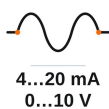


DIGITAL THERMOCOUPLE TRANSMITTER



Type: **DTT**

- TYPE K STANDARD, 11 MORE
- -270 ... +1820 °C
- HEAD AND RAIL VERSION
- Ex ia OPTION



ORDER CODE

Code	Field	Meaning
EKME	series	Digital Thermocouple Transmitter DTT
00 · 11	housing	head version · rail version
0 ... 9 · A · B	input	type K standard · J · B · N · R · S · T · E · C · A · L · L to GOST R 8.585-2001
0 · 1	configuration	factory setting · customized, please specify
0 · 1	special model	no · yes, please specify
0 · 1	ambient temperature	-40 ... +85 °C · -50 ... +105 °C, head version without Ex only
0 · 1	Ex version	none · intrinsically safe, see compliance

Type K is the standard input; every other type comes from the order code and carries its own smallest span.



OVERVIEW

The DTT measures with a thermocouple and gives the value as 4 ... 20 mA in a two-wire current loop. Type K is the standard; type J, B, N, R, S, T, E, C, A and L are available from the order code, together covering -270 to +1820 °C. The measuring range is freely configurable, the smallest span 50 K with type K, J, N and T, 150 K with R and S and 200 K with B. The cold junction is compensated in the device with an error of at most ± 1.5 K. Two housings with identical electronics are available: the head version of $\varnothing 44 \times 22.5$ mm for DIN connection heads of form B, fully potted and rated IP00, and the rail version of $99 \times 113.6 \times 17.5$ mm for standard rails to IEC 60715, rated IP20. Sensor break and range violation are monitored and signalled to NAMUR NE43; a drag pointer keeps the highest ambient temperature the device has seen.

MEASUREMENT AND OUTPUT	DEVICE AND ENVIRONMENT
• Type K -270 ... +1300 °C, standard • Type J · B · N · R · S · T · E · C · A · L • Smallest span 50 K, type-dependent • Cold junction error $\leq \pm 1.5$ K • Deviation type K 0.6 K + 0.06 % of value • Output 4 ... 20 mA, 3.8 ... 20.5 mA to NE43 • Fault signal configurable to NAMUR NE43 • Damping 1 ... 60 s, configurable	• Head version $\varnothing 44 \times 22.5$ mm, IP00, 50 g • Rail version $99 \times 113.6 \times 17.5$ mm, IP20, 200 g • Case PBT, glass-fibre-reinforced • Supply DC 10 ... 35 V, two-wire loop • Ambient -40 ... +85 °C • Option -50 ... +105 °C, head version • Terminals 0.14 ... 2.5 mm², 0.5 Nm • Option Ex ia to ATEX and IECEx



TECHNICAL DATA

INPUT — MEASURING RANGES

Type K, standard	−270 ... +1300 °C · smallest span 50 K
Type J	−210 ... +1200 °C · smallest span 50 K
Type B	0 ... 1820 °C · smallest span 200 K
Type N	−270 ... +1300 °C · smallest span 50 K
Type R · Type S	−50 ... +1768 °C · smallest span 150 K
Type T	−270 ... +400 °C · smallest span 50 K
Further types	E · C · A · L · L to GOST R 8.585-2001, from the order code
Connection	2-wire

ACCURACY

Deviation type J	$\leq 0\text{ °C: }0.45\text{ K} + 0.3\text{ \% of } \text{value} \cdot \geq 0\text{ °C: }0.45\text{ K} + 0.045\text{ \% of value}$
Deviation type K	$\leq 0\text{ °C: }0.6\text{ K} + 0.3\text{ \% of } \text{value} \cdot \geq 0\text{ °C: }0.6\text{ K} + 0.06\text{ \% of value}$
Deviation type N	$\leq 0\text{ °C: }0.75\text{ K} + 0.3\text{ \% of } \text{value} \cdot \geq 0\text{ °C: }0.75\text{ K} + 0.045\text{ \% of value}$
Deviation type B	$\leq 1000\text{ °C: }2.5\text{ K} + 0.3\text{ \% of } \text{value} - 1000 \cdot \geq 1000\text{ °C: }2.5\text{ K}$
Cold junction	$\leq \pm 1.5\text{ K}$
D/A converter	0.045 % of span
Reference conditions	23 °C $\pm$ 3 K · 24 V · 860 ... 1060 hPa

OUTPUT AND SUPPLY

Current signal	4 ... 20 mA loop, 2-wire
Transmission	temperature-linear to IEC 60584 / DIN 43710
Current range	3.8 ... 20.5 mA to NAMUR NE43
Fault signal	configurable — downscale < 3.6 mA · upscale > 21.0 mA
Supply	DC 10 ... 35 V
Load	$RA \leq (UB - 10\text{ V}) / 0.0215\text{ A}$, with RA in Ω and UB in V
Insulation	AC 1500 V

TIME BEHAVIOUR AND MONITORING

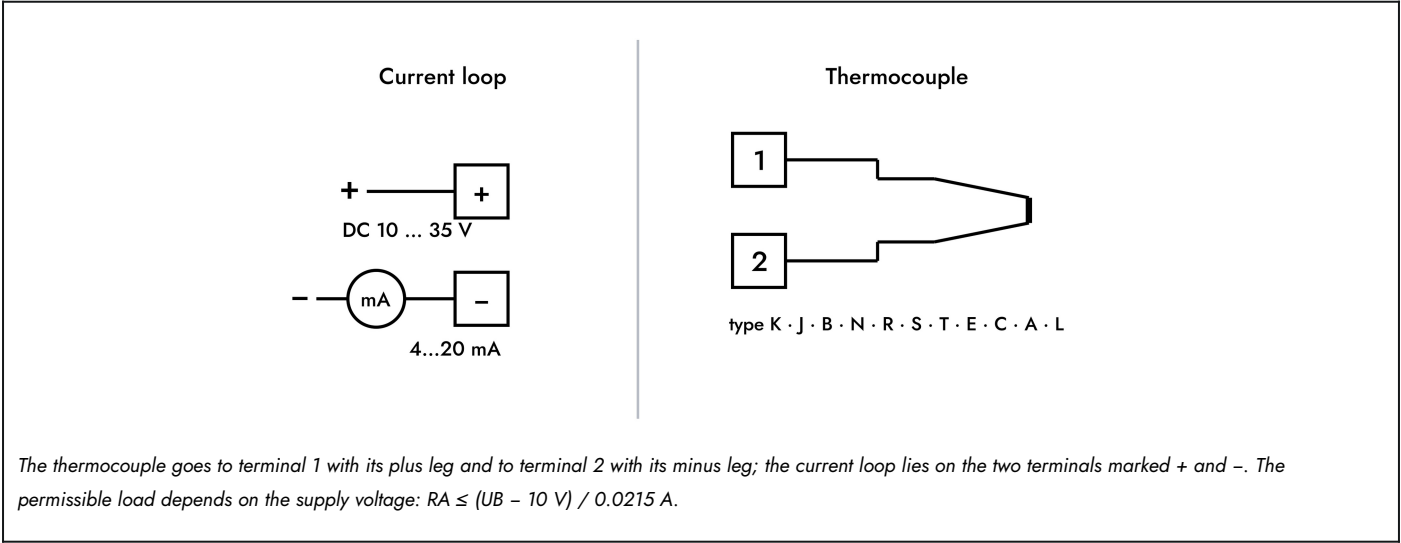
Switch-on time	max. 4 s · warm-up time max. 45 min
Step response	< 0.9 s
Damping	1 ... 60 s, configurable
Measuring rate	8 per s
Monitoring	sensor break configurable, downscale as delivered · range violation configurable, off as delivered · drag pointer keeps the highest ambient temperature, no reset

MECHANICS AND ENVIRONMENT

Head version	PBT, glass-fibre-reinforced · $\varnothing 44 \times 22.5\text{ mm}$ · 50 g · IP00, electronics fully potted · for DIN connection heads of form B
Rail version	plastics · $99 \times 113.6 \times 17.5\text{ mm}$ · 200 g · IP20 · for standard rails to IEC 60715
Terminals	captive screws · solid wire 0.14 ... 2.5 mm ² · stranded wire with ferrule 0.14 ... 1.5 mm ² · tightening torque 0.5 Nm
Ambient temperature	−40 ... +85 °C · option −50 ... +105 °C, head version without Ex only
Humidity	head version max. 93 % $\pm$ 3 % rH · rail version max. 95 % rH · condensation on the rail version only in vertical mounting



ELECTRICAL CONNECTION



ACCESSORIES

Configuration set with programming unit and magnetic quick contacts, ordered separately

The programming unit is connected to the two contacts marked on the device; the device stays in the loop while being set.

COMPLIANCE

 IP00	Head version	IP00 to IEC 60529 — electronics fully potted
 IP20	Rail version	IP20 to IEC 60529
 4...20 mA 0...10 V	Output signal	4 ... 20 mA, 2-wire, 3.8 ... 20.5 mA to NAMUR NE43

The manufacturer names ATEX and IECEx as an option — head version II 1G Ex ia IIC T6...T4 Ga and II 1D Ex ia IIIC T135 °C Da, rail version II 2(1)G Ex ia [ia Ga] IIC T6...T4 Gb — and, on request, EAC for EMC and Uzstandard for metrology. Temperature restrictions apply to the Ex version.



DIMENSIONS (mm)

