Main applications

- Extrusion lines
- Injection presses for plastics
- Heat punches
- Presses for rubber
- Packaging machines
- Packing machines
- Polymerization and synthetic fiber plants
- Food processing plants
- Die-casting plants
- Cooling plants
- Climatic cells and test benches
- Dryers for ceramics and construction parts
- Ovens
- Painting plants

In addition to control and alarm outputs, you can have outputs that repeat the state of the digital or retransmission input by process variable input. The sampling time is 120 ms. Another output (at 10 or 24 Vdc, 30 mA max.) is available to power external transmitters. The serial communication option (available in RS485 standard) allows connection to supervision systems and PLCs with two protocols: GEFRAN CENCAL and MODBUS RTU.

Profile

Microprocessor controller, format 48x48 (1/16 DIN) manufactured using SMT. 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 signal LED’s for the 4 logic or relay outputs, and 3 other programmable LED’s to signal the various operational states of the instrument. The main input for process variable is universal, and many types of signals can be connected: thermocouples, resistance thermometers, thermistors, normalized linear inputs, all with possibility of custom linearization using the faceplate keys. The type of input is selected from the faceplate keys; no external shunts are required.

A second auxiliary analog input from the current transformer is also available. With the isolated digital input you can select: one of the two presettable setpoints, select Man/Auto mode, reset the alarms memory, or enable the hold function. The instrument can have up to 4 outputs: relay (5 A at 250 Vac/30 Vdc cos φ = 1), logic 24 V ±10% (10 V min at 20 mA), digital insulated, triac. An analog output in voltage or current is also available. The function of each output is freely configurable from the faceplate keys.

TECHNICAL DATA

Inputs
Accuracy 0.2% f.s. ±1 digit. Sampling time 120 msec.

TC - Thermocouple

J 0...1000°C / 32...1832°F
K 0...1300°C / 32...2372°F
R 0...1750°C / 32...3182°F
S 0...1750°C / 32...3182°F
T -200...400°C / -328...752°F
B 44...1800°C / 111...3272°F
E -100...750°C / -148...1382°F
N 0...1300°C / 32...2372°F

L-GOST 0...600°C / 32...1112°F
U -200...400°C / -328...752°F
G 0...2300°C / 32...4172°F
D 0...2300°C / 32...4172°F
C 0...2300°C / 32...4172°F

(NTC-Ni18Mo) 0...1100°C / 32...2012°F

custom -1999...9999

RTD 2/3 wires

PT100 -200...850°C / -328...1562°F
JPT100 -200...600°C / -328...1112°F

PTC 990Ω, 25°C -55...120°C / -67...248°F

NTC 1KΩ, 25°C -10...70°C / 14...158°F
**DC - Linear**

With scale settable from:

-1999...9999
0...60mV / 12...60mV
0...10V / 2...10V
0...5V / 1...5V
0...1V / 0,2...1V
0...20mA / 4...20mA

Input impedance:

- Ri > 1MΩ for 60mV, 1V
- Ri > 10KΩ for 5V, 10V
- Ri = 50Ω for 20mA

32-segment custom linearization can be inserted.

**Auxiliary input**

(alternative to output out 3)

Input for current transformer

50mAac, 50/60Hz, Ri=10Ω

**Digital input**

Ri = 4.7KΩ (24V, 5mA) insulation 1500V or no-voltage contact.

Function configurable for man/auto selection, local/remote (setpoint from serial line, setpoint1/setpoint2, Set/reset outputs, start/stop functions from tuning, software on/off, reset alarms memory, hold.

**Outputs**

4 configurable outputs:

- OUT1-OUT4: relay only
- OUT2: relay, logic, triac, digital insulated
- OUT3: relay, logic, digital insulated, continuous or analog retransmission as alternative to aux. input

Freely assignable to control functions and single alarms in "OR" or "AND".

Can be slaved to front panel key or aux. digital input.

**Relay**

(indicated in code with R)

With contacts: 5A at 250Vac/30Vdc, cosφ=1

**Logic**

(indicated in code with D)

24Vdc ±10% (10V min at 20mA)

**Digital insulated**

(indicated in code with M)

optoinsulated MOS output 1500Vrms equivalent to NO contact

Vmax 40Vac/Vdc Imax 100mA

Load ON max 0,8Ω

**Triac**

(indicated in code with T)

20...240Vac ± 10%, 50/60Hz, 1A max.

I't = 128A/sec.

Leakage current 1,5mA max at 200Vac.

**Continuous**

(indicated in code with C)

0...10V RLOAD ≥ 250KΩ
0/4...20mA RLOAD ≤ 500Ω

for heating/cooling control output only.

**Analog retransmission**

(indicated in code with W)

0...10V RLOAD ≥ 250KΩ
0/4...20mA RLOAD ≤ 500Ω

max resolution 12 bit, useful for retransmission of variable.

**Serial line**

Isolated 2/4 wires, RS422/485 interface

(1200, 2400, 4800, 9600, 19200 baud)

Prot.: GEFRAN CENCHAL or MODBUS

**Power supply**

Standard: 100...240Vac ± 10%

On request: 11...27Vac/dc ± 10%

50/60Hz, max. 8VA

Protection by internal fuse not serviceable by user

**Transmitter Power supply**

24V ±10% non-stabilized, 30mA

15V for transmitter, 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**

On/Off, P, PD, PID for heating and cooling, with parameters settable from keys.

Canning setpoint relative to heating setpoint:

- Manual reset -999...999 digit
- Power reset -100,0...100,0%
- Cycle time 0...200sec
- Softstart 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**

- 3 alarms settable as absolute, deviation, symmetrical deviation to setpoint with direct or reverse function.
- Alarm point can be set anywhere on selected scale
- Alarms can be masked with exclusion at power-on, with memory, with delayed trip
- LBA alarm for setting control
- Hysteresis settable for each alarm
- Alarm assigned to current input with different operating modes.

**Weight**

160g in complete version

**Faceplate description**

A - Indication of process variable (PV), green digits h. 10mm

B - Indication of set point (SV), green digits h. 7mm

C - “Function” key

D - “Lower” key

E - “Raise” key

F - Auto/Man selection

G - Function indicator, red LED

H - Indication of output states, red LED

Faceplate protection IP65
Dimensions: 48x48mm (1/16 DIN) depth 99mm

**CONNECTION DIAGRAM**

- Maximum driving torque for screws: 0.5 Nm
- Minimum section of flexible or rigid stripped wire: 0.5 mm²
- Maximum section of flexible or rigid stripped wire: 1.5 mm²

⚠️ For correct installation, read the instructions and warnings in the instruction manual
The controller is available in 2 versions:

**BASIC VERSION**
Up to 3 output options; option 4 not available. Unit with 12 terminals rear socket.

**EXPANDABLE VERSION**
Up to 4 output options. Unit with internal plug and complete rear socket.
With this version, option 4 can be added at a later stage.
For optional I/O boards, please see “Accessories” section.

Please, contact GEFRAN sales people for the codes availability.
For correct installation, follow the instructions contained in the manual.

GEFRAN spa reserves the right to make any aesthetic or functional change at any time and without prior notice

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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)