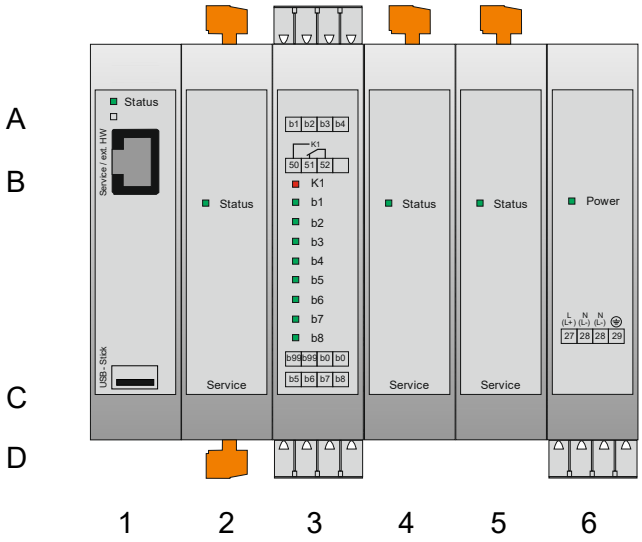
Example for 6 steps:

A Status LED (depending on module)
B Connection interface for configuration alternative interface adapter
C USB stick, KFM service only
D Interfaces and CPU button (internal)

1 CPU-Module (991tz88e)
2 Analogue input module (991tz8220)
3 Binary input module with relay (991tz83..)
4 Ana. output module steps 1-5 (991tz880)
5 Analogue output module step 6 (991tz880)
6 Power supply module (991tz85..)



General description:

With the 991tz88 modular step control, continuous controllers from the 9 series can be supplemented with downstream signal outputs 0/4..20mA for semiconductors. Actuation takes place via the control signal. The settings for all parameters (number of signal outputs, switch-on delay, etc.) are made in the CPU module of the modular step controller using the KFM PC software PKS.
The modular step control consists of one CPU and one power supply module and, depending on the number of signal outputs required, one or more analogue output modules with 5 analogue outputs each and one or more binary input modules with 8 binary inputs and 1 relay. The stage control can be extended to a maximum of 20 analogue outputs.

A built-in switch-on delay prevents all signal outputs from being switched on at the same time and thus load jumps in the supply network. It is set for all outputs together.

Each time the power is changed, the next highest signal output (power increase) or the lowest signal output (power reduction) is automatically activated. This ensures that the individual signal outputs, including the connected load, are utilised almost equally. With active limitation (YHi), the automatic step change is deactivated.

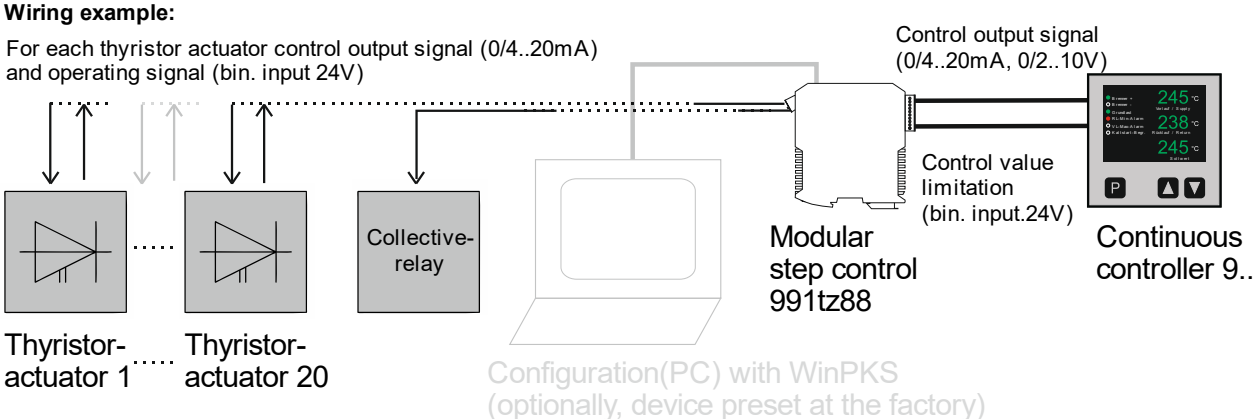
Integrated operating logic records and analyses the operating status of the signal outputs. Outputs with faults are deactivated (binary input fail-safe). Faults are signalled by means of a collective relay.

The output of each heating level can be limited to a maximum value (YHi) via a binary input.

Types:

991tz88e	CPU module for mod. step controller for max. 20 semiconductor outputs
991tz8220	Module with 2 analogue inputs for Pt100 / standard signal, range 0..400 / adjustable
991tz83881	Module with 8 binary inputs 24VDC, 1 relay output (potential-free changeover contact)
991tz880	Module with 5 analogue outputs 0/4...20mA
991tz8508	Power supply module 24 V AC/ DC

Wiring example:



Interfaces:
Only 991tz88e: 1 x Service interface for configuration, alternatively for interface adapters,
1 x USB stick, 1 x USB-C (internal)

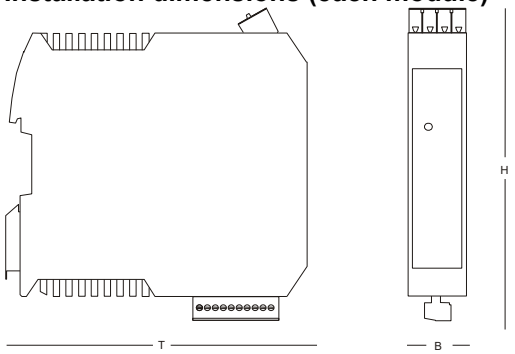
Technical data:

Mains connection:	100..250 VAC, about 12 VA, alternatively 24VDC, about 12 VA
optional: binary inputs:	230 VAC, about 2 mA, alternatively 24VDC, about 2 mA
optional: analogue inputs:	Pt100/ standard signal, range 0..400 resp. -200..+800°C / adj.
optional: relay output:	230 V / max. 2 A
optional: analogue output:	0/4..20mA (load<=500Ω) as control or signal output

Other operating data:

Housing:	for fastening to 35mm mounting rail
Installation orientation:	vertical, unlocking tab downwards
Type of protection:	IP20
Perm. ambient temperature:	0...60°C,
Nominal temperature:	20°C
Climatic category :	Relative humidity <= 75 % yearly average, no condensation, KWF to EN 60 529
EMC:	refer to EN 61326

Installation dimensions (each module)



H= 124mm, B = 22,5mm, T = 116mm

Wiring diagram: (Example, valid for each delivered device is the wiring diagram on its casing only.)