

Limit Value Switch type TR 210

for 2 temperature-sensors or 0/4-20 mA, 0-10 V, 2 limits, analog output

TR 210



The limit value switch TR 210 monitors up to 2 measuring inputs for Pt 100 (RTD), Pt 1000, thermocouples, or standard-signals 0/4-20 mA, 0-10 V. The signals are monitored for up to 4 limits. The value of one or of both inputs can be read out at an analog output.

Application:

The TR 210 is very versatile and can thus be used in many applications. Nevertheless multiple preset programs allow an easy setting.

It can be used as a limit switch or as a controller for 2 limits (with day/night shift up to 4 limits).

As a measuring transducer it can convert signals from the temperature-sensors to standard-signals or change the scaling of standard-signals. The user can also select, if minimum or maximum of 2 signals or the difference of 2 signals is connected to the analog output.

For more applications see basic programs.

Function

- Measuring and monitoring range $-270...+1820\text{ }^{\circ}\text{C}$
- resolution $0,1\text{ }^{\circ}\text{C}$ (to $999,9\text{ }^{\circ}\text{C}$)
- Analog output (scaleable) for 1 input, min./max. of 2 inputs or difference of 2 sensors (no isolation between inputs and output)
- 2 relay outputs
- Shifting of day/night (selectable with contact at terminals Y1/Y2)
- Universal power supply AC/DC 24-240 V
- Easy setting with 3 buttons and preset programs
- Storing of min- and max-values of inputs
- Code-lock against manipulation of settings
- Terminals pluggable

2 Measuring-Inputs:

- Resistance-sensors Pt 100 (RTD), Pt 1000, KTY 83/84 in 2- or 3-wire-connection
- Thermocouples types B, E, J, K, L, N, R, S or T
- different sensors at both inputs possible
- Standard-signals 0/4-20 mA, 0-10 V (scaleable)

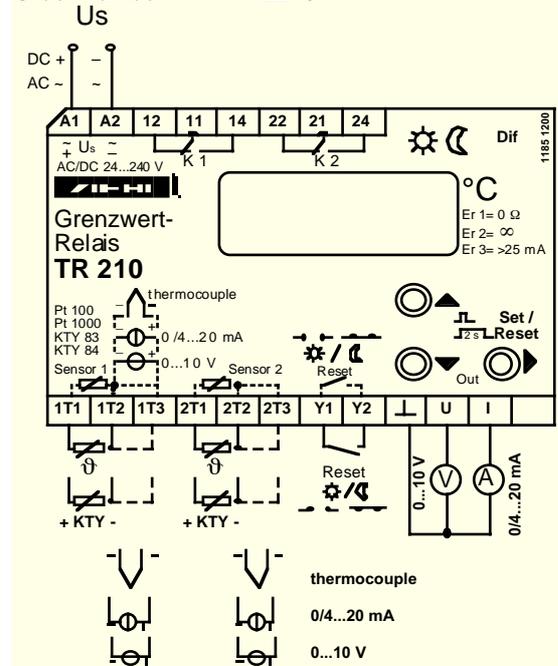
Displays:

- 4-digit for measuring value
- 2 LEDs for state of relays
- 3 LEDs sensor/difference
- 2 LEDs day/night

Switching-Functions:

- 2 relays (co-contacts)
- 2-4 limits
- Warmest/coldest sensor switches relay
- Programmable for every relay:
 - hysteresis (+ or - = MIN- or MAX-function)
 - $199,9...999,9\text{ s}$
 - autoreset or electronic reclosing lock
 - delay-time for switching and switching back $0...9999\text{ s}$
 - operating- or closed current-mode
 - cyclic check of function
- Monitoring of difference in temperature
- Preset basic programs

Order-number: T 224071



Basic Programs

Program 1:

1 Temperature-sensor, 2 Limits

Application: Monitoring of a temperature for 2 limits, e.g. over-temperature with warning and switching off or monitoring of a temperature-range (min/max).

Program 2:

2 Temperature-Sensors, 1 Limit for each Sensor

Application: Monitoring of 2 temperatures for 1 limit each, e.g. over-temperature or as double electronic controller.

Program 3:

1 Temperature-Sensor, 2 Limits each day/night

Application: Controlling of a temperature with first limit, different for day and night. Monitoring of the same temperature with second limit, different for day and night.

Program 4:

2 Temperature-Sensors, each 1 Limit for day/night

Application: Monitoring or controlling of 2 temperatures for 2 limits, depending on operation mode, e.g. controlling of 2 circulation pumps (day/night) or of processes (active/stand-by).

Program 5:

2 Temperature-Sensors for monitoring of differences in temperature, 2 Limits

Application: Regulation or monitoring of the difference of 2 measuring-points for 2 limits, e.g. circulation pumps in solar systems.

Program 6:

1 Standard-Signal 0/4-20 mA or 0-10 V, 2 Limits

Display can be scaled, e.g. measuring input 4-20 mA = display 0...1200 l/h.

Application: Monitoring of signals from a measuring transducer for 2 limits, e.g. over- or under- exceeding of limits with pre-alarm and alarm or monitoring of a signal-range (min/max) and/or as measuring-transducer.

In combination with any measuring-transducers, signals like pressure, volume-flow, pH-value, ... can be monitored.

Program 7:

2 Standard-Signals 0/4-20 mA or 0-10 V, 1 Limit each

Display can be scaled, e.g. measuring input 4-20 mA = display 0...1200 l/h.

Application: Monitoring of signals from 2 measuring transducers, each for 1 limit, e.g. over- or under- exceeding of a limit as double electronic controller.

In combination with any measuring-transducers, signals like pressure, volume-flow, pH-value, ... can be monitored.

Program 8:

2 Standard-Signals 0/4-20 mA or 0-10 V for monitoring of differences of signals

Application: Regulation or monitoring of the difference of 2 analog signals for 2 limits, e.g. levels of liquids.

Application as Measuring-Transducer:

At programs **with 1 measuring-input** the output can be scaled for this input, e.g. 0...200.0 = 4-20 mA.

At programs **with 2 measuring-inputs** the output can be scaled for 1 input or min- or max- value of both inputs.

At programs **for measuring of differences** output can be scaled for 1 signal or for the difference input 2 minus input or for min- or max- value of both inputs.

Thus the TR 210 can be used as limit value switch and/or measuring-transducer simultaneously. The measured values can be forwarded to e.g. a remote display or a superior control.

Technical Data

Rated supply voltageUs	AC/DC 24-240V, <3W, <5VA (AC 20-264 V, DC 20,4-297 V)
2 Measuring inputs	Pt 100, Pt 1000 according to EN 60 751 Thermocouples types B, E, J, K, L, N, R, S, according to EN 60 584, DIN 43 710 0/4-20 mA (22Ω), 0-10 V (13 kΩ)
Measuring-time	<2,5 s to 5 s, depending on speed of change of signal
Analog output	0/4-20 mA, max. 500 Ω. 0-10 V, max. 10 mA (without isolation to inputs)
Relay output	type 3, see "general technical informations" 2 x 1 co- (change-over) contact
Test conditions	see "general technical informations"
Rated ambient temperature reng	-20...+60°C
Dimensions h x w x d	design V4: 90 x 70 x 58 [mm], mounting height 55 mm
Protection housing / terminals	IP 30 / IP 20 (terminals pluggable)
Weight	app. 200 g
Attachment	on 35 mm DIN-rail or with screws M 4