GHM GROUP - Martens | GHM Messtechnik GmbH
Kiebitzhörn 18 | 22885 Barsbüttel | GERMANY
Phone +49 40 67073-0 | Fax +49 40 67073-288
www.ghm-group.de | info@ghm-group.de

Temperature Measuring Transducer MU125

- **Universal input for Pt100, Pt1000, thermocouple, NTC and resistance measurement value**
- **Configuration via front DIP switches**
- **Analog actual value output 4 .. 20mA**
- **Zero point and limit value can be adjusted via trim potentiometers on the front**
- **With Pt100 and Pt1000 sensors, monitoring of sensor break and short-circuit**
- **Wide-range mains adapter or 24 V DC**
- **Optional supply via carrier rail bus**
- **Removable coded screw terminals or optional push-in terminals**
- **Housing width 12.5 mm**
- **Carrier rail mounting TS35 EN60715**

Characteristics

Devices of the MU125 series convert a temperature measurement value or resistance measurement value from various sensors to a current signal of 4..20mA.
The universal configurability of the measuring inputs reduces the stock requirement for various applications.
The housing width of only 12.5 mm enables space-saving installation in the switch cabinet.

Measurement inputs

Switchable via DIP switch:

	Measuring range	Basic precision	Temperature deviation *)
Pt100	-50.. 50°C	0.4%	0.01%/K
	0.. 50°C	0.6%	0.02%/K
	0..100°C	0.4%	0.02%/K
	0..150°C	0.4%	0.01%/K
	0..200°C	0.3%	0.01%/K
	0..250°C	0.3%	0.01%/K
	0..300°C	0.2%	0.005%/K
	0..500°C	0.2%	0.005%/K
Pt1000	-50.. 50°C	0.4%	0.01%/K
	-30.. 70°C	0.4%	0.01%/K
	-20.. 40°C	0.4%	0.01%/K
	0.. 50°C	0.6%	0.02%/K
	0..100°C	0.4%	0.02%/K
	0..150°C	0.4%	0.01%/K
	0..200°C	0.3%	0.01%/K
	0..250°C	0.3%	0.005%/K
FeCuNi	0..250°C	1.0%	0.04%/K
	0..500°C	0.5%	0.03%/K
NiCrNi	-50..250°C	0.7%	0.05%/K
	0..500°C	0.5%	0.04%/K
	0..750°C	0.4%	0.03%/K
	0..1000°C	0.3%	0.02%/K
	0..1250°C	0.3%	0.02%/K
PtRhPt	0..1500°C	1.0%	0.04%/K
NTC R_{25}=10kΩ $B_{25/85}$=3977K	0..100°C	1.0%	0.01%/K
NTC R_{25}=10kΩ $B_{25/85}$=3977K	-20.. 50°C	1.5%	0.01%/K
NTC R_{25}=2kΩ $B_{25/85}$=3528K	0.. 100°C	1.0%	0.01%/K
Resistance linear**)	0.. 2kΩ	0.3%	0.005%/K
	0.. 5kΩ	0.5%	0.01%/K
	0..10kΩ	0.3%	0.005%/K

*) Measurement deviation depending on the environmental temperature in the switch cabinet (-10..+60°C)

**) Adjusting zero point and limit value via the integrated trim potentiometers makes it possible to also connect KTY sensors for these measuring ranges. The linearisation must then be accomplished with the help of a parallel resistor.

(Special measurement ranges available on request)

GHM GROUP - Martens | GHM Messtechnik GmbH
Kiebitzhörn 18 | 22885 Barsbüttel | GERMANY
Phone +49 40 67073-0 | Fax +49 40 67073-288
www.ghm-group.de | info@ghm-group.de

Member of GHM GROUP

Product information — **Industrial electronics**

Technical data

Wide-range power supply
Supply voltage : 20..125VDC and
20..250VAC (47..63Hz), max.1.5W

24V power supply
Supply voltage : 24V DC +/-15%, max. 1.5W

Combined data
Rated voltage : 253V AC
Test voltage : 3kV AC between
supply // input = output
Working temperature : -10..60°C
Storage temperature : -20..80°C
Humidity : 10..90% (no condensation)

Measurement inputs
Pt100 : linearised,
measuring current approx. 1.6mA
Pt1000 : linearised,
measuring current approx. 130µA
In the event of a sensor break or short circuit, the analog output drops to 0mA.
The operation LED blinks red
Thermocouple : linearised with comparison position compensation
(optionally without internal compensation)
NTC : linearised for $B_{25/85}$=3977K or 3528K
Max. load 200µW (averaged)
Linear resistance : Mb. 0..2kΩ: approx. 1.4mA
Mbs. 0..5kΩ, 0..10kΩ: approx. 300µA
Zero point setting : +/-40% of the factory measuring range
(= end value – start value)
via 12-turn trim potentiometer
End value reduction : -50% based on the factory end value
via 12-turn trim potentiometer
Note: The measuring accuracy drops proportionally with the narrowing of the measuring range
Potentiometer setting limits : Limitation of the aforementioned adjustment ranges

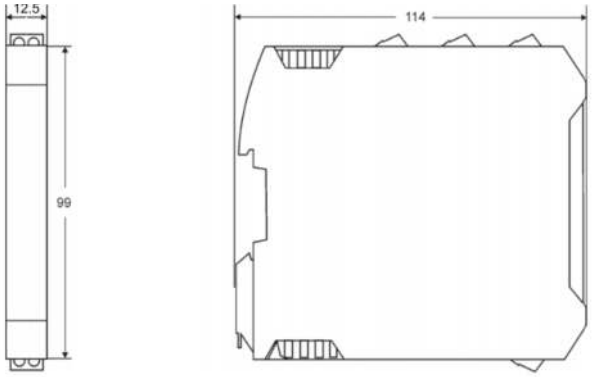
Pt100	-50..500°C	(..600°C)
Pt1000	-50..250°C	(..300°C)
FeCuNi	-100..500°C	(..800°C)
NiCrNi	-150..1250°C	
PtRhPt	0..1500°C	(..1600°C)
NTC (10kΩ)	-20..100°C	(..150°C)
NTC (2kΩ)	-40..100°C	(-50°C..150°C)
R linear	0..10kΩ	

(values in parentheses apply for optional, customer-specific special measuring ranges that are configured at the factory)

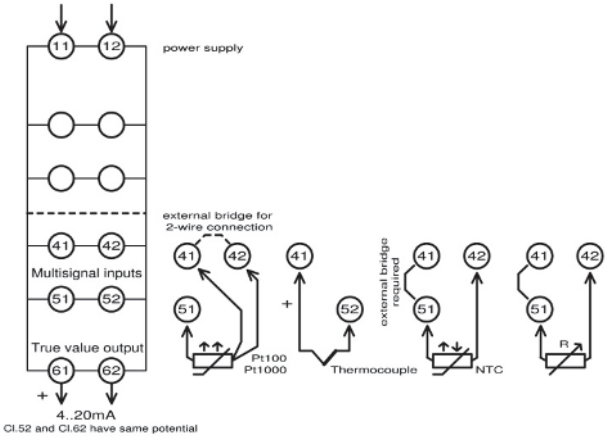
Analog output : 4..20mA, max. burden 400Ω,
no galvanic isolation
from the input signal
(max. burden error of 0.2% at 400Ohm)
Dimensions (WxDxH): 12.5 x 114 x 108mm
Material : PA6.6, light grey,
Flammability class V0 (UL94)
Weight : 120g
Protection rating : IP20
Screw terminals : 0.2..2.5 mm², AWG 24..14,
removable, coded
Push-in terminals (spring-type terminals) : 0.5..1.5 mm², AWG 25..16,
Double connection (12A between the connections), removable, coded
Power Rail : 8A over the entire bus system
(power supply via removable terminals 0.2..2.5 mm², AWG 24..14)

A service mode for the trim potentiometers on the front offers the following possibilities:
1) A check of whether potentiometers are positioned at the calibrated factory settings
2) The pre-adjustment of a new output characteristic curve only with connection of a current measuring device.
(a temperature calibrator is not necessary)
3) Specification of a constant value at the current output, e.g. in order to test the reaction of connected devices.
(Limited range from 5.6..20mA)

Dimensions



Connection diagram



Ordering code

MU 1. [ ] - 2. [ ]

1.	Device version	
	125L	Supply voltage 24V DC +/- 15%
	125LP	Supply voltage:24V DC +/-15% with carrier rail bus connection *)
	125M	Wide-range mains adapter 20..125VDC / 20..253V AC
4.	**Options**	
	00	No options
	01	Push-in terminals (plug-in)

*) see separate Power-Rail information sheet