

JUMO GmbH & Co. KG

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JUMO Instrument Co. Ltd.

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JUMO Process Control, Inc.

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Indoor, outdoor and duct resistance thermometers

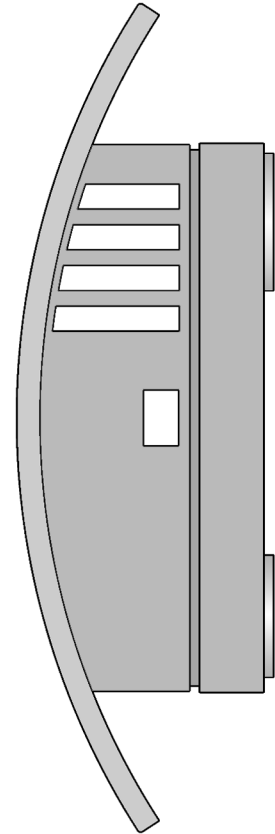
- for temperatures from -30 to +80°C (200°C)
- for use in HVAC
- IP20 to IP65 protection
- for 2-wire, 3-wire or 4-wire connections
- fitted transmitter option 4 – 20mA or 0 – 10V

Indoor, outdoor and duct resistance thermometers for HVAC applications are mainly used for temperature measurement in rooms, air ducts and outdoors.

Different instrument versions with plastic housings for different protection ratings are available to suit the particular measurement task.

The measuring insert is normally fitted with a Pt100 temperature sensor to EN 60 751, Class B, in 2-wire circuit. Versions with Pt500, Pt1000 or Ni 1000 can also be supplied. An extension in 3- or 4-wire circuit, starting from the terminals, is possible.

A transmitter can optionally be integrated.



Technical data

Terminal box

plastic PC housing (material PP on Type 902520/11), IP20 to IP65,
Type 902520/25: IP54 and IP65 protection

Protection tube

stainless steel 1.4571; 5.4mm and 6mm dia.

Measuring insert

Pt100 temperature sensor, EN 60 751, Class B, 2-wire circuit

Transmitter

analog transmitter, output signal 4 – 20mA or 0 – 10V

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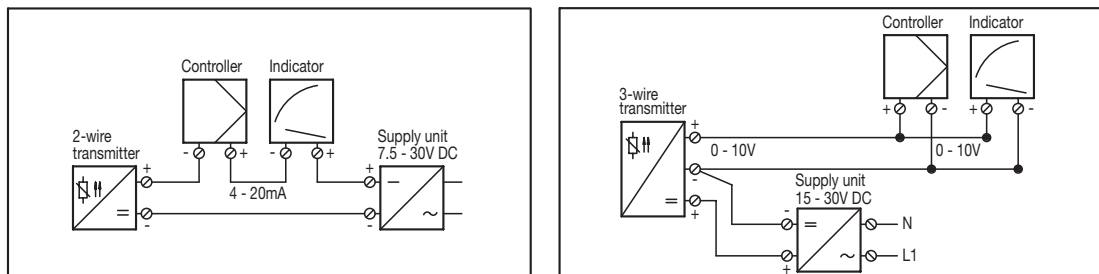
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Transmitter	Output 4 – 20mA		Output 0 – 10V	
	Input			
Measurement input	Pt100 (EN 60 751)			
Sensor current	≤ 0.5mA			
Sampling rate	continuous measurement because of analog signal path			
Measurement circuit monitoring				
Underrange	falling to ≤ 3.6mA	0V		
Overrange	rising to ≥ 22mA to < 28mA (24mA typical)	rising to ≥ 11V to < 14V (12V typical)		
Probe short circuit	≤ 3.6mA	0V		
Probe and lead break	≥ 22mA to < 28mA (24mA typical)	≥ 11V to < 14V (12V typical)		
Output				
Output signal	proportional DC current 4 – 20mA	DC voltage 0 – 10V		
Transfer characteristic	linear with temperature			
Transfer accuracy	≤ ±0.1 %	≤ ±0.2 %		
Damping of ripple on 24V supply voltage, amplitude 10V/50Hz, burden 470Ω/load 10MΩ	37dB	40dB		
Burden (R _b)	R _b = (U _b - 7.5V) / 22mA	-		
Burden error	≤ ±0.02 % / 100Ω ¹	-		
Load/load error	-	≥ 10kΩ / ≤ ±0.1 %		
Settling time on temperature change	≤ 10msec			
Calibration conditions	24V DC / approx. 22°C			
Calibration accuracy	≤ ±0.2 % ^{1,2} or ≤ ±0.2 °C			
Overall accuracy: sensor/calibration	±0.4 °C (typical) at 20°C / 24V supply voltage			
Supply				
Supply voltage (U _b)	7.5 – 30V DC	15 – 30V DC		
Reverse polarity protection	yes			
Supply voltage error	≤ ±0.01 % per V deviation from 24V ¹			
Ambient conditions				
Operating temperature range	-40 to +85°C			
Storage temperature range	-40 to +100°C			
Temperature error	≤ ±0.01 % per °C deviation from 22°C ¹			
Climatic conditions similar to EN 60 654, Class C1	relative humidity ≤ 95% annual mean, no condensation			
EMC interference emission/immunity	EN 61 326, Class B / to industrial requirements			

1. All data refer to the end-of-range value 20mA. 2. The larger value applies.

Connection example with supply unit, 4 – 20mA output **Connection example with supply unit, 0 – 10V output**



Connection diagram

Output 4 - 20mA		Output 0 - 10V	
Connection for	Terminal	Connection for	Terminal
Supply voltage 7.5 - 30V DC	+ 81	Supply voltage 15 - 30V DC	+ 81
Current output 4 - 20mA	- 82	Voltage output 0 - 10V	- 82
			+ 83
		Load ≥ 10kΩ	81 82 83
			+ - +

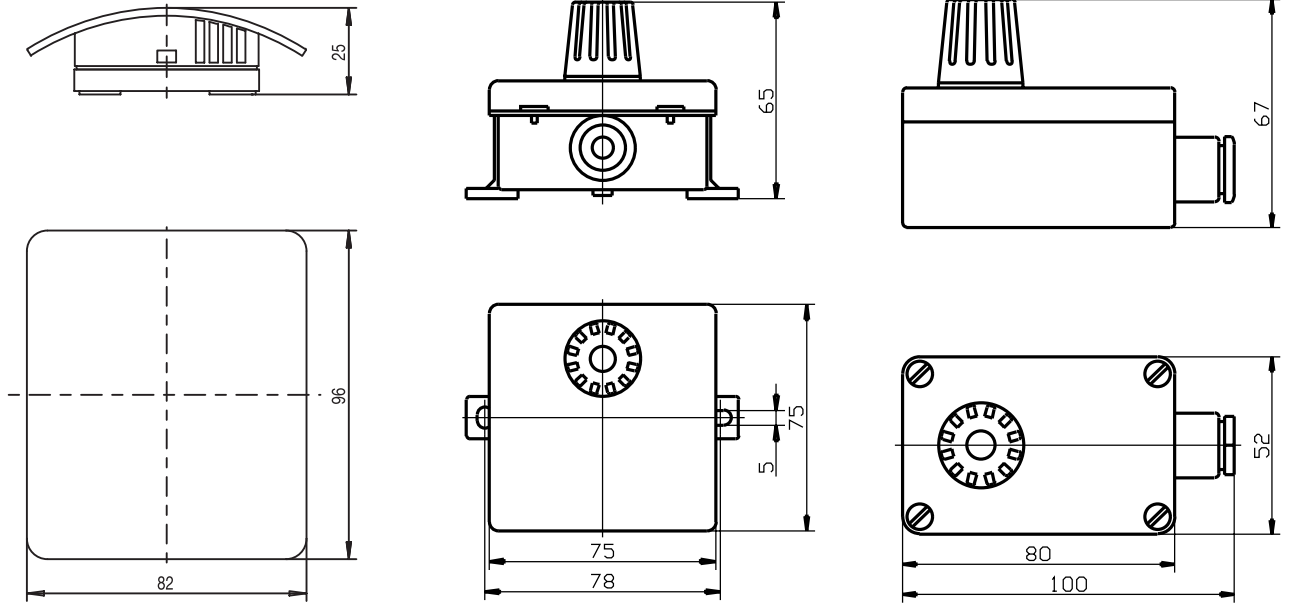
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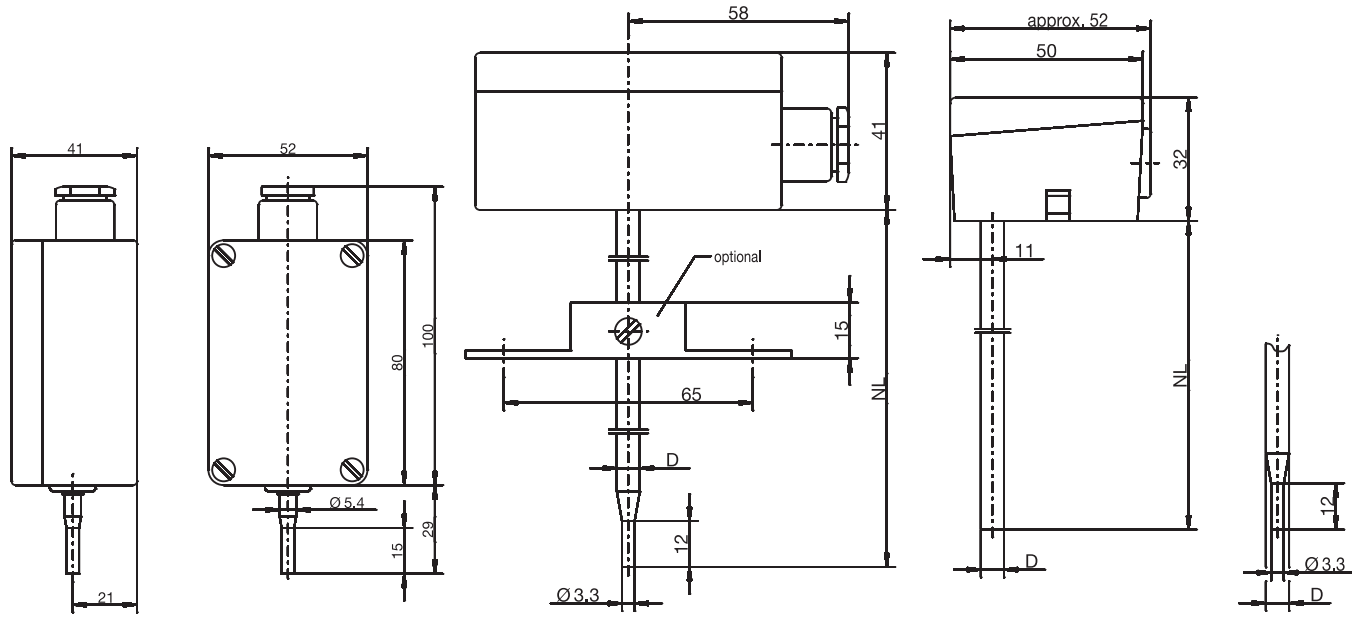
Dimensions



Type 902520/10

Type 902520/11

Type 902520/12



Type 902520/13

Type 902524/20

Type 902524/25

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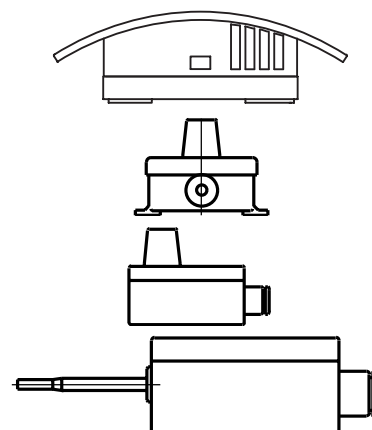
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Order details: Indoor, outdoor and duct resistance thermometers

(1) Basic version

		902520/10	Indoor resistance thermometer, Protection IP20
		902520/11	Indoor and outdoor resistance thermometer, Protection IP54
		902520/12	Indoor and outdoor resistance thermometer, Protection IP65
		902520/13	Indoor and outdoor resistance thermometer with stepped protection tube, Protection IP65



(2) Operating temperature in °C

				568	-30 to +60°C (range only in conjunction with extra code 330 or 333)
x			x	572	-30 to +80°C (standard)
	x		x	635	-20 to +80°C (standard)
x			x	803	0 to 40°C (range only in conjunction with extra code 330 or 333)
x			x	807	0 to 60°C (range only in conjunction with extra code 330 or 333)

(3) Measuring insert

				1001	1 x Pt100 in 3-wire circuit
x			x	1003	1 x Pt100 in 2-wire circuit
x			x	1005	1 x Pt1000 in 2-wire circuit
x			x	1009	1 x Ni 1000 in 2-wire circuit
x			x	2001	2 x Pt100 in 3-wire circuit
			x	2003	2 x Pt100 in 2-wire circuit

(4) Tolerance class to EN 60 751

				1	Class B (standard)
x			x	2	Class A (not for Type 902520/10 in conjunction with transmitter)
x			x	3	Class 1/3 DIN (not for Type 902520/10 in conjunction with transmitter)

(5) Extra codes

				000	no extra code
x			x	330	analog transmitter, 4 – 20mA ² output (in conjunction with 1 x Pt100)
x			x	333	analog transmitter, 0 – 10V ² output (in conjunction with 1 x Pt100)

Order code (1) (2) (3) (4) (5)
 - - - / ,...

Order example 902520/10 - 572 - 1001 - 1 / 000¹

1. List extra codes in sequence, separated by commas.
 2. Please specify range in plain text.

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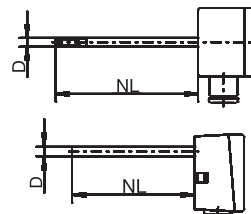


Order details: Indoor, outdoor and duct resistance thermometers

(1) Basic version

902524/20 Duct resistance thermometer
 with stepped protection tube,
 Protection IP65

902524/25 Duct resistance thermometer
 with plain protection tube,
 Protection IP54



(2) Operating temperature in °C

x 380 -50 to +200°C (standard)
 x 568 -30 to +60°C (range only in conjunction with extra code 330 or 333)
 x 572 -30 to +80°C (standard)
 x 807 0 to 60°C (range only in conjunction with extra code 330 or 333)

(3) Measuring insert

x x 1003 1 x Pt100 in 2-wire circuit
 x x 1005 1 x Pt1000 in 2-wire circuit
 x x 1009 1 x Ni 1000 in 2-wire circuit
 x 2003 2 x Pt100 in 2-wire circuit

(4) Tolerance class to EN 60 751

x x 1 Class B (standard)
 x x 2 Class A
 x 3 Class 1/3 DIN

(5) Protection tube diameter D in mm

x x 6 6mm (Type 902524/20: stepped down from 6mm dia. to 3.3mm dia.)

(6) Nominal length NL in mm (50 ≤ NL ≤ 500)

x x 100 100mm
 x 150 150mm
 x 200 200mm
 x ... please specify in plain text (in 50mm steps)

(7) Process connection

x x 000 no process connection
 x x 252 screwed pipe joint G 1/4 (1/4" pipe)
 x x 254 screwed pipe joint G 1/2 (1/2" pipe)
 x x 662 stop flange 6mm dia.

(8) Extra codes

x x 000 no extra code
 x 310 protection tube stepped down from 6mm dia. to 3.3mm dia.
 x 330 analog transmitter, 4 – 20mA² output (in conjunction with 1 x Pt100)*
 x 333 analog transmitter, 0 – 10V² output (in conjunction with 1 x Pt100)*
 x 404 Protection IP65

Order code (1) - (2) - (3) - (4) - (5) - (6) - (7) / (8) , ...
Order example 902524/20 - 572 - 1003 - 1 - 6 - 100 - 252 / 000¹

1. List extra codes in sequence, separated by commas.
 2. Please specify range in plain text

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**Stock versions**

(1)	(2)	(3)	(4)	(5)	Sales No.
902520/10	- 572	- 1001	- 1	/	000 90/00065671
902520/10	- 803	- 1003	- 1	/	330 (0 to 40°C) 90/00064003
902520/10	- 807	- 1003	- 1	/	330 (0 to 60°C) 90/00065717
902520/11	- 635	- 1003	- 1	/	000 90/00055723
902520/12	- 572	- 1003	- 1	/	000 90/00064881
902520/12	- 807	- 1003	- 1	/	330 (0 to 60°C) 90/00064883
902520/13	- 572	- 1003	- 1	/	000 90/00419733
902520/13	- 572	- 2003	- 1	/	000 90/00419734
902520/13	- 568	- 1003	- 1	/	330 (-30 to +60°C) 90/00419736

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Sales No.
902524/20	- 572	- 1003	- 1	- 6	- 100	- 662	/	000 90/00064894
902524/20	- 568	- 1003	- 1	- 6	- 100	- 662	/	330 (-30 to +60°C) 90/00065087