GEFRAN

800

CONTROLLER

Main applications

- *Plastics extrusion lines and injection moulding machines*
- *Polymerisation plant for synthetic fibre production*
- *Climatic chambers and test benches*
- *Continuous ovens and drying unit ceramics and bricks*
- *Chemical and pharmaceutical industries*
- *Furnaces*
- *Food processing plant*
- *Painting machines*
- *Water treatment*
- *Siderurgy industry*
- *Packaging machinery*

Main features

- *Universal input configurable from the faceplate*
- *Accuracy 0,2% f.s.*
- *Two control outputs: relay, logic or analogue with Heat/Cool function*
- *3 configurable alarms*
- *2 retansmission analogue outputs*
- *2 digital inputs with configurable function*
- *Auxiliary input for C.T. or remote setpoint*
- *Heater Break or shortcircuit probe alarm*
- *Self-tuning, Soft-start, Auto-tuning, Man/Auto, Bumpless, Setpoint, Locale/Remoto*
- *Function multiset, set ramp, timer*

GENERAL

Microprocessor controller, format 48x48 (1/16 DIN) manufactured using SMT.
The instrument provides a complete operator interface, protected by a Lexan membrane that ensures level IP65 faceplate protection.
It has 4 keys, two green LED displays, each with 4 digits, 4 red indicating LED's for the 4 logic or relay outputs, and a further 3 LED's that are programmable to indicate the various operational states of the instrument.
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, Ni-Ni18Mo, L; resistance thermometer Pt100 3-wires; thermistor PTC; linear inputs 0-50mV, 10-50mV, 2-10V, 0-10V, 0-20mA, 4-20mA, and potentiometer, all with the possibility of custom linearisation that can be defined using the faceplate keys. It is possible to activate correction of the input using a linear function defined by way of two points on it.
The type of input is selected from the faceplate keys and no external shunts or adapter are required.
A second auxiliary isolated analogue input is available, which can also be configured for a linear input (0-10V, 2-10V, 0-20mA / 4-20mA), for remote setpoint, potentiometer or current transformer. The auxiliary input function is completely configurable, including the possibility of a custom linearization.
It is possible to configure the 2 available isolated digital inputs for selection of up to 4 local setpoints; start, stop and reset of internal timer; Auto/Man, Loc/Rem functions; alarms memory reset; input hold function.
The instrument can have up to 4 relay (3A/250V) or logic (12Vdc, 20mA) outputs and up to 2 isolated analogue outputs in voltage or current.
The function of each output is completely configurable by faceplate.
The available functions include: control output, alarm output, timer, digital input repetition, retransmission of process value, setpoints, deviation, alarm setpoint or value read from digital communication.
A further isolated output (10 or 24Vdc, 30mA max.) is available for powering external transmitters or potentiometers.
The serial communication interface RS485 (RS232C compatible) makes it possible to read or modify any parameter and to govern the instrument online (local/remote manual/automatic commutation, internal timer control, direct control of outputs).
Protocols available: MODBUS RTU and CENCAL (Gefran).
The optional serial communications can be Current Loop, RS232 or RS485, while the protocol can be selected between Gefran (Cencal) and Modbus.
Using these it is possible to write to any of the instrument parameters.
*All the programming procedures of the instrument 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 data sheet code WINSTRUM).

TECHNICAL DATA

INPUTS

Accuracy 0,2% f.s. ±1digit.
Acquisition of the input signal 120msec.
Decimal point position for linear groups can be set freely.
For inputs from TC , RTD, PTC a decimal figure in the maximum display field (-199,9...999,9).

TC - Thermocouples

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
(**Ni-Ni18Mo**) 0...1100°C / 32...2012°F
L-GOST (NiCr-CuNi) 0...600°C / 32...1112°F
Custom -1999...9999

RTD 3-wires

Pt100 -200...850°C / -328...1562°F
JPt100 (JIS C 1609/81)
-200...600°C / -328...1112°F
Custom -1999...9999

PTC

(alternative to RTD)
-55...120°C / -67...248°F
Custom -1999...9999

DC - Linear

0...50mV; 10...50mV; 0...20mA
4...20mA; 0...10V; 2...10V
Custom linearisation with 32 segment

Auxiliary input

insulation 1500V
For remote setpoint:
(0...10V, 2...10V, Ri=1MΩ)
(0...20mA, 4...20mA, Ri=5Ω)
potentiometer > 500Ω
For current transformer:
CT 50mAac, 50/60Hz, Ri=1,5Ω

Logic inputs

Insulation 1500V
NPN 24V/4,5mA (PNP 24V/3,6mA)
Configurable function: Man/Auto, Loc/Rem, Alarms Reset,Hold, Setpoint selection.

OUTPUTS

Outputs fully configurable for:
single alarm, “OR” or “AND” of multiple alarms, logic input repetition.

Relay

With rating: 5A/250V, cosφ=1
(order code R)

Logic

11Vdc, Rout=220Ω.=(20mA, max.6V)
(order code D)

Analog retransmission

isolated 1500V
- Up to 2 analogue outputs for control or retransmission (input signal, setpoint, auxiliary input, alarm setpoint).
- Scale range selectable from keyboard.
- Configurable output 0...10Vdc; 0...20/4...20mA
- Resolution 4000 steps

SERIAL LINE

Optoisolated 4-wires
Passive Current Loop configurable (1200 baud) interface, RS232 and RS422/485 (1200, 2400, 4800, 9600, 19200baud).
Protocol: GEFRAN CENCAL or MODBUS

POWER SUPPLY

Standard: 100 to 240Vac/dc ±10%
on request: 20 to 27Vac/dc ±10%
50/60Hz; 12VAmax.
Protection by internal fuse not serviceable by the user

Transmitter Supply

isolated 1500V
10/24Vdc max. 30mA short circuit protection

AMBIENT CONDITION

Working temperature range: 0...50°C
Storage temperature range: -20...70°C
Humidity: 20...85%Ur non condensing

Control

Cooling setpoint relative to Heating setpoint
On/Off, P, PD, PID for heating and cooling with configurable parameters.
- Proportional band 0,0...999,9% f.s.
- Integral time 0,0...999,9 min
- Derivative time 0,0...99,99 min
- Max and Min control output power limitation: 0,0...100,0%
- Manual Reset -999...999 digit
- Power Reset -100,0...100,0%
- Cycle time 0...200sec
- Soft-start 0,0...500,0 min

Alarms

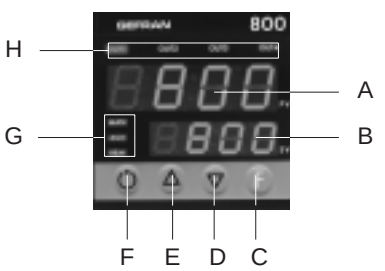
- Up to 3 alarms, settable as absolute, deviation or symmetrical deviation alarm with respect to the control setpoint with configurable function (High or Low).
- The alarm point may be set anywhere within the configured scale.
- Heater Break Alarm
- Loop Break Alarm
- Alarm Hysteresis configurable
- Alarms can be assigned to main input, auxiliary input or control SP.

WEIGHT

210g in complete version

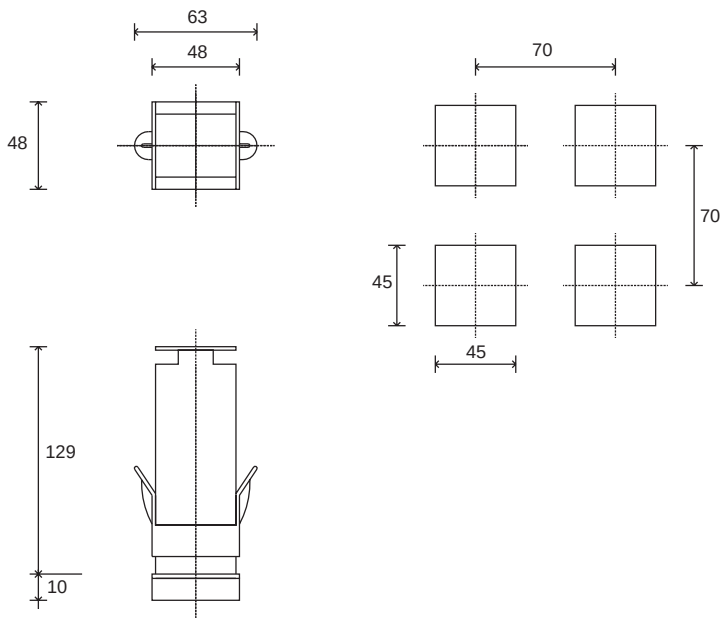
FACEPLATE DESCRIPTION

A - Indication of process variable (PV), green digits h. 10mm
B - Indication of the set point (SV) green digits h. 7mm
C - “Function” key
D - “Lower“ key
E - “Raise” key
F - Auto/Man selection
G - Function indication, red led
H - Indication of active outputs, red led



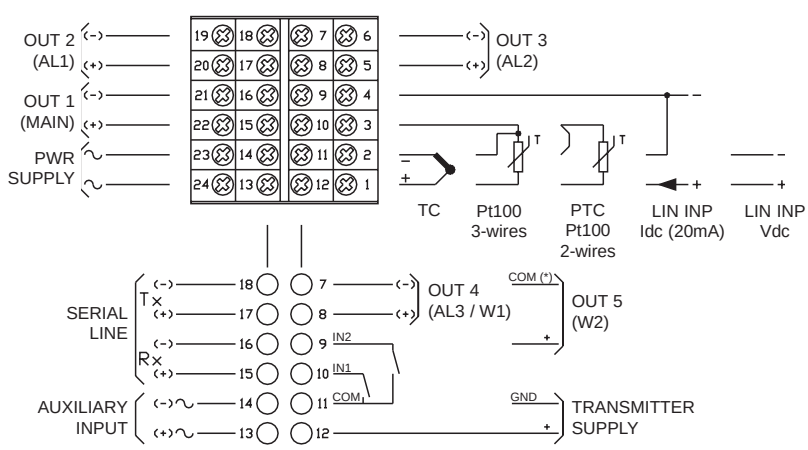
IP65 faceplate protection

DIMENSIONS AND CUT OUT



Dimensions: 48x48mm (1/16DIN) depth 129mm

CONNECTION DIAGRAM



(*) COM is on terminal 7 for output OUT4, continuous-type (W1).
COM is on terminal 11 for output OUT4, relay- or logic-type

Apply users' manual warnings for a correct installation

ORDER CODE

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OUTPUT 1	
Relay	R
Static	D

OUTPUT 2	
Relay	R
Static	D

OUTPUT 3	
None	0
Relay	R
Static	D

OUTPUT 4	
None	0
Relay	R
Analogue (W1) 0...10V	V
Analogue (W1) 0/4...20mA	I

POWER SUPPLY	
0	20...27Vac/Vdc
1	100...240Vac/Vdc

DIGITAL COMMUNICATIONS	
0	None
2	RS 485 / RS 232C

AUXILIARY INPUTS	
0	None
1	0...1V
2	0...10V / Potentiometer #
3	0/4...20mA
5	TA 50mAac

OUTPUT 5 - DIGITAL INPUTS IN1, IN2 - TRANSMITTER SUPPLY	
00	None
01	Output 5 Analogue (W2) 0...10V
02	Output 5 Analogue (W2) 0/4...20mA
03	IN1, IN2 NPN; 10V/24V transmitter supply
04	IN1, IN2 PNP; 10V/24V transmitter supply
05	IN1 NPN; 10V24V transmitter supply; Output 5 Analogue (W2) 0...10V
06	IN1 PNP; 10V/24V transmitter supply; Output 5 Analogue (W2) 0...10V
07	IN1 NPN; 10V/24V transmitter supply; Output 5 Analogue (W2) 0/4...20mA
08	IN1 PNP; 10V24V transmitter supply; Output 5 Analogue (W2) 0/4...20mA

Potentiometer input requires 10V supply transmitter

Make specific calibration request for PTC input.

Please, contact GEFRAN sales people for the codes availability.

CE	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
RINA	(Italian Naval Register) ELE / 124697 / 2 omologation