1TT – USER MANUAL
TIMER + TEMPERATURE CONTROLLER

When the device is turned-on its display shows the following text:

- **SEL** upper display
- **CAL** lower display

After a few seconds the upper display shows the value of the measured temperature;
and the lower display the value of a time set.

Time setting:

- Press the ⎣S⎦ button, so the upper display will show **timE** ; the lower display the value of one time,
- Use the following buttons ⎣▲⎦ ⎣▼⎦ **to** set the requested time value.
  In order to memorize it, reset (7 – 5) or press ON/OFF.

Temperature setting (After time setting)

- Press the ⎣S⎦ button, so the upper display will show **°C** and the lower display a temperature value;
  Use the ⎣▲⎦⎣▼⎦ buttons to set the required temperature value.

TO ACCES THE TEMPERATURE PARAMETERS USING THE PASSWORD.

- Press for **5** seconds the ⎣S⎦ button,so the upper display will show **SET** and the lower **t1** .
  Pres the ⎣▲⎦ button so the upper display will show **SET**, the lower **timE**.
- Press again the ⎣▲⎦ button and the lower display will show **dEv**.
- Press again the ⎣▲⎦ button and the lower display will show **PAS.**
- Press the ⎣S⎦ button and the lower display will show **100**; enter the password **123**.
- With the ⎣S⎦ button every pulse corresponds to a parameter (see the Instructions Manual).

TO ACCESS THE TIMER PARAMETERS USING THE PASSWORD.

Press for 5 seconds the ⎣S⎦ button ; the upper display will show **SET**, the lower display . **t1** the upper right red led will be switched on **(1)**

Press the ⎣▲⎦ button and the display will show **timE** ,

Press the ⎣S⎦ button to access the following parameters:

toP absolute max limit block
MobE relay function
InP pulse timed relay
Rit delayed relay
dir count **UP** or **dn**

TS **Setting** of the times scale
0 = **99,99**
1 = **999,9**
2 = **9999 sec.**
3 = **9999 min.**
4 = **59 min. 59 sec.**

Use the ⎣▲⎦ and ⎣▼⎦ buttons to select

At the end of every change the display will show 9 9 confirming the successfully completed programming.

Inputs and Outputs :

The **1TT** device has an input to show the temperature (PV) and two digital outputs (OUT and ALARM).

Timer relay contact

The small clamps are used as in the following table:

1t regulation channel (SP)	
Probe input	TC 1 (3 - 4+)
Output	SP (19 - 20)
Alarm	AL (17 - 18)
Timer relay contact	Relè (15 - 16)

Heating control:

If the adjustment channel has been set to heat mode, the temperature control is obtained by the complete PID algorithm or the ON-OFF algorithm with hysteresis.

The Act parameter must be set to Hot in order to select the heating action: the activation of the control output causes an increase in temperature because it is connected to a heating element .

The selection is made by setting the proportional band **(PB)** :

- Setting value 0 (zero) will enable the ON – OFF adjustment
- Setting any value other than **0** will enable the PID adjustment

The aforementioned settings are summarized in the table below:

	Simbolo	**ON-OFF**	**PID**
Proportional Band	**PB**	If is set to 0 it will enable ON-OFF	PB > 0 – proportional band PID
Integral Time	**Ti**		Integral Time PID
Derivative Time	**Td**		Derivative Time PID (Td=-1 automatic Td= Ti/4)
Positive Hysteresis	**HSO**	> 0.1°C	
Negative Hysteresis	**HSU**	< 0.1°C	
Output Time od Cycle	**Tc**		From 0 (zero) to 999"

Manual modes (pulse generator)

The instrument has two **manual** modes that exclude the control algorithms and run the control elements at constant power:

- Manual mode always on (also with temperature probe);
- Manual mode only when there is an error with the temperature probe.

Select manual mode (always on) by selecting the parameter **MAN** = **1** (the **MPE** parameter is ignored).

To select manual mode only when there is an error with the temperature probe by selecting the parameter **MAN = 0** and **MPE = 1**.

In both cases the percentage of activation control output is set via the OUT parameter (percentage of the cycle time normally used).

Table (summary):

	MAN	MPE
Manual mode always on	1	
Manual mode in case of error of probe	0	1

Versions with front display

Signaling Display
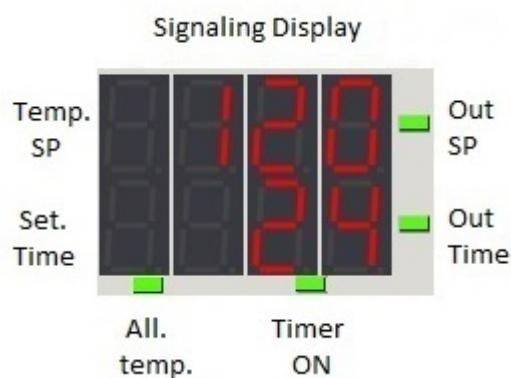
Alarms and indicators

The numbers in the below table (and images) are only shown as an example (illustrative purpose):

Temperature over-range	
Temperature under-range	
AutotunE	The display flashes between the picture 1 and the picture 2
ECO mode	The display flashes between the picture 1 and the picture 2
Manual mode in case of error of probe	The display flashes between the picture 1 and the picture 2
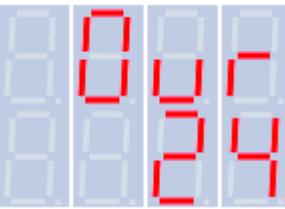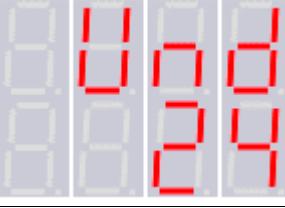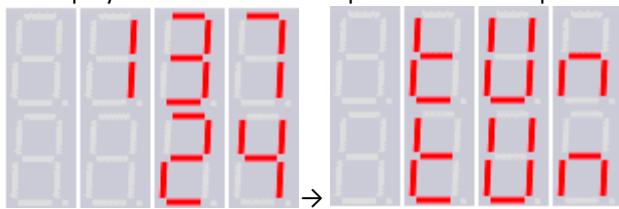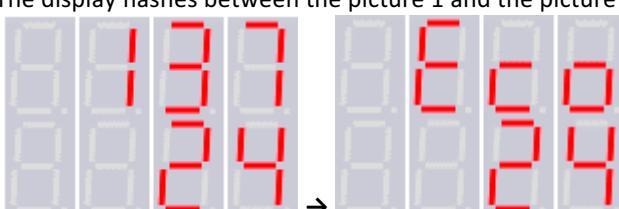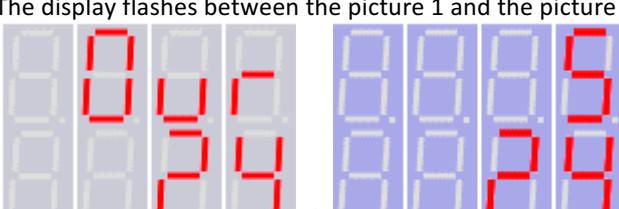
parameters	Description	Values		Default	Note
SP (*)	Setpoint	- 99 :: [Maximum Setpoint]		20°C	
Disposable Parameters with the "123" password only					
AL	Alarm	[min] :: [max]		100°C	
Int	Kind of probe	**tcJ**	Termocouple J	TC J	
		tcH	Termocouple K		
		tcb	Termocouple B		
		tce	Termocouple E		
		tcn	Termocouple N		
		tcr	Termocouple R		
		tcs	Termocouple S		
		tct	Termocouple T		
		pt1	Pt100		
		p10	Pt1000		
Act	Working method	**Hot**	Heating	Hot	Setting **COL** the controller will work by ON/OFF method w.algor.
		Col	Raffreddamento		
Eco	ECO mod	0 (off) :: 999		0°C	
BSC	Gradient of ramp	0 :: 1		1	The setpoint can automatically change
nSP	Min. setpoint	- 99 :: 999		- 30 °C	
mSP	Max. setopoint	- 99 :: 999		400°C	
Tc	Time of Cycle	0,1 :: 999		15 s	
PB	Proportional Band	0 (regolazione ON-OFF) : 100		2 %	Percentage of the range
Ti	Integral Time	0 :: 999		120 s	Integral Time
td	Derivative Time	- 1 :: 999		30 s	Select -1 to work automatically in Ti/4
OFS	TemperatureOffset	- 100 :: +100		0 °C	
HSO	Positive differential off SET	0 :: 999		0 °C	Used in case of ON-OFF reg.
HSU	Negative differential off SET	0 :: 999		1 °C	Used in case of ON-OFF
ALM	Relay Alarm Mode	Absolute Band Alarm **Relay** - (**1 off / 2 on**) Finestra o deviazione **Relay** - (**4 off / 3 on**)		1	
ALS	Setpoint Alarm	0 :: 1		0	Solo per allarme relè finestra o deviazione
ALH	Absolute High Alarm .	0 :: 999		600 °C	

|				
ALL	Absolute Low Alarm.	0 :: 999	**0 °C**	
MPe	Pulse generator in case of error of probe (percentualizzatore)	0 :: 1	**1**	In caso di errore sonda lo strumento passa alla modalità percentualizzatore
MAN	Manual setup Percent generator	0 :: 1	**0**	Se impostato, lo strumento funziona come un percentualizzatore
OUT	Percent manual value)	0 :: 100	**50 %**	La percentuale è calcolata sul parametro TMS (tempo di ciclo in modalità percentualizzatore)
LSP	Display functions	0 :: 1	**0**	Se impostato limita la visualizzazione della temperatura al setpoint

TUNe MODE – ACCESS WITHOUT PASSWORD

Press for 5 second the $\boxed{\text{S}}$ button, the upper display will show **SET** and the lower **t1**; press the $\boxed{\blacktriangle}$ button and the lower display will show **timE**; press again $\boxed{\blacktriangle}$ and the lower display will show **dev**; press the $\boxed{\text{S}}$ button and the upper display will show **tun**, the lower **no** ;

Press the $\boxed{\blacktriangle}$ button and the lower display will show the following tune options :

- **no** =   Disabled.
- **Man** =   Manual SET UP Output.
- **OnE** = At first turning ON.
- **All**   = At every turning ON.

After inserting the the tune mode, the confirmation that the programming has been successfully completed will be shown by the flashing **9 9** on the display.

versione da fronte quadro · versione da retro quadro con supporto guida DIN
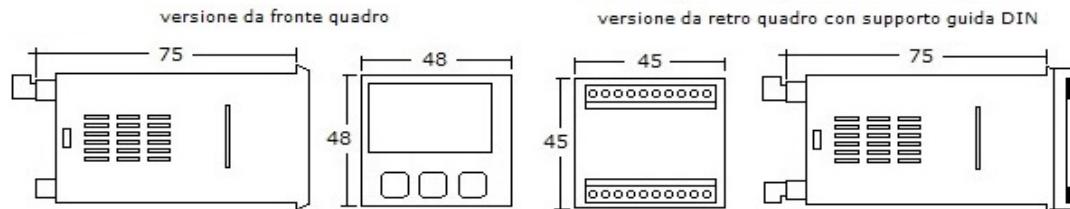
Collegamenti elettrici / Electrical connections   MOD. 1TT

Time   AL   SP

power

11 12 13 14 15 16 17 18 19 20

Start   Reset

+12V
GND

TC1
RTD
PTC

10 9 8 7 6 5 4 3 2 1

5 A 240VAC N.O.
relay

12VDC 30 mA
for SSR

termocouples   RTD

Signaling Display

Temp. SP — Out SP

Set. Time — Out Time

All. temp.   Timer ON
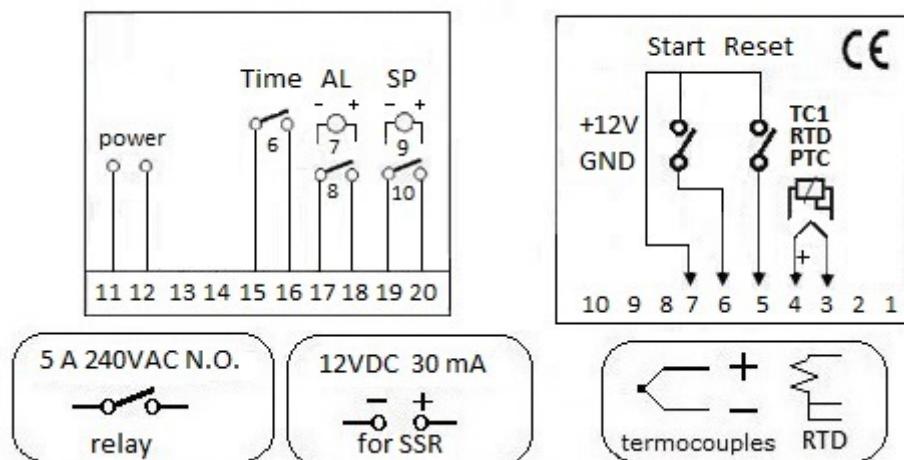
1TT - CODICI PER ORDINE / CODES FOR ORDER

MOD.   OUT / USCITE

1TT	POWER		3	4	5	6	7	8	9	10

6	24Vac Vdc
9	110 /230Vac

relè timer   SSR   SSR

Relè   Relè

AL   SP