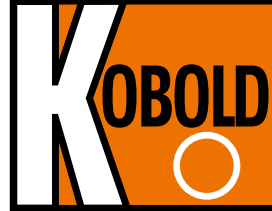




Temperature Transmitters



measuring
•
monitoring
•
analysing

KM



- Wide supply voltage range: 7.5 ... 45 V_{DC}
- Operation, visualisation and maintenance via PC
- Universal setting with HART® protocol
- Fault signal on sensor break or short circuit, pre-settable to NAMUR NE 43
- 2-wire technology, 4 ... 20 mA analog output
- High accuracy

Application

- Linearised temperature measurement
 - Resistance thermometers
 - Thermocouples
 - Resistance
 - Voltage
- Connection head according to DIN 43 729 form B or DIN-rail



T2

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KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
Head Office:
+49(0)6192 299-0
+49(0)6192 23398
info.de@kobold.com
www.kobold.com



Description

Transmitters for head mounting model KM, transform resistance values or thermal voltage into a standard current signal 4...20 mA. Transmission is absolute interference-free over long distances. Different sensor inputs are resistance thermometers, thermocouples, resistance and voltage. programming of measuring ranges is via U-pro and HART® protocol. Connection head for mounting these U-pro transmitters is according to DIN 43729 form B.

Housing: PC and potting silicone
Applied harmonised standards and normative documents: IEC 60529: Degree of protection provided by housing (IP-CODE)
IEC 61010: Safety requirements for electrical measurement
IEC 61326: Electromagnetic compatibility (EMC requirements)
NAMUR: Standard working group for measurement and control technology in the chemical industry

Technical Details

KM-110 (only Pt100)

Supply voltage: 7.5...45 V_{DC}
Input type: 1 x Pt100 3-wires (acc. to IEC 60751)
Sensor current: 0.5 mA
Range limit: -200...+850°C
Min. measuring range: 10 K
Output signal: 4...20 mA
Max. load: (supply - 7.5 V) / 0.022 A
Signal on alarm: under range:
linear drop to 3.8 mA
over range: linear rise to 20.5 mA
sensor open or short circuit:
3.6 mA or 22 mA
Accuracy: 0.2 K or 0.1% of span
Response time: 1 s
Test conditions: calibration temperature:
+23°C (73.4 K) ±5 K
Long term stability: ≤0.05% / year
Switch on delay: ≤5 s
Resolution: 1 µA
Ambient temperature: -40...+85°C
Storage temperature: -40...+100°C
Degree of protection: enclosure IP 66, terminals IP 00
Relative humidity: <95% RH (non-cond.)
Shock and vibration resistance: 4 g / 2... 150 Hz as per IEC 60068-2-6
Electromagnetic compatibility (EMC): acc. to GB/T17626.2-1998, compliance with IEC 61326-1:2005
Dimensions: 44 mm x 18 mm
Weight: approx. 27 g

KM-3 and KM-6 Series

Input	Sensor	Measurement ranges	Min. meas. ranges
Resistances thermometer	Pt100	-200...850°C (-328...1562°F)	10°C
	Pt500	-200...250°C (-328...482°F)	10°C
	Pt1000 acc. to IEC60751	-200...250°C (-328...482°F)	10°C
	Cu50	-50...150°C (-58...302°F)	10°C
	Cu100	-50...150°C (-58...302°F)	10°C
	Ni100	-60...180°C (-76...356°F)	10°C
	Ni500	-60...180°C (-76...356°F)	10°C
	Ni1000	-60...150°C (-76...302°F)	10°C
	acc. to DIN43760		
Resistance	Resistance Ω	0...400 Ω	10 Ω
		0...2000 Ω	10 Ω
Connection type: 2-, 3- or 4-wire connection Sensor current: 0.5mA			
Thermocouples (TC)	B(PtRh30-PtRh6)	0...+1820°C (32...3308°F)	500 K
	E(NiCr-CuNi)	-270...+1000°C (-454...1832°F)	50 K
	J(Fe-CuNi)	-210...+1200°C (-346...2191°F)	50 K
	K(NiCr-Ni)	-270...+1372°C (-454...2501°F)	50 K
	N(NiCrSi-NiSi)	-270...+1300°C (-454...2372°F)	50 K
	R(PtRh13-Pt)	-50...+1768°C (-58...3214°F)	500 K
	S(PtRh10-Pt)	-50...+1768°C (-58...3214°F)	500 K
	T(Cu-CuNi)	-270...+400°C (-454...752°F)	50 K
Voltage transmitters (mV)	(mV)	-10...75 mV	5 mV
		-100...100 mV	5 mV
		-100...500 mV	10 mV
		-100...2000 mV	20 mV

Supply voltage:	7.5...45 V _{DC}	Switch on delay:	<2 s
Output signal:	4...20 mA	Influence of ambient:	negligible
Max. load:	max. (supply - 7.5 V) / 0.022 A	Load influence:	±0.02%/100 Ω, values refer to the full scale value
Signal on alarm:	under range: linear drop to 3.8 mA	Power supply influence:	negligible
	over range: linear rise to 20.5 mA	Self stability configuration:	0...2%
	sensor open or short circuit: 3.6 mA or 22 mA	Filter configurating:	03...160 μA
		Resolution:	0.3 μA

Linearisation/transmission behaviour: temperature linear, resistance linear, voltage linear

Galvanic isolation: U = 2 KV_{AC} (input/output) only
KM-323, KM-325, KM-63, KM-665

Response time: 0.25 s

Long term stability: RTDs - ±0.1% of reading or 0.1°C whichever is greater, for 24 months. Thermocouples - ±0.1% of reading or 0.1°C whichever is greater, for 12 months



Accuracy		
Input	Sensor	Accuracy
RTD	Pt100, Ni100	0.02%
	Pt500, Ni500	0.05%
	Pt1000, Ni1000	0.3%
	Cu50	0.2%
	Cu100	0.3%
TC	K,J,T,E	typ. 0.1% of span
	N	typ. 0.1% of span
	S,B,R	typ. 0.1% of span
Ω	10 to 400 Ω	$\pm 0.1 \Omega$ or 0.02%
	10 to 2000 Ω	$\pm 1.5 \Omega$ or 0.03%
mV	-10 to 75mV	$\pm 4 \mu V$ or 0.02%
	-100 to 1000mV	$\pm 4 \mu V$ or 0.02%
	-100 to 500mV	$\pm 7.5 \mu V$ or 0.02%
	-100 to 2000mV	$\pm 7.5 \mu V$ or 0.02%

Installation instructions: installation angle: no limit
 installation area: connection head according to DIN43 729 Form B or DIN-rail

Ambient temperature: -40.... +85°C (-40... 185°F)

Storage temperature: -40... +100°C (-40... 212°F)

Degree of protection: enclosure IP66, terminals IP00 (head mounting) IP20 (DIN-rail)

Relative humidity: < 95% RH (non-cond.)

Shock and vibration resistance: 4g / 2... 150 Hz as per IEC60068-2-6

Electromagnetic compatibility (EMC): interference immunity and interference emission according to IEC61326-1:2006

Dimensions: KM-3 Series: $\varnothing 44 \times 22.5$ mm; KM-6 Series: 12.6 x 99 x 112.5 mm

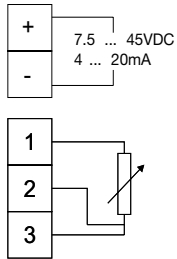
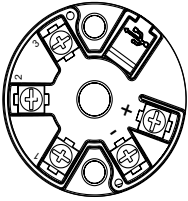
Weight: KM-3 Series: approx. 33.5 g; KM-6 Series: approx. 80 g

Housing: KM-3 Series: PC and potting silicone; KM-6 Series: PC

Applied harmonised standards and normative documents: IEC 60529: degree of protection provided by housing (IP-CODE)
 IEC 61010: safety requirements for electrical measurement
 IEC 61326: electromagnetic compatibility (EMC requirements)
 NAMUR: standard working group for measurement and control technology in the chemical industry

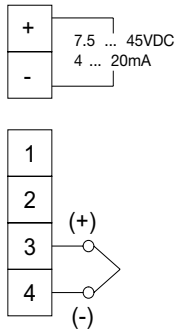
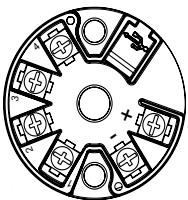
Wiring Diagram

KM-110



3-wire PT100

KM-3-Series



TC

mV

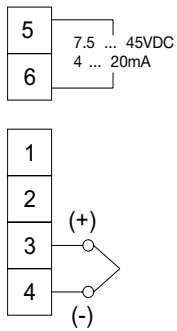
Resistance

2-wire RTD

3-wire RTD

4-wire RTD

KM-660 and KM-663



TC

mV

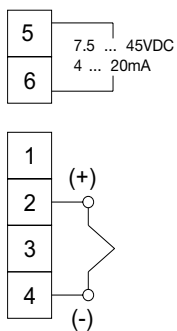
Resistance

2-wire RTD

3-wire RTD

4-wire RTD

KM-665



TC

mV

Resistance

2-wire RTD

3-wire RTD

4-wire RTD


Order Details (Example: KM-110)

Model*	Input	Output	Galvanic isolation	Programming mode**
KM-110	Pt100	4 ... 20 mA	No	U-pro
KM-320	Pt100, Pt500, Pt1000. (acc. to IEC60751) Cu40, Cu100	4 ... 20 mA	No	U-pro
KM-323			Yes	U-pro
KM-325	Ni100, Ni500, Ni1000 (acc. to DIN 43760)		Yes	HART®
KM-660	TC: B, E, J, K, N, R, S, T (acc. to IEC584)		No	U-pro
KM-663	Resistance: 100 ... 400 Ω, 10 ... 2000 Ω Voltage: 10 ... 75 mV, 100 ... 2000 mV		Yes	U-pro
KM-665			Yes	HART®

* Add suffix "V" if factory setting of desired measuring range is required

** For programming the transmitters use a standard HART® modem. Models with U-pro don't support Hand-Held HART® Communicator

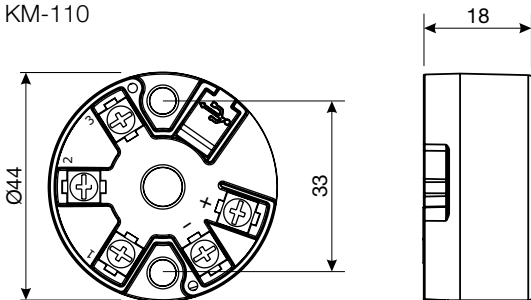
Accessories (for programming the transmitters with programming modes U-pro/HART®)

Model	Description
HARTCOMM (includes configuration software KM-Soft)	HART® modem 

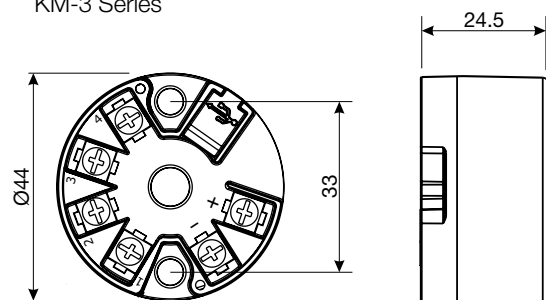
* Download software KM-Soft free of charge from www.kobold.com

Dimensions [mm]

KM-110



KM-3 Series



KM-6 Series

