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ATEX/IECEx/EACEx RTD temperature probe

With connecting cable, according to Directive 2014/34/EU

- For temperatures from -100 to +600 °C
- As single, double or triple RTD temperature probe in 2-wire, 3-wire, or 4-wire circuit
- Various connecting cables (including silicone, PTFE, metal braiding/glass fiber, PVC, PUR, FEP, RADOX®, BETAflam®, FPM), also available in shielded versions
- Application-specific design types



Brief description

Due to their specific features, ATEX/IECEx/EACEx RTD temperature probes with connecting cables are used in pharmaceutical and chemical plants, power plants, pipes, on test rigs, in engine manufacturing, and at any measuring locations requiring flexibility and simple replacement.

The good thermal transfer between the protection tube and temperature sensor enables short response times and excellent measuring accuracy. The special construction guarantees a long operating life.

A Pt100 temperature sensor according to DIN EN 60751:2009 / IEC 60751:2008, class AA, A or B in a two-wire, three-wire, or four-wire circuit is used as a measuring insert as standard – versions with Pt500, Pt1000, Ni1000, or NTC are also possible.

Approvals and approval marks

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Technical data

Connection	Connecting cable ends stripped bare or stripped in part, available with ferrules (standard), with plug-in sleeves, or multi-pole plug connection	
Connecting cable	Silicone	Ambient temperature -50 to +180 °C
	PTFE	Ambient temperature -190 to +260 °C
	Metal braiding/ glass fiber	Ambient temperature -50 to +350 °C
	PUR	Ambient temperature -30 to +105 °C
	PVC	Ambient temperature -5 to +80 °C or -5 to +105 °C
	FEP	Ambient temperature -5 to +105 °C
	RADOX®	Ambient temperature -40 to +120 °C
	BETAflam®	Ambient temperature -40 to +120 °C
	FPM	Ambient temperature -50 to +180 °C
Protection tube	Stainless steel AISI 316: Ø ≥ 3 mm, mineral-insulated RTD temperature probe: stainless steel 1.4541, Ø 3 mm, Ø 6 mm	
Protection tube constant	As the diameter of the temperature probe varies, the protection tube constant varies as follows: ≥ 3.0 mm = 220 K/W ≥ 3.3 mm = 180 K/W ≥ 4.0 mm = 110 K/W ≥ 5.0 mm = 80 K/W The protection tube constant describes how the temperature rises on the surface of the probe as work is performed and must be taken into account when dimensioning the intrinsically safe electrical circuit and selecting the temperature class.	
Process connection	Thread, clamping socket (clamp) or JUMO PEKA hygienic process connection	
Measuring insert	Standard: Pt100 temperature sensor, DIN EN 60751:2009 / IEC 60751:2008, class AA, A or B in two-wire, three-wire, or four-wire circuit NTC upon request	

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Approvals and approval marks

Approval mark	Test facility	Certificates/ Certification numbers	Inspection basis
II 1/2 G Ex ia IIC T1 ... T6 Ga/Gb II 1/2 G Ex ib IIC T1 ... T6 Ga/Gb II 1/2 D Ex ia IIIC T60°C ... T80°C Da/Db IP6X II 1/2 D Ex ib IIIC T60°C ... T80°C Da/Db IP6X	Eurofins Electrosuisse Product Testing AG	SEV 13 ATEX 0197	EN 60079-0:2012 + A11:2013 EN 60079-11:2012 EN 60079-26:2015
II 2 G Ex ia IIC T1 ... T6 Gb II 2 G Ex ib IIC T1 ... T6 Gb II 2 D Ex ia IIIC T60°C ... T80°C Db IP6X II 2 D Ex ib IIIC T60°C ... T80°C Db IP6X	Eurofins Electrosuisse Product Testing AG	SEV 13 ATEX 0197	EN 60079-0:2012 + A11:2013 EN 60079-11:2012 EN 60079-26:2015
II 1/2 G Ex ia IIC T1 ... T6 Ga/Gb II 1/2 G Ex ib IIC T1 ... T6 Ga/Gb II 1/2 D Ex ia IIIC T60°C ... T80°C Da/Db IP6X II 1/2 D Ex ib IIIC T60°C ... T80°C Da/Db IP6X	Eurofins Electrosuisse Product Testing AG	IECEx SEV 13.0010	IEC 60079-0:2011 IEC 60079-11:2011 IEC 60079-26:2006
II 2 G Ex ia IIC T1 ... T6 Gb II 2 G Ex ib IIC T1 ... T6 Gb II 2 D Ex ia IIIC T60°C ... T80°C Db IP6X II 2 D Ex ib IIIC T60°C ... T80°C Db IP6X	Eurofins Electrosuisse Product Testing AG	IECEx SEV 13.0010	IEC 60079-0:2011 IEC 60079-11:2011 IEC 60079-26:2006
II 2 G Ex eb IIC T6 ... T1 Gb II 2 D Ex tb IIIC T80°C Db II 1/2 D Ex ta/tb IIIC T80°C Da/Db	Eurofins Electrosuisse Product Testing AG	SEV 18 ATEX 0209 X	EN 60079-0:2018 EN 60079-7:2015 EN 60079-31:2014 EN 61326-1:2013
II 1/2 G Ex ia IIC T1 ... T6 Ga/Gb II 1/2 G Ex ib IIC T1 ... T6 Ga/Gb II 1/2 D Ex ia IIIC T60°C ... T80°C Da/Db IP6X II 1/2 D Ex ib IIIC T60°C ... T80°C Da/Db IP6X II 2 G Ex ia IIC T1 ... T6 Gb II 2 G Ex ib IIC T1 ... T6 Gb II 2 D Ex ia IIIC T60°C ... T80°C Db IP6X II 2 D Ex ib IIIC T60°C ... T80°C Db IP6X II 1/2 G Ex e IIC T1 ... T6 Ga/Gb II 1/2 D Ex tb IIIC T60°C ... T80°C IP65 Da/Db II 2 G Ex e IIC T1 ... T6 Gb II 2 D Ex tb IIIC T60°C ... T80°C IP65 Db	Certium	RU C-CH.ME92.B.00726	GOST R IEC 60079-0-2011 GOST R IEC 60079-7-2012 GOST R IEC 60079-11-2010 GOST R IEC 60079-14-2011 GOST R IEC 60079-31-2010

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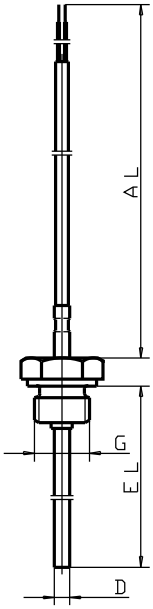
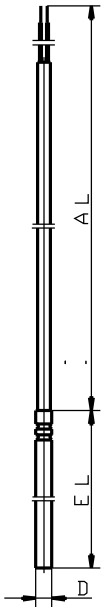
Dimensions



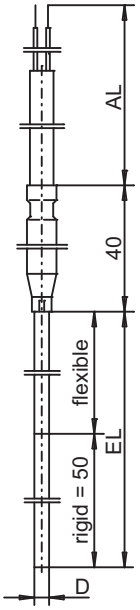
Basic type 902821/80

Basic type 902821/90



Basic type 902821/81

Basic type 902821/91



Basic type 902821/82[a, b]

Basic type 902821/92[a, b]

[a] Sheath element diameter:
3 mm: Length of adapter sleeve 40 or 50 mm, diameter 6 mm;
6 mm: Length of adapter sleeve 80 mm, diameter 7 mm.

[b] Maximum temperature at the adapter sleeve: Standard 100 °C; high-temperature version 300 °C, dependent, however, on the maximum admissible connecting cable temperature.

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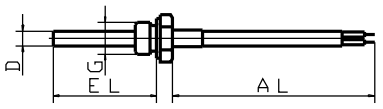
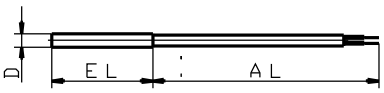
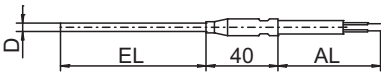
Order details

				(1)	**Basic type**
			902821/80		Ex "i" – screw-in RTD temperature probe with connecting cable 
			902821/81		Ex "i" – push-in RTD temperature probe with connecting cable 
			902821/82		Ex "i" – mineral-insulated RTD temperature probe with connecting cable (operating temperature in area of sheath cable: -50 to +600 °C)[a] 
				(2)	**Operating temperature in °C (connecting cable)**
x	x	x	302		-70 to +200 °C
x	x	x	303		-70 to +260 °C
x	x	x	373		-50 to +180 °C (FPM)
x	x	x	378		-50 to +180 °C (silicone)
x	x	x	380		-50 to +200 °C
x	x	x	386		-50 to +260 °C (PTFE)
x	x	x	402		-50 to +400 °C (metal braiding/glass fiber)
		x	415		-50 to +600 °C
x	x	x	478		-40 to +120 °C (RADOX®)
x	x	x	484		-40 to +120 °C (BETAflam®)
x	x	x	572		-30 to +80 °C
x	x	x	724		-5 to +80 °C (PVC)
x	x	x	730		-5 to +105 °C (PVC)
x	x	x	908		5 to 105 °C (PUR)
				(3)	**Measuring insert**
x	x	x	1001		1× Pt100 in 3-wire circuit
x	x	x	1003		1× Pt100 in 2-wire circuit
x	x	x	1005		1× Pt1000 in 2-wire circuit
x	x	x	1011		1× Pt100 in 4-wire circuit
x	x	x	2001		2× Pt100 in 3-wire circuit (for basic type 902821/82 from protection tube diameter 6 mm)[b]
x	x	x	2003		2× Pt100 in 2-wire circuit
x	x	x	2005		2× Pt1000 in 2-wire circuit
x	x		2011		2× Pt100 in 4-wire circuit
x	x		3028		3× Pt100 in 2× 3-wire and 1× 2-wire circuit
				(4)	**Tolerance class according to DIN EN 60751:2009 / IEC 60751:2008**
x	x	x	1		Class B
x	x	x	2		Class A
x	x	x	3		Class AA
				(5)	**Protection tube diameter D in mm (other diameters upon request)**
x	x	x	3		Ø 3 mm
x	x		4		Ø 4 mm
x	x		5		Ø 5 mm
x	x	x	6		Ø 6 mm
x	x		7		Ø 7 mm
x	x		8		Ø 8 mm

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x	x		9	Ø 9 mm
			(6)	**Insertion length EL in mm**
x	x	x	...	Specification in plain text
			(7)	**Process connection**
	x	x	000	None
x			102	Screw connection G 1/4
x			104	Screw connection G 1/2
x			106	Screw connection G 1
x			114	Screw connection M10 × 1
x			115	Screw connection M10 × 1.5
x			121	Screw connection M14 × 1.5
	x		611	Clamping socket (clamp) DN 10/20 DIN 32676 (AISI 316 L)
	x		613	Clamping socket (clamp) DN 25/40 (1”/1.5”) DIN 32676 (AISI 316 L)
	x		616	Clamping socket (clamp) DN 50 (2”) DIN 32676 (AISI 316 L)
	x		617	Clamping socket (clamp) 2.5” similar to DIN 32676 (AISI 316 L)
x			997	JUMO PEKA hygienic process connection (AISI 316 L) (suitable process connection adapters according to data sheet 409711)
			(8)	**Process connection material**
x	x	x	00	None
x	x		24	CrNi 1.4404 (AISI 316 L)
x	x		26	CrNi 1.4571 (AISI 316 Ti)
x	x		31	CrNi 1.4435 (AISI 316 L)
			(9)	**Connecting cable end (further versions upon request)**
x	x	x	03	Bare connection wires
x	x	x	05	Part stripping of the insulation
x	x	x	11	Ferrules (standard)
x	x	x	13	Plug-in sleeve 6.3
x	x	x	23	Tab connector 6.3
x	x	x	42	Lemosa coupling
x	x	x	56	Machine connector M12 × 1
x	x	x	57	Machine connector M8 × 1
			(10)	**Connecting cable length AL in mm**
x	x	x	...	Specification in plain text
			(11)	**Extra codes**
x	x	x	000	None
x	x		310	Protection tube offset
x	x		315	Bend protection spring
x	x		316	Bend protection tubing
x	x	x	317	Shielded connecting cable (please specify version in plain text)
x	x	x	362	Ex-protection Ex "i" according to Directive 2014/34/EU (ATEX)
x	x	x	658	SIL and PL compatible (only in conjunction with JUMO SIL-certified safety temperature limiters and monitors according to data sheet 701150)

[a] See page 4/8.

[b] For basic type 902821/82 with 3 mm diameter, sheath cable 2× 2-wire circuit, from adapter sleeve 2× 3-wire circuit.

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)	
Order code		-		-		-		-		-		-		-		-		/		, ...[a]
Order example	902821/80	-	386	-	1001	-	1	-	3	-	200	-	104	-	26	-	11	-	2500	/	315	

[a] List extra codes in sequence, separated by commas.

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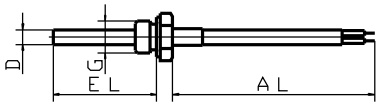
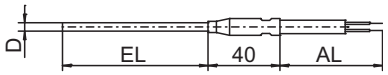
			(1)	**Basic type**
			902821/90	Ex "e" – screw-in RTD temperature probe with connecting cable 
			902821/91	Ex "e" – push-in RTD temperature probe with connecting cable 
			902821/92	Ex "e" – mineral-insulated RTD temperature probe with connecting cable (operating temperature in area of sheath cable: -50 to +600 °C)[a] 
			(2)	**Operating temperature in °C (connecting cable)**
x	x	x	302	-70 to +200 °C
x	x	x	303	-70 to +260 °C
x	x	x	373	-50 to +180 °C (FPM)
x	x	x	378	-50 to +180 °C (silicone)
x	x	x	380	-50 to +200 °C
x	x	x	386	-50 to +260 °C (PTFE)
x	x	x	402	-50 to +400 °C (metal braiding/glass fiber)
		x	415	-50 to +600 °C
x	x	x	478	-40 to +120 °C (RADOX®)
x	x	x	484	-40 to +120 °C (BETAflam®)
x	x	x	572	-30 to +80 °C
x	x	x	724	-5 to +80 °C (PVC)
x	x	x	730	-5 to +105 °C (PVC)
x	x	x	908	5 to 105 °C (PUR)
			(3)	**Measuring insert**
x	x	x	1001	1× Pt100 in 3-wire circuit
x	x	x	1003	1× Pt100 in 2-wire circuit
x	x	x	1005	1× Pt1000 in 2-wire circuit
x	x	x	1011	1× Pt100 in 4-wire circuit
x	x	x	2001	2× Pt100 in 3-wire circuit (for basic type 902821/92 from protection tube diameter 6 mm)[b]
x	x	x	2003	2× Pt100 in 2-wire circuit
x	x	x	2005	2× Pt1000 in 2-wire circuit
x	x		2011	2× Pt100 in 4-wire circuit
x	x		3028	3× Pt100 in 2× 3-wire and 1× 2-wire circuit
			(4)	**Tolerance class according to DIN EN 60751:2009 / IEC 60751:2008**
x	x	x	1	Class B
x	x	x	2	Class A
x	x	x	3	Class AA
			(5)	**Protection tube diameter D in mm (other diameters upon request)**
x	x	x	3	Ø 3 mm
x	x		4	Ø 4 mm
x	x		5	Ø 5 mm
x	x	x	6	Ø 6 mm
x	x		7	Ø 7 mm
x	x		8	Ø 8 mm
x	x		9	Ø 9 mm

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			(6)	**Insertion length EL in mm**
x	x	x	...	Specification in plain text
			(7)	**Process connection**
	x	x	000	None
x			102	Screw connection G 1/4
x			104	Screw connection G 1/2
x			106	Screw connection G 1
x			114	Screw connection M10 × 1
x			115	Screw connection M10 × 1.5
x			121	Screw connection M14 × 1.5
	x		611	Clamping socket (clamp) DN 10/20 DIN 32676 (AISI 316 L)
	x		613	Clamping socket (clamp) DN 25/40 (1”/1.5”) DIN 32676 (AISI 316 L)
	x		616	Clamping socket (clamp) DN 50 (2”) DIN 32676 (AISI 316 L)
	x		617	Clamping socket (clamp) 2.5” similar to DIN 32676 (AISI 316 L)
x			997	JUMO PEKA hygienic process connection (AISI 316 L) (suitable process connection adapters according to data sheet 409711)
			(8)	**Process connection material**
x	x	x	00	None
x	x		24	CrNi 1.4404 (AISI 316 L)
x	x		26	CrNi 1.4571 (AISI 316 Ti)
x	x		31	CrNi 1.4435 (AISI 316 L)
			(9)	**Connecting cable end (further versions upon request)**
x	x	x	03	Bare connection wires
x	x	x	05	Part stripping of the insulation
x	x	x	11	Ferrules (standard)
x	x	x	13	Plug-in sleeve 6.3
x	x	x	23	Tab connector 6.3
x	x	x	42	Lemosa coupling
x	x	x	56	Machine connector M12 × 1
x	x	x	57	Machine connector M8 × 1
			(10)	**Connecting cable length AL in mm**
x	x	x	...	Specification in plain text
			(11)	**Extra codes**
x	x	x	000	None
x	x		310	Protection tube offset
x	x		315	Bend protection spring
x	x		316	Bend protection tubing
x	x	x	317	Shielded connecting cable (please specify version in plain text)
x	x	x	363	Ex-protection Ex "e" according to Directive 2014/34/EU (ATEX)
x	x	x	658	SIL and PL compatible (only in conjunction with JUMO SIL-certified safety temperature limiters and monitors according to data sheet 701150)

[a] See page 4/8.

[b] For basic type 902821/92 with 3 mm diameter, sheath cable 2× 2-wire circuit, from adapter sleeve 2× 3-wire circuit.

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)	
Order code		-		-		-		-		-		-		-		-		-		/		, ...[a]
Order example	902821/90	-	386	-	1001	-	1	-	3	-	200	-	104	-	26	-	11	-	2500	/	315	

[a] List extra codes in sequence, separated by commas.