

Gefran 400: PID controller



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Main applications

- Packaging machinery
- Goldsmiths' ovens and machinery
- Presses for rubber
- Labelling machinery
- Food processing plants
- Magnetic cards printing machines

Main features

- Universal input configurable from the faceplate
- Accuracy better than 0,2% f.s. at nominal condition
- Deviation bargraph indication
- Control output: relay or logic with Heat/Cool function
- 1 alarm with configurable function (up to 3 different alarm setpoints)
- Self-tuning, Auto-tuning, Soft-start, Man/Auto function
- Possibility to configure the unit by serial line
- Possibility of auxiliary input for current transformer 50mAac or 3rd alarm output, logic or relay (only 401 mod.)

GENERAL

Microprocessor controller, format 48x48 (1/16 DIN) manufactured using SMT. The instruments provides a complete operator interface, protected by a Lexan® membrane that ensures level IP65 faceplate protection.

They have 4 keys, 4 digits display, 2 indicating LED's for 400 model, 3 indicating LED's for 401 model and a further 3 LED's bar-graph..

The main input for the process variable is universal and provides the possibility to connect many types of input sensor:

- Thermocouple type J, K, R, S, T, B, E, N
- Resistance thermometer PT100 3-wires
- Thermistor PTC

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

The type of input is selected from the faceplate keys and no external shunts or adapter are required.

Model 401 can have an auxiliary input for a 50mAac current transformer to monitor the load current.

It is also possible to set an alarm point related to the current transformer input in order to check eventual load malfunction. The instruments have 2 (3 for 401 model) relay (5A/250 V a.c., $\cos\phi=1$) or static (10 V d.c./30mA) outputs with Heat, Cool or Heat/Cool and/or alarm function.

All the programming procedures of the instruments are facilitated by the grouping of the parameters in function blocks (CFG for the control parameters, Inp for the inputs, Out for the outputs, etc.) and by the possibility of selecting a simplified menu for entering the most frequently used parameters.

To simplify the configuration even further, a programming kit is available for PC, which includes a menu driven configuration program for Windows and the necessary cable to connect the instrument (see technical data code GF_eXpress).

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. ± 1 digit.
Sampling time 120msec.

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

RTD 3-wires

Pt100 -200...600°C / -328...1112°F

PTC

(alternative to RTD)
-55...120°C / -67...248°F

DC - Linear

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

Auxiliary input

(only for 401 model)
50mAac, 50/60Hz, $R_i=2\Omega$

OUTPUTS

Outputs fully configurable for control and single alarm function, "OR" or "AND".

Relay

With rating: 5A/250 Va.c., $\cos\phi=1$
(order code: R)

Logic

10Vdc min. $R_{out}=100\Omega$ (6V/20mA)
(order code: D)

POWER SUPPLY

(Standard) 100...240 V a.c. $\pm 10\%$
(Optional) 11...27 V a.c./d.c. $\pm 10\%$
50/60Hz, max. 10VA

AMBIENT CONDITION

Working temperature range: 0...50°C

Storage temperature range: -20...70°C

Humidity: 20...85%Ur non condensing

CONTROL

On/Off, P, PD, PID either for heating or cooling, with parameters configurable from the faceplate.

Cooling setpoint relative to heating setpoint.

- Manual reset -999...999 digit
- Power reset -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.
- Integral time 0,0...99,99 min
- Derivative time 0,0...99,99 min
- Max power limit 0,0...100,0%

ALARMS

- 1 alarm (or 2 for 401 model) with 3 configurable setpoint, settable as absolute, deviation or symmetrical deviation alarm with respect to the control setpoint with configurable mode
- The alarm point may be set anywhere within the configured scale.

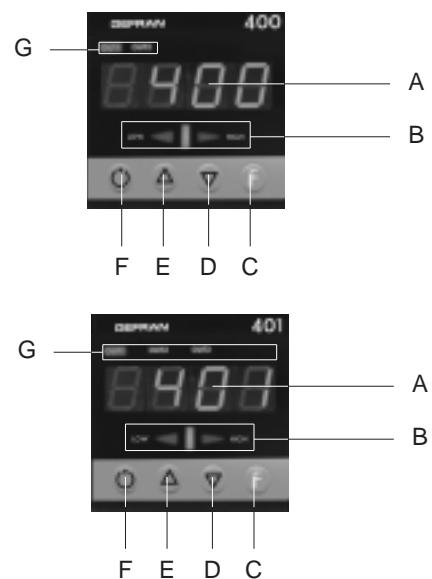
- LBA (Loop Break Alarm) function alarm
- Alarm Hysteresis configurable
- Alarm related to current transformer input with 4 different functions (only for 401 model).

WEIGHT

210g complete version

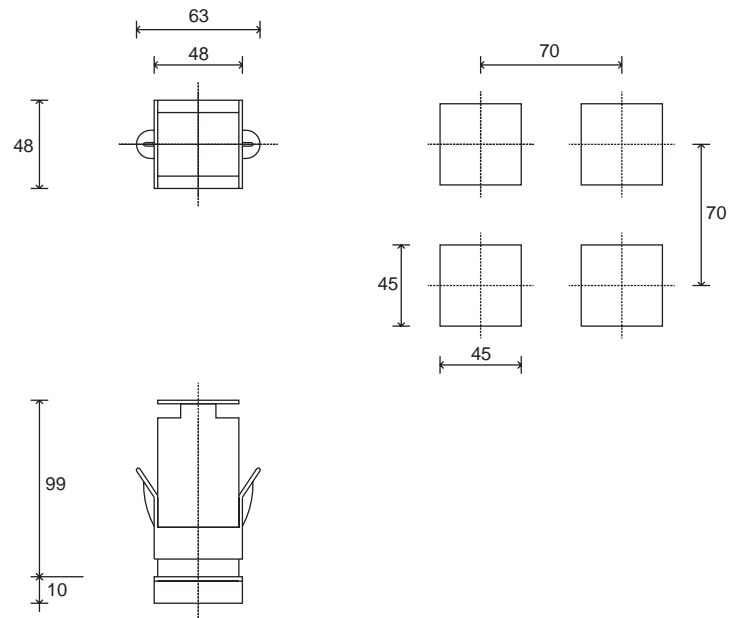
FACEPLATE DESCRIPTION

- A** - Green coloured PV display, h 10mm
- B** - Deviation bargraph, center led (green), side led (red)
- C** - "Function" key
- D** - "Lower" key
- E** - "Raise" key
- F** - Auto / Man selection
- G** - Indication of active outputs



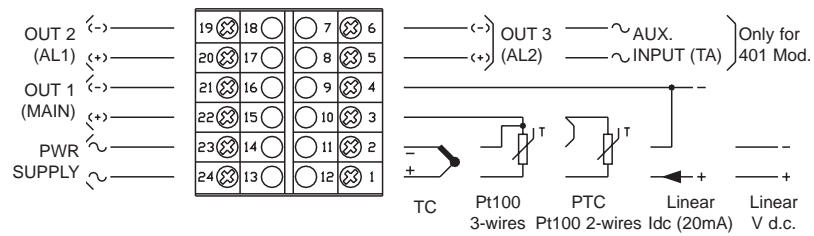
Faceplate protection IP65

DIMENSIONS AND CUT-OUT



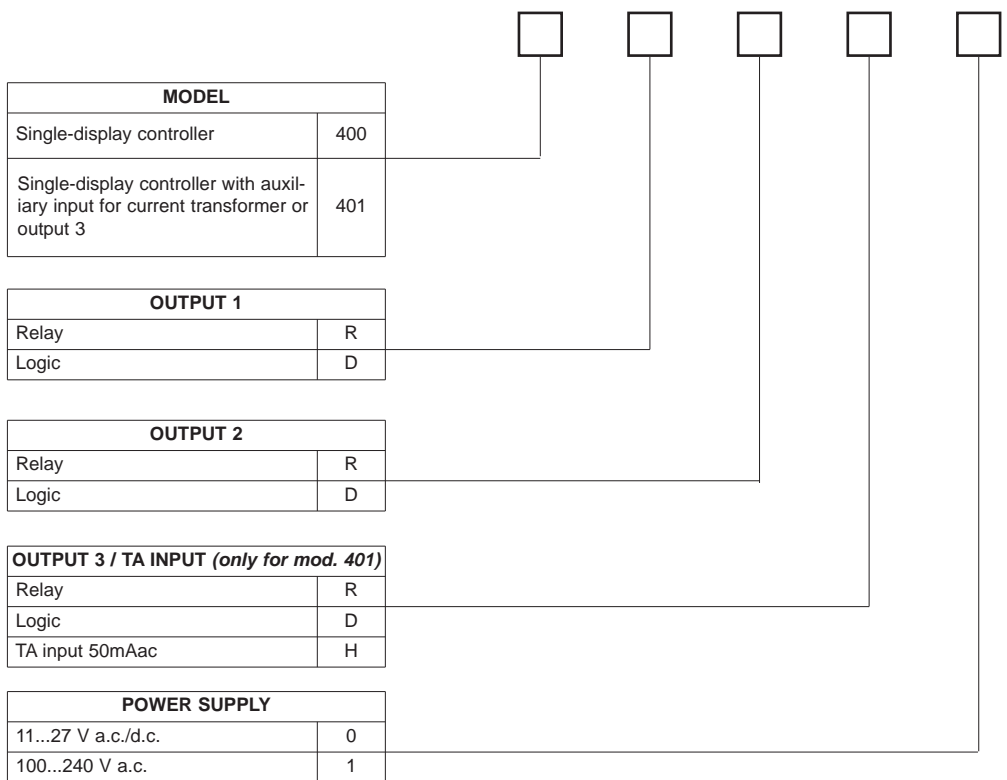
Dimensions: 48x48mm (1/16 DIN) depth 99mm

CONNECTION DIAGRAM






Apply user's manual warnings for a correct installation

ORDER CODE



Please, contact GEFTRAN sales people for the codes availability.

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice

	Conformity C/UL/US File no. E216851
	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)
	C - TICK