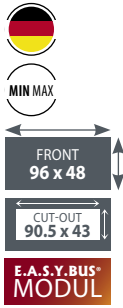


UNIVERSAL DISPLAYING AND REGULATING DEVICE



HIGHLIGHTS:

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

ADDITIONAL FUNCTIONS GIR 2002 PID:

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

**GIR 2002**

Art. no. 600948 (Standard model)

Universal displaying and regulating device with on/off-control mode

**GIR 2002 PID**

Art. no. 600951 (Standard model)

Universal displaying and regulating device with PID-control mode

**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).

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 (24 VDC / 22 mA) of the controller.

If the device is used as a thermocouple or 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 ... +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.

**Application:**

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

**Specifications:**

Measuring input:	Measuring / display ranges:	Accuracy (at nominal temperature):
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**Thermocouples (4 measurings / s)**

<b>FeCu-Ni:</b> (Type J, IEC 584)	-70.0 ... +300.0 °C or -170 ... +950 °C	<0.3 % FS ±1 digit *
<b>NiCr-Ni:</b> (Type K, IEC 584)	-70.0 ... +250.0 °C or -270 ... +1372 °C	<0.3 % FS ±1 digit *
<b>NiCrSi-NiSi:</b> (Type N, IEC 584)	-100.0 ... +300.0 °C or -270 ... +1350 °C	<0.3 % FS ±1 digit *
<b>Pt10Rh-Pt:</b> (Type S, IEC 584)	-50 ... +1750 °C	<0.5 % FS ±1 digit *
<b>Cu-CuNi:</b> (Type T, IEC 584)	-70.0 ... +200.0 °C or -270 ... +400 °C	<0.3 % FS ±1 digit *

\* = Point of comparison: ±1 °C

**Resistance thermometer (4 measurings / s)**

<b>Pt 100:</b> (3-wire, DIN EN 60751)	-50.0 ... +200.0 °C or -200 ... +850 °C	<0.3 % FS ±1 digit
<b>Pt1000:</b> (2-wire, DIN EN 60751)	-200 ... +850 °C	<0.3 % FS ±1 digit

**Action signals / normalized signal (100 measurings / s)**

<b>0 ... 1 V, 0 ... 2 V, 0 ... 10 V:</b>	-1999 ... +9999 digit, scale freely adjustable	<0.2 % FS ±1 digit
<b>0 ... 20 mA, 4 ... 20 mA:</b>	-1999 ... +9999 digit, scale freely adjustable	<0.2 % FS ±1 digit
<b>0 ... 50 mV:</b>	-1999 ... +9999 digit, scale freely adjustable	<0.3 % FS ±1 digit

**Frequency**

<b>TTL-Signal:</b>	0.000 Hz ... 10 kHz, scale freely adjustable	<0.1 % FS ±1 digit
<b>Switching contact NPN:</b>	0.000 Hz ... 3 kHz, scale freely adjustable	<0.1 % FS ±1 digit
<b>Switching contact PNP:</b>	0.000 Hz ... 1 kHz, scale freely adjustable	<0.1 % FS ±1 digit
<b>Rotational speed:</b>	0.000 ... 9999 U/min.	selectable prescaler: 1 ... 1000, pulse frequency: max. 600.000 Imp./min. at TTL
<b>Flow:</b>	0 ... 9999 l/s, 0 ... 9999 l/min or 0 ... 9999 l/h	

**Counter up / down**

<b>TTL-signal, switching contact (NPN, PNP):</b>	0 ... 9999 or 0 ... 999 000 (with prescaler) selectable prescaler: 1 ... 1000, pulse frequency: max. 10.000 Imp./s at TTL	<0.1 % FS ±1 digit
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**Serial interface:**

displaying and controlling from values coming via the serial interface

**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 matrix on next page.

**Ausgang-R1: (Standard model)** voltage free relay output (standard) normally-open contact, switching power: 5 A (ohmic load), 250 V AC

**Optional:** H1: control output for semiconductor relay (6 V DC / 15 mA)  
AA1: freely scalable analog output 0(4)-20 mA  
AV1: 0 ... 10V  
SA1: continuous output 0(4) ... 20 mA  
SV1: 0 ... 10V

**Ausgang-R2: (Standard model)** voltage free relay output (standard) change-over contact, switching power: 10 A (ohmic load), 250 V AC

**Optional:** H2: control output for semiconductor relay (6 V DC / 15 mA)

**Output 3:** (not available at standard device type)

**Optional:** R3: voltage free relay output (change-over contact) switching power: 1 A / 40 V AC or 30 V DC  
H3: control output for semiconductor relay (14 VDC / 15 mA)  
N3: electrical isolated NPN-switching contact (max. 1 A / 30 V DC)  
AA3: freely scalable analog output 0(4) ... 20 mA  
AV3: 0 ... 10V  
SA3: continuous output 0(4) ... 20 mA  
SV3: continuous output 0 ... 10V

**Controller states:** 5 or 6, selectable (e.g. 2-point regulator, 3-point regulator, ...)

**Switching point, hysteresis:** freely adjustable

**Response time:** ≤25 ms at normalized signals, ≤0.5 s at temperature and frequency

**Display:** approx. 13 mm high, 4-digit red LED-display

**Interface:** serial interface, electrical isolated, EASYBus compatible

**Power supply for sensor:** 24 V DC ±2 %, 22 mA at 230 V AC power supply  
18 V DC ±2 %, 22 mA at 12 V DC or 24 V DC power supply

## UNIVERSAL DISPLAYING AND REGULATING DEVICE

<b>Miscellaneous:</b>	permanent self-monitoring, digital filter function, measuring range boundary (limit)
<b>Voltage supply:</b>	230 V AC, 50/60 Hz (Standard)
<b>Optional:</b>	012D: voltage supply: 12 VDC (11 ... 14 V) 024D: voltage supply: 24 VDC (22 ... 27 V) 115A: voltage supply: 115 VAC ±5 %
<b>Power consumption:</b>	approx. 6 VA
<b>Operating conditions:</b>	-20 ... +50 °C, 0 ... 80 % RH (non condensing)
<b>Panel mounting:</b>	with fixing clamps
<b>Electrical connection:</b>	via screw-type/plug-in terminals cable diameters from 0.14 ... 1.5 mm <sup>2</sup> .
<b>Protection rating:</b>	IP65
<b>Housing:</b>	standard rack type housing
<b>Dimensions:</b>	96 x 48 mm (W x H) (front frame)
<b>Mounting depth:</b>	approx. 115 mm (with fixing clamps)
<b>Panelcut-out:</b>	90,5 <sup>+0.5</sup> x 43,0 <sup>+0.5</sup> mm (W x H)
<b>Scope of supply:</b>	Device, 2 fixing clamps, 1 sealing GGD4896, unit stickers EAK 36, screw-type/plug-in terminals, mounting- and operation manual

**Accessories and spare parts:**

**GGD4896**

Art. no. 603042

additional sealing for panel mounting IP65

**EAK 36**

Art. no. 603227

Unit stickers (black with white text) for 36 different units for lettering of display devices (p.r.t. page 23)

**Temperature probes**

**p.r.t. page 67-86**

for other accessories p.r.t. page 46, 43-44

**Matrix:**

**Outputs**

	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	--
<b>mögliche Ausgangsoptionen</b>						
Output 1 = Control output <b>H1:</b>	•			•		
Output 2 = Control output <b>H2:</b>		•			•	
Output 3 = Relay (chance-over contact) <b>R3:</b>			•			•
Output 3 = Control output <b>H3:</b>			•			•
Output 3 = NPN-switching output <b>N3:</b>			•			•
Output 1 = Analog output 0(4) ... 20 mA <b>AA1:</b>	•		no out3 possible			
Output 1 = Analog output 0 ... 10 V <b>AV1:</b>	•					
Output 3 = Analog output 0(4) ... 20 mA <b>AA3:</b>			•			•
Output 3 = Analog output 0 ... 10 V <b>AV3:</b>			•			•
Ausgang 1 = Continuous output 0(4) ... 20 mA <b>SA1:</b>				•		no out3 possible
Ausgang 1 = Continuous output 0 ... 10 V <b>SV1:</b>				•		
Ausgang 3 = Continuous output 0(4) ... 20 mA <b>SA3:</b>						•
Ausgang 3 = Continuous output 0 ... 10 V <b>SV3:</b>						•

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Greisinger		
1.	Factory setting	
	WE	Yes no
2.	Voltage supply	
	230A	230 V AC
	012D	12 V DC
	012DA	12 V DC, At analogue output or NPN switching output or REL3 or HLR3
	024D	24 V DC
	024DA	24 V DC, With constant/analogue output or NPN switching output
	115A	115 V AC
3.	Output 1	
	R1	Normally-open contact relay
	H1	Semiconductor relay
	AA1	Analogue output 0/4 ... 20 mA, 3rd output not possible
	AV1	Analogue output 0 ... 10 V, 3rd output not possible
4.	Output 2	
	R2	Changeover contact relay
	H2	Semiconductor relay
	00	No 3rd output
5.	Output 3 (Option)	
	R3	Changeover contact relay
	H3	Semiconductor relay
	AA3	Analogue output 0/4 ... 20 mA
	AV3	Analogue output 0 ... 10 V, Freely scalable, not galvanically isolated
6.	Option	
	00	Without option
	NS/DIF1	Differential controller 2 x 4 ... 20 mA
	NS/DIF2	Differential controller 2 x 0 ... 10 V
	NS/DIF3	Differential controller 2 x 0 ... 20 mA
	SW	Setpoint controller 0 ... 10 V

GIR2002PID - 1 - 2 - 3 - 4 - 5

Greisinger		
1.	Voltage supply	
	230A	230 V AC
	012DA	12 V DC, At analogue output or NPN switching output or REL3 or HLR3
	024DA	24 V DC, With constant/analogue output or NPN switching output
	024D	24 V DC
	115A	115 V AC
2.	Output 1	
	R1	Normally-open contact relay
	H1	Semiconductor relay
	SA1	Continuous output 0/4 ... 20 mA
	SV1	Continuous output 0 ... 10 V
3.	Output 2	
	R2	Changeover contact relay
	H2	Semiconductor relay
4.	Output 3 (Option)	
	00	No 3rd output
	R3	Changeover contact relay
	AA3	Analogue output 0/4 ... 20 mA
	AV3	Analogue output 0 ... 10 V
	SA3	Continuous output 0/4 ... 20 mA
	SV3	Continuous output 0 ... 10 V
5.	Input option	
	00	Without option
	SW	Setpoint controller 0 ... 10 V