

INSTALLATION AND OPERATION MANUAL

cod. 80144 / Edit 01 - 11/09 - ENG

1 • MAIN FEATURES

- Optically-isolated I/O
- 8 configurable digital inputs 24VDC $\pm 25\%$
- 8 configurable digital outputs 24VDC $\pm 25\%$
- 4 NO relay outputs, 5A max, $V=250V/30Vdc$, $\cos\phi=1$ resistive load
- 4 analog inputs, configurable via software (V, I, TC, RTD, potentiometer strain-gauge) 16 bit A/D conversion
- 2 configurable analog outputs ($\pm 10V$, $\pm 20mA$) 16 bit D/A conversion
- 2 CT inputs 16 bit A/D conversion
- Protected against polarity inversion, overload and overtemperature
- LED power supply diagnostics, I/O, module status and alarm
- Extractable connectors supplied

2 • INSTALLATION AND CONNECTION



This section contains the instructions necessary for correct installation of the GILOGIK II into the machine control panel or the host system and for correct connection of the system power supply, inputs, outputs and interfaces.



Before proceeding with installation read the following warnings carefully!
Remember that lack of observation of these warnings could lead to problems of electrical safety and electromagnetic compatibility, as well as invalidating the warranty.

Qualified staff

the installation and use of the system and components are only reserved at qualified staff.

Conform use

the system and relative components are usable exclusively to the use previewed in the manual
In order to guarantee a correct and sure operation are indispensable that the product comes transported, stored correctly, installed, and controlled second the previewed modalities.
Suitable for use in pollution degree 2 environment. Open type equipment.

Notes Concerning Electrical Safety and Electromagnetic Compatibility:

- CE MARKING: EMC Conformity (electromagnetic compatibility)

in accordance with EEC Directive 2004/108/CE. The GILOGIK II system is mainly designed to operate in industrial environments, installed on the switchboards or control panels of productive process machines or plants.
Norm of applicable product EN 61131-2.
The Declaration of conformity is available on GEFAN web: www.gefran.com

- **BT Conformity (low tension)**
in accordance with Directive LVD 2006/95/CE.
Advice for Correct Installation for EMC

Inputs and outputs connection

- The externally connected circuits must be doubly isolated.
- To connect the analogue inputs the following is necessary:
 - physically separate the input cables from those of the power supply, the outputs and the power connections.
 - use woven and screened cables, with the screen earthed in one point only.

GEFRAN S.p.A. declines all responsibility for any damage to persons or property caused by tampering, neglect, improper use or any use which does not conform to the characteristics of the controller and to the indications given in these Instructions for Use.



3 • TECHNICAL DATA

DIGITAL INPUTS

- 8 optically-isolated digital inputs at 24VDC $\pm 25\%$ with > 2KV isolation
- Maximum input voltage: 32V 25mA
- Polarity inversion protection
- Maximum voltage for "0" (input OFF) = 5Vdc
- Minimum voltage for "1" (input ON) = 11VDC compatible with devices type 1,3
- Inputs 1 to 4 with 50 kHz pass band
- Inputs 4 to 8 with 5 kHz pass band
- Board has 3 counting units assignable to inputs 1 to 4 configurable as:
 - Bi-directional, mono-directional encoder with or without zero mark and internal speed calculation.

- Pulse counter
- Measurement of period, frequency, duty cycle
- Measurement of high/low pulse duration

DIGITAL OUTPUTS

- 8 optically-isolated PNP outputs at 24VDC $\pm 25\%$ with > 2KV isolation
- Organization: 1 group of 8 outputs
- Output power supply: 24VDC $\pm 25\%$
- Max. current for 8 outputs: 6A
- Max. current for group of 4 contiguous outputs (1...4 / 5...8): 3A
- Maximum current per output: 1A,
- Output overload protection trips at 1.2A.

3 • TECHNICAL DATA

- Overvoltage on output for 1ms max.1kV
- Outputs 1 and 2 configurable in PWM (10 bit resolution) and in frequency (32 bit resolution).
 - Selectable PWM period: 10s 5s, 2s,1s,10ms, 4ms, 2ms, 1ms.
 - Independent frequency generator for each channel, min. frequency 0.1Hz settable in steps of 0,01Hz
- Digital outputs from 4 to 8 are driven by the same control as the 4 relay outputs Rout1,2,3,4.
- 4 relay outputs (Rout1 ÷ Rout4) NO, I=5A, V=250V/30Vdc, $\cos\phi=1$ resistive load
- Relay outputs Rout1 and Rout2 with pure contact
- Relay outputs Rout3 and Rout4 with one shared contact (switch contact)
- Relay outputs Rout1,2,3,4 are driven by the same control as digital outputs 4 to 8.

ANALOG INPUTS

- 4 optically-isolated inputs with >2KV isolation and 16 bit A/D conversion. Inputs are configurable via software as follows:
 - Linear 0..10V (input impedance >1M Ω)
 - Linear 0..2.5V(input impedance >1M Ω)
 - Linear 0..20mA (input impedance 125 Ω)
 - Potentiometer (input impedance >1M Ω)
 - Differential 0..60mV (input impedance >1M Ω)
 - Differential for strain-gauge 0..25mV (input impedance >1M Ω)
 - Differential for strain-gauge 0..100mV (input impedance >1M Ω)
 - Thermocouple (J,K,R,S,T) with internal software compensation of cold junction. (input impedance >1M Ω)
 - Resistance thermometer PT100 (input impedance >100K Ω)
 - Resistance thermometer PT1000 (input impedance >100K Ω)*Note: if one of the four input channels is set as Pt1000, Pt100 and strain-gauge 0...25mV cannot be used on the other channels.*
- 2 inputs 0..50mA for current transformer (CT) with > 2KV isolation, 16 bit A/D conversion and input impedance of 50 Ω
- Linearity greater than 0.5%

ANALOG OUTPUTS

- 2 optically-isolated outputs with > 2KV isolation and 16 bit D/A conversion. Outputs are configurable via software:
 - Linear $\pm 10V$ max 15mA
 - Linear $\pm 20mA$, max 600 Ω load
- Linearity greater than 0.5%
- Settling time 100 μs max
- Output overload protection trips 16...25mA.
- Open circuit signal for output in current.
- Feedback circuit for diagnostics of channel.

POWER SUPPLIES

- Power supply of module via backplane R-BUS(x) 3.3V
- Power supply I/O 24Vdc $\pm 25\%$ max 200mA + load current of outputs (external, to be supplied on terminals).
Power supply is distributed internally to the various channels.

- Power supply for strain-gauge supplied by module 10V max 150mA (total for all channels).
Becomes 3.3V if a Pt1000 is configured.
- Power supply for potentiometer supplied by module 10V max 150mA (total for all channels).
Becomes 3.3V if a Pt1000 is configured.

DIAGNOSTICS

- Yellow LED: presence of 24VDC external power supply
- Green LED: digital input ON
- Green LED: digital output ON
- Green RUN LED flashing:
 - Low frequency module awaiting configuration (not operative)
 - High frequency module operative
- Red LED: module in alarm.
The alarm is active if at least one of the following occurs:
 - Short circuit or overload on digital outputs.
 - Short circuit or overload on analog outputs configured in voltage.
 - Open circuit or load with impedance exceeding limit on analog outputs in current.
 - Malfunction of microprocessor.

With the red LED ON, the digital and analog outputs are reset and the module fault is signaled to the master.

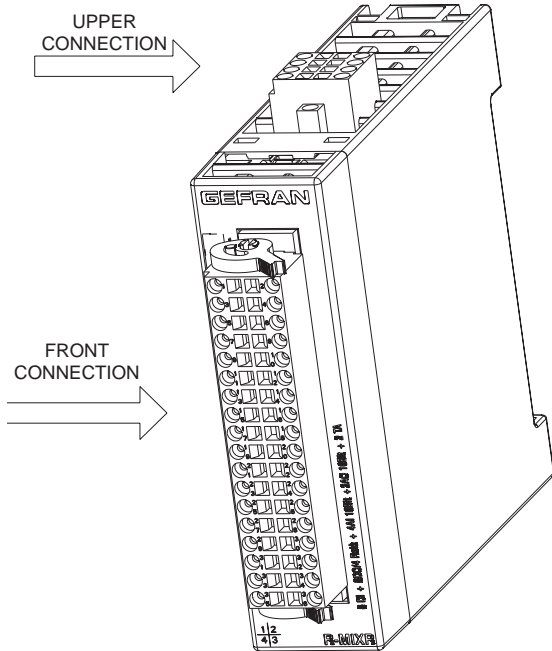
MECHANICAL CHARACTERISTICS

Dimensions: 92x90x25.4mm
Weight: 120g.
Fastening: snaps on R-BUS(x)
Protection level: IP20
Connector: 8 pin female with spring lock
Connector: 7 pin female with spring lock
Connector: 36 pin female with spring lock

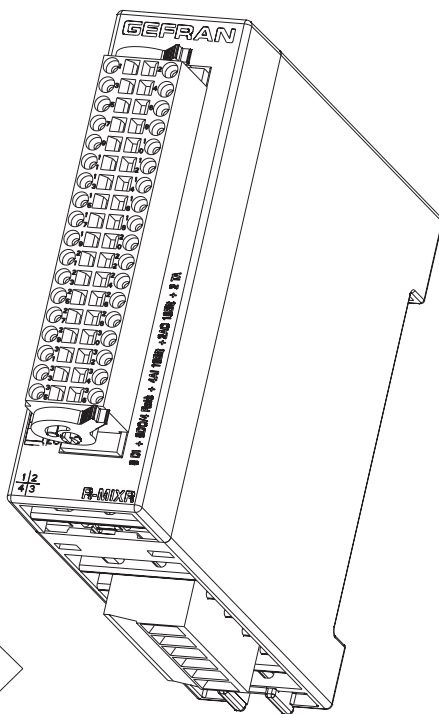
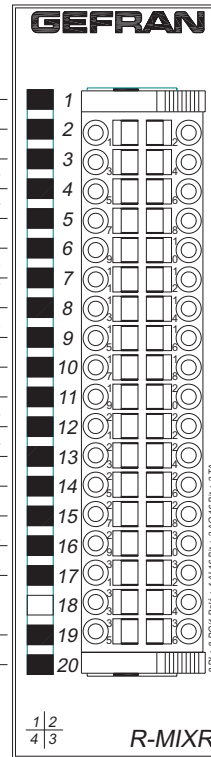
AMBIENT CONDITIONS

Working temperature: 0...50°C
Storage temperature: -20...70°C
Humidity: max. 90% Ur non-condensing

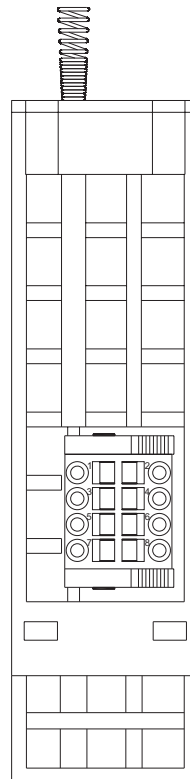
4 • INSTALLATION AND CONNECTIONS



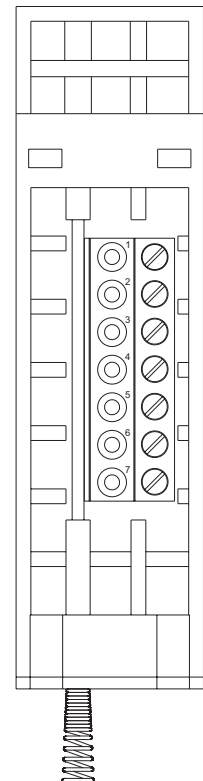
- Yellow led POWER +24Vin
- Green led DIN1
- Green led DIN2
- Green led DIN3
- Green led DIN4
- Green led DIN5
- Green led DIN6
- Green led DIN7
- Green led DIN8
- Green led Out1
- Green led Out2
- Green led Out3
- Green led Out4
- Green led Out5/ROUT1
- Green led Out6/ROUT2
- Green led Out7/ROUT3
- Green led Out8/ROUT4
- Green led RUN
- Red led ALARM



UPPER CONNECTION

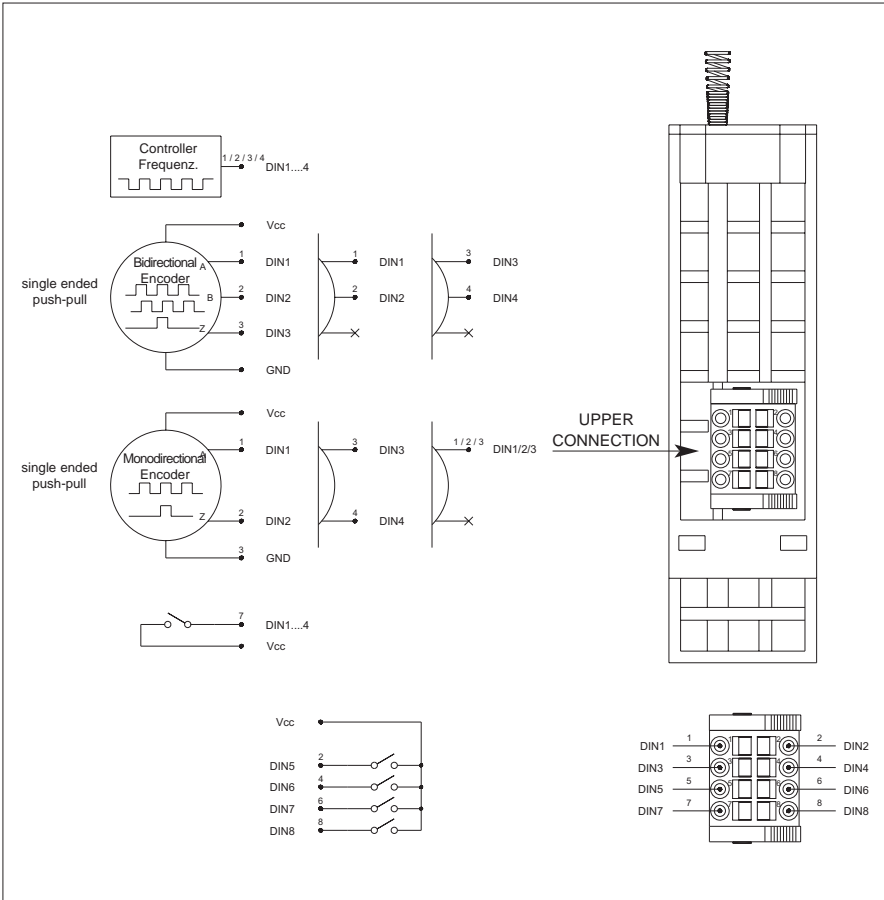


LOWER CONNECTION



4 • INSTALLATION AND CONNECTIONS

UPPER CONNECTIONS: Digital inputs/configuration table



The connections of the module call for:

External power supplies:

- 24VDC $\pm 25\%$ 200mA max. plus the current needed to load the outputs. Use unipolar cable with max section 1 mm². Do not attach lug.

Transducer inputs:

- Potentiometer: use 3-pole shielded cable with max section 0.5 mm². Do not attach lug. Connect shield directly to ground plate and as close as possible to the module.
- Thermocouple: In case of isolated thermocouples, ground the negative pole of the input as close as possible to the module. Do not attach lug.
- Strain-gauge: use 4 or 6-pole shielded cable with max section 0.5 mm². Do not attach lug. Connect shield directly to ground plate and as close as possible to the module. Use external calibration wires to calibrate the transducer.
- Current transformer (CT)
 - Use 2-pole cable with max section 0.5 mm². Do not attach lug
 - Amplified inputs, use 2 or 3-pole shielded cable with max section 0.5 mm². Do not attach lug. Connect shield directly to ground plate and as close as possible to the module.
- Linear analog input:
 - use 2-pole shielded cable with max section 0.5 mm². Do not attach lug. Connect shield directly to ground plate and as close as possible to the module.
- 2-pole analog outputs $\pm 10V$ or $\pm 0/20mA$:
 - use shielded cable with max section 0.5 mm². Do not attach lug. Connect shield directly to ground plate and as close as possible to the module
- Digital inputs / outputs:
 - use cable max 0.1mm². Do not attach lug.

NOTE:

The shield of the analog inputs / outputs must be connected near the module and directly to the ground plate.

LOWER CONNECTIONS: Relay output

