

Преобразователи приборного типа GHM MESSTECHNIK



Технические характеристики

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Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31

Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Киргизия (996)312-96-26-47
Казахстан (772)734-952-31
Таджикистан (992)427-82-92-69

Transmitters	Description	Measuring input								
		Pt100	Pt1000	Type J Fe-CuNi	Type K NiCr-Ni	Type N NiCr-Si-NiSi	Type S Pt10Rh-Pt	Resistance signal	Voltage signal	Others
T19	Head transmitter	•								
T03 BU	Analog head transmitter	•								
RT420	Head transmitter / transmitter	•								
GITT01	Universal head transmitter	•	•	•	•	•	•	•	•	•
GTMU-A5	Transmitter	•			•					
MU500L	Transmitter	•	•							
MU500	Transmitter	•	•							
MU500EX	Transmitter	•	•							
TC500	Transmitter			•	•		•			
PMT50-2-3	Transmitter	•	•	•	•	•	•			
PMT50EX-2-3	Transmitter	•	•	•	•	•	•			
ISO-TC	Transmitter / signal conditioner			•	•					•
ISO-Pt100	Transmitter / signal conditioner	•								
CAN-Compactmodule	Transmitter / signal conditioner	•		•	•					

Product Informatio

Transmitter GTMU-A5



- Transmitter for already existing Pt100 or NiCr-Ni sensors
- Ready for assembly

Characteristics

The GTMU A5 is a transmitter for external thermocouples (NiCr-Ni) or resistance temperature sensors (Pt100, 2- or 3- wire). The transmitter outputs linear current or voltage signals.

The GTMU A5 is particularly suitable if the temperature probe is already available or if housing and temperature sensor have to be apart form each other (e.g. due to high ambient temperatures).

The transmitter is adjusted according to customer requirements.

Technical data

Possible sensor : Pt100 (2- or 3- wire)
NiCr-Ni

Standard measuring range

Pt100 : 0..100 °C, 0..200 °C, -50..+50 °C,
-50..+150 °C

NiCr-Ni : 0..100 °C, -50..+150 °C,
-200..+300 °C, 0..600 °C,
0..1150 °C
other ranges upon request

Max. possible measuring ranges

Pt100 : -200..+800 °C

NiCr-Ni : -200..+1150 °C

Sensor connection : insertion of sensor cable via PG7
connection to board via screw terminals

Output signal : standard 4..20 mA (2-wire)
optional 0..1 V, 0..2 V, 0..5 V,
0..10 V (3- or 4-wire)

Power supply U_v : 12..30 V DC (at 0..10 V: 18..30 V DC)

Permissible burden R_A : (at 4..20 mA) $R_A = (U_v - 12 V) / 0,02 A$

Permissible load R_L : (at ... V) $R_L > 3000 \Omega$

Working temperature : 0..70 °C
(-40..+85 °C at Option RT420 / GITT)

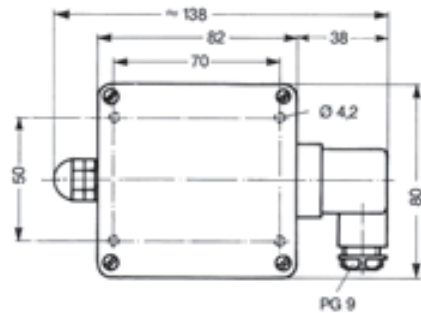
Housing material : ABS

Protection class : IP65

Mounting : with fastening holes for wall mounting

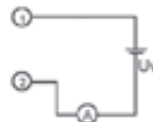
Electrical connection : elbow-type plug (EN 175301-803/A)

Dimensions



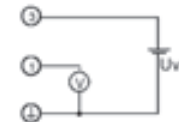
Connection diagram

2-wire (4..20 mA)



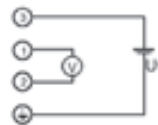
1 = supply voltage + U_v
2 = GND / signal

3-wire (.. V DC)



1 = signal +
3 = supply voltage + U_v
↓ = supply voltage - U_v
signal -

4-wire (.. V DC)



1 = signal +
2 = signal -
3 = supply voltage + U_v
↓ = supply voltage - U_v

continued on next page

Ordering code

GTMU-A5 - 1. - 2. - 3. - 4.

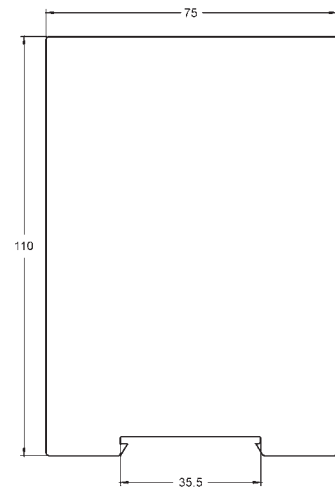
1. Sensor element	
P2	resistance thermometer Pt100, 2-wire
P3	resistance thermometer Pt100, 3-wire
K2	thermocouple NiCr-Ni
2. Measuring range (MB)	
MB1	0..100 °C <i>Pt100 / NiCr-Ni</i>
MB2	-50..+150 °C <i>Pt100 / NiCr-Ni</i>
MB3	0..200 °C <i>only Pt100</i>
MB4	-50..+50 °C <i>only Pt100</i>
MB5	-200..+300 °C <i>only NiCr-Ni</i>
MB6	0..600 °C <i>only NiCr-Ni</i>
MB7	0..1150 °C <i>only NiCr-Ni</i>
MBx	desired measuring range (e.g. -50..+400 °C) max. possible measuring range: Pt100: -200..+800 °C / NiCr-Ni: -200..+1150 °C
3. Output signal	
A1	4..20 mA (2-wire) (standard)
V1	0..1 V (3-wire)
V3	0..2 V (3-wire)
V4	0..5 V (3-wire)
V2	0..10 V (3-wire)
4. Options (combination of multiple options upon request)	
00	without Option
VO	on-site display (display and control panel)
LACK	board varnished on both sides (for outdoor usage)
GITT	transmitter with electrical isolation (only output 4..20 mA possible)
RT420	transmitter particular for outdoor usage (only with sensor element Pt100 and output 4..20 mA possible)

Produktinformation

**Temperature Transmitter
MU500L**



Dimensions



Characteristics

Temperature transmitter MU500L accept field signals of Pt100 or Pt1000 RTD sensors to the input which is filtered, isolated and converted into industry standard signals for process control systems. Special circuit design makes it possible, to produce any useful measurement ranges.

Technical data

Power supply

- Supply voltage : 230 V AC $\pm 10\%$; 24 V DC $\pm 20\%$
- Frequency AC : 47..63 Hz
- Power consumption : <1.5 VA
- Operating temperature : -10..+60 °C
- CE- conformity : EN 61326-1:2013, EN 60664-1:2007
- Explosion protection : Approval: TÜV 03 ATEX 2283
- Marking : II (1) G [Ex ia] IIC bzw. II (1) D [Ex iaD]

Measuring input *

- Start value Pt100 : in the range -100 °C.. +100 °C
- Span Pt100 : in the range 50..600 °C
- Start value Pt1000 : in the range -50 °C..+50 °C
- Span Pt1000 : in the range 10..200 °C
- Sensor current : ca. 0.6 mA (no self heating)
- Line resistance : max. 10 Ω , automatic compensation at 3-wire connection

- Start value adjustment : approx. ± 10 °C
- 4mA/2V adjustment : approx. ± 1 mA or ± 0.5 V
- Span : approx. $\pm 10\%$
- Broken line : output shows max. value
- short circuit : output shows min. value

Outputs

- Current : 0/4..20 mA, max. 500 Ω
- Voltage : 0/2..10 V, max. 10 mA, simultaneously to the current output max. 1 mA

- Accuracy : $\leq 0.2\%$
- Temperature error : $\leq 0.01\%/K$

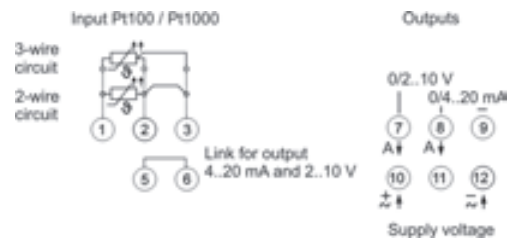
- Case** : Polycarbonate, UL94V-0
T35 acc. to DIN EN 60715

- Weight : approx. 140g
- Connection : screw terminals with pressure plate, max. 2.5 mm²

- Protection class : case IP30, terminals IP20, BGVA3

*Minimal and maximal range for start value and span of the measuring range.

Connection diagram



Ordering code

MU500L - 1. - 2. - 3.

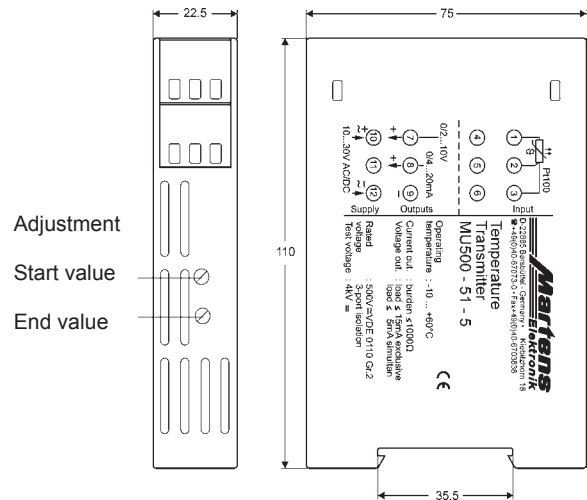
1. Device type	51	Pt100
	53	Pt1000
2. Supply voltage	0	230 V AC $\pm 10\%$
	5	24 V DC $\pm 15\%$
3. Measuring range	Please state in clear text e. g.: -50..+100 °C	

Produktinformation

Universal Transmitter MU500



Dimensions



Characteristics

Temperature transmitter MU500 accept field signals of Pt100 or Pt1000 RTD sensors to the input which is filtered, isolated and converted into industry standard signals for process control systems. The multipurpose design of inputs and outputs, also the wide range of the supply voltage reduces the number of types. The small case allows space-saving mounting.

Technical data

Power supply

Supply voltage : 85..265 V AC/110..125 V DC or
10..30 V AC/10..42 V DC
Frequency AC : 40..400 Hz
Power consumption : max. 2.2 W , max. 3.3 VA
Operating temperature : -10..+60 °C
CE-conformity : EN 61326-1:2013; EN 60664-1:2007

Input

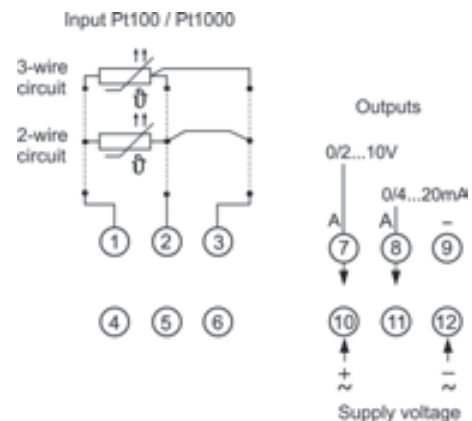
RTD Pt100 : 13 ranges, switch selectable
- Sensor current : Pt100 approx. 1 mA
RTD Pt1000 : 16 ranges, switch selectable
- Sensor current : Pt1000 approx. 0.25 mA
Line resistance : max. 100 Ω
Accuracy : ≤ 0.2 %
Zero adjust : Pt100 approx. ± 8 Ω (Δ 20 °C)
Pt1000 approx. ± 8 Ω (Δ 2 °C)
End value : adjustable approx. +/-20 %
Sensor error;
- broken or shorted line: output rises to max. output value

Outputs

Current : 0/4..20 mA switch selectable
burden ≤ 1 kΩ
Voltage : 0/2..10 V switch selectable
load max. 15 mA , short-circuit-proof
(simultaneously to the current output
max. 5 mA)

Case : Polycarbonate, UL94V-0
TS 35 acc. to DIN EN 60715:2001-09
Weight : approx. 200 g
Protection class : case IP30, terminals IP20, BGV A3
Electrical connection : screw terminals with pressure plate,
max. 2.5 mm²

Connection diagram



Ordering code

1. 2.
MU500 - -

1. Device type	
51	Pt100, 13 measuring ranges
53	Pt1000, 16 measuring ranges
2. Supply voltage	
0	85..265 V AC
5	10..30 V AC/DC

Produktinformation

Universal Transmitter MU500Ex



Outputs	
Current	: 0/4...20 mA DC switch selectable, burden ≤ 1 k Ω
Voltage	: 0/2...10 V DC switch selectable, load max. 15 mA, short-circuit-proof (simultaneously with current output 5 mA)
Rated voltage	: 253 V AC or 125 V DC (Um) acc. to EN 60079-0
Accuracy	: ≤ 0.2 %
Case	: Polycarbonate UL94V-0 TS 35
Weight	: approx. 200 g
Protection class	: case IP30, terminals IP20 (BGV A3)
Connection	: screw terminals with pressure plate max. 2.5 mm ²
Mounting	: installation in dry, clean and well monitored areas

Characteristics

Temperature transmitters series MU500-Ex offer an intrinsically safe input and convert RTD sensor signals (Pt100 or Pt1000) into industry standard signals. The device includes a full 3-port isolation.

Technical data

Power supply

Supply voltage : 85..253 V AC/110..125 V DC
10..30 V AC/DC

Frequency AC : 40..400 Hz

Power consumption : < 3.3 VA

Operating temperature : -10..+60 °C

CE-conformity : ATEX-Richtlinie 2014/34/EU

Standards : EN 60079-0:2006, EN 60079-11:2007
EN 61241-0:2006, EN 61241-11:2006

EMC-directive / standard : 2014/30/EU / EN 61326-1:2013

Explosion protection

Approval : TÜV 03 ATEX 2283,

Marking : II (1) G [Ex ia Ga] IIC or
II (1) D [Ex ia Da] IIIC

MU500Ex- ... -51 : 1.3 V < 3 mA < 3 mW 29 μ F 100mH

MU500Ex- ... -53 : 4.9 V < 3 mA < 3 mW 2.2 μ F 100mH

Ci, Li : 5 nF, ca. 0 mH

The intrinsically safe circuit is galvanically separated from the non-intrinsically safe circuits up to a peak crest value of the voltage of 375 V.

Measuring input

Sensor current : Pt100 approx 1 mA,
Pt1000 approx. 0.25 mA

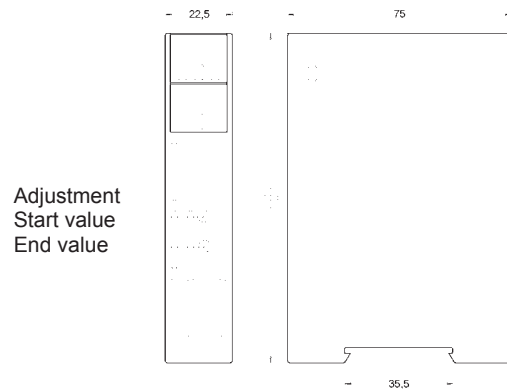
Line resistance : max. 100 Ω , automatic compensation with 3-wire connection

Zero adjust : Pt100 approx. ± 8 Ω , ($\cong 20$ °C)
Pt1000 approx. ± 8 Ω ($\cong 2$ °C)

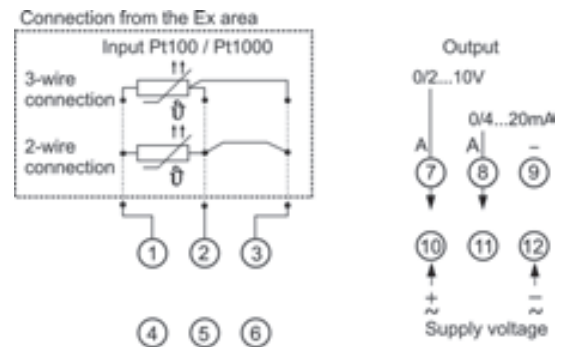
End value : approx. +/-20 % adjustable

Sensor error : output rises to max. output (voltage output > 12 V DC current output > 25 mA)

Dimensions



Connection diagram



Ordering code

MU500Ex - - -

1. 2. 3.

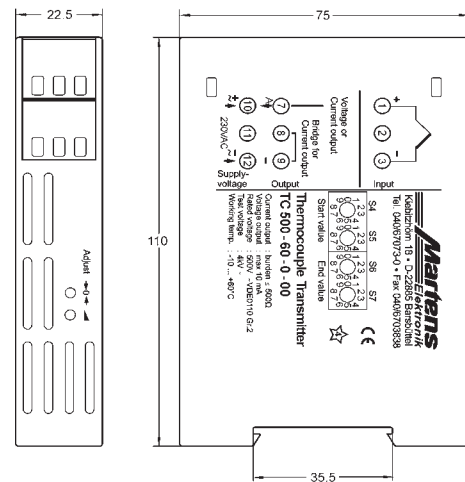
1. Device type	
51	Pt100, 13 measuring ranges
53	Pt1000, 16 measuring ranges
2. Supply voltage	
0	85..253 V AC/110..125 V DC
5	10..30 V AC/DC
3. Options	
00	without option

Produktinformation

Thermocouple Transmitter TC500



Dimensions



Characteristics

Thermocouple Transmitter TC500 converts thermovoltages into standard industry signals 0/4..20 mA or 0/2..10 V DC. The measuring range is programmable via rotary switches at the side.

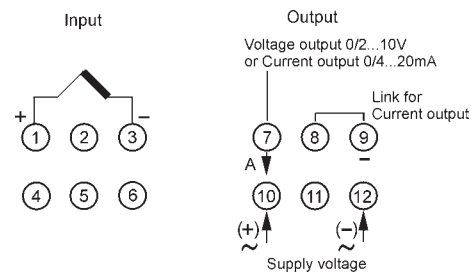
Technical data

Power supply
 Supply voltage : 230 V AC $\pm 10\%$ or 24 V DC $\pm 15\%$
 Frequency AC : 47..63 Hz
 Power consumption : < 3.5 VA
 Operating temperature : -10..+60 °C
 CE-conformity : EN 61326-1:2013
 EN 60664-1:2007

Input
 Thermocouple
 Type J : Fe-CuNi, in range -100..+800 °C
 Type K : NiCr-Ni, in range -150..+1200 °C
 Type S : Pt10Rh-Pt, in range 0..+1600 °C

Output
 Current : 0..20 mA, 4..20 mA switch selectable, burden $\leq 500 \Omega$
 Voltage : 0..10 V, 2..10 V switch selectable, load max. 10 mA, short-circuit-proof
 Start value : adjustable approx. $\pm 5\%$
 End value : adjustable approx. $\pm 5\%$
 Broken line : outputs takes the end value +1 %, overflow indication
 Short-circuit : no indication (output takes terminal temperature)
 Accuracy : $\leq 0.15\%$, 1 °C
 Temperature coefficient : $\leq 0.01\%/K$
Case : Polycarbonate, UL94 V-0
 TS35 acc. to DIN EN 60715:2001-09
 Weight : approx. 200 g
 Connection : screw terminals with pressure plate max. 2.5 mm²
 Protection class : case IP30
 terminals IP20 acc. to BGV A3

Connection diagram



Ordering code

TC500 - - -

1. Input	60	Thermocouple J, K, S programmable, output 0/4..20 mA or 0/2..10 V DC
2. Supply voltage	0	230 V AC $\pm 10\%$
	5	24V DC $\pm 15\%$
3. Options	00	without option

Produktinformation

Temperature Transmitter PMT50-2 /-3



- Signal conditioning – linearisation – output characteristic transformation
- Input for resistance and Potentiometer or RTD Pt100/Pt1000 and thermocouples
- Measuring range programmable
- Linearisation or transformation of output characteristic via 32 base-points programmable
- Automatic fault detection in the measuring circuit

Characteristics

The programmable universal transmitter PMT50 operates with analog input signals. The device convert input signals to analog output 0/4..20 mA; 0/2..10 V DC. Optional a serial interface is available. The device offers a linearisation function for any sensor curves and a simulator function. The integrated transmitter supply 24 V DC max. 30 mA allows the feeding of 2-and 3-wire sensors. 4 alarm outputs for monitoring and controlling are available.

Technical data

Power supply

Supply voltage : 230 V AC ±10 %
115 V AC ±10 %
24 V DC ±15 %

Power consumption : < 5 VA

Operating temperature : -10..+55 °C

CE – conformity : EN 61326-1:2013, EN 60664-1:2007

Inputs

Fault detection : type -2: (only resistance measurement) broken line;
type -3: broken line (Pt100 / Pt1000,TC) and short circuit (only Pt100 / Pt1000)

Device type 2

Input : resistance 0..100 kΩ,
potentiometer min.1 kΩ.. max. 100 kΩ

Accuracy : < 0.2 %, ±1 Digit

Device type 3

Input : Pt100 (3-wire) -100.0..+600.0 °C
Pt1000 (3-wire) -100.0..+300.0 °C
: Thermocouple (TC)
type J -100.0..+800.0 °C
type K -150..+1200 °C
type N -150..+1200 °C
type S -50..+1600 °C
: < 0.1 %, ±1 Digit

Accuracy

Outputs

Alarm outputs

: relay SPDT
< 250 V AC < 250 VA < 2 A
cos Phi ≥ 0.3

Analog output

: 0/4..20 mA burden ≤ 500 Ω,
0/2..10 V burden > 500 Ω isolated
output changes automatically
(burden depending)

Fault indication

: for broken line or short circuit detection
→ analog output (programmable)
0 mA, < 3.6 mA or >21.5 mA
→ Alarm relays
min. or max. programmable

Bus system

Modbus

: RS485, RTU or ASCII
max. 38400 Baud

Profibus

Connection

: Profibus DP
: 9 pole D-SUB plug in the front

Display

: Graphic-LCD-Display
128 x 64 Pixel,
with white LCD backlight

Case

: Polyamide (PA) 6.6 , UL94V-0
TS35 acc. to DIN EN 60715

Weight

: approx. 450 g

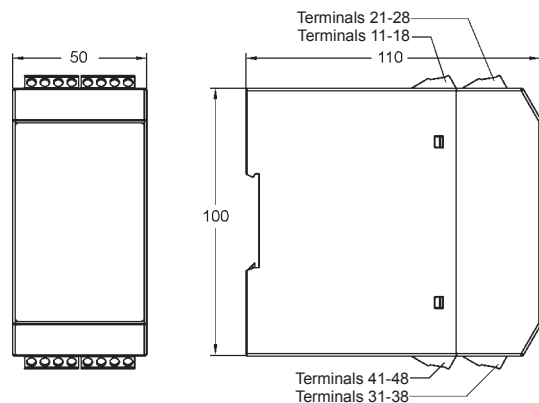
Connection

: screw terminals 0.14..2.5 mm²
AWG 26..AWG14

Protection class

: case IP30, terminals IP20 acc. to
BGV A3

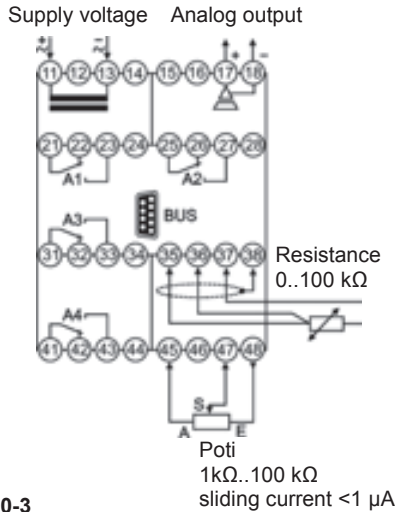
Dimensions



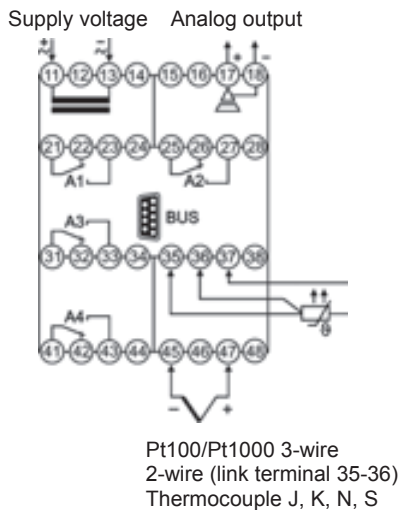
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Connection diagrams

Device type PMT50-2
Resistance, Potentiometer



Device type PMT50-3
Pt100, Pt1000, thermocouple



Ordering code

1. 2. 3. 4. 5. 6.
PMT50 - - - - -

1. Device type/input	
2	Resistance in the range 0..100 kΩ Poti 1 kΩ..100 kΩ
3	RTD Pt100, 3-wire, -100.0..+600.0 °C RTD Pt1000, 3-wire, -100.0..+300.0 °C Thermocouple J (Fe-CuNi), -100.0..+800.0 °C K (NiCr-Ni), -150..+1200 °C N (NiCrSi-NiSi), -150..+1200 °C S (Pt10Rh-Pt), -50..+1600 °C
2. Analog output	
AO	0/4..20 mA, 0/2..10 V DC isolated
3. Alarm outputs	
00	not installed
2R	2 relay outputs, A1, A2 SPDT
4. Alarm output/BUS configuration	
00	not installed
2R	2 relay outputs, A3, A4 SPDT
MB	Modbus RTU/ASCII, RS485
PB	Profibus DP
5. Supply voltage	
0	230 V AC, ± 10 % 50-60 Hz
1	115 V AC, ± 10 % 50-60 Hz
5	24 V DC, ± 15 %
6. Options	
00	without option

Bus connection

Modbus		
PIN	Signal	EIA/TIA-485 Name
5	D1	B / B'
9	D0	A / A'
1	Common	C / C'
Profibus		
3	RxD / TxD-P	
5	DGND	
6	VP / +5V max. 10 mA	
8	RxD / TxD-N	

9-pol. D-Sub plug
in the front

Produktinformation

Temperature Transmitter PMT50Ex-2 /-3



- Signal conditioning – linearisation – output characteristic transformation
- Input for resistance and Potentiometer or RTD Pt100/Pt1000 and thermocouples
- Measuring range programmable
- Linearisation or transformation of output characteristic via 32 base-points programmable
- Automatic input fault detection

Characteristics

The programmable Temperature Transmitter PMT50 operates with RTD and thermocouple input signals. The device convert the signal to analog output 0/4..20 mA; 0/2..10 V DC. Optional a serial interface is available. The device offers a linearisation function for any sensor curves and a simulator function. The integrated transmitter supply 24 V DC max. 30 mA allows the feeding of 2-and 3-wire sensors. 4 alarm outputs for monitoring and controlling are available.

Technical data

Power supply

Supply voltage : 230 V AC $\pm 10\%$
 115 V AC $\pm 10\%$
 24 V DC $\pm 15\%$
 Um = 253 V AC or 125 V DC
 (terminals 11 and 13)

Power consumption : < 5 VA
 Operating temperature : -10..+55 °C
 CE-conformity : ATEX-directive 2014/34/EU
 Standards : EN 60079-0:2006 EN60079-11:2007
 EN 61241-0:2006 EN61241-11:2006
 EMC-directive / standard : 2014/30/EU / EN 61326-1:2013

Explosion protection

Marking : II (1) G [Ex ia] IIC/IIB bzw. II (1) D
 [Ex iaD]
 Approval : TÜV 08 ATEX 554329

Device type 2

Input : resistance 0..20 k Ω
 (terminals 35, 36, 37, 38)
Fault detection : broken line
Accuracy : < 0.2 %, ± 1 Digit
Max. U₀ no load : 1.4 V
Max. I₀ short circuit : 2,5 mA
Max. output power P₀ : 3 mW

Resistance : 5600 Ω
Characteristic curve : trapezoidal
Internal inductivity : 4 μ H
Internal capacity : 135 nF
Explosion protection **Ex ia/IIC** **ia/IIB**
Max. external inductivity : 100 mH 100 mH
Max. external capacity : 25 μ F 120 μ F
Input : Potentiometer min. 1 k Ω ..max. 100 k Ω
 (terminals 45, 47, 48)
Accuracy : < 0.2 %, ± 1 Digit
Max. values U₀ : 9.6 V
Max. I₀ : 56 mA
Max. P₀ : 200 mW
Resistance R : 259 Ω
Characteristic curve : trapezoidal
Internal inductivity : 4 μ H
Internal capacity : negligible
Explosion protection **Ex ia/IIC** **ia/IIB**
Max. external inductivity : 5 mH 20 mH
Max. external capacity : 0.48 μ F 2 μ F

Device type 3

Input : Pt100 (3-wire) -100.0..+600.0 °C
 Pt1000 (3-wire) -100.0..+300.0 °C
 thermocouple (TC)
 type J -100.0..+800.0 °C
 type K -150..+1200 °C
 type N -150..+1200 °C
 type S -50..+1600 °C
 (terminals 35, 36, 37; 45, 47)

Fault detection : broken line (Pt100 / Pt1000,TC) or
 short circuit (only Pt100 / Pt1000)

Accuracy : < 0.1 %, ± 1 Digit
Max. voltage no load U₀ : 1,4 V
Max. short circuit curr. I₀ : 2,5 mA
Max. output power P₀ : 3 mW
Resistance R : 5600 Ω
Characteristic curve : trapezoidal
Internal inductivity : 4 μ H
Internal capacity : 135 nF
Explosion protection **Ex ia/IIC** **ia/IIB**
Max. external inductivity : 100 mH 100 mH
Max. external capacity : 25 μ F 120 μ F

Outputs

Alarm outputs : relay SPDT
 < 250 V AC < 250 VA < 2 A
 cos Phi ≥ 0.3
 < 300 V DC < 40 W < 2 A
 (terminals 21, 22, 23; 25, 26, 27)

Analog output : 0/4..20 mA burden $\leq 500 \Omega$
 0/2..10 V burden > 500 Ω , isolated
 output changes automatically
 (burden depending)

- **Accuracy** : 0.2 %; TK 0.01 % / K
 (terminals 17, 18)

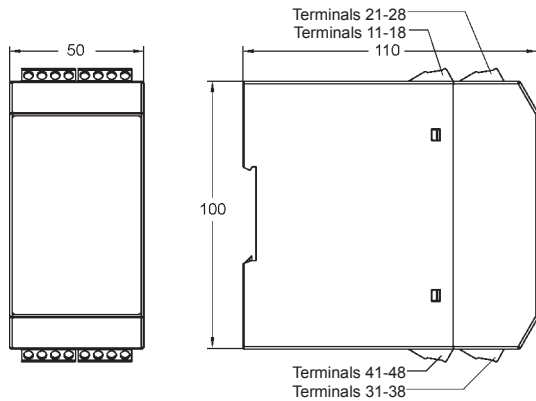
Fault function : for broken line or short circuit detection
 → analog output (programmable)
 0 mA, < 3.6 mA or > 21.5 mA
 → alarm relays
 min. or max. programmable

Bus system

Modbus : RS485, RTU or ASCII
 max. 38400 Baud
Profibus : Profibus DP
Connection : 9 pole D-SUB plug in the front
Display : graphic-LCD-display, 128 x 64 Pixel
 with white LCD backlight

Case : Polyamide (PA) 6.6, UL94V-0
TS35 acc. to DIN EN 60715
Weight : approx. 450 g
Connection : screw terminals 0.14..2.5 mm²
AWG 26..AWG14
Protection class : case IP30, terminals IP20 acc. to
BGV A3

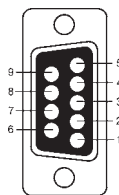
Dimensions



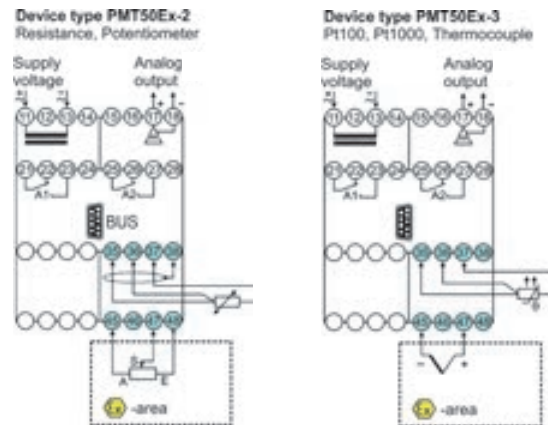
Bus connection

Modbus		
PIN	Signal	EIA / TIA-485 Name
5	D1	B / B'
9	D0	A / A'
1	Common	C / C'
Profibus		
3	RxD / TxD-P	
5	DGND	
6	VP / +5V max. 10 mA	
8	RxD / TxD-N	

9 pol. D-Sub plug
in the front



Connection diagram

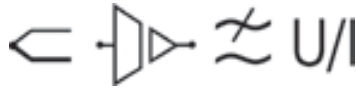


Ordering code

PMT50Ex - 1. 2. 3. 4. 5. 6.

1. Device type/input	
2	Resistance in the range 0..20 kΩ Poti 1 kΩ..100 kΩ
3	RTD Pt100, 3-wire, -100.0..+600.0 °C RTD Pt1000, 3-wire, -100.0..+300.0 °C Thermocouple J (Fe-CuNi), -100.0..+800.0 °C K (NiCr-Ni), -150..+1200 °C N (NiCrSi-NiSi), -150..+1200 °C S (Pt10Rh-Pt), -50..+1600 °C
Inputs intrinsically safe EX II (1) G [Ex ia] IIC/IIB EX II (1) D [Ex iaD]	
2. Analog output	
AO	0/4..20 mA, 0/2..10 V DC isolated
3. Alarm outputs	
00	not installed
2R	2 relay outputs, A1, A2 SPDT
4. BUS configuration	
00	not installed
MB	Modbus RTU/ASCII, RS485
PB	Profibus DP
5. Supply voltage	
0	230 V AC, ± 10 % 50-60 Hz
1	115 V AC, ± 10 % 50-60 Hz
5	24 V DC, ± 15 %
6. Options	
00	without option

ISO-TC



Characteristics

The **ISO-TC Module** offers signal conditioning of thermocouples (standard types J, K and T). Linearisation is done by the module. Maximum measurement range (type K) is -100°C to 1200°C. The standard module has a fixed range (-100°C to +100°C, or +200°C, +500°C, +1000°C, +1200°C) plus type to be specified with order. Calibration is done for this range. Optionally up to three switchable ranges are selectable. The CJC is integrated in the connector, cable break is indicated by an LED. Depending on the base configuration the module has voltage and current outputs.

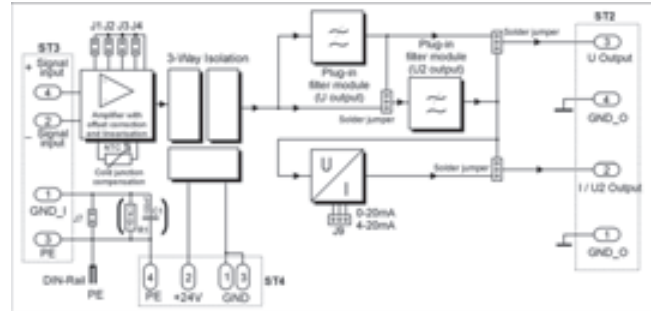
Technical Data

Supply voltage	24 V DC ± 10 %
Power consumption at nominal voltage (without sensor / without load)	90 mA
Electrical isolation (3-way isolation)	1000 V DC
Accuracy^{*1}	0.2 %
Cut-off frequency (standard / maximum)	10 Hz / 5 kHz
Linearity (typical)	0.1 %
Input Thermocouple Input resistance	Type K, J, T ^{*2} , R ^{*3} 10 MΩ
Output – Voltage Output range (V1 / V2)	± 10 V / 0..10 V
Output – Current Output range (A1 / A2 / A3)	± 20 mA / 0..20 mA / 4..20 mA
Max. load current (U output)	± 10 mA
Residual ripple @ f _g = 5 kHz	typ. 2 mV _{pp}
Cable break	red LED
Ranges Maximum range Standard ranges (selectable) Minimum range Ranges per module (standard) Maximum numbers	-250°C..+1200°C 200, 500, 1000, 1200°C -100°C..+100°C 1 4
Environmental temperature	0..50 °C
Plug-in filter Standard frequencies in Hz	10, 30, 50, 100, 300, 500, 1 k, 3 k, 5 k, 10 k

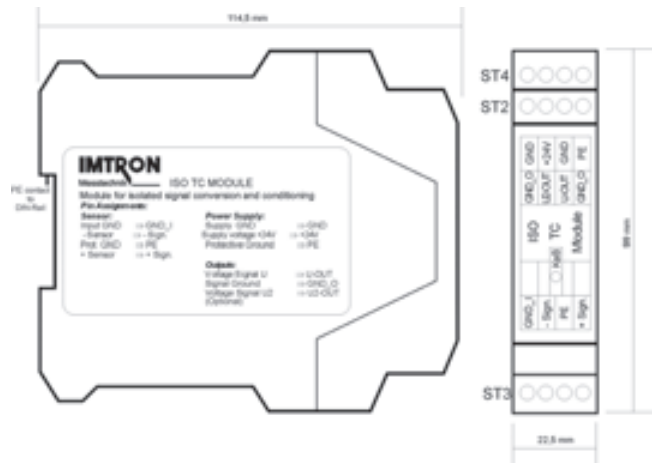
Remarks to technical data:

- *1 Input connector must be attached for 30 minutes to module. A possible offset can be corrected with trimmer ZERO-A
- *2 Accuracy for type T is only met up to -230°C with negative range.
- *3 Accuracy for type R is only met with positive range, with negative range deviation is < 1%.

Block Diagram



Dimensions

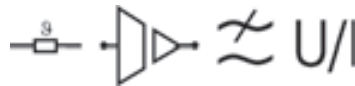
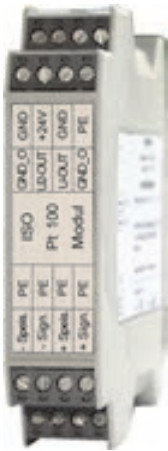


Ordering Code

- 60-ISO-TC-A-B-MBS-XX-YY-ZZ
- A = 1 (1 output), 2 (2 outputs)
 - B = Type J, K, T, R
 - MBS = Range 1, 2, 5, 10, 12 (+100, 200, 500, 1000, 1200 °C)
 - XX = Filter frequency
 - YY = Characteristics (BW = Butterworth, BS = Bessel)
 - ZZ = Voltage resp. current output

Example: 60-ISO-TC-1-K-10-10 Hz-BW-V1

ISO-Pt100



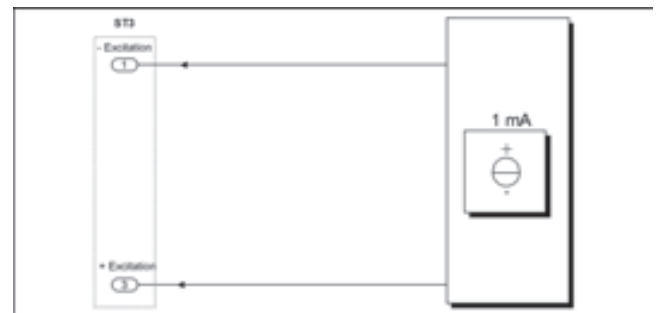
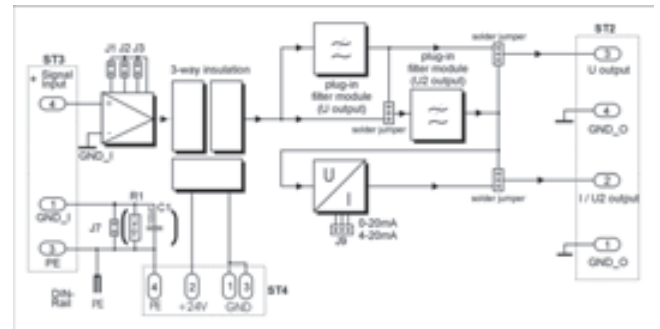
Characteristics

The **ISO-Pt100 Module** offers signal conditioning of Pt100 sensors in 4-wire technology. Linearisation is done by the module, with a fixed range of -100 to +100, +200, or +500°C, to be specified with order. Sensor supply of 1 mA constant is isolated, provided by the module. Depending on the base configuration the module has voltage and current outputs.

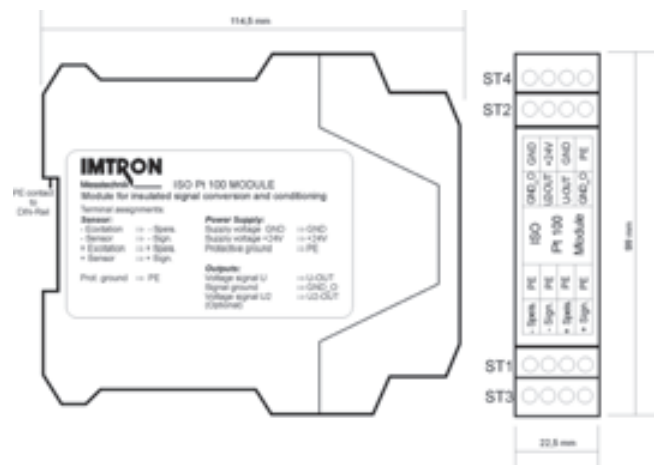
Technical Data

Supply voltage	24 V DC \pm 10 %
Power consumption at nominal voltage (without sensor / without load)	65 mA
Electrical isolation (3-way isolation)	1000 V DC
Accuracy	0.2 %
Cut-off frequency (standard / maximum)	5 Hz / 10 kHz
Linearity (typical)	0.1 %
Input	
Sensor	Pt100 RTD
Input resistance	10 M Ω
Output – Voltage	
Output range (V1 / V2)	\pm 10 V / 0..10 V
Output – Current	
Output range (A1 / A2 / A3)	\pm 20 mA / 0..20 mA / 4..20 mA
Max. load current (U output)	\pm 12 mA
Residual ripple @	
$f_g = 5$ kHz	typ. 2 mV _{pp}
$f_g = 10$ kHz	typ. 5 mV _{pp}
Sensor supply	Constant current 1 mA
Multi-wire technology	4-wire
Range	
1 fixed range to be specified with order	-100°C..+100°C -100°C..+200°C -100°C..+500°C
Environmental temperature	0..50 °C
Plug-in filter	10, 30, 50, 100, 300, 500, 1 k, 3 k, 5 k, 10 k

Block Diagram



Dimensions



Ordering Code

60-ISO-PT100-A-MBS-XX-YY-ZZ

- A = 1 (1 output), 2 (2 outputs)
- MBS = Range select 1, 2, 5 (+100, 200, 500 °C)
- XX = Filter frequency
- YY = Characteristics (BW = Butterworth, BS = Bessel)
- ZZ = Voltage resp. current output

Example: 60-ISO-PT100-1-5-10 kHz-BW-V1

CAN Compact Modules

Characteristics

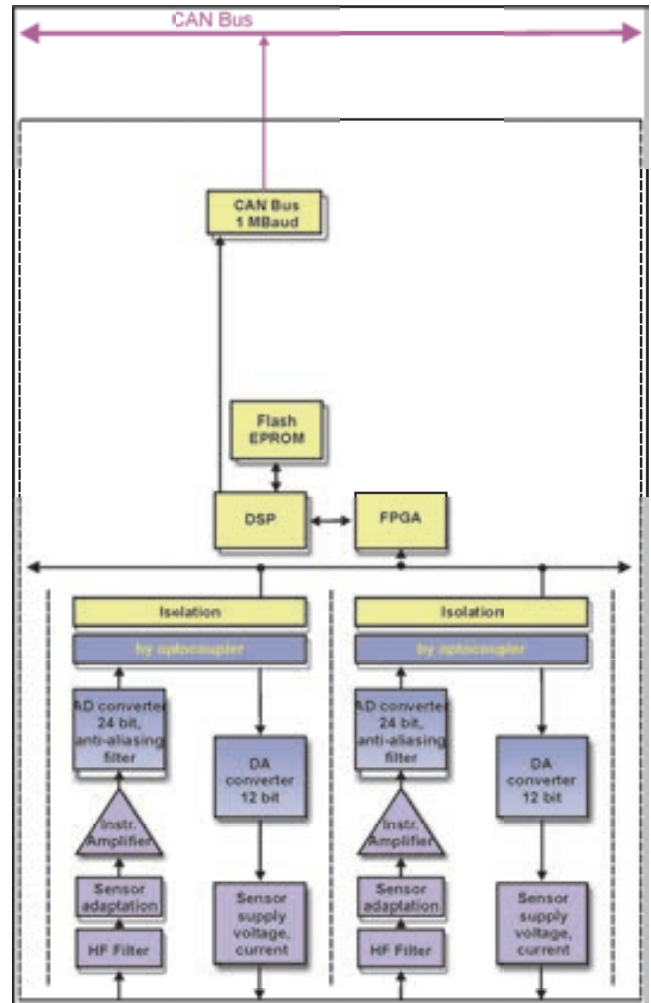
The SIQUAD **CAN Compact Modules** offer computer-controlled signal conditioning of various sensors. There are a universal or sensor-specific amplifiers available. It has 1 DSP per amplifier unit. Signal output is digital via CAN. Protocol is CAN 2.0B. Parameter setting is done with the software DaSoft via a USB-to-CAN interface. Signal filtering can be configured from 3..3000 Hz at 20 kS/s sample rate.



Technical Data

General	Accuracy	see sensors
	Channels/unit	4, 2x4, isolated (8, 2x8, isolated inputs with common ground)
	AD converter	24 bit / channel
	Sample rate	max. 20 kHz
	Band width	max. 5 kHz
	Digital output	CAN
	Input protection	± 80 V, ESD IEC 1000-4-2
	Supply voltage	9..36 V DC
Environmental temperature	0..+50 °C	
Thermo-couples J,K	Range	-100 to +100, +200, +500, +1000 (1200) °C
	Accuracy	± 0.1 % (without CJC)
Pt100	Range	-100 to +100, +200, +500, +1000 °C
	Accuracy	± 0.1 %

Block Diagram (exemplary for 2 channels)



Dimensions

VCS: 130 x 250 x 45 mm, 130 x 130 x 45 mm (WxHxD)
 VCD: 130 x 250 x 75 mm, 130 x 130 x 75 mm (WxHxD)
 depending on type of amplifier

Ordering Code

56-VCS-C-XXX-Y-N-24V-Z with 1 amplifier card

56-VCD-C-XXX-Y-N-24V-Z with 2 amplifier cards

XXX = TC, Type J, K, a.A.; PT;
 N = 1x4=4, 2x4=8, 1x8=8, 2x8=16 channels
 Z = Box H, Flange L, DIN-rail T

- | | | | | |
|-----------------------------|----------------------------|---------------------------------|--------------------------------|---------------------------|
| Архангельск (8182)63-90-72 | Иваново (4932)77-34-06 | Липецк (4742)52-20-81 | Пенза (8412)22-31-16 | Ставрополь (8652)20-65-13 |
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| Астрахань (8512)99-46-04 | Иркутск (395)279-98-46 | Москва (495)268-04-70 | Ростов-на-Дону (863)308-18-15 | Тверь (4822)63-31-35 |
| Барнаул (3852)73-04-60 | Казань (843)206-01-48 | Мурманск (8152)59-64-93 | Рязань (4912)46-61-64 | Томск (3822)98-41-53 |
| Белгород (4722)40-23-64 | Калининград (4012)72-03-81 | Набережные Челны (8552)20-53-41 | Самара (846)206-03-16 | Тула (4872)74-02-29 |
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| Владивосток (423)249-28-31 | Кемерово (3842)65-04-62 | Новокузнецк (3843)20-46-81 | Саратов (845)249-38-78 | Ульяновск (8422)24-23-59 |
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| Екатеринбург (343)384-55-89 | Курск (4712)77-13-04 | Оренбург (3532)37-68-04 | Сочи (862)225-72-31 | Череповец (8202)49-02-64 |
| | | | | Ярославль (4852)69-52-93 |

Киргизия (996)312-96-26-47 Казахстан (772)734-952-31 Таджикистан (992)427-82-92-69