Front 48 x 96

Universal Displaying and Regulating Device

GIR 2002 — On/Off - control mode

GIR 2002 PID — with PID - control mode

easy operability - high accuracy - economic price

E.A.S.Y.Bus - Modul

Highlights

- universal input for normalized signals, frequency, Pt100, Pt1000, thermocouple
- 2 relay switching outputs
- 1 analog output (0(4)-20mA or 0-10V) (optional)
- 5 programmable switching modes
- electrical isolated power supply for a transmitter (24V / 22mA)
- serial interface, bus operation

Additional at GIR 2002 PID

- P, I, PI, PD or PID control mode
- motorised valve control
- continuous regulating output (optional)

Applications

- process regulating
- temperature controller
- Pressure monitoring
- rotation speed display
- flow counter
- etc.

General

The universal controller **GIR 2002** is the ideal device for simple control systems (on/off switching, relay outputs, ...), because of its compact construction and its high ease of use.

The **GIR 2002 PID** (basic version) supplies one control output for a 2-point-control the types of control **P, I, PI, PD** or **PID** and a second control output for on/off switching.
The device can also be configured as a **3-point motorized valve controller** or as controller with **continuous output** (optionally).

Specification:

Measuring input	Measuring / display ranges	Accuracy (at nominal temperature)	Measuring rate
Thermocouples			
FeCu-Ni type J IEC 584	-70,0 ... +300,0°C or -170 ... 950°C	< 0,3 % FS ±1 digit *	approx. 4 meas. / sec.
NiCr-Ni type K IEC 584	-70,0 ... +250,0°C or -270 ... 1372°C	< 0,3 % FS ±1 digit *	
NiCrSi-NiSi type N IEC 584	-100,0 ... +300,0°C or -270 ... 1350°C	< 0,3 % FS ±1 digit *	
Pt10Rh-Pt type S IEC 584	-50 ... 1750°C	< 0,5 % FS ±1 digit *	
Cu-CuNi type T IEC 584	-70,0 ... +200,0°C or -270 ... 400°C	< 0,3 % FS ±1 digit *	
Resistance thermometer			
Pt100 3-wire DIN EN 60751	-50,0 ... +200,0°C or -200 ... 850°C	< 0,3 % FS ±1 digit	approx. 4 meas. / sec.
Pt1000 2-wire DIN EN 60751	-200 ... 850°C	< 0,3 % FS ±1 digit	
Action signals / normalized signal			
0 ... 1 V, 0 ... 2 V, 0 ... 10 V	-1999 ... +9999 Digit, scale freely adjustable	< 0,2 % FS ±1 digit	approx. 100 meas. / sec.
0 ... 20 mA, 4 ... 20 mA		< 0,2 % FS ±1 digit	
0 ... 50 mV		< 0,3 % FS ±1 digit	
Frequency			
TTL-signal	0,000 Hz ... 10 kHz, scale freely adjustable	< 0,1 % FS ±1 digit	approx. 100 meas. / sec.
Switching contact NPN	0,000 Hz ... 3 kHz, scale freely adjustable		
Switching contact PNP	0,000 Hz ... 1 kHz, scale freely adjustable		
Rotational speed	0,000 ... 9999 U/min.	selectable prescaler: 1-1000, pulse frequency: max. 600 000 Imp./min. at TTL	
Flow	0 ... 9999 l/s, 0 ... 9999 l/min. or 0 ... 9999 l/h		
Counter up / down			
TTL-signal, switching contact (NPN, PNP)	0 ... 9999 or 0 ... 999 000 (with prescaler) *selectable prescaler: 1-1000, pulse frequency: max. 10 000 Imp./sec. at TTL*	< 0,1 % FS ±1 digit	approx. 100 meas. / sec.
Serial interface: displaying and controlling from values coming via the serial interface			

* = Point of comparison: ± 1 °C

General (continuance)

Due to the **universal input** and the various **switching functions** the controller can be optimally adapted to the requirements of the system.
The structured menu navigation allows a straightforward handling and a fast adjustment of the parameters.

A **LED switching position display** gives information to the user about the current status of the switching outputs.
The **automatic self-test and diagnostic system** ensures maximum operational safety and reports systems errors by conclusive error codes.
The parameters are automatically saved, so that all data will be maintained even in case of a power blackout.

Among others most of the GREISINGER transmitters, rpm sensors and flow rate sensors can be connected directly to the **integrated transmitter power supply** (24VDC/22mA) of the controller.

If the device is used as a thermocouple ore resistance thermometer, the measuring value can be alternatively displayed in **°C or °F**. By means of an offset correction the measured value can be scaled i.e. to the resistivity of the wires.
The current and voltage inputs can be arbitrarily scaled in the range of –1999 to +9999.

The GIR 2002 has a **serial, bus-compatible interface** by default, by which a comfortable adjustment of the parameters as well as recording of measured values is possible.
With the optionally available Windows library EASYBUS.dll up to 240 devices can be integrated into own programs (i.e. LabView).

Specification:

Outputs: *Please note: Not all options are available for both device types and not all options can be combined with each other. Please see therefore the output options diagram.*

Output 1: voltage free relay output (standard)
normally-open contact, switching power: 5 A (ohmic load), 250 VAC
- optional: HLR1: control output for semiconductor relay (6 VDC / 15 mA)
AAG..1: freely scaleable analog output 0(4)-20mA or 0-10V
ST..1: continuous output 0(4)-20mA or 0-10V

Output 2: voltage free relay output (standard)
change-over contact, switching power: 10 A (ohmic load), 250VAC
- optional: HLR2: control output for semiconductor relay (6 VDC / 15 mA)

Output 3: *(not available at standard device type)*
- optional: REL3: voltage free relay output (chance-over contact)
switching power: 1 A / 40 VAC or 30 VDC
HLR3: control output for semiconductor relay (14 VDC / 15 mA)
NPN3: elec. isolated NPN-switching contact (max. 1 A / 30 VDC)
AAG..3: freely scaleable analog output 0(4)-20mA or 0-10V
ST..3: continuous output 0(4)-20mA or 0-10V

Controller states: 5 or 6, selectable (e.g. 2-point regulator, 3-point regulator, ...)
Switching point, hysteresis: freely adjustable
Response time: ≤ 25 msec. at normalized signals
≤ 0.5 sec. at temperature and frequency

Display: approx. 13 mm high, 4-digit red LED-display
Min-/Max-value memory: the max- and min value will be stored.
Interface: serial interface, electrical isolated, EASYBus compatible
Power supply for sensor: 24 V DC ±5%, 22mA (for dc-supply 18 V DC)
Miscellaneous: permanent self-monitoring, digital filter function, measuring range boundary (limit)
Voltage supply: 230 V AC, 50/60 Hz (atandard)
optionally other supply voltages are possible
Power consumption: approx. 6 VA
Operating conditions: -20 ... +50 °C, 0 ... 80 %RH (non condensing)
Housing: standard rack type housing 48 x 96 mm (front frame)
installation depth: approx. 115 mm (incl. screw-type/plug-in terminals)
Panel mounting: with fixing clamps
panel cutout: $43.0^{+0.5}$ x $90.5^{+0.5}$ mm (H x W)
Electrical connection: via screw-type/plug-in terminals
cable diameters from 0.14 to 1.5 mm².
Protection class: front side IP54, with optional sealing IP65
Electromagnetic immunity (EMC): EN61326 (appendix A, class B)

Options:

Output schema	GIR 2002			GIR 2002 PID		
	out 1	out 2	out 3	out 1	out 2	out 3
Standard type:	*normally-open contact*	*chance-over contact*	--	*normally-open contact*	*chance-over contact*	--
available output options	upcharges					
HLR1: output 1 = control output for external SSR	x			x		
HLR2: output 2 = control output for external SSR		x			x	
REL3: output 3 = relay (chance-over contact)			x			x
HLR3: output 3 = control output for external SSR			x			x
NPN3: output 3 = npn-switching output			x			x
AAG020/1: output 1 = analog output 0(4) - 20 mA	x		*no out3 possible*			
AAG010/1: output 1 = analog output 0 - 10 V	x					
AAG020/3: output 3 = analog output 0(4) - 20 mA			x			x
AAG010/3: output 3 = analog output 0 - 10 V			x			x
STA1: output 1 = continuous output 0(4) - 20 mA				x		*no out3 possible*
STV1: output 1 = continuous output 0 - 10 V				x		
STA3: output 3 = continuous output 0(4) - 20 mA						x
STV3: output 3 = continuous output 0 - 10 V						x

[1] At continuous or analog output or npn-switching output with option voltage supply = 12 VDC or 24 VDC — add. upcharge
[2] At output type REL3 or HLR3 with option voltage supply = 12 VDC — add. upcharge

Further Options:

upcharge

- **12VDC** voltage supply: 12 VDC (11-14V) [1]
- **24VDC** voltage supply: 24 VDC (22-27V) [1]
- **24VAC** voltage supply: 24 VAC ±5%
- **115VAC** voltage supply: 115 VAC ±5%

Accessories:

GGD4896 additional sealing for panel mounting IP65

EAK 36 Unit stickers (black with white text) for 36 different units for lettering of display devices *(p.r.t. page 65)*

Temperature probes **p.r.t. page 121 - 135**
for other accessories p.r.t. page 58, 74/75, 93/94