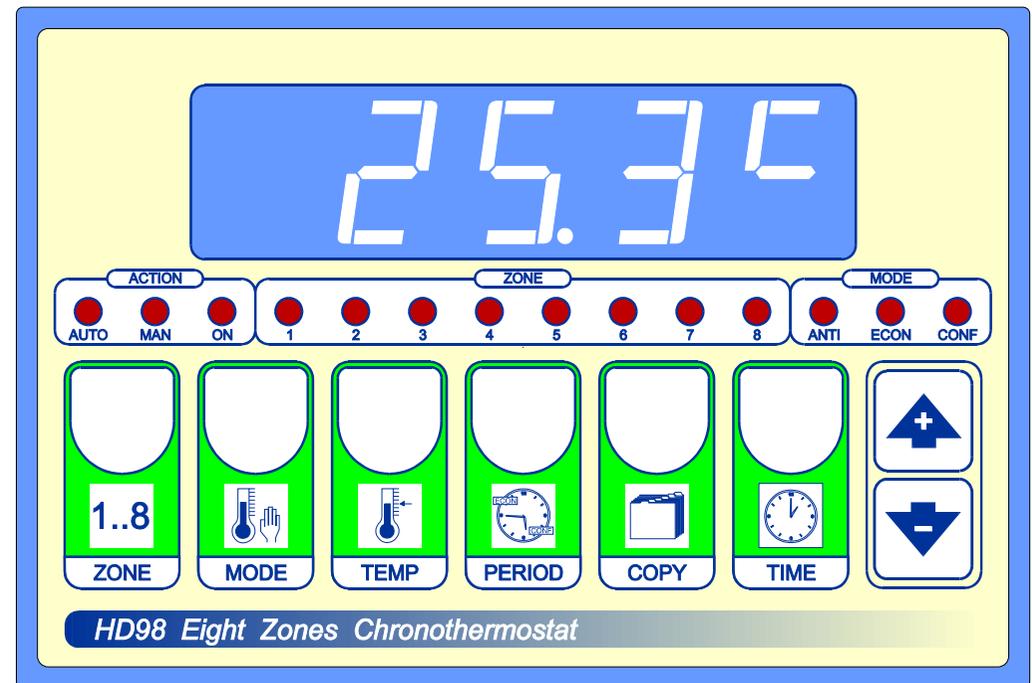


# HD98

SL 6.1

*Eight Zones Chronothermostat*

**HANDBOOK**



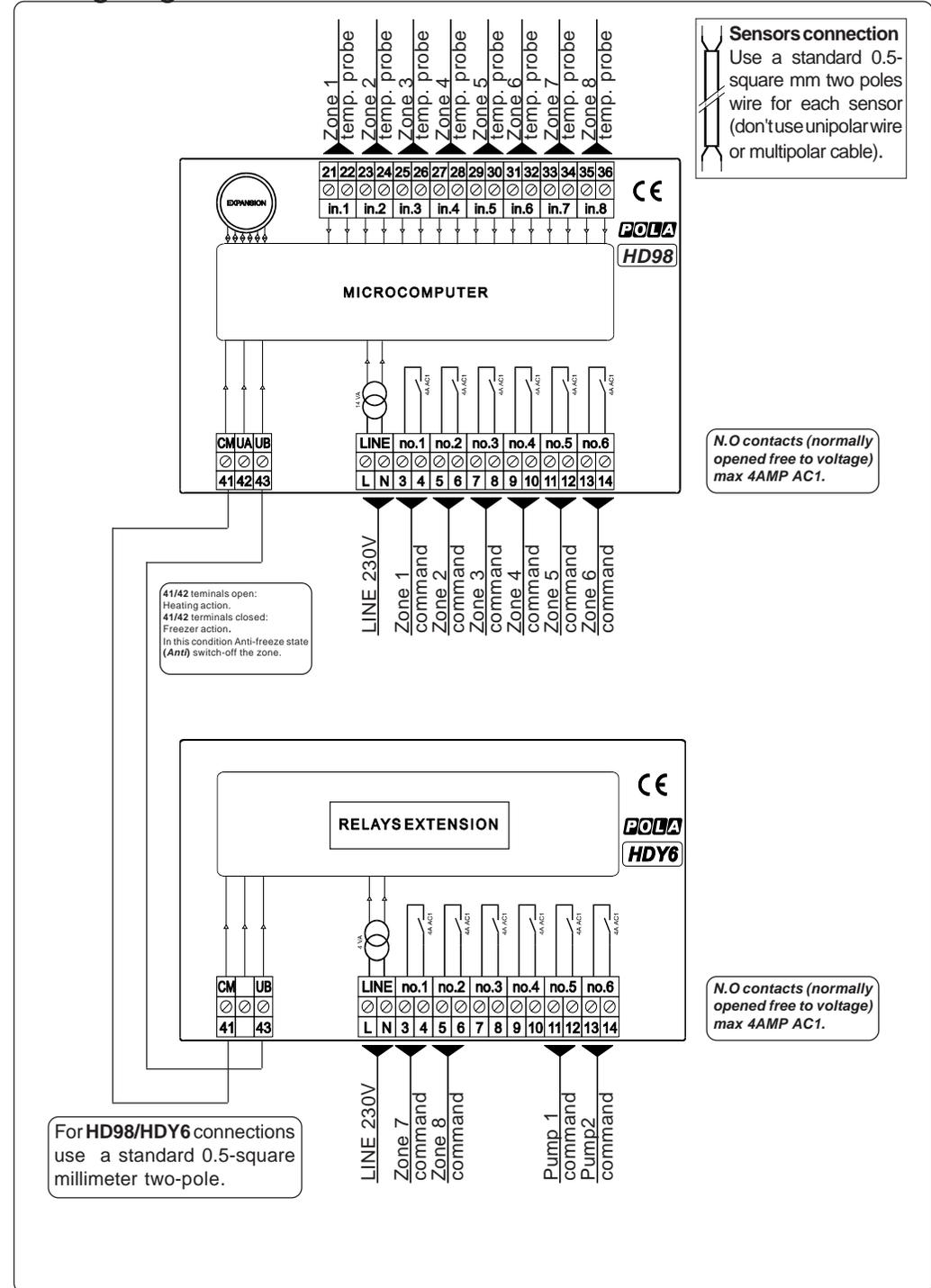
As it is company policy to continually improve the products the Manufactures reserve the right to make any modifications thereto without prior notice. They cannot be held for any damage due to malfunction.



28.10.10



# Wiring diagram



## INSTALLATION

For a correct installation, follow the instructions below very carefully.  
You are recommended to install the controller properly so that it complies with current regulations, and also to use a max 4Amp.F fuse to prevent the relay output contacts from getting damaged and ensure they stay in perfect running order.

### How to connect the sensors

To mount the **SA** temperature probe make a hole in a blanking plate (any blanking plate model) with a 10mm drill, and fix the temperature probe in to the plate using the nut provided.

Connect the provided sensors as shown in the diagram (see following page).

**For remote connections use a standard 0.5-square millimetre two-pole wire for each sensor**, taking great care over the connections, by insulating and sealing the joins carefully.

**-O.C.-** is displayed when the temperature sensor wiring is open, **-S.C.-** is displayed when the temperature sensor wiring is short circuit.

### How to connect the line

Connect line on terminals **L-N**.

### How to connect the contacts

Connect terminals **3-4...13-14** on the terminal block (contacts up to 4AMP.AC1) to the loads as shown in the diagram (see overleaf).

## MAIN SETTINGS (Run mode)

### ZONE KEY: ZONE'S TEMPERATURE VIEW.



Press **ZONE** several time to move to the required Zone; on display the *Selected zone's temperature* will appear.

**ZONE** lamp will view the selected zone (\*1).

**ACTION** lamp will indicate if the zone is in Automatic (**AUTO**), in manual (**MAN**), and if the relay's zone is on (**ON**).

**MODE** lamp will indicates if the zone is in **ANTI-FREEZE**, **ECONOMY** or in **CONFORT**.

### MODE KEY: ZONE'S WORKING MODE.



When the required zone is selected, (**ZONE** key) press **MODE** to choose the zone's working mode:

Press **MODE**:

This message referring to the set condition, will be displayed:

**Auto** = Automatic,

**Conf** = always On Confort,

**Econ** = always On Economy,

**Anti** = always On Anti-freeze.

Press **+** or **-** to select, press **MODE** to confirm.

### TEMP KEY: ZONE'S TEMPERATURE SETTING.



When the zone to program is selected (**ZONE** key), press **TEMP** to set the 2 levels of zone's temperature.

**Conf** message will be displayed instead of the ° *Set Confort value* .

Press **+** or **-** to modify, press **TEMP** to confirm.

At this point **Econ** message will be displayed instead of the ° *Set Economy value* .  
Press **+** or **-** to modify, press **TEMP** to confirm.

Anti-freeze temperature is the same on all zones, and it's possible program it in **COST**.

### PERIOD KEY: ZONE'S DAILY PERIOD SETTING.



When the required zone is selected, (**ZONE** key) press **PERIOD** to set the daily setting's periods of the zone:

**n.PEr** message will be displayed instead of the *Number of daily period setting*<sup>2</sup>.

Press **+** or **-** to modify, press **PERIOD** to confirm.

Press **+** or **-** to modify, press **PERIOD** to confirm.

At this point **On-1** message will be displayed instead of the *Start hours and minutes of the first period of Confort*.

Press **+** or **-** to modify, press **PERIOD** to confirm.

At this point **oF-1** message will be displayed instead of the *Stop hours and minutes of the first period of Confort*.

Press **+** or **-** to modify, press **PERIOD** to confirm.

Settings operation goes on to the last selected period of the day, after that **HD98** returns in normal operation.

You can press **ZONE** to escape and return to the *Run Mode*.

### PERIOD KEY: ZONE'S WEEKLY PERIOD SETTING.

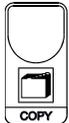


When the required zone is selected, (**ZONE** key) press **PERIOD** to set the zone weekly (if the chronothermostat can program weekly, see **COST**, **Prog** function): **dAy.1** message will be displayed instead of the *Number of the first day of the week*. Press **PERIOD** to confirm (otherwise press + or - to increase the days of week, after press **PERIOD** to confirm): **n.PEr** message will be displayed instead of the *Number of the first day of the week* <sup>2</sup>. Press + or - to modify, press **PERIOD** to confirm. At this point **On-1** message will be displayed instead of the *Start hours and minutes of the first period of Confort*. Press + or - to modify, press **PERIOD** to confirm. At this point **oF-1** message will be displayed instead of the *Stop hours and minutes of the first period of Confort*. Press + or - to modify, press **PERIOD** to confirm. Settings operation goes on to the last selected period of the day, after that it turns to the next day (**dAy.2**).

So proceede such as already explained or press **COPY** to copy previous day settings.

At the end of **dAy.7** (last day of the week) **HD98** returns in normal operation. You can press **ZONE** to escape and return to the *Run Mode*.

### COPY KEY: VIEWING OF HISTORICAL LOGGED DATA



When the required zone is selected, (**ZONE** key) press **COPY**: **day.h** message will be displayed instead of the *Yesterday worked hours*. Press **COPY**: **tot.h** message will be displayed instead of the *Total worked hours*. Press **COPY**: **t. \_ \_ \_** message will be displayed instead of the *Minimum temperature recording in the previous day*. Press **COPY**: **tine\_** message will be displayed instead of the *Minimum temperature time recording in the previous day*. Press **COPY**: **t. - - -** message will be displayed instead of the *Maximum temperature recording in the previous day*. Press **COPY**: **tine-** message will be displayed instead of the *Maximum temperature time recording in the previous day*.

Press **COPY** to escape and return to the *Run Mode*.

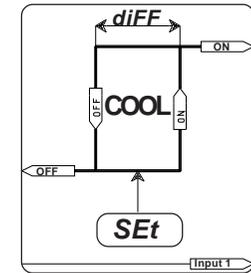
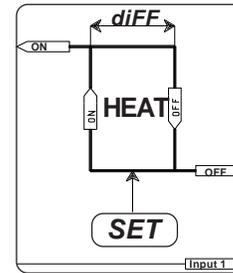
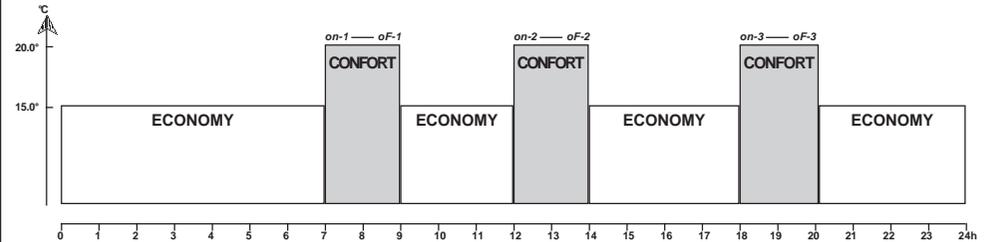
To clear these values press **COPY** key more than 5 seconds (**CAnC** message will be displayed).

### Working diagrams

#### Example of daily programming for number 3 Confort periods ( $n.Per=3$ )

Out of the Confort periods an Economy condition is enabled.

For a weekly programming execute a **dAy.1** (monday) to **dAy.7** (Sunday) setting.



Differential action is symmetric to SET.

HEAT or COOL function can be determined to the state of 41-42 terminals.

41-42 terminals open: HEAT working (HEATING)

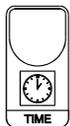
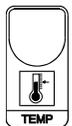
41-42 terminals closed: COOL working (COOLING).

## PRESET PROGRAMS



This processor is just programmed with the following (variable) settings.  
To return to these settings at any time:  
Power off the processor, press **TIME** key and keep it pressed giving power on: **boot** message will be displayed (release now **TIME** key).

## "HAND" MODE



In some start-up conditions may be useful to work in "hand" mode:  
Power off the processor, press **TEMP** key and keep it pressed giving power on: **Hand** message will be displayed (release now **TEMP** key).  
Push **+** until is displayed number required to be handed (see table *State indication lamps*) and push **TIME** for activating relay.

Pushing again **+** to increase relay number previous relay is deactivated.  
You can press **TEMP** to escape and return to the *Run Mode*.

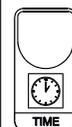
## STATE INDICATION LAMPS

The lights situated at the bottom of the display show the state of the various relays as set out below.

Lamp.	State	N° Relay	Contact
<b>AUTO</b>	Zone selected in Automatic mode		
<b>MAN</b>	Zone selected im Manual mode		
<b>ON</b>	Zone's selected relay on		
<b>1</b>	Zone 1 selcted	1 (ON)	3-4
<b>2</b>	Zone 2 selcted	2 (ON)	5-6
<b>3</b>	Zone 3 selcted	3 (ON)	7-8
<b>4</b>	Zone 4 selcted	4 (ON)	9-10
<b>5</b>	Zone 5 selcted	5 (ON)	11-12
<b>6</b>	Zone 6 selcted	6 (ON)	13-14
<b>7</b>	Zone 7 selcted	7 (ON)	3-4 HDY6 *
<b>8</b>	Zone 8 selcted	8 (ON)	5-6 HDY6 *
<b>ANTIG</b>	Zone selected in Anti-freeze mode		
<b>ECON</b>	Zone selected in Economy mode		
<b>CONF</b>	one selected in Confort mode		
	Pump 1 on	11 (ON)	11-12 HDY6 *
	Pump 2 on	12 (ON)	13-14 HDY6 *

\* Available only with **HDY6** slot option.

## TIME KEY: CLOCK SETTINGS.



Press **TIME** to enter in the time's setting:  
on display will appear *the current Hour and minutes (hh.mm)*.  
Press **+** or **-** to modify, press **TIME** to exit.  
On display will appear *the Day of week (d=)*.  
Press **+** or **-** to modify , press **TIME** to exit.

## PERIOD+TIME KEY: HOLIDAY FUNCTION.



Press **PROG** together **TIME** key to force a certain period of Anti-freeze condition on all the zones , without changing settings (Holiday condition).  
Flashing value of count-down is displayed during this condition.  
The program begins with **h=1** (hours) and can be changed to lower from **n=59** (minutes) down to **n=1** and over from **h=2** to **h=95** and over **d=4** (days) up to **d=99**. Press **+** or **-** to modify .

After this time is elapsed **HD98** returns in automatic working mode  
You can press **ZONE** to escape and return to the *Run Mode*.

(\*1) Pressing for more than 1 second **ZONE** key **HD98** will enter in Scan mode: on display will appear in sequence for a period of 2 seconds each zones.  
To return in normal mode press one of the different function keys.

\* (2) Maximum **n.Per=6**.

For example setting **n.Per = 3**, there will be 3 periods daily of Confort and so:  
The time of beginning and ending of 1<sup>st</sup> Confort period, will be set **On-1** and **oF-1** ,  
The time of beginning and ending of 2<sup>nd</sup> Confort period, will be set **On-2** and **oF-2** ,  
The time of beginning and ending of 3<sup>rd</sup> Confort period, will be set **On-3** and **oF-3** ,  
Out of these periods Economy condition will be actuated.

## WORKING LIKE DAILY/WEEKLY SWITCH.



**HD98** can be used as general pourpose daily/weekly programmer for lights or other.

In this case instead of temperature sensor **SX** connect a wire bridge on terminals (on display appear **-S.C-** message).

Program settings in order that Confort period coincides with "on" required periods.

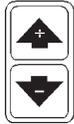
Lamp Conf indicates "on" condition, lamp Anti and Econ indicates "off" condition of zone.

A zone works in this mode:

- It doesn't activate pumps.

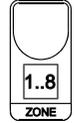
- It doesn't implement holiday function.

## COST PROGRAMMING (System constants)



These settings refer to the mode of operation of the system and must be made on initial start-up. Press together **- / + / ZONE 1..8** for at least one second: the message **C.O.S.t.** will be displayed.

The COST messages are displayed in sequence if you press **+** to go forward or **-** to go back.



When you reach the message required (see table below) press **TIME** to confirm: set value of this variable will be displayed.

Press **+** or **-** to set a new value and then **TIME** to confirm: the next system constant will then appear.

You can press **ZONE 1..8** to escape and return to the *Run Mode*.

Mess.	Value	Meaning	Note
<b>ProG</b>	<b>=1</b>	Daily program (=1) or weekly program (=2)	<b>*1)</b>
<b>CYCL</b>	<b>=1</b>	Eight zones setting mode	<b>*2)</b>
<b>Anti</b>	<b>7.0 °</b>	° Set Anti-freeze on 8 zones	<b>*3)</b>
<b>Loc</b>	<b>=8</b>	Number of zones able to work	<b>*4)</b>
<b>tYPE</b>	<b>=1</b>	Type of actioning (=1 normal, =2 with optimization)	<b>*5)</b>
<b>tinE</b>	<b>1h</b>	Maximum hours of optimization intervent	<b>*6)</b>
<b>del.P</b>	<b>0"</b>	Delay pump inserction in seconds	<b>*7)</b>
<b>Punp</b>	<b>=8</b>	Zones that enable the pump 1 working	<b>*8)</b>
<b>diFF</b>	<b>0.2 °</b>	°C Zone 1...8 differential	<b>*9)</b>

**\*1) PERIOD** key setting mode depends on this setting:

- =1** : Daily programming
- =2** : Weekly programming.

**\*2) CYCL =1** : the zones are individually settable (you can program 8 zones in each different mode from one to the other).

**CYCL =2** : only Zone 1 period is settable, the other works referring to this zone. In this mode trying to enter in period setting of zones 2 to 5 **no.oP** message will appear.

**\*3)** Anti-freeze temperature setting is the same for all 8 zones.

In summer operation condition (41-42 terminals closed) Anti-freezer condition set off referred zone.

**\*4)** It's possible to limitate number of installed zones .

So pressing **ZONE** key only enabled zones will be selected

**\*5) tYPE =1** : Normal chronothermostat mode.

**tYPE =2** : Optimization working mode.

In this mode **HD98** uses experience acquired in previous warming operation to arrive at required temperature just in time.

During "anticipation" **CONF** light flashes.

Press **+** and **COPY** together for view computated anticipation for first morning warm-up or press **-** and **COPY** together to view computated anticipation on last warm-up.

**\*6)** Maximum time (hours) of anticipated optimization working mode.

**\*7)** Delay (seconds) on circulation pump start: positive values imposes an operation delay time from zone on to pump on (during this time pump lamp flashes), negative values impose a delay to zone putting immediately on the pump (during this time on lamp flashes).

**\*8)** It's possible to action 2 different pumps.

Setting **PumP=8** each of 8 zones on condition set up the pump 1 (refer to **dEL.P** option) setting a different number means that up to that number zones refer to pump 2, the other the pump 1.

For example: Pump=5 : zone 1-2-3-4-5 = pump 1, zone 6-7-8 = pump 2.

**\*9)** For differential action see *Working diagrams*.