



#### Main Applications

- Packing machines.
- Packaging machines.
- Goldsmiths' ovens and machinery
- Rubber moulding machines
- Labelling machines
- Food processing plants
- Magnetic cards printing machines
- Shoes rotary machines

#### Main Features

- Universal input configurable from keyboard
- Accuracy better than 0.2% f.s. at nominal conditions
- Configuration from service serial line available.
- Transmitter power supply
- Relay, logic or triac control output with heat/cool function.
- 1 alarm with fully configurable function (up to 3 alarm points)
- Self-tuning, Auto-tuning, Soft-start.

#### PROFILE

The 40T 72 PID is a 72x36 microprocessor based controller, manufactured with SMT. The instrument has an operator interface protected by a lexan® membrane, which provides an IP65 front face protection. It is made up of 3 keys, a 4-digit display and 3 indication LEDs.

Different sensors can be connected to the input of the variable to be controlled:

- Thermocouples type J, K, R, S, T, B, E, N.
- 3-wire PT100 resistance thermometer.
- PTC thermistor.
- 0...60mV, 12...60mV, 0...20mA, 4...20mA, 0...10V, 2...10V linear signals.

The selection of the sensor is made from keyboard and through the proper input contact. No external matching shunt is required.

Instruments are equipped with 3 relays (5A, 250Vac,  $\cos\phi=1$ ) or static (6V/20mA) outputs, which can be used as controls (heat, cool or heat/cool not without overlap) and/or as alarms.

A triac output is also available (as an alternative to two relay outputs) to control directly resistive loads up to a max. of 2A by 240V.

The programming of the instrument is made easy by grouping the parameters in function blocks (CFG for control parameters, Inp for inputs, Out for outputs) and by a simplified data entry menu.

The configuration can be simplified even further using the PC programming kit made up of a connection cable and a menu guide program that runs under Windows (see technical data code WINSTRUM).

A configurable personal software protection code (password protection) can be used to restrict the levels of editing and displaying the configuration parameters.

#### TECHNICAL DATA

##### INPUTS

Accuracy: 0.2% f.s.  $\pm 1$  digit.  
Sampling time: 120 msec.

##### TC-Thermocouple

- J** (Fe-CuNi) 0...1000°C / 32...1832°F
- K** (NiCr-Ni) 0...1300°C / 32...2372°F
- R** (Pt13Rh-Pt) 0...1750°C / 32...3182°F
- S** (Pt10Rh-Pt) 0...1750°C / 32...3182°F
- T** (Cu-CuNi) -200...400°C / -328...752°F
- B** (Pt30Rh-Pt6Rh) 44...1800°C / 111...3272°F
- E** (NiCr-CuNi) -100...750°C / -148...1382°F
- N** (NiCrSi-NiSi) 0...1300°C / 32...2372°F

##### 3-Wire RTD

**Pt100** -200...600°C / -328...1112°F

##### PTC

-55...120°C / -67...248°F

##### DC - Linear

- 0...60mV
- 12...60mV
- 0...10V
- 2...10V
- 0...20mA
- 4...20mA

##### POTENTIOMETER

Power Supply 1V, >100Ω

### OUTPUTS

They can be freely associated to control and single alarm functions (either "OR" or "AND")

### RELAY

Contacts: NO (NC) 5A/250Vac,  $\cos\phi=1$   
(Code specification: "R")

### LOGIC (OUT1 and OUT2 Only)

With power supply > 18Vac/dc,  
 $R_{out}=560\Omega$  (6V/20mA)  
(Code specification: "D")

### TRIAC (for OUT1, OUT2 Disabled)

24...240Vac $\pm 10\%$ , 2Amax  
Snubberless,  $I_{2t}=128A^2$  sec.

### POWER SUPPLY

11...27Vdc, 18...27Vac  $\pm 10\%$   
50/60Hz, max 4,5 VA  
(non isolated from sensor input)

### TRANSMITTER POWER SUPPLY

2-wire, 18Vdc  $\pm 10\%$ , max. 50mA  
1.2Vdc for potentiometer >100 $\Omega$

### AMBIENT CONDITIONS

**Working Temperature:** 0...50°C

**Storage Temperature:** -20...70°C

**Humidity:** 20...85%Ur non-condensing

### CONTROL

On/Off, P, PD, PID both for heating and cooling, with parameters configurable from keyboard.

Cooling set-point related to heating set-point.

- Manual reset: -999...999 digit
- Reset power: -100.0...100.0%
- Cycle time: 0...200sec.
- Soft-start 0.0...500.0 min.

For each action:

- Proportional Band: 0.0...999.9% f.s.
- Integrative action time: 0.0...99.99min.
- Derivative action time: 0.0...99.99min.
- Max. power limit: 0.0...100.0%

### ALARMS

- 1 alarm with 3 alarm points, selectable as absolute and relative values, or as relative-symmetrical value around the set-point with direct or inverse function.
- Alarm point limits selectable over the whole selected scale.
- LBA alarm control
- Alarm hysteresis selectable for each alarm.

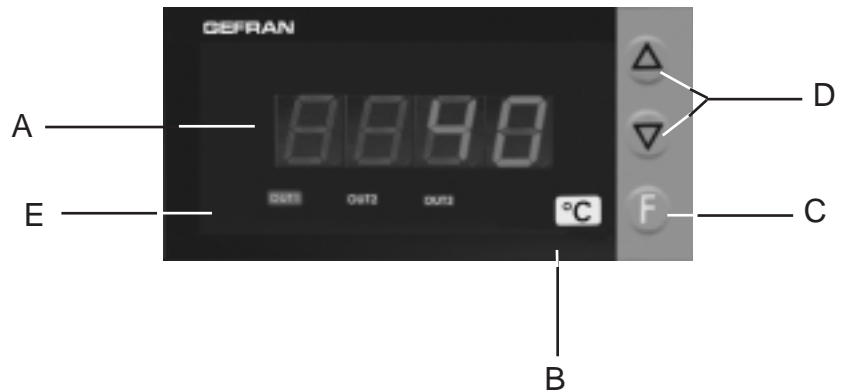
### WEIGHT

Full version: 110g.

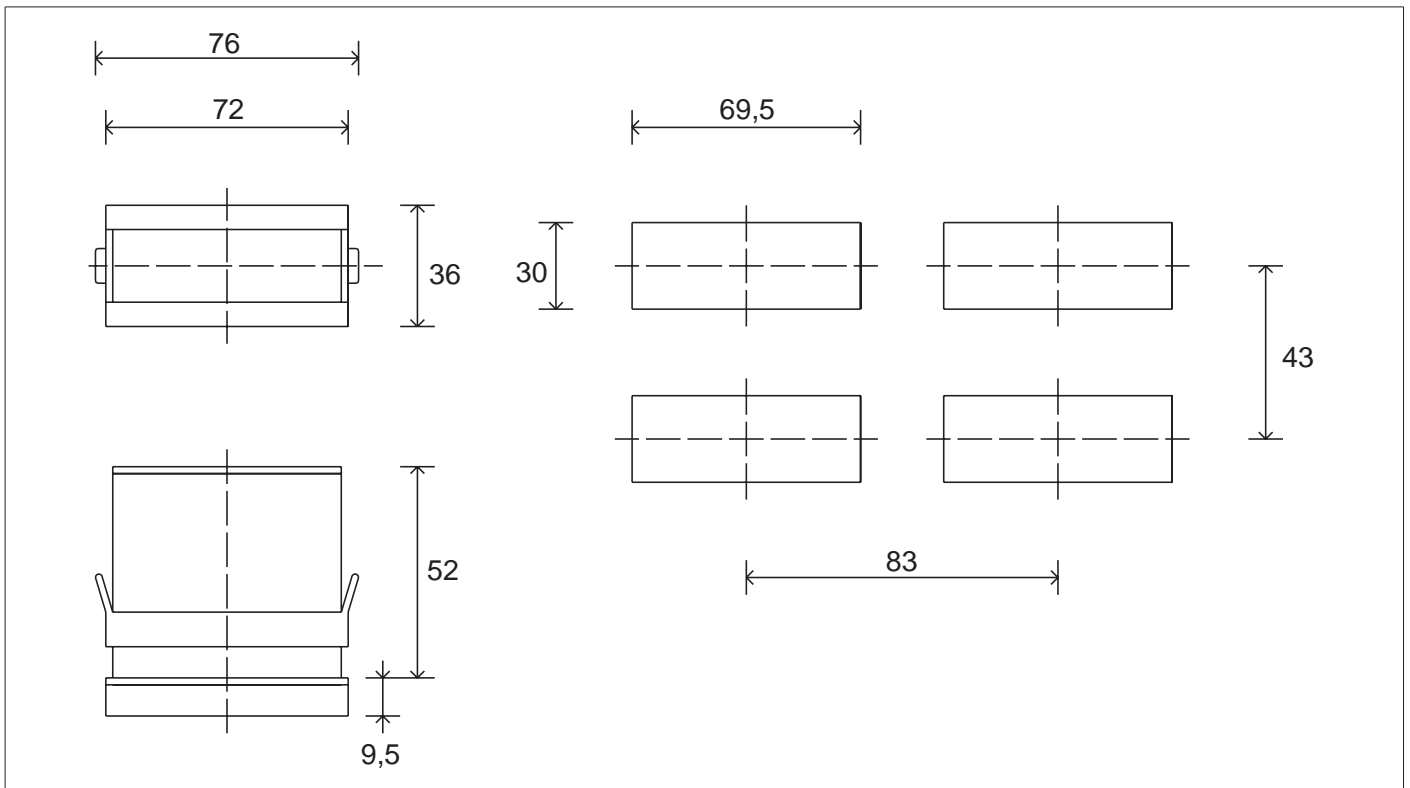
## FACEPLATE DESCRIPTION

- A** - Process variable display, 14mm high red digits
- B** - Label with engineering unit
- C** - "Function" button
- D** - "Raise" and "Lower" button
- E** - Output indication, red LED

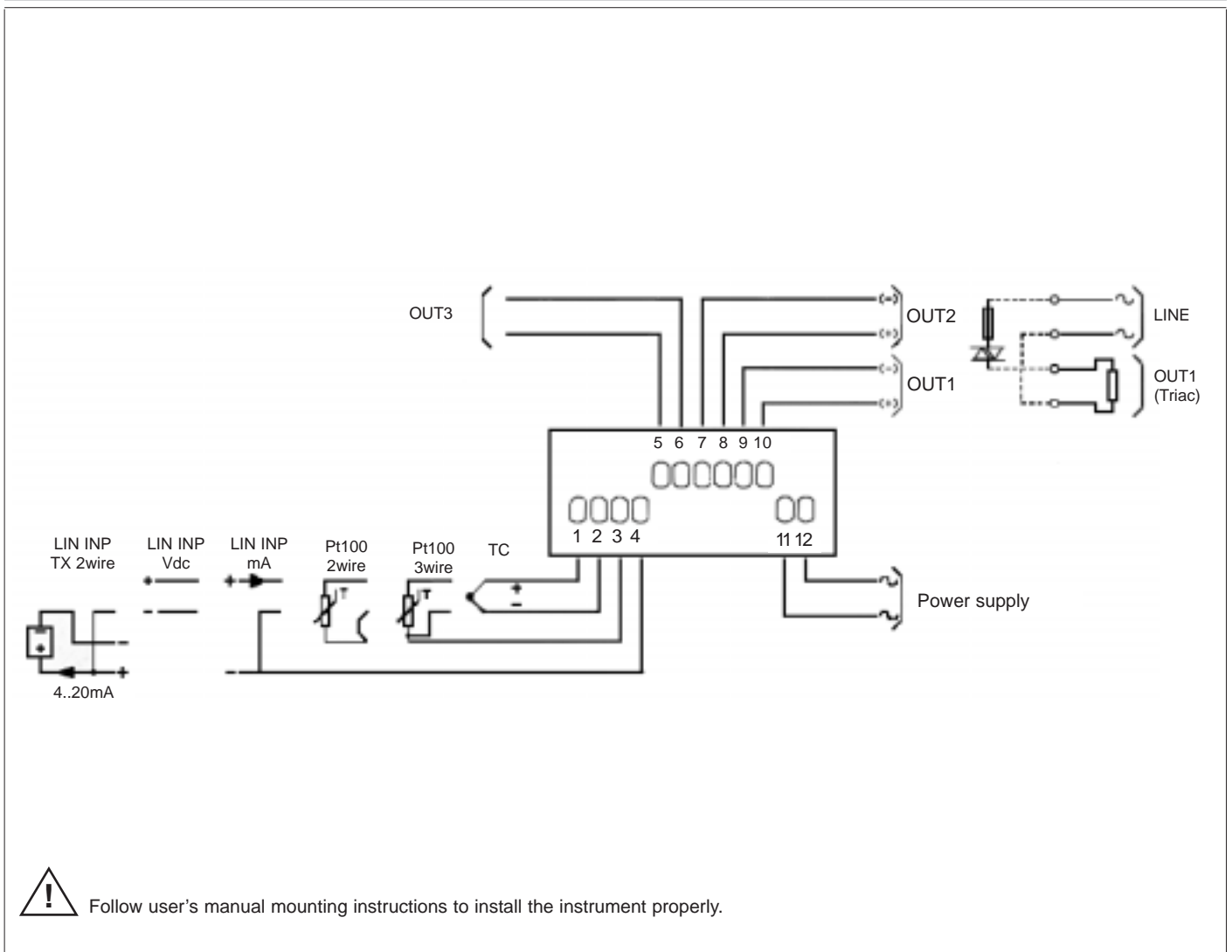
IP 65 Front-face protection



## DIMENSIONS AND CUT-OUT



## CONNECTION DIAGRAM



**ORDER CODE**

40T 72 PID     9

TRANSMITTER POWER SUPPLY	
None	0 0
For "T" (Alternative to RTD, PTC)	
1.2Vdc for potentiometer *	0 1
18Vdc, 50mA for 2-wire transmitter	2 4

OUTPUT 1, OUTPUT 2	
Relay, Relay	R R
Relay, Logic	R D
Triac, None	T 0

POWER SUPPLY	
9	11...27Vdc, 18...27Vac non isolated

OUTPUT 3	
0 0	None
R 0	Relay
D 0	Logic

\* R77 version for potentiometer input (Rinput >10Mohm)

Please, contact GEFTRAN sales people for the codes availability.

GEFRAN spa reserves the right to make any modification of the designed or fuction, at any moment without prior notice.



The instrument conforms to the European Directives 2004/108/CE and 2006/95/CE with reference to the generic standards: EN 61000-6-2 (immunity in industrial environment) EN 61000-6-3 (emission in residential environment) - EN 61010-1 (safety)