXXXXXX xx.xc**

M3.1

Number 24HOUR programmes : x

M3.2...7

**24H1 Ev1 xx.xx
XXXXXXXXX xx.xc**

In each 24 hour programme you can set a maximum of six event start times (**Ev1...Ev6**) assigning to each the desired mode:

- Number of 24hour programmes(1...25) you wish to use for Y1 controller.
- 24 H x : number prog. (1...25); • Ev x : number event (2...6); • xx.xx : event start time
- XXXXXXXX : mode assigned to period:
 - TEMPER xx.x c = desired temperature always set as required.
 - OFF = always off.
- Number of 24hour programmes (1...25) you wish to use for M1 controller.
- 24 H x : number prog. (1...25); • hx : number event (2...6); • xx.xx : event start time
- XXXXXXXX : mode assigned to period:
 - TEMPER. xx.x c = desired temp. always set as required.
If B5 is configured.
 - = always on. if **B5 not** configured.
 - ON = always on.
 - OFF = always off.
- Number of 24hour programmes (1...25) you wish to use for M2 controller.
- 24 H x : number prog. (1...25); • hx : number event (2...6); • xx.xx : event start time
- XXXXXXXX : mode assigned to period:
 - TEMPER. xx.x c = desired temp. always set as required.
If B6 is configured.
 - = always on. if **B6 not** configured.
 - ON = always on.
 - OFF = always off.

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

15.3 7 day programmes

M1.8

Number of 7DAY programmes : x

M1.9...15

**7DAY -XXXXXXXX
XXXXXXXXX xx.xc**

M2.8

Number of 7DAY programmes : x

M2.9...15

**7DAYx -XXXXXXXX
XXXXXXXXX xx.xc**

M3.8

Number of 7DAY programmes : x

M3.9...15

**7DAYx -XXXXXXXX
XXXXXXXXX xx.xc**

In each 7day programme you can assign a programme to each day of the week.

- Number of 7day programmes (0...7) you wish to use for Y1 controller.
- 7 day x : number of programme 1...7 ; • XXXXXXXXX : day of week;
- XXXXXXXXX : programme assigned to day of week:
 - 24 HOUR x = one of 25 24hour programmes (**M1.2...7**).
 - TEMPER xx.x c = desired temp. always set as required.
 - OFF = always off.
- Number of 7day programmes (0...7) you wish to use for M1 controller.
- 7 day x : number of programme 1...7 ; • XXXXXXXXX : day of week ;
- XXXXXXXXX : programme assigned to day of week:
 - 24 HOUR x = one of 25 24hour programmes (**M2.2...7**).
 - TEMPER. xx.x c = desired temp. always set as required.
If B5 is configured.
 - ON = always on. If B5 not configured.
 - OFF = always off.
- Number of 7day programmes (0...7) you wish to use for M2 controller.
- 7 day x : number of programme 1...7 ; • XXXXXXXXX : day of week ;
- XXXXXXXXX : programme assigned to day of week:
 - 24 HOUR. x = one of 25 24hour programmes (**M3.2...7**).
 - TEMPER xx.x c = desired temp. always set as required.
If B6 is configured.
 - ON = always on. If B6 not configured.
 - OFF = always off.

15.4 Annual periods

The annual periods with dates apply to the Y controller and to the two On-Off controllers M1 and M2.

Each annual period, defined by the start and end dates of the period, sets an operating programme that overrides the one in use. At the end of each period the controller returns to the one previously in use.

M4.1

Number of Annual
Periods : xx

- Number of annual periods you wish to use (1...25).

M4.2

APxx for:-- -- --
Fr:xx.xx to:xx.xx

Enter the dates for each single period:

- AP xx : number period (1...25);
- for :-- -- -- : replace the dashes (+ or – keys) by the required data for the period:
-- -- -- = not used.
Y1 -- -- = for Y1 controller.
-- M1 -- = for On-Off M1 controller.
-- -- M2 = for On-Off M2 controller.
- Fr : xx.xx to : xx.xx : day and month of start and end of annual period.

For a period of a single day, enter the same date for start and end.

To cancel the dates of the annual period, keep pressed the + and – keys at the same time.

M4.3

APxx Prog Y1
XXXXXXXXXX

Select, for each annual period, the programme to be used for the outputs concerned :

- XXXXXXXX : programme assigned for the period to controller Y1:
– 7 DAY. 1...7 = with one of seven 7day progs (**M1.9...15**).
– 24 HOUR 1...25 = with one of 25 24hour progs (**M1.2...7**).
– TEMPER xx.x c = desired temp. always set as required.
– OFF = always off (valve closed or stages off).
- XXXXXXXX : programme assigned for the period to controller M1 :
– As Y1 controller = same programme as control Y1.
If **B5 not** configured.
– 7 DAY 1...7 = with one of seven 7day progs (**M2.9...15**).
– 24 HOUR 1...25 = with one of 25 24hour progs (**M2.2...7**).
– TEMPER xx.x c = desired temp. always set as required.
If **B5 is** configured.
– ON = always on. If **B5 not** configured.
– OFF = always off.
- XXXXXXXX : programme assigned for the period to controller M2 :
– As Y1 controller = same programme as control Y1.
If **B6 not** configured.
– 7 DAY 1...7 = with one of seven 7day progs (**M3.9...15**).
– 24 HOUR 1...25 = with one of 25 24hour progs (**M3.2...7**).
– TEMPER. xx.x c = desired temp. always set as required.
If **B5 is** configured.
– ON = always on. If **B6 not** configured.
– OFF = always off.

M4.4

APxx Prog M1
XXXXXXXXXX

M4.5

APxx Prog. M2
XXXXXXXXXX

15.5 British Summer Time (BST)

M0.13

BST : AUT
Fr:xx.xx to:xx.xx

The controller changes the time automatically according to BST period.

- BST : – MAN = Changes the time at the dates set.
– AUT = Changes the time automatically:
– at 02.00 on the last Sunday in March the clock is put forward an hour;
– at 02.00 on the last Sunday in October the clock is put back an hour.
- Fr -- -- to -- -- = day and month of start and end of BST (only if MAN).

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

16. COMPLEMENTARY FUNCTIONS

16.1 Changing programme using cp, cp1 and cp2 switches

M5.12
Change prog cp
 XXXXXXXXXXXXXXXX

By connecting and configuring the **cp** switch **Config detectors** it is possible (closure switch) to set on **Y1** controller an operating programme that replaces the one in use:

- NO = disabled.
- 7 DAY x = one of seven 7day programmes (**M1.9...15**).
- 24 HOUR x x = one of 25 24hour programmes (**M1.2...7**).
- TEMPER xx.x c = desired temp. always set as required.
- OFF = always off.

M6.5
Change prog cp1
 XXXXXXXXXXXXXXXX

By connecting the switch **cp1** and entering **Input E1 SWITCH cp1** it is possible (closure switch) to set on **M1** controller an operating programme that replaces the one in use:

- NO = disabled
- 7 DAY x = one of seven 7day programmes (**M2.9...15**).
- 24 HOUR xx = one of 25 24hour programmes (**M2.2...7**).
- TEMPER xx.x c = desired temp. always set as required.
 Only if **B5 is** configured.
- ON = always on. Only if **B6 not** configured.
- OFF = always off..

M7.5
Change prog cp2
 XXXXXXXXXXXXXXXX

By connecting the switch **cp2** and setting **Input E2: SWITCH cp2** it is possible (closure switch) to set on **M2** controller an operating programme that replaces the one in use:

- NO = disabled
- 7 DAY x = one of seven 7day programmes (**M3.9...15**).
- 24 HOUR xx = one of 25 24hour programmes (**M3.2...7**).
- TEMPER xx.x c = desired temp. always set as required.
 Only if **B6 is** configured.
- ON = always on. Only if **B6 not** configured.
- OFF = always off.

16.2 Priority function

This function can be used both by the Y1 controller and by the two On-Off controllers M1 and M2, only, however, if XTR 628 is connected in C-Ring and if M8.6 is PRIMARY or SECONDARY. It permits giving precedence to the circuits controlled by XTR 628 (e.g. DHW production) in respect of other circuits in the plant regulated by controllers connected in C-Ring and with the Anticondensing function enabled.

M5.13 - M6.6 - M7.6
Priority :NO
Anticondens :NO

- Priority : - NO = function excluded ; - YES = function enabled

When XTR 628 is connected in C-Ring with other controllers and the Priority function is enabled:

- each controller with the Priority function enabled, when temperature is requested (On), sends via C-Ring the difference in value between its own desired temperature and the actual one;
- the C-Ring controllers, with the Anticondensing function enabled, decrease their desired Flow temperature by 4 °C for each °C of difference to give precedence to the controller that requests priority.

16.3 Anticondensing function

This function can be used both by controller Y1 and by the two On-Off controllers M1 and M2, only, however, if XTR 628 is connected in C-Ring and if **M8.6** is PRIMARY or SECONDARY. It permits :

M5.13 - M6.6 - M7.6
Priority :NO
Anticondens :NO

- avoiding the formation of condensation in the boiler,
- using the Priority function.
- Anticondens : - NO = function disabled ; - YES = function enabled

When XTR 628 is connected in C-Ring with other controllers, it receives the anticondensing difference value (desired – actual) from the controller with the anticondensing detector connected, and, imposes on its own outputs with the Anticondensing function enabled, :

- a reduction of 4 °C in its own desired temperature for each °C of anticondensing difference for the output Y1 with modulating control.
- switching off of the On-Off outputs, when the anticondensing difference is more than 4 °C.

16.4 Antibacteria function

M5.14 - M6.7 - M7.7

Antibacteria: NO
Temp: xx c for xxxm

M5.15 - M6.8 - M7.8

Antibacteria
xx.xx XXXandXXX

This function can be used both by the controller Y1 and by the two On-Off controllers M1 and M2; it prevents the formation of bacterial colonies in the storage tank or in the DHW circuit by increasing the desired temperature for a certain period of time.

- Antibacteria : – NO = function disabled ; – YES = function enabled.
- Temp : xx c = desired temp. for antibacterial function.
for xxx m = duration in minutes of antibacteria function.

Entering of time & days of week (1 or 2) in which antibacteria function active.

- xx.xx = time
- XXX and XXX = days of the week : MON ; SUN ; if - - - = none

16.5 Access keynumber

M8.12

Choice keynumber
- - - -

To enable the access keynumber enter the number (1900 ... 1999) using + and – keys. Prevents the use of + and – keys and thus any modification of the data

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

When the keynumber is enabled if you press + or – keys there will appear on the display

Only after having entered the exact number is it possible to use + and – keys.

If for 15 minutes no key is pressed the keynumber is automatically enabled.

Choice Keynumber
- - - -

16.6 Denomination plants

M8.13

Site name
- - - - -

Entering name of plant site that appears on first page of display **M0.1**.

M8.14

ControllerNameY1
- - - - -

Entering name of Y1 controller that appears on programme choice page **M0.2**.

M8.15

ControllerNameM1
- - - - -

Entering name of M1 controller that appears on programme choice page **M0.5**.

M8.16

ControllerNameM2
- - - - -

Entering name of M2 controller that appears on programme choice page **M0.6**.

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

16.7 Display measurements

M0.4

Y1: Temperature
D: xx.xc A: xx.xc

The display shows, for each controller, all the measurements made by the detectors and the data useful for understanding the functioning of the three controllers.

- D : xx.x c = temperature desired by current mode.
- A : xx.x c = actual temperature measured by detector **B1**.

M0.5

Y1: Flow temp
D: xx.xc A: xx.xc

Appears only if detector **B2** is configured.

- D : xx.x c = Flow temperature desired by controller.
- A : xx.x c = actual Flow temperature measured by detector **B2**.

M0.6

Y1: Controller
output : xxx%

Appears only if **M5.2** is **MODULATING** or **PI 1-2 STAGES**

- value of controller output (0...100%), if **M5.2** is **MODULATING** is the position of the valve calculated by the controller.

M0.8

M1: Temperature
D: xx.xc A: xx.xc

Appears only if detector **B5** is configured.

- D : xx.x c = flow temperature required by controller.
- A : xx.x c = actual flow temperature measured by detector **B5**.

M0.10

M2: Temperature
D: xx.xc A: xx.xc

Appears only if detector **B6** is configured.

- V : xx.x c = flow temperature desired by controller.
- R : xx.x c = actual flow temperature measured by detector **B6**.

17. ALARMS

The alarms processed by the controller are of three types:

- alarms for malfunctioning of the controller (LED 6.12) and of the plants controlled (LED 6.11)
- alarms for short or open circuits to the detectors connected (LED 6.11)
- alarms from external switches(LED 6.10)

The alarm state is signalled by the LEDs on the front panel of the controller and by the word ALARM appearing on the PC display when the alarm is transmitted to the PC and is identified, on the configuration page, by the letter "A" alternating with the number of the alarm concerned.

With C-Bus the alarms can be transmitted to a local PC or to the central Telemangement PC.

17.1 Functional alarms

The functional alarms are triggered in the presence of prolonged differences between actual and desired values.

With the exception of the internal clock alarm (8) these do not affect the correct operation of the controller.

M8.9

Functional Alarms
- - - 8

Factory setting: all disabled except for internal clock alarm (8).

Using + and - keys enable the alarms of interest by replacing dashes with numbers.

When the number flashes = alarm triggered.

The limit values and wait times for sending alarms can only be set by PC.

Type of alarm and causes:

- 1** = difference primary temperature primary controller Y1 (**B1**)
- triggered when actual temperature below that desired.
- 2** = difference flow temperature controller Y1 (**B2**)
- triggered when actual temperature below that required by controller
- 5** = difference temperature On-Off controller M1 (**B5**)
- triggered when actual temperature below that required by controller.
- 6** = difference temperature On-Off controller M2 (**B6**)
- triggered when actual temperature below that required by controller.
- 8** = internal clock - cannot be disabled.
- triggered when clock assumes meaningless values.

17.2 Detectors alarm

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

The presence of the alarm is indicated after one minute.

M8.10

Detector alarms
- - -

Factory setting: all disabled.

Using + and - keys enable alarms of interest by replacing dashes with numbers.

Type of alarm and effect:

- 1** = primary detector controller Y1 (**B1**): valve closing or stages off.
- 2** = flow detector controller Y1 (**B2**): valve closing or stages off.
- 5** = detector controller M1 (**B5**): control M1 off.
- 6** = detector controller M2 (**B6**): control M2 off.
- 8** = C-Ring: open electric circuit or fault in one of controllers in ring.

17.3 Alarms or status from external switches (K)

Alarms triggered by closure of voltage-free switches **k1**, **k2** and **k3** for plant components connected (pumps, burners, etc).

M8.11

K alarms
- - -

Factory setting: all disabled.

Using + and - keys enable the alarms of interest by replacing dashes with numbers.

- 1** = alarm from closure switch **k1**, only if **M8.2** is : ALARM.
- 2** = alarm from closure switch **k2**, only if **M8.3** is : ALARM.
- 3** = alarm from closure switch **k3**

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

Factory setting: all disabled.

Using + and - keys enable the alarms of interest by replacing dashes with numbers. If not used as alarms they can be used for signalling status.

18. TESTING AT COMMISSIONING

Testing to be carried out when installation has been completed and electric wiring and configuration carried out and tested.

18.1 Testing C-Ring

M9.1

CRing : ??

M8.5

CRing connection
PRIMARY
SECONDARY

The C-Ring testing page appears only if it is configured in

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

- correctly powered at mains voltage (230 V AC, or 240 V AC for UK market).
- Slave controllers or configured as SECONDARY in **CRing connection: SECONDARY**
- selected on testing page **CRing : ??**

The PRIMARY controller sends via C-Ring a signal every 5 seconds. On all the displays appears "??". If the connection is satisfactory 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 in the connection 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" - Cont.4 "YES" : Connection OK
- Cont.1 "??" - Cont.2 "YES" - Cont.3 "YES" - Cont.4 "YES" : Break between 4 and 1
- Cont.1 "??" - Cont.2 "YES" - Cont.3 "??" - Cont.4 "??" : Break between 2 and 3
- Cont.1 "??" - Cont.2 "??" - Cont.3 "??" - Cont.4 "??" : Break between 1 and 2

18.2 Testing outputs

M9.2

Output : XXXXXXXX
Status : XXXXXXXX

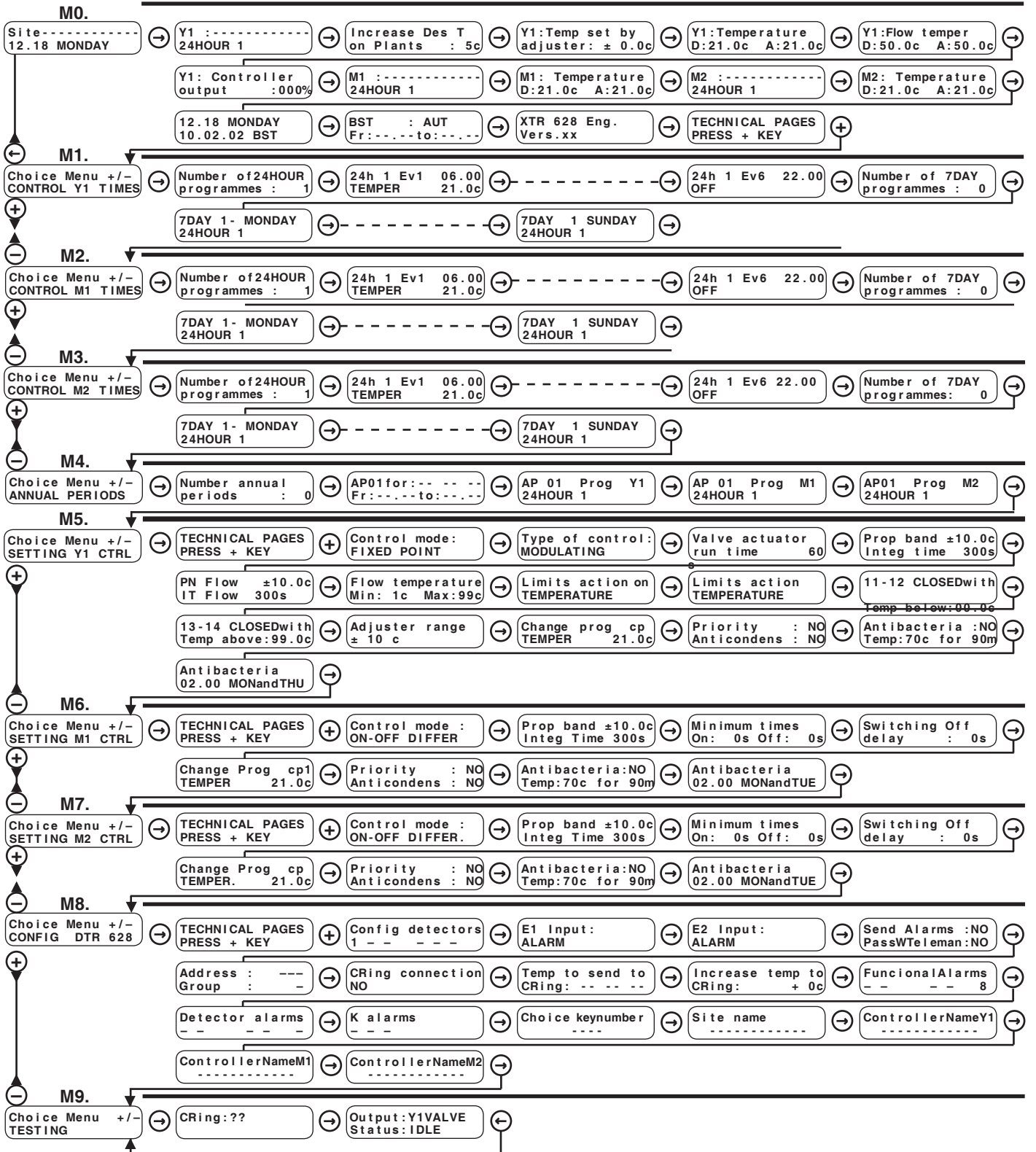
With + and - keys choose :

- Output to test:
 - Y1 VALVE : if **M5.2** is MODULATING
 - Y1 1 ST. : if **M5.2** is PI 1 STAGE or DIFFER 1 STAGE
 - Y1 2 ST. : if **M5.2** is PI 2 STAGES or DIFFER 2 STAGES
 - M 1
 - M 2
 - Emin
 - Emax
- Status :- with Y1 VALVE : IDLE; CLOSED ; OPEN
 - with Y1 1 ST. , M1 , M2 , Emin , Emax : ON ; OFF
 - with Y1 2 ST. : ON 1 ; ON 2 ; OFF

Check the results.

19. SEQUENCE OF DISPLAY PAGES (data and functions are those in memory at delivery)

Warning: Start the programming from page M8.1 "Configuration Detectors" (menu M8. CONFIG.XTR 628) because each change in configuration of the detectors restores the default data and cancels any changes made to the timed events programmes and to the setting data of the controls concerned.



← → Keys for scrolling the display pages and positioning the cursor ■ on adjustable data on the pages.
 The 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

Site:-----
12.18 MONDAY

⊖ ⊕ Keys for: ⊖ – adjusting the values indicated by the cursor ■
 ⊕ – seeing the possibility of configuring a function, e.g. Control:
 – passing directly from one menu (series of pages) to another.






Control mode :
MODULATING

or

Control mode :
DIFFER ON-OFF

M0. NORMAL USE				
Ref.	Display	Description	Notes	Sect.
M0.1	Site ----- 12.18 MONDAY	Name plant site. Set in M8.13 . Current time and day. Set in M0.12 .	.	
M0.2	Y1 :----- 24HOUR 1	Name control. Set in M8.14 . Choice of control programme : – 24 HOUR 1...25 : set in M1. ; – 7 DAY 1...7 : set in M1. ; – TEMPER xx.x c : desired temp. set as required . – OFF : control off.	Instead of prog. one of non-adjustable indications can appear: – PLANTS: if in M5.1 PLANTS is set – ANNUAL xx : If in use one of annual periods set in M4. ; – ANTIBACTERIA : if in use Antibacteria function M5.14 . If switch cp closed, according to setting in M5.12 : – RemTEMPER xx.x c ; – Rem24HOUR.xx; – Rem7DAY. x ; – RemOFF.	13.4 15.1
M0.3	Increase Des T on plants T : 5c	Increase desired temp. in respect of temp. requested by plants.	Appears if M5.1 is PLANTS	13.4
M0.4	Y1:Temp set by adjuster: ± 0.0c	Readout temperature variation made by set-point adjuster Rt° .	Appears if set-point adjuster Rt° configured.	13.5
M0.5	Y1:Temperature D:21.0c A:21.0c	D = Desired temp. for controller Y1. A = Actual temp. measured by detector B1.	When D : --- = Off mode	13.4 16.7
M0.6	Y1:Flow temper D:50.0c A:50.0c	Desired Flow temp. calculated by controller Y1. Temp. measured by detector B2.	Appears if detector B2 configured. When D : --- = Off mode	16.7
M0.7	Y1: Controller Output :000%	Controller output of by controller Y1. If in M5.2 the position of valve is MODULATING	Appears if M5.2 is : – MODULATING ; – 1 PI STAGE. ; – 2 PI STAGES	16.7
M0.8	M1 :----- 24HOUR 1	Name On-Off control M1. Set in M8.15 . Choice programme for On-Off controller M1 : – As Y1 controller : follows programme of controller Y1. Only if B5 not configured – 24 HOUR 1...25 : set in M2. ; – 7 DAY 1...7 : set in M2. ; – TEMPER xx.x c : desired temp. set as required. Only if B5 is configured. – ON : always on. Only if B5 not configured – OFF : always Off.	Instead of programme may appear the non-modifiable indications: If one of annual period current : – ANNUAL xx : set in M4. ; – ANTIBACTERIA : if in use Antibacteria function M6.7 . If switch cp1 , is closed, according setting M6.5 : – RemTEMPER xx.x c ; – Rem24HOUR.x ; – Rem7DAY.x ; – RemON. – RemOFF.	15.1
M0.9	M1:Temperature D:21.0c A:21.0c	D = Desired temp. for On-Off controller M1. A = Actual temp. measured by detector B5.	Appears if B5 . configured When D : --- = Off mode.	16.7
M0.10	M2 :----- 24HOUR 1	Name On-Off control M1. Set in M8.16 . Choice programme for On-Off controller M2 : – As Y1 controller : follows programme of controller Y1. Only if B6 not configured. – 24 HOUR 1...25 : Set in M3. ; – 7DAY 1...7 : Set in M3. ; – TEMPER xx.x c : desired temp. set as required. Only if B6 is configured. – ON : always on. Only if B6 not configured. – OFF : always Off.	Instead of programme may appear non-modifiable indications: if in use one of annual periods: – ANNUAL xx : set in M4. ; – ANTIBACTERIA : if in use Antibacteria function M7.7 . If switch cp2 closed according setting in M7.5 : – RemTEMPER xx.x c ; – Rem24HOUR.x ; – Rem7DAY.x ; – RemON; – RemOFF.	15.1
M0.11	M2:Temperature D:21.0c A:21.0c	D = Desired temp. for On-Off controller M2. A = Actual temp. measured by detector B6.	Appears if B6 configured When D : --- = Off mode.	16.7
M0.12	12.18 MONDAY 10.02.02 GMT	Setting: Time, day of week & date Current time period: GMT or BST	According to dates BST set in M0.12 .	
M0.13	BST : AUT fr: ---- to: ----	AUT ; MAN. Date of start and end of BST period (only if MAN).	AUT : Automatic change (March – October) MAN : Changes time at dates set.	15.5
M0.14	XTR 628 Eng Vers.xx	Identity data of controller.		

M1. EVENTS Y1 CONTROL (LED is 6.4 and 6.5 flash)				
Ref.	Display	Description	Notes	Sect.
M1.1	Number of 24HOUR programmes : 1	Choice number 24hour programmes to use (1...25) for control 1.	Cancel unused display pages	15.2
M1.2	24H 1 Ev1 6.00 TEMPER 21.0c	Number of programme, number event & start time event.	Max. 6 periods. To cancel unused period press + and – together: - . - . - appears Times must be in increasing order. Do not leave - . - . - between programmed events	15.2
M1.7	24H 1 Ev6 22.00 OFF	Choice of mode to assign to period: – TEMPER xx.x c : period with desired temp-set as required – OFF : period with control off. Other groups 6 pages according figure in M1.1		
M1.8	Number of 7DAY programmes: 0	Choice number 7day programmes to use (0...7) for control 1.		
M1.9	7DAY 1 MONDAY 24HOUR 1	Choice programme for each day of week: – 24 HOUR1...25: Set in M1. ; – TEMPER xx.x c : with desired temp. set as required	Appear if M1.8 is not 0.	15.3
M1.15	7DAY 1 SUNDAY 24HOUR 1	– OFF : control off. Other groups 6 pages according figure in M1.8		
M2. EVENTS M1 CONTROL (LED 6.8 flashes)				
Ref.	Display	Description	Notes	Sect.
M2.1	Number of 24HOUR programmes : 1	Choice number 24hour programmes to use (1...25) for control 1.	Cancel unused display pages	15.2
M2.2	24H 1 Ev1 6.00 TEMPER. 21.0c	Number of programme, number event & start time event.	Max. 6 periods. To cancel unused period press + and – together: - . - . - appears The times must be in increasing order. You must not leave - . - . - between Events.	15.2
M2.7	24H 1 Ev6 22.00 OFF	Choice mode to assign to period: – TEMPER xx.x c : with desired temp. set as required. Only if B5 is configured. – ON : always on. Only if B5 not configured. – OFF : always Off Other groups 6 pages according figure in M2.1		
M2.8	Number 7DAY programmes : 0	Choice number of 7day programmes to use (0...7) for control 1.		
M2.9	7DAY 1 MONDAY 24HOUR 1	Choice programme for each day of week : – 24 HOUR 1...25 : Set in M2. ; – TEMPER xx.x c : with desired temp. set as required. Only if B6 is configured	Appears if M2.8 is not : 0.	15.3
M2.15	7DAY 1 SUNDAY 24HOUR 1	– ON : always on. Only if B6 not configured.. – OFF : always Off Other groups 6 pages according figure M2.8		
M3. EVENTS M2 CONTROL (LED 6.9 flashes)				
Ref.	Display	Description	Notes	Sect.
M3.1	Number of 24HOUR Periods : 1	Choice number 24hour programmes to use (1...25) for control 2.	Cancel unused display pages	15.2
M3.2	24H 1 Ev1 6.00 TEMPER. 21.0c	Number of programme, number event & start time event.	Max. 6 periods. To cancel unused period press + and – together, appears. - . - . - Times must be in increasing order. Do not leave - . - . - between programmed events	15.2
M3.7	24H 1 Ev6 22.00 OFF	Choice mode to assign to period: – TEMPER xx.x c : with desired temp. set as required. Only if B6 is configured – ON : always On. Only if B6 not configured. – OFF : always Off Other groups 6 pages according figure in M3.1		
M3.8	Number of 7DAY programmes : 0	Choice number of 7day programmes to use (0...7) for control 2.		
M3.9	7DAY 1 MONDAY 24HOUR 1	Choice of programme for each day of week: – 24 HOUR1...25 : set in M3. ; – TEMPER xx.x c : with desired temp. set as required. Only if B6 is configured.	Appears if M3.8 is not : 0.	15.3
M3.15	7DAY 1 SUNDAY 24HOUR 1	– ON : always On. Only if B6 not configured.. – OFF : always Off Other groups 6 pages according figure in M3.8		

M4. ANNUAL PERIODS				
Ref.	Display	Description	Notes	Sect.
M4.1		Choice number Annual Periods to use (0...25).	Cancel unused display pages	15.4
M4.2		AP xx : number of Annual Period. For : ---- : replace dashes with outputs of interest to period: Y1 -- -- = for Y1 controller; -- M1 -- = for M1 controller; ---- M2 = for M2 controller; ---- -- = unused period.. Fr : -- -- : date of start of period. to : -- -- : date of end of period.	Appears only if M4.1 greater than 0.	15.4
M4.3		Choice programme assigned for period to Y1 controller : – 7DAY1...7 : Set in M1. ; – 24HOUR1...25 : Set in M1. ; – TEMPER. xx.x c : with desired temp. set as required. – OFF : control off	Appears only if M4.2 Y1 assigned .	15.4
M4.4		Choice programme assigned for period to M1 controller : – As Y1 controller : follows prog. of controller Y1. Only if B5 not configured. – 7 DAY 1...7 : Set in M2. ; – 24 HOUR1...25 : Set in M2. ; – TEMPER. xx.x c : with desired temp. set as required. Only if B5 is configured – ON : always on. Only if B5 not configured – OFF : always Off.	Appears only if M4.2 M1 assigned.	15.4
M4.5		Choice programme assigned for period to M2 controller : – As Y1 controller : follows prog. of controller Y1. Only if B6 not configured. – 7DAY 1...7 : set in M3. ; – 24HOUR1...25 : set in M3. ; – TEMPER. xx.x c : with desired temp. set as required. Only if B6 is configured. – ON : always on. Only if B6 not configured. – OFF : always Off.	Appears only if M4.2 M2 assigned.	15.4
		Other pages as M4.2.3.4.5 according setting M4.1		

M5. SETTING Y1 CONTROL (LED 6.4 and 6.5 flash)				
Ref.	Display	Description	Notes	Sect.
M5.1	Type of control: FIXED POINT	Choice type of control: – FIXED POINT : Control at constant value. Always choice value to set. – PLANTS : Control with temp. requested by C-Ring. Choice setting only if M8.6 is PRIMARY.		13.
M5.2	Control mode : MODULATING	Choice type of control: – MODULATING : 3-wire modulating valve. – PI 1 STAGE : 1 On-Off stage Prop. Integral. – PI 2 STAGES 2 stages On-Off prop. integral. – DIFFER 1 STAGE : 1 On-Off differential stage. – DIFFER 2 STAGES : 2 On-Off differential stages.		13.
M5.3	Valve actuator run time 60s	Actuator run time in seconds	Appears if M5.2 is MODULATING.	13.3
M5.4	Prop Band ±10.0c Integ Time 300s Different 10.0c	Proportional Band in ± °C. Integral Time in seconds Differential of stage °C.	Appears if M5.2 is MODULATING ; PI 1 STAGE ; PI 2 STAGES Appears only if M5.2 is : DIFF1 STAGE DIFF 2 STAGES	13.1.2 13.1
M5.5	PB Flow ±10.0c IT Flow 300s	Proportional Band in ± °C and Integral Time in seconds of Flow temperature	Appears if B1 and B2 configured	13.2
M5.6	Flow temperature Min: 1c Max: 99c	Minimum and maximum limits of flow temperature	Appears if B1 and B2 configured	13.2
M5.7	Minimum times On: 0s Off: 0s	Minimum switching on and off times of On-Off control.	Appears only if M5.2 is : PI 1 STAGE ; PI 2 STAGE ; DIFFER 1 STAGE ; DIFFER 2 STAGES.	13.3
M5.8	Limits action on PRIMARY TEMPER	Action range of limit controls E_{min} e E_{max} – PRIMARY TEMPER B1 or B1 and B2 config. – FLOW TEMPERATURE : if B1 and B2 config. – CALCULATED OUTPUT: value of Controller output (0...100 %).		13.6
M5.9	11-12 CLOSED with Temp below: 00.0c	Intervention of minimum limit: – Action switch 11-12 : – CLOSED; – OPEN – Intervention with value below xx.x ;	According setting in M5.8 : – Temper. below : xx.x c – Output below : xxx %	13.6
M5.10	13-14 CLOSED with Temp below: 99.0c	Intervention of minimum limit: – Action switch 13-14: - CLOSED; - OPEN – Intervention with value above xx.x;	According setting in M5.8 : – Temp above : xx.x c – Output above : xxx %	13.6
M5.11	Adjuster range ± 10 c	Minimum and maximum adjustment limits permitted for Rt :set-point adjuster : ± 5 ; ±10.	Appears if Rt :set-point adjuster configured.	13.5
M5.12	Change Prog cp TEMPER 21.0c	SChoice of programme to override Y1 control by closure switch cp : – NO : no action ; – 7 DAY1...7 : Set in M1. ; – 24 HOUR1...25 : Set in M1. ; – TEMPER xx.x c : with desired temp. set as required. – OFF : control Off.	Appears if programme change switch cp confi-	16.1
M5.13	Priority : NO Anticondens : NO	Priority function : YES ; NO. Anticondensing function : YES ; NO.	Appears if in M8.6 C-Ring is enabled.	16.2.3
M5.14	Antibacteria: NO Temp: 70c per 90m	Antibacteria function : YES ; NO. Temperature and duration of Antibacteria function.	Function disabled if M5.1 is PLANTS .	16.4
M5.15	Antibacteria 02.00 MONandTHU	Time and day of week (1 or 2) in whichAntibacteria function activated : – MON ; –TUE ; –WED ; –THU ; –FRI ; – SAT ; – SUN ; - - - ;		16.4

M6. SETTING M1 CONTROL (LED 6.8 flashes)				
Ref.	Display	Description	Notes	Sect
M6.1	Control mode: ON-OFF DIFFER	Choice type control mode if B5 configured: – ON-OFF PI : On-Off prop. integ. – ON-OFF DIFFER. : On-Off differential. If B5 not configured there will appear: – ON OFF TIMED : On-Off timed	.	14.1
M6.2	Prop Band ±10.0c Integ Time 300s Different 10.0c	Proportional Band in ± °C. Integral Time in seconds. Temperature differential in °C.	Appears if B5 configured. & if M6.1 is: ON-OFF PI	14.1
M6.3	Minimum time On: 0s Off: 0s	Minimum switching on and off times with On-Off control.	Appears if B5 configured.	14.2
M6.4	Switching Off delay : 0s	Delay time in switching off after "Off" from programme or from temperature	.	14.2
M6.5	Change Prog cp1 TEMPER 21.0c	Choice of programme to override control M1 by closure of switch cp1 : – NO : does not act; – 7 DAY1...7 : Set in M2 ; – 24 HOUR1...25 : Set in M2 ; – TEMPER xx.x c : with desired temp.set as required. If B5 is configured. – ON : always On. If B5 not configured – OFF : always Off.	Appears only if M8.2 is: SWITCH cp1.	16.1
M6.6	Priority :NO Anticondens :NO	Priority function : YES ; NO. Anticondensing function : YES; NO.	Appears if in M8.6 C-Ring enabled.	16.2.3
M6.7	Antibacteria:NO Temp:70c for090m	Antibacteria function :YES ; NO. Temp. & duration of Antibacteria function.	Appears if B5 configured.	16.4
M6.8	Antibacteria 02.00 MONandTHU	Antibacteria function will operate:: – MON ; – TUE ; – WED ; – THU ; – FRI ; – SAT ; – SUN ; - - - ;	Appears if B5 configured.	16.4
M7. SETTING M2 CONTROLLER (LED 6.9 flashes)				
Ref.	Display	Description	Notes	Sect.
M7.1	Control mode: ON-OFF DIFFER	Choice control mode if B6 configured: – ON-OFF PI : On-Off prop. integ. – ON-OFF DIFFER : On-Off differential If B6 not configured there will appear: – ON-OFF TIMED : On-Off timed.	.	14.1
M7.2	Prop Band ±10.0c Integ time 300s Different 10.0c	Proportional band in ± °C. Integral time in seconds Temperature differential in °C.	Appears if B6 configured and if M7.1 is : ON-OFF PI	14.1
M7.3	Minimum time On: 0s Off: 0s	Minimum switching on and off times by On-Off control	Appears if B6 configured	14.2
M7.4	Switching Off delay : 0s	Delay time in switching off after "Off" from programme or temperature	.	14.2
M7.5	Change prog cp2 TEMPER 21.0c	Choice of programme to override control M2 by closure of switch cp2 : – NO : does not act; – 7DAY 1...7 : Set in M3 ; – 24HOUR1...25 : Set in M3 ; – TEMPER xx.x c : with desired temp set as required. If B6 is configured – ON : always On. if B6 not configured – OFF : always Off.	Appears only if M8.3 is : SWITCH cp2.	16.1
M7.6	Priority :NO Anticondens :NO	Priority function : YES ; NO. Anticondensing function : YES; NO.	Appears if in M8.6 is enabled il C-Ring.	16.2.3
M7.7	Antibatterica:NO Temp:70c per090m	Antibacteria function :YES; NO. Temperature & duration of Antibacteria function	Appears if B6 configured	16.4
M7.8	Antibacteria 02.00 MONandTHU	Times and days of week (1 or 2) in which antibactea function will operate –MON ; – TUE ; – WED ; – THU ; – FRI ; – SAT ; – SUM ; - - - ;	Appears if B6 configured	16.4

M8. CONFIGURATION XTR 628				
Ref.	Display	Description	Notes	Sect.
M8.1	Config detectors 1 - - - -	Config. detectors connected (inputs B-M). - = detectors not connected; number = detector connected. Factory setting: B1 configured (cannot be disabled).	1 : Primary detector controller Y1 (B1). 2 : Flow detector controller Y1 (B2). 3 : Temp.set-point adjuster Y1 (Rt*). 5 : Detector controller M1 (B5). 6 : Detector controller M2 (B6). 7 : Change prog. switch (cp) for controller Y1.	12.
	Change config detectors ??	Notice of configuration change, to prevent any changes made to Event times and to setting data from being cancelled (default resetting of programmes). - YES: confirms the change; - NO : returns to previous configuration.	Appears when configuration of a detector is	12.
M8.2	Input E1: ALARM	Configuration input E1-D : - ALARM : alarm switch k1 connected. - cp1 SWITCH: prog. change switch cp1 for controller M1 is connected		16.4
M8.3	Input E2: ALARM	Configuration input E2-D : - ALARM : alarm switch k2 connected. - cp2 SWITCH : prog. change switch cp2 for controller M2 is connected		16.4
M8.4	Send alarms :NO PassWTe leman :NO	Enabling alarms to send to Telem. PC. Telemangement PC enabling.	Necessary only if connected in C-Bus.	11.6
M8.5	Address : --- Group : -	Telematic address of controller Group to which controller assigned	Necessary only if connected in C-Bus.	11.5
M8.6	CRing connection NO	- NO : Not connected in C-Ring. - PRIMARY: Connected in C-Ring as Primary. -SECONDARY : Connected in C-Ring as Secondary.		11.1
M8.7	Temp to send to CRing: -- -- --	Enabling desired temp. to send to C-Ring. -- = temp. not sent. number = temp. sent. Factory setting: all disabled.	Appears if M8.6 is : PRIMARY or SECONDARY Y1 : temp.required by controller Y1. If M8.6 is: PRIMARY cannot be enabled M1 : temp.required by controller M1. M2 : temp.required by controller M2.	11.1
M8.8	Increase temp to CRing: + 0c	Increase in desired temperatures sent to C-Ring.	Appears if M8.6 is : PRIMARY or SECONDARY	11.1
M8.9	Functional alarm - - - - 8	Enabling functional alarms. - = alarm not enabled; number = alarm enabled. Factory setting: enabled only 8 (cannot be disabled)	1 : Alarm primary temp controller Y1 (B1). 2 : Alarm Flow temp. controller Y1 (B2). 5 : Alarm temp. controller M1 (B5). 6 : Alarm temp. controller M2 (B6). 8 : Alarm internal clock	17.1
M8.10	Detector alarms - - - - -	Enabling detector alarms. - = alarm not enabled; number = alarm enabled; Factory setting: all disabled.	1 : Primary detector controller Y1 (B1). 2 : Alarm Flow temp. controller Y1 (B2). 5 : Detector controller M1 (B5). 6 : Detector controller M2 (B6). 8 : Alarm C-Ring.	17.2
M8.11	K alarms - - -	Enabling On-Off alarms. - = alarm not enabled; number = alarm enabled. Factory setting: all disabled.	1 : alarm with k1 closed (if in M8.2 is : ALARM). 2 : alarm with k2 closed (if in M8.3 is : ALARM). 3 : alarm with k3 closed.	17.3
M8.12	Choice keynumber - - - -	Choice keynumber for preventing use + and -keys :1901 ... 1999	To cancel keynumber press + and - together.	16.5
M8.13	Site name - - - - -	Enter name plant site.	Use + and - to enter letters or numbers. Use ← and → to change position	16.6
M8.14	ControllerNameY1 - - - - -	Enter controller name Y1. (eg. DHW)	Use + and - to enter letters or numbers Use ← and → to change position	16.6
M8.15	ControllerNameM1 - - - - -	Enter controller name M1.	Use + and - to enter letters or numbers Use ← and → to change position.	16.6
M8.16	ControllernameM2 - - - - -	Enter controller name M2.	Use + and - to enter letters or numbers Use ← and → to change position	16.6

M9. TESTING				
Ref.	Display	Description	Notes	Sect.
M9.1	CRing : ??	?? = test C-Ring in progress or test negative YES = test positive	Appears if in M8.6 C-Ring enabled.	18.1
M9.2	Output : Y1 VALVE Status : IDLE	Choice outputs to test : - Y1 VALVE : if M5.2 is : MODULATING - Y1 1 ST : if M5.2 is : -PI1STAGE - DIFFER 1 STAGE - Y1 2 ST. : if M5.2 is : -PI2STAGES - DIFFER 2 STAGES - M 1 - M 2 - Emin - Emax Choice output status : With Y1 VALVE : - IDLE ; - CLOSES ; - OPENS With Y1 1 st Stage , M1 , M2 , Emin , Emax : - ON ; - OFF. With Y1 2 nd Stage : - ON 1 ; - ON 2 ; - OFF.		18.2

Amendment to data sheet

Date	Revision No.	Page	Section	Amended description	Firmware version	Software version
22.11.10 VM	01	3	9. Wiring	Wiring procedure modified		



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