

## Multi-Function Controller GTR100 plus

Type 48 mm x 48 mm (1/16 DIN)



**NEW**

### ...a "plus" for:

- ✦ ...programmable input signal
- ✦ ...high accuracy 0.1 % of input value
- ✦ ...sampling time 250 ms
- ✦ ...modular output configuration
- ✦ ...free allocation of outputs and functions
- ✦ ...setpoint and actual value indicated at the same time
- ✦ ...manual and automatic function reversible
- ✦ ...ramp function
- ✦ ...control circuit monitoring
- ✦ ...integrated programming interface

### ...General Description:

Our new multi-function controllers of the **GTR100 plus** series are characterised by the little required place and the favourable cost/performance ratio.

Due to their modular configuration nearly all functions and control requirements can be implemented. Their configuration possibilities allow free allocation as signal device, continuous controller, two-step controller, or three-step controller for the functions "heating", "cooling", and "heating / cooling" with additional alarm function.

### ...Functions:

- P / PI / PD / PID behaviour
- Self-optimisation
- Setpoint switching
- Setpoint ramp
- Switching to manual operation
- Output ratio limit
- Reverse function "heating / cooling / direct"
- Control circuit monitoring
- Outputs with free allocation
- Modular output function
- Programmable alarm outputs
- Control circuit alarm
- Programming interface

### ...Controller Equipment:

- Universal input for resistance thermometer (\*)
- Universal input for thermocouple (\*)
- Universal input for standard signal current (\*)
- Universal input for standard signal voltage (\*)
- Output 1: logic (\*) or relay
- Output 2: relay (\*)
- Output module for output 3: logic 0/10 V
- Output module for output 3: relay (\*)
- Output module for output 3: 0(4)/20 mA
- Output module for output 3: 0/10 VDC
- Output module for output 3: triac
- RS485 interface
- Power supply 100-240 VAC (\*)
- Power supply 24-48 VDC

(\*) - Basic standard version

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### ...Technical Data:

#### Universal input

<b>Sampling time</b>	: 250 ms
<b>Digital input filter</b>	: 0; 0.5...100 s
<b>Input resolution</b>	: 14 bit; ¼ of display resolution
<b>Input resistance</b>	: 10 V DC: 47 kOhm : 20 mA DC: 5 Ohm : other ranges: >10 mOhm

#### Measuring ranges

##### - Thermocouple

<b>Type</b>	: L; J; K; N; R; S; T; C; B; PtRh20%/PtRH40%
<b>Characteristic curve</b>	: temperature linear
<b>Sensor break monitoring</b>	: response time 2 s controller outputs are switched off (controller output 0 %)
<b>Measuring range accuracy</b>	: 0.1 % of measuring range +/- 1 digit
<b>Linearisation</b>	: Accuracy < 0.2 °C (typically 0.05 °C)
<b>Temperature compensation</b>	: < +/- 0.7 °C under reference conditions < +/- 1 °C under operating conditions
<b>Temperature stability</b>	: < 0.01 % / K change in ambient temperature

#### Measuring ranges

##### - Resistance thermometer

<b>Type</b>	: Pt100
<b>Characteristic curve</b>	: temperature linear
<b>Connections</b>	: three-wire
<b>Sensor monitoring</b>	: response time 2 s sensor break and short-circuit
<b>Measuring accuracy</b>	: < +/- 0.1 % of measuring range +/- 1 digit
<b>Linearisation error</b>	: Accuracy < 0.2 °C (typically 0.05 °C)
<b>Temperature stability</b>	: 0.01 % / K change in ambient temperature
<b>Influence of output impedance</b>	: at 50 Ohm / line: < 0.5 % of measuring accuracy

#### Measuring ranges

##### - Current and voltage

<b>Type</b>	: 0(4)/20 mA; 0(1)/5 V; 0(2)/10 V 0(10)/50 mV
<b>Scaling</b>	: -1999 - 9999
<b>Resolution</b>	: 1 digit
<b>Characteristic curve</b>	: linear
<b>Measuring accuracy</b>	: 0.1 % of measuring range
<b>Sensor break monitoring</b>	: only when initial value > 0! : response time 2 s controller outputs are switched off
<b>Temperature stability</b>	: < 0.01 % / K change in ambient temperature

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### ...General Data:











<b><u>Type of control</u></b>	<b>Proportional band</b>	: 0.5 - 999.9 %
	<b>Working point</b>	: 0 - 100 % (-100 - 100 % with 3-step)
	<b>Reset time</b>	: 1 s - 99 min 59 s - OFF
	<b>Derivative time</b>	: 0 - 99 min 59 s
	<b>Differential</b>	: 0.1 - 10 % of measuring range
	<b>Neutral zone</b>	: max. +/- 20 %
	<b>Cycle time</b>	: 0.5; 1, 2, 4, ... 512 s
	<b>Effective direction</b>	: inverse and direct
	<b>Output ratio limit</b>	: 0 - 100 % (2-step and continuous only)
<b><u>Manual operation</u></b>	<b>Reversible via key or controller input</b>	: correcting range 0 - 100 %
<b><u>Setpoint function</u></b>	<b>Second setpoint</b>	: adjustable
	<b>Switching via controller input</b>	
	<b>Setpoint limiting</b>	: adjustable
	<b>Setpoint ramp</b>	: 1 - 9999 units/ h or OFF
<b><u>Self-optimisation</u></b>	<b>Manual calibration</b>	: pulse test at startup with 100 % controller output, starting from > 5 % of measuring range
	<b>Automatic calibration</b>	: pulse test when mains supply switched on
	<b>Automatic self-calibration</b>	: oscillation test at setpoint, starting from > 0.15% of measuring range
<b><u>Ambient conditions</u></b>	<b>Operating temperature</b>	: 0 - 55 °C
	<b>Relative humidity</b>	: 20 - 95 %, without condensation
	<b>Reference ambient temperature</b>	: 20 +/- 2 °C
	<b>Storage temperature</b>	: -20 - 80 °C
	<b>Auxiliary power</b>	: 100 - 240 VAC; 20 - 48 VDC
	<b>Electric safety</b>	: EN 61 010-1
	<b>Overvoltage category</b>	: II
	<b>Pollution degree</b>	: 2
	<b>Electromagnetic compatibility</b>	: EN 61 326
	<b>Housing dimensions, front</b>	: 48 mm x 48 mm
	<b>Housing dimensions, depth</b>	: 110 mm
	<b>Front panel cut-out</b>	: 45 mm x 45 mm
	<b>Protection type</b>	: IP 66
	<b>Weight</b>	: 210 g
<b><u>Communications</u></b>	<b>Interface</b>	: RS485
	<b>Protocol</b>	: Modbus RTU or ASCII
	<b>Controller address</b>	: 1 - 255 Modbus / 1 - 99 ASCII
	<b>Transfer rate</b>	: 1200 - 19200 Bd

## Multi-Function Controller GTR100 plus

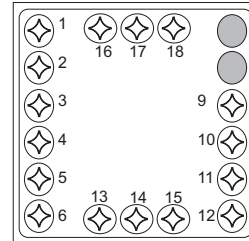
Type 48 mm x 48 mm (1/16 DIN)

### Front View:

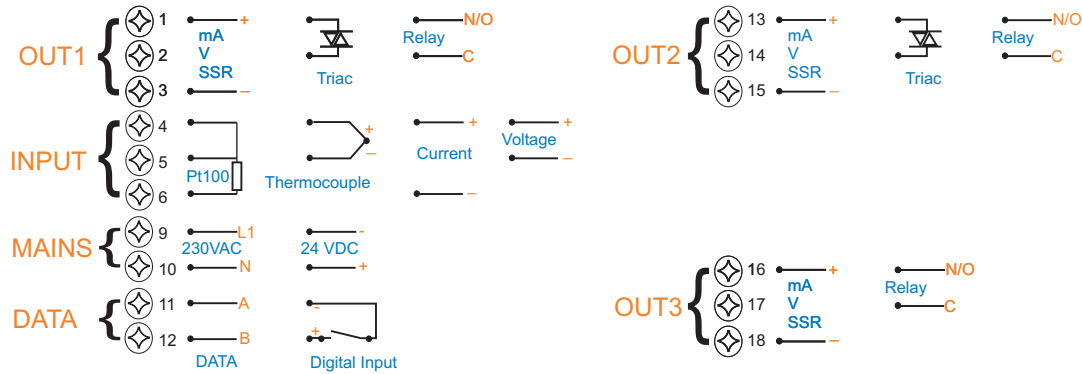


-  Setpoint display
-  Actual value display
-  Alarm HIGH / LOW
-  Manual / automatic operation
-  Self-optimisation
-  Alarm
-  Switching manual / automatic operation
-  Setpoint adjustment DOWN
-  Setpoint adjustment UP
-  ENTER key

### Rear View:



### Terminal Assignment / Wiring Diagram:



### Order Code:

<b>GTR100</b> (standard)	-	<b>1</b>	<b>01</b>	<b>00</b>
<b>Auxiliary power</b> 100 - 240 VAC 24 - 48 VDC		<b>1</b> <b>2</b>		
<b>Outputs:</b> Logic / relay / relay Relay / relay / relay Logic / relay / continuous			<b>01</b> <b>02</b> <b>03</b>	
<b>Interface:</b> Without RS485 With RS485				<b>00</b> <b>01</b>

### Accessories

- Output circuit board logic 10 V : GTR100-Z01
- Output circuit board continuous (V / mA) : GTR100-Z02
- Output circuit board relay : GTR100-Z03