GEFRAN

2400

FAST DISPLAY / ALARM UNIT

Main applications

- *Extrusion lines and injection presses for plastics*
- *Filling machines*
- *Food processing plants*
- *Pressure measurement and trip points (direct/differential)*
- *Position measurement and trip points*
- *Variable setpoints in fast processes and automations in general, with signal retransmission*

Main characteristics

- *Double configurable input for strain gauge / potentiometer / linear signal / TC / RTD*
- *Two auxiliary analog inputs*
- *Differential measurement*
- *High precision: 0.1 % f.s. ±1 digit*
- *High tripping speed*
- *Automatic calibration for 6-wire strain gauge*
- *Transmitter power supply and strain gauge probe power supply*
- *Memory: min. peak, max. peak, max. peak – min. peak*
- *3 configurable alarms, failsafe function*
- *2 digital inputs*
- *up to 4 relay/logic outputs*
- *5-digit display*
- *Serial communication interface:*
  - RS485/RS232 MODBUS RTU protocol (optional)
  - Profibus DP slave (optional)
- *Isolated analog retransmission output (optional)*

PROFILE

Fast microprocessor display / alarm unit, 96 x 48 (1/8 DIN) format.
Built with SMT technology for an extremely complete operator interface with IP54 protection level (IP65 with protective cover).
The front panel has a 6-key soft-touch keyboard and 5-digit LED display of process variable and parameters.
The instrument is appropriate for acquisition of signals with high variation speed.
It has two main analog inputs for many applications, including differential measurements.
The inputs are configurable from the keyboard and accept standard linear signals (and custom linearized signals), as well as signals from pressure probes, load cells, potentiometers, TC, RTD.
There are two additional analog inputs for linear signals and two digital inputs for functions such as alarm latch reset, peak latch reset, calibration check, hold, alarm setpoint selection.
The outputs (up to 4) are relay or logic, and are configurable.
The instrument manages functions such as storage of maximum peak, minimum peak, peak-peak values.
An optional, optically isolated analog output is available for retransmission of input value or peak values.

Alarms

4 (10) completely configurable setpoints. Selectable "failsafe" function.

MD8 expansion to replace outputs 3 and 4, with 8 additional setpoints.

Digital communication

The instrument offers an optional RS485 2/4 wire / RS232 serial interface with MODBUS RTU protocol for access to instrument parameters, or the option Profibus DP (slave).

Configuration

The programming procedure is facilitated by the menu structure, with various configuration levels for quick and simple data search.

TECHNICAL DATA

OPERATOR INTERFACE

Display
Configurable from -19999 to 99999 xith settable decimal point
5 digits bicolors (R/V) 13mm
2 digits (V) 7mm
LED signals: n.14 red
Keys: n.6

ANALOG INPUTS

Accuracy: 0,1% f.s. ± 1 digit
(0,2% for TC)
Min. sampling time:
2 msec for main inputs
10msec for auxiliary inputs
Resolution:
- without filter: 100000 steps@2msec
- with digital filter (selectable):
  100000 steps@20msec
  100000 steps@100msec (50Hz)

Custom linearization:
- fixed intervals: 64 sections
- variable intervals: 32 sections max.
- self-learning

INPUT 1, INPUT 2 main inputs
Strain-gauge: 350Ω
Sensitivity 1,5...4mV/V
Jumper power supply: 5/10Vdc 200mA
Potentiometer:
≥100Ω, Ri > 10MΩ @ 2,5Vdc
Linear DC:
±50mV ... ±10V, Ri > 1MΩ
0/4...20mA, Ri = 50Ω

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
custom -1999...9999
RTD: 2-3 wires
PT100 -200...850°C / -328...1562°F
int./ext. cold junction compensation

INPUT 3 (auxiliary)
Linear DC:
0...10V, 0/4...20mA, Ri = 50Ω

INPUT 4 (auxiliary)
Linear DC:
0...10V, 0/4...20mA, Ri = 50Ω

ALLARMI
Relay: 5A/250Vac cosφ=1
Logic: 24Vdc source/sink

OUTPUT 1
Relay (NO/NC)* or Logic
(according to model)

OUTPUT 2
Relay (NO/NC)* or Logic
(according to model)

OUTPUT 3**
Relay (NO/NC)* or Logic
(according to model)

OUTPUT 4**
Relay (NO/NC)* or Logic
(according to model)

* terminal “C” in common
** alternate: version only with OUTPUT3 (switching contact) and interface for MD8 expansion unit

• The relay can be energized or de-energized in alarm state (selection via keyboard).
• The outputs can be assigned to alarm setpoints directly or via logic functions (AND, OR).
• The outputs can be delayed or assigned to a hysteresis value (selectable in engineering units).
• 4 (10) alarm setpoints settable in absolute value, with functions configurable via keyboard (direct, reverse, deviation, symmetrical deviation).
• Setpoint can be set over the entire selected scale.
• Minimum or maximum setpoint with latch.
• Setpoint can be excluded in power-up phase until the input variable has exceeded the set limit.
A subsequent drop below such limit causes the relay to trip

ANALOG OUTPUT (optional)
Not available with option of Profibus communication
Isolated 1500V
0/4...20mA, max 500Ω
± 10V, min 500Ω
resolution higher than 0,03%
Configurable via software

COMMUNICATION (optional)
SERIAL INTERFACE:
RS485 2/4 wires optically isolated
Protocol: MODBUS RTU
Profibus DP slave
Protocoll: Profibus DP VO (slave)

CONFIGURATION VIA PC:
TTL service interface, connectable to PC via “Winstrum” kit

CONNECTIONS
Screw connections

POWER SUPPLY
100...240Vac/dc ±10%,
20...27Vac/dc ±10%,
50...60Hz; max 20VA
Protection via internal fuse, not replaceable by operator

PROBE POWER SUPPLY
5/10Vdc - 200mA, 2,5Vdc for potentiometers
TRANSMITTER POWER SUPPLY
24Vdc, ±5% - 100mA

AMBIENT CONDITIONS
Work temperature: 0...50°C
Storage temperature: -20...70°C
Humidity: 20...85% Ur non-condensing

WEIGHT
450g

DIMENSION
96 X 48 X 167 mm

ACCESSORIES
MD8 - EXPANSION UNIT
replaces outputs 3 and 4 with an additional 8 outputs (relay or logic, according to model)
FRONT COVERS
standard Gefran (see catalog)
WINSTRUM KIT
TTL/RS232 interface wires + CD

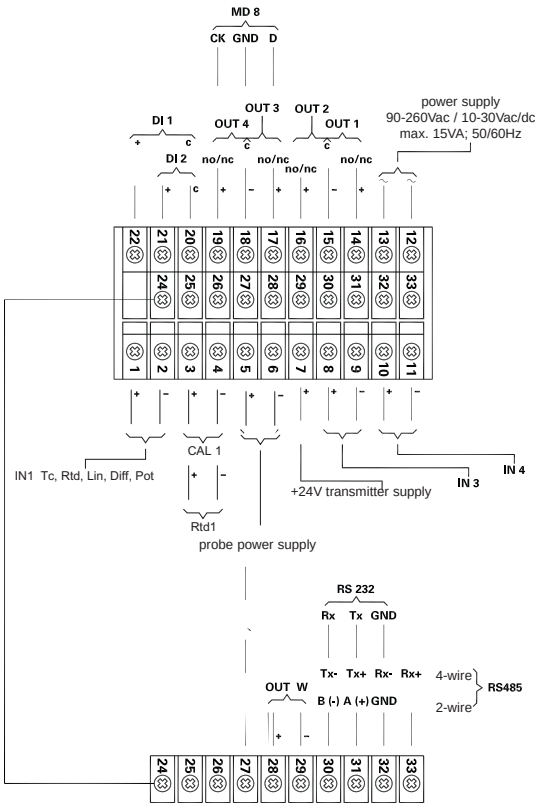
DESCRIPTION FACEPLATE

A - Process variable display, digit height 14mm, red
B - Index value for displayed process variable
C - “FUNCTION” button
D - “LOWER” button
E - “RAISE” button
F - special functions
G - “CAL-RST” button
H - “PEAK” button
I - Alarm setpoint signals, red LEDs
L - Function indicators

IP54 front panel protection (IP65 available)

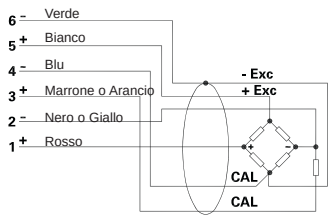
CONNECTION DIAGRAMS

Model with single main input
Model: 2400 - 0 - X - X - X - X



IN1

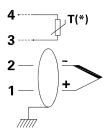
Strain-gauge



Input in current

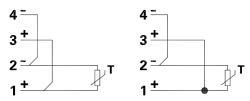
Input in voltage

Thermocouple

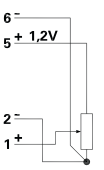


(*) PT100 for possible external cold junction compensation

Resistance Thermometer

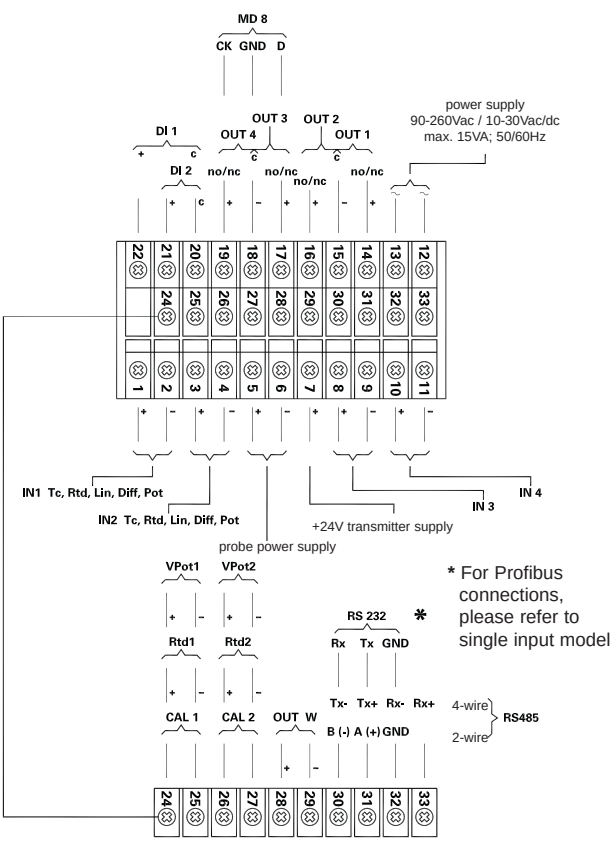


Potentiometer



Potentiometer
R ≥ 100Ω

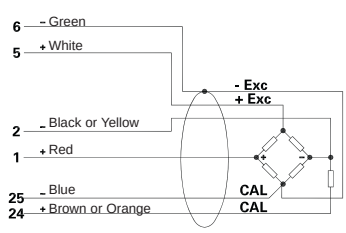
Model with double main input
Model: 2400 - 1 - X - X - X - X



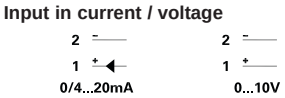
* For Profibus connections, please refer to single input model

IN1

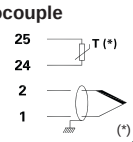
Strain-gauge



Input in current / voltage

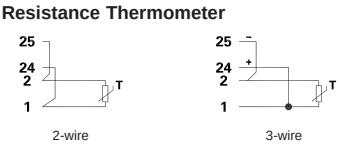


Thermocouple

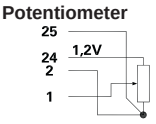


(*) PT100 for possible external cold junction compensation

Resistance Thermometer



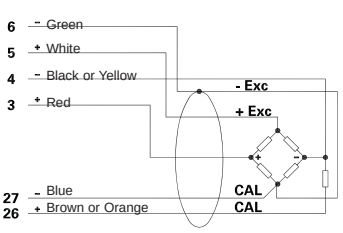
Potentiometer



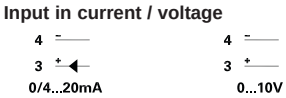
Potentiometer
R ≥ 100Ω

IN2

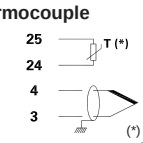
Strain-gauge



Input in current / voltage

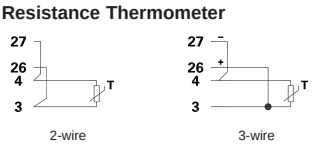


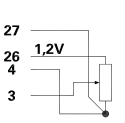
Thermocouple



(*) PT100 for possible external cold junction compensation

Resistance Thermometer

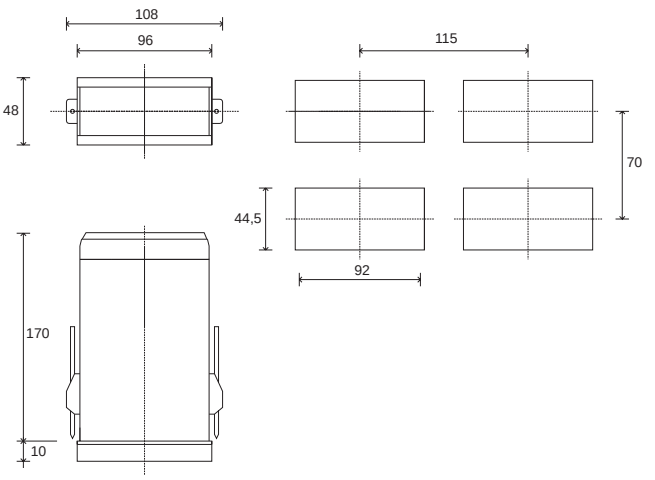




Potentiometer
R ≥ 100Ω

Apply user's manual warnings for a correct installation

DIMENSIONS AND CUT OUT



Dimensions: 96x48mm (1/8 DIN), depth 167mm

ORDER CODE

MODEL	
	2400

2nd IMAIN INPUT	
None	0
Strain-gauge / TC / RTD / Potentiometer / Linear	1

RETRANSMISION OUTPUT	
None	0
Analog 0/4...20mA (0...10V) (not available in presence of digital communication “Profibus DP”)	W

POWER SUPPLY	
0	20...27VAC/DC
1	100...240VAC/DC

DIGITAL COMMUNICATION	
0	None
2	RS485
3	RS232
P	Profibus DP (not available in presence of option “W”)

OUTPUTS	
4R	4 relay
4D	4 logic
2R	2 relay + MD8 expansion output
2D	2 logic + MD8 expansion output

Please, contact GEFRAN 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.

c UL us	Conformity C/UL/US File no. E216851
CE	In conformity to ECC 89/336/CEE and 73/23/CEE with reference to standards: **EN 61000-6-2** (immunity in industrial environment) - **EN 61000-6-3** (emission in residential environment) - **EN 61010-1** (safety)

GEFRAN

GEFRAN spa via Sebina, 74 - 25050 Provaglio d’Iseo (BS)
Tel. 03098881 - fax 0309839063 - Internet: http://www.gefran.com