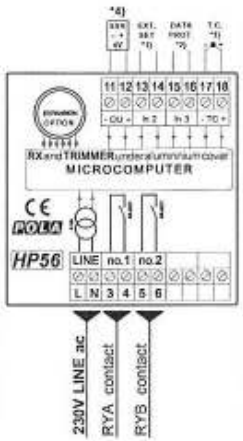
INSTALLATION

How to connect the contacts
Connect terminals on the terminal block (contacts up to 4AMP.AC1) to the loads as shown in the diagram.

How to connect the line
Connect 230V line on terminals **L-N**
Protect supply with adequate fuse.

Recalibration:
HP56 is delivered calibrated for ***thermocouple*** input (typ. precision at full scale 0.2%).
Small adjust can be obtained by ***Ad.tE*** COSt change.
For a ***NTC*** input accurate recalibration apply 10 Kohm resistor and trimmer to obtain on display 25.0°C.
For a ***PT100*** input accurate recalibration apply 100 ohm resistor and trimmer to obtain on display 0.0°C.



*1) **EXTERNAL SET SELECTION CONTACT:**
13-14 open: ***SEt.1*** selected (key lamp off).
13-14 closed: ***SEt.2*** selected (key lamp on).
13-14 100ohm: ***SEt.3*** selected (key lamp low flashing).

*2) **DATA PROTECTION:**
S.C. SETS are viewable but unchangeable and **COSt** and **boot** is inhibited.
OPEN normal

*3) **INPUT TYPE SELECTION**

tEnP	Input type	RX
=0	mV -2.00...+53.00	4MT
=1	J°C -10...+750°C	4MT
=2	K°C -20...+1300°C	4MT
=3	N°C -50...+1300°C	4MT
=4	R°C -50...+1700°C	4MT
=5	S°C -50...+1700°C	4MT
=6	T°C -20...+350°C	4MT
=7	NTC -10.0...+100.0°C	4MT
=8	PT100 -100.0...+400.0°C	24K9
=9	PT100 -200...+480°C	24K9
=A	PT100I -100.0...+400.0°C	24SK
=B	PT100I -200...+480°C	24SK

*4) 0-10V option connection: connect **HISO** terminals **3-4** to **HP56** terminals **11-12**.

POLA® CE EMC LVD 001219

HP56A

SL 6.0

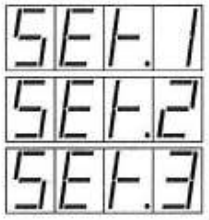
Thermocouple PID regulator

Handbook

CE

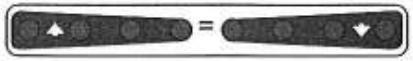
MAIN SETTINGS (Run Mode).

TEMPERATURE SETTING.
Press **SET**:
this message will be displayed instead of the ° *Set 1 temperature*.
Press **+** or **-** to modify, press **SET** to confirm.



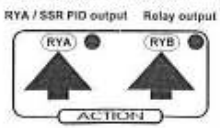
At this point if ***SEt.n*** is **=2** or **=3** (see COSt) this message will be displayed instead of the° *Set 2 temperature* .
Press **+** or **-** to modify, press **SET** to confirm.
At this point if ***SEt.n*** is **=3** (see COSt) this message will be displayed instead of the° *Set 3 temperature*.
Press **+** or **-** to modify, press **SET** to confirm.

STATE INDICATION LAMPS



The lights situated at the bottom of the display show the displacement between set and regulation temperature. Temperature difference from left to right lamps lighting is equal to ***ProP*** (see COSt).

The lamps near set key indicates command status.



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 for at least one second: the message ***C.O.S.t.*** will be displayed.
Press than repeatly **SET** until interested variable's message is displayed (see table below) : variable value and related message will be displayed.
Press **+** or **-** to set a new value and then **SET** to confirm. The next system constant will then appear. You can press **SET** for a least two second to escape and return to the *Run Mode*.

Mess.	Value	Meaning	Note
rAtE	10.0°	Maximum minute raising limitation (0.0°= no limitation)	*1)
ProP	4°	PID proportional band (also bar-graph range)	*1)
cYcL	4.0"	PID cycle (=0" for 0-10V HISO output option)	*1)
intE	4.0"	PID integration time	*1)
dErI	4.0"	PID derivation time	*1)
SELF	=1	PID mode (=0 normal; =1 self-tune)	*2)
SEt.A	-10°	RYA absolute SET if ***tYP.A*** =1, =2 ; relative SET if ***tYP.A*** =3, =4	*3)
dIF.A	2°	On-off differential RYA	*3)
dEL.A	0"	On-off delay time to RYA on (in this time RYA lamp flashes).	*3)
tYP.A	=3	RYA function mode (=0:no op ; =1,=2,=3,=4:ON-OFF ; =5:PID)	*3)
L.rYA	=1	Lamp RYA indicating option (0:SSR out ; =1:RELAY A out)	*3)
SEt.b	10°	RYB absolute SET if ***tYP.b*** =1, =2 ; relative SET if ***tYP.b*** =3, =4	*3)
dIF.b	2°	On-off differential RYB	*3)
dEL.b	0"	On-off delay time to RYB on (in this time RYB lamp flashes).	*3)
tYP.b	=4	RYB function mode (=0:no op ; =1,=2,=3,=4:ON-OFF ; =5:PID)	*3)
tEnP	=1	J, K, N, R, S, T, NTC, PT100 input selection	*4)
Ad.tE	0°	Input temperature sensor correction (+ or -)	
SEt._	10°	***SEt.1/.2/.3*** minimum setting value limitation	*5)
*SEt.^*	400°	***SEt.1/.2/.3*** maximum setting value limitation	*5)
SEt.n	=1	Number of settings available from user under key set	*6)

*1) Referred to PID regulation outputs to terminals **i/o.1** and it's suitable for a solid state relay (4V DC input minimum). Output % is viewable (1 second window) pressing **-** key.
Set value is ***SEt.1*** or ***SEt.2*** or ***SEt.3*** according to in.2 contact selection (see *Installation*).
PrOP value is also bar-graph range.

*2) Self-tuning function works into -/+ ***ProP*** range from SET (out of this interval is zeroed). Self-tuning value is re-computated every 16 x ***intE***.

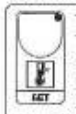
*3) RYA (x=A) / RYB (x=B) relay function specification:
tYP.x = 0 : no operation
tYP.x = 1 : HEAT on-off function setted at ***rEL.x*** *(see Operative diagram)*
tYP.x = 2 : COOL on-off function setted at ***rEL.x*** *(see Operative diagram)*
tYP.x = 3 : HEAT on-off function setted at ***SEt.1/.2/.3+SEt.x*** *(see Operative diagram)*
tYP.x = 4 : COOL on-off function setted at ***SEt.1/.2/.3+SEt.x*** *(see Operative diagram)*
tYP.x = 5 : PID function (same as SSR out) (see *1) *(see Operative diagram)*

*4) Thermocouple selection range:
=1 J (°C); **=2** K (°C); **=3** N (°C); **=4** R (°C); **=5** S (°C); **=6** T (°C); **=7** ntc SX POLA (°C); changing RX resistor (see at the end): **=8** PT100 2 wires (°C) res. 0.2°; **=9** (°C) res. 1°. °F range are obtainable setting negative number selection [example = **-1** J (°F)].

*5) Absolute locking of setting operations can be obtained closing **in.3** terminals.

*6) Up to **=3** values are selectable by means of **in.2** contacts (see *Installation*).

PRESET PROGRAMS

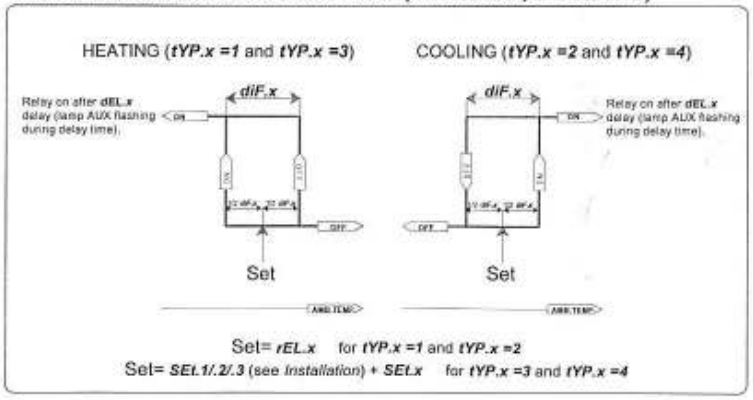


This processor is ready programmed with the following (variable) settings.
To return to these settings at any time (not if **in.3** is closed):
Power off the processor, press **SET** key and keep it pressed giving power on:
boot message will be displayed (release now **SET** key).
SEt.1= 70° SEt.2= 35° SEt.3= 10°
The **COSt** values are shown in **COSt** paragraphs.

"HAND MODE"

In some start-up conditions may be useful to work in "hand" mode (not if **in.3** is closed).
Power off the processor, press **+** key and keep it pressed giving power on:
HAnd message will be displayed (release now **+** key).
Push **+** until is displayed relay number required to be handed and push **SET** for activing relay.
Pushing again **+** for increase relay number previous relay is disactivated. You can press **SET** for a least two seconds to escape and return to the *Run Mode*.

RELAYS ON-OFF OPERATIVE DIAGRAMS (x=A for RYA, x=B for RYB)



Set= ***rEL.x*** for ***tYP.x =1*** and ***tYP.x =2***
Set= ***SEt.1/.2/.3*** (see *Installation*) + ***SEt.x*** for ***tYP.x =3*** and ***tYP.x =4***