

Main applications

Connection of:

- Control devices
- Thermocouples and resistance thermometers
- Strain Gauges and potentiometers
- Current transformer (CT)

Control of:

- Solid state actuators (solid state relays and power units) with digital control
- Electronic drives and devices (including with PWM or frequency control)
- Pneumatic and hydraulic actuators
- Electromechanical contactors
- Light signals
- Proportional valves



Main characteristics

- Optically-isolated I/O
- 8 configurable digital outputs 24VDC $\pm 25\%$
- 4 analog inputs, configurable via software (V, I, TC, RTD, potentiometer strain-gauge) 16 bit A/D 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
- In Conformity with UL508

PROFILE

R-TEMP4 module is equipped with a microprocessor with digital outputs and analog inputs.

It has optically-isolated 24 VDC PNP digital outputs.

Each input is protected against polarity inversion and each output is protected against short circuit, overload, and overtemperature.

An LED lights to signal presence of the output.

It controls 4 optically-isolated analog inputs, configurable via software, for thermocouples and resistance thermometers, voltage (0-10V and 0-2.5V), current (0-20mA), strain-gauge and potentiometer.

A/D conversion is 16 bit.

The conversion system is sequential on 4 channels.

Particularly suitable for complete control of four temperature zones.

Thanks to the versatility of its analog inputs, it can also be used to acquire

strain-gauge and potentiometer signals.

The module installs on the RBUS(x) back-plane, from which it is powered.

TECHNICAL DATA

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: 4A [For UL 1AMax]
- Maximum current per output: 1A
- Output overload protection trips at 2.2A.
- 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, max. frequency 10kHz, min. frequency 0.1Hz settable in steps of 0.01Hz

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 >1MΩ)
- Linear 0..20mA (input impedance 125Ω)
- Potentiometer (input impedance >1MΩ)
- Differential 0..60mV (input impedance >1MΩ)
- Differential for strain-gauge 0..25mV (input impedance >1MΩ)
- Differential for strain-gauge 0..100mV (input impedance >1MΩ)
- Thermocouple (J,K,R,S,T) with internal software compensation of cold junction. (input impedance >1MΩ)
- Resistance thermometer PT100 (input impedance >100KΩ)
- Resistance thermometer PT1000 (input impedance >100KΩ)

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 50Ω
- Linearity better than 0.5%

Power supplies

- Power supply of module via backplane R-BUS(x) 3.3V
- Power supply I/O 24Vdc ± 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 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.
 - Malfunction of microprocessor.

With the red LED ON, the digital 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: 36 pin female with spring lock

AMBIENT CONDITIONS

Working temperature: 0...50°C

Storage temperature: -20...70°C

Humidity: max. 90% Ur non-condensing

ORDER CODE

Module code **R-TEMP4** **F046467** Code

INSTALLATION AND CONNECTIONS

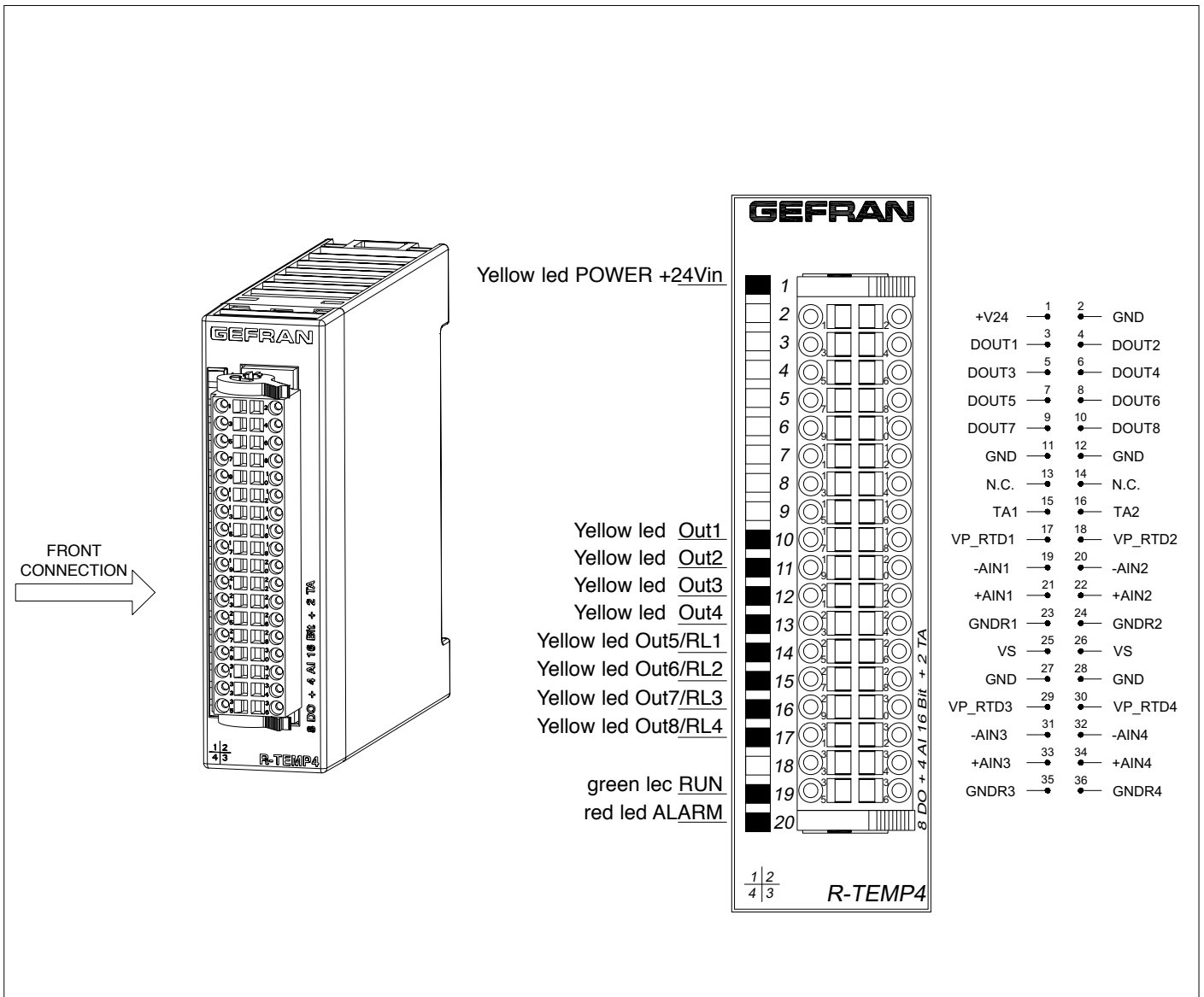
The connections of the module call for:

External power supplies:

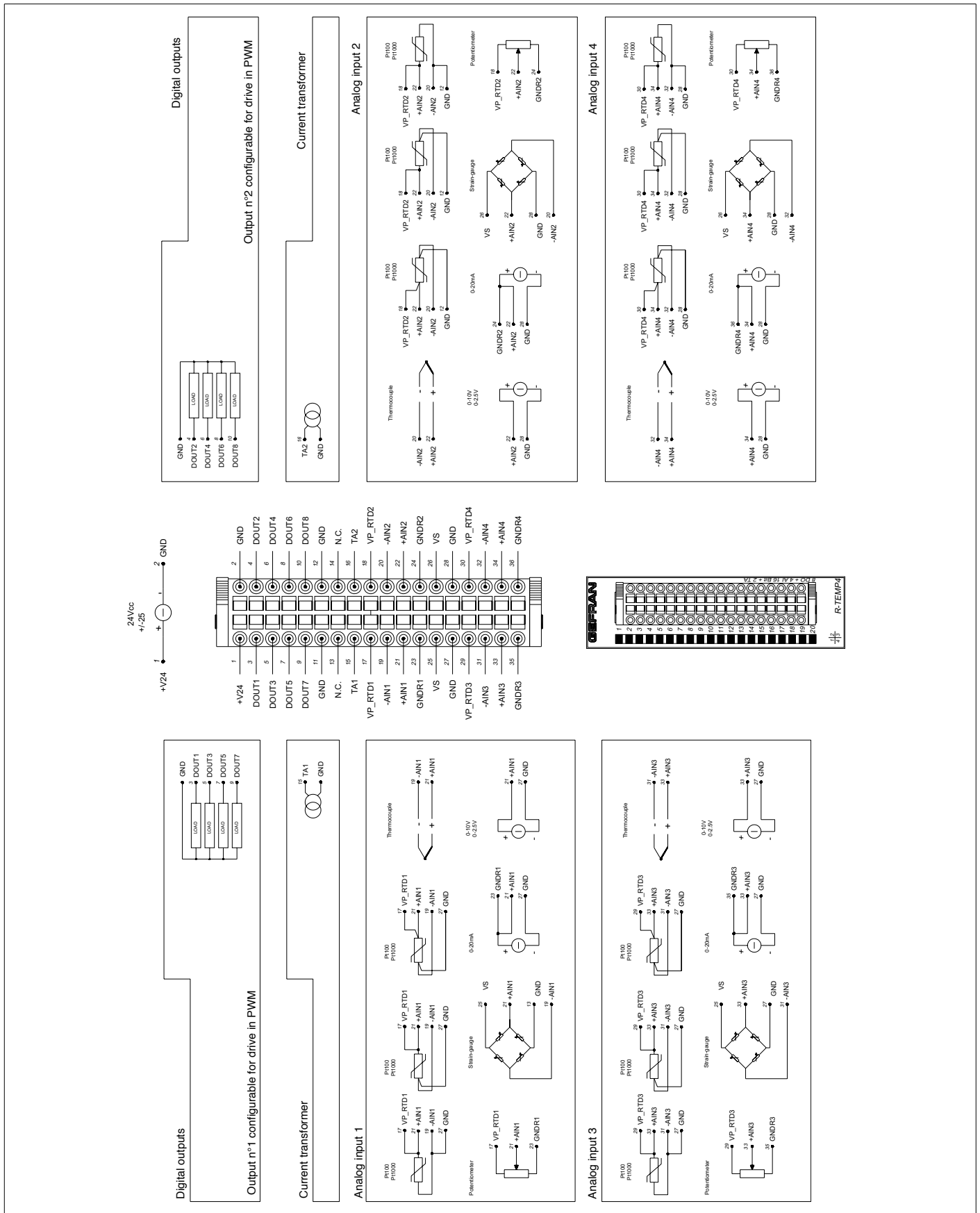
- 24VDC $\pm 25\%$ 200mA max. plus the current needed to load the outputs. Use unipolar cable with max section 1 mm². Do not attach lug.
- Potentiometer: use 3-pole shielded cable with max section 1 mm². Do not attach lug. Connect shield directly to ground plate and as close as possible to the module.
- Thermocouple: Use 2-pole compensated cable with max section 1 mm². Do not attach lug. If you use shielded cable connect shield directly to ground plate and as close as possible to the module.
- Strain-gauge: use 4 or 6-pole shielded cable with max section 1 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 1 mm². Do not attach lug
- Amplified inputs, use 2 or 3-pole shielded cable with max section 1 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 1 mm². Do not attach lug. Connect shield directly to ground plate and as close as possible to the module.
- Digital outputs: use cable max 1 mm². Do not attach lug.

NOTE:

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



FACEPLATE CONNECTIONS



In conformity to ECC 2004/108/CE (EMC) and 2006/95/CE (LVD) with reference to: **EN 61131-2** (product) **EN 61010-1** (safety).

Conformity UL508 File no E198546