



Main applications

- Ovens
- Processing plants for chemical and pharmaceutical industries
- Food processing plants
- Sterilizers, autoclaves, continuous ovens and drying unit ceramics and bricks

Main features

- Universal input configurable from the faceplate
- Acquisition of the input signal every 120msec ; resolution 30000steps
- Two control outputs: relay, logic or analogue with Open/Close valve function
- 3 configurable alarms
- 2 analogue outputs (retransmission)
- 2 digital inputs with configurable function
- Auxiliary input for valve position potentiometer feedback
- Heater Break or shortcircuit probe alarm
- Self and Auto-tuning, Soft-start, Local/Remote setpoint, Auto/Man
- Multiset function, timer set ramp

GENERAL

Microprocessor controller for three-step motorised valves, format 48x48 (1/16DIN).

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, resistance thermometer, thermistor, linear inputs, 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 or, potentiometer for valve position feedback. 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.

This instrument has up to 4 relay (3A, 250V) or logic (12Vdc, 20mA) outputs, 2 of which will be dedicated to the open/close valve functions and up to 2 isolated analogic outputs, in voltage or current.

Every output function is configurable from keypad; available functions are control output (open/close valve); alarm output; timer controlled output; digital input repetition; retransmission of process value, setpoint, 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).

Using these protocols it is possible to write to any of the instrument parameters. Specific parameters are present for the

valves control, i.e. the actuator stroke time, the minimum pulse time, the impulsive intervene threshold, the dead zone; also the control type is configurable with or without potentiometer feedback; with PD or PID algorithm.

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.

The instrument can also select the parameters to display depending on the hardware configuration, automatically hiding those that are not influential.

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. ± 1 digit.
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

Auxiliary input

(insulation 1500V)
For Remote Setpoint:
(0...10V, 2...10V, Ri=1M Ω)
(0...20mA, 4...20mA, Ri=5 Ω)
Valve position potentiometer feedback:
> 500 Ω

Logic inputs

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

OUTPUTS

Outputs fully configurable for open/close valve function, single alarm, "OR" or "AND", of more alarms logic input repetition

Relay

with rating: 5A/250V, cos ϕ =1
(order code: R)

Logic

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

Analogue retransmission

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

SERIAL LINE

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

POWER SUPPLY

Standard: 100 to 240Vac/dc $\pm 10\%$
on request: 20 to 27Vac/dc $\pm 10\%$
50/60Hz; 12VAm_{ax}.
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

P, PD or PID for motorised valve (with or without potentiometer feedback), for heating/cooling with parameters configurable from the faceplate.

- Proportional band 0,0...999,9% f.s.
- Integral time 0,0...99,99 min
- Derivative time 0,0...99,99 min
- Max or min control output power limitation 0,0...100,0%
- Manual reset -999...999 digit
- Power reset -100,0...100,0%
- Cycle time 0...200sec
- Minimum pulse time / Actuator stroke time 0,0...25,0%
- Pulsating control band in percentage of actuator stroke time 0,0...1000,0%
- Dead band (symmetrical around control Setpoint), settable in percentage of f.s. 0,0...25,0% f.s.

Alarms

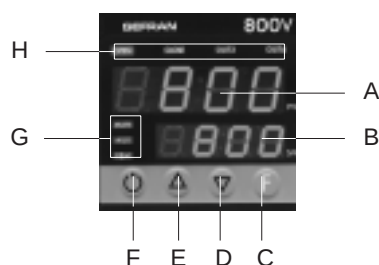
- Up to 3 alarms, settable as absolute, deviation or symmetrical deviation alarm with respect to the control setpoint with configurable function (Hi or Lo).
- The alarm point may be set anywhere within the configured scale.
- Heater Break Alarm
- Loop Break Alarm
- Alarm Hysteresis configurable
- Alarms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

WEIGHT

210g in the complete version

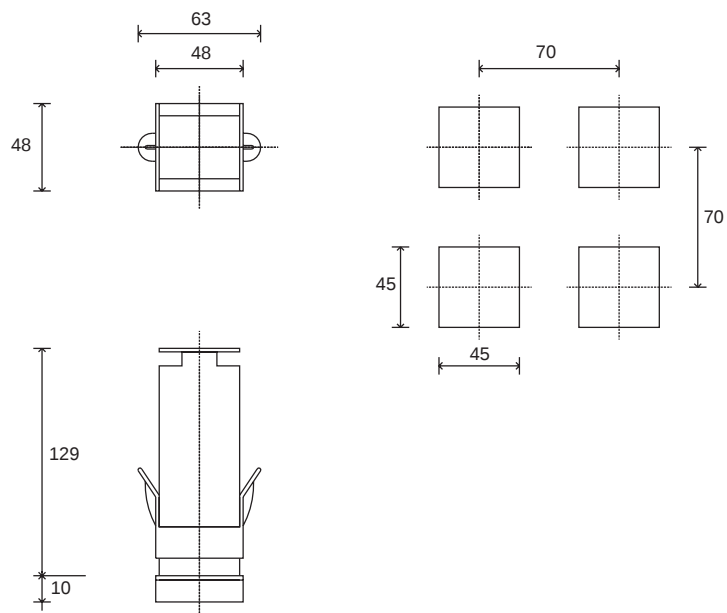
FACEPLATE DESCRIPTON

- 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



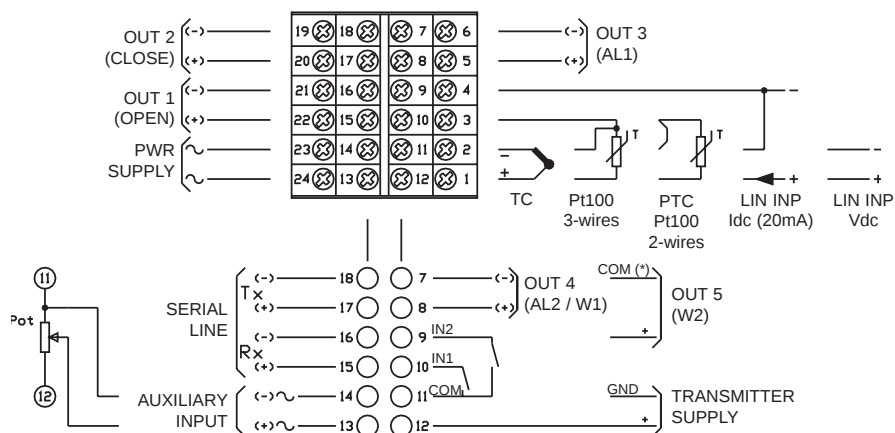
IP65 faceplate protection

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

800V

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; 10V/24V 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; 10V/24V transmitter supply; Output 5 Analogue (W2) 0/4...20mA

Potentiometer input requires 10V supply transmitter

Make specific calibration request for PTC input.

Please, contact GEFRAAN 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.

	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

GEFRAN

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