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# JUMO Single Sensors

pH glass electrodes

Redox metal electrodes

Reference electrodes

Diaphragm tubes

Compensation thermometers

Glass conductivity cells

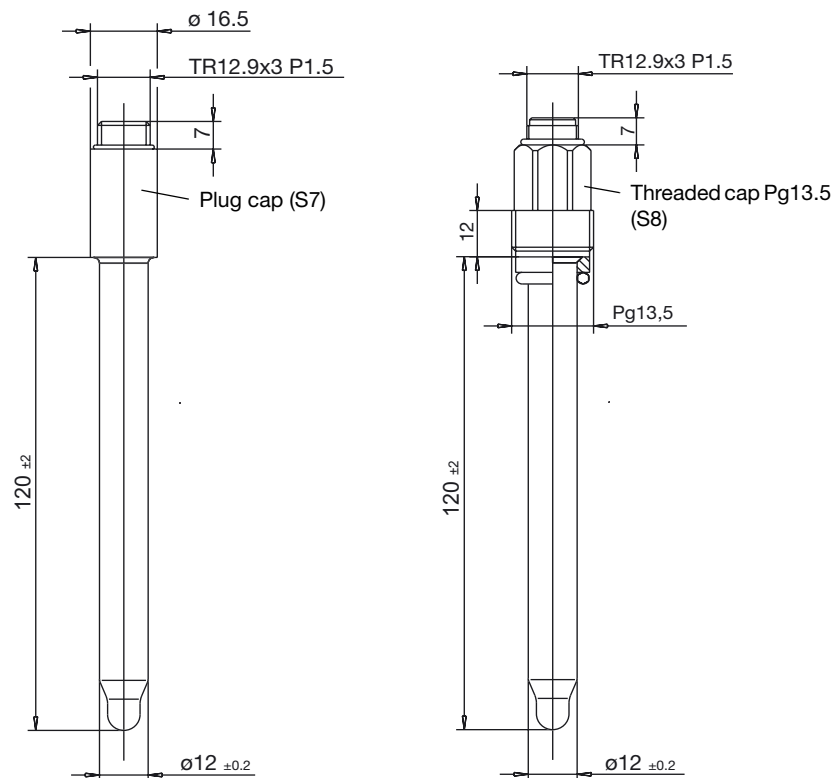
## pH glass electrodes

### Brief description

pH glass electrodes are used in conjunction with reference electrodes for measuring the pH value. The sensor portion of the pH glass electrode consists of a special pH-sensitive membrane glass. Electrodes with special membrane glasses are available for measurements in various media:

- U glass for general aqueous media
- C glass for media containing fluoride (up to 1000 mg HF/l)
- HT glass for application in temperature ranges above 80°C and in high-alkaline media

### Dimensions



Type 201080/11...

Type 201080/15...

Type 201080/16...

## Order details

	<b>(1) Basic type</b>	
	201080	JUMO single sensors
	<b>(2) Basic type extension</b>	
	10	pH glass electrodes
x	<b>(3) Shaft material</b>	
	89	glass
x	<b>(4) Active component</b>	
o	10	U glass / pH 0 – 12 (briefly 14) / -5 to +80°C
o	11	C glass / pH 0 – 12 / -5 to +80°C / fluoride-resistant up to 1000 mg HF/l
o	12	HT glass / pH 0 – 14 / -5 to +130°C / high-temperature application
o	<b>(5) Connection</b>	
x	21	plug cap (S6)
o	22	threaded cap Pg13.5 (S8)
o	40	plug cap (S6) with attached cable
x	<b>(6) Length of attached cable</b>	
o	0000	none
o	xxxx	length in mm (only full meters / up to 10 m / standard length: 1000 mm = 1 m)
x	<b>(7) Instrument connector</b>	
o	00	none
o	76	BNC connector
o	78	DIN connector
x	<b>(8) Fitting length</b>	
o	120	fitting length 120 mm (standard)
o	225	fitting length 225 mm
		other fitting lengths on request

x = standard  
o =optional  
- =not possible

<b>Order code</b>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	201080	/ 10	- 89	-	-	-	-	-
<b>Order example</b>	201080	/ 10	- 89	- 10	- 22	- 0000	- 00	- 120

**Note:**

The type code is a type designation, not a modular system.  
If at all possible, please choose the items listed under "Stock versions" or "Production versions" when placing your order.  
Any free combination of individual code features must be technically checked and approved by us.  
Please ask us in case of doubt.

## Stock versions (delivery: 3 working days after receipt of order)

### Glass electrodes

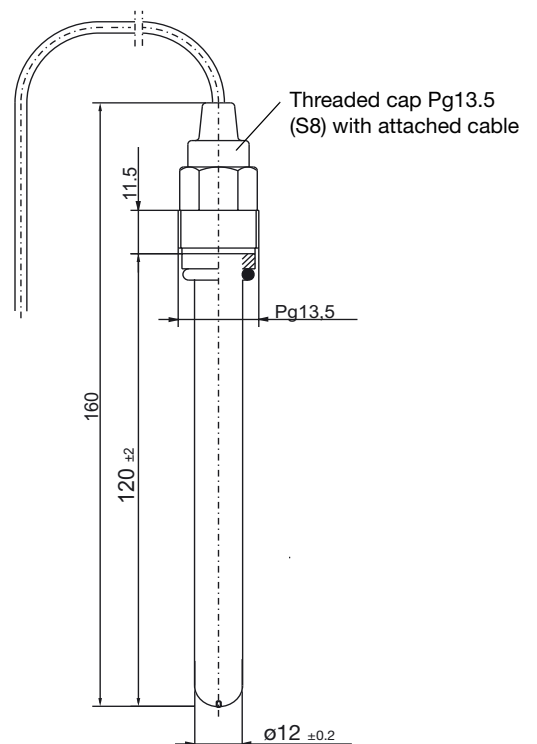
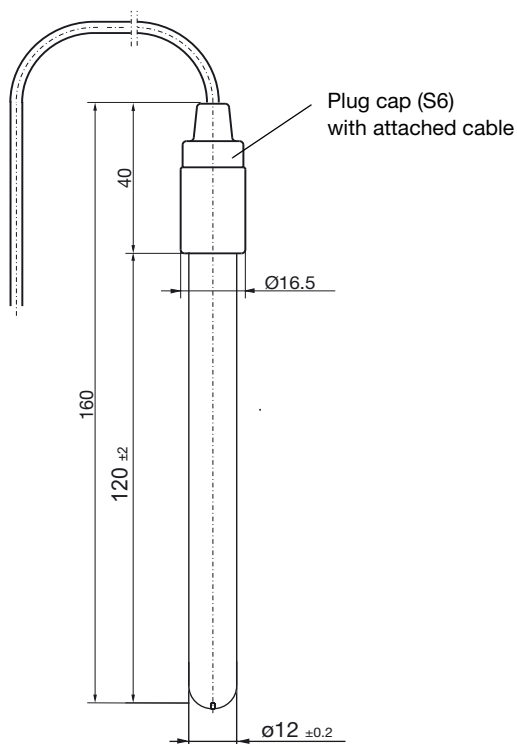
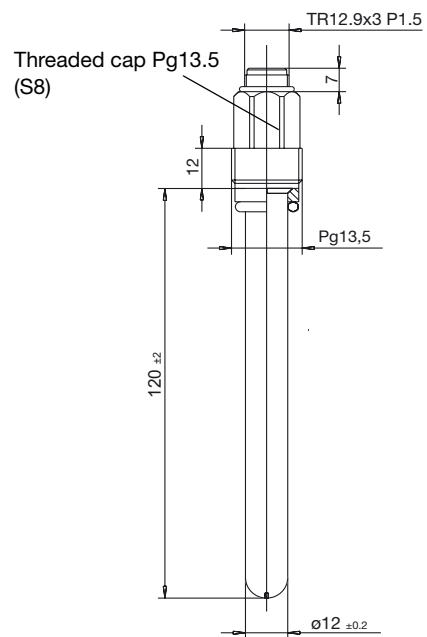
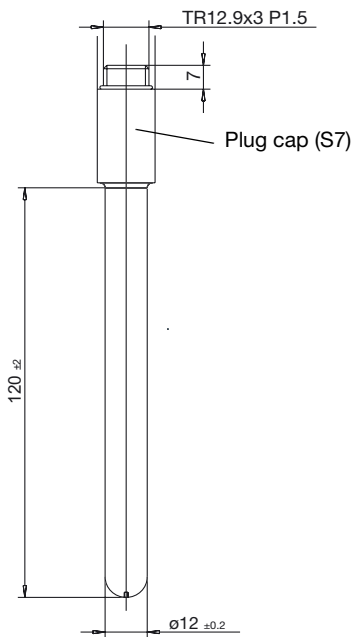
Type	Brief description	Sales No.
201080/10-89-10-22-0000-00-120	pH electrode, U glass, threaded cap Pg13.5 (S8), 120 mm	20/00083302

# Reference electrodes

## Brief description

Reference electrodes have the task of providing a constant potential for potentiometric measurements. The potential of an indicator electrode (e.g. a pH glass electrode) serves as the counterpoint. Reference electrodes feature a cartridge-style silver/silver chloride conductive system. A gelled 3-molar potassium chloride solution is used as the standard reference electrolyte. The operating temperature range is between 0 and +90°C. As an option, the reference electrode can also be supplied with a liquid KCl electrolyte. In this case, the operating temperature range is between 0 and 135°C, taking into account the maximum working temperature of the glass electrode.

## Dimensions



## Order details

	<b>(1) Basic type</b>	
	201080	JUMO single sensors
	<b>(2) Basic type extension</b>	
	11	reference electrodes
x	<b>(3) Shaft material</b>	
	89	glass
x	<b>(4) Electrolyte</b>	
	04	gel filling
o	05	KCl filling
	<b>(5) Diaphragm</b>	
o	04	PTFE diaphragm
x	07	1 x zirconium dioxide diaphragm (special ceramic)
o	09	3 x zirconium dioxide diaphragm (special ceramic)
	<b>(6) Connection</b>	
o	21	plug cap (S7)
x	22	threaded cap Pg13.5 (S8)
o	40	plug cap (S6) with attached cable
o	60	threaded cap Pg13.5 (S8) with attached cable
	<b>(7) Length of attached cable</b>	
x	0000	none
o	xxxx	length in mm (only full meters / up to 10 m / standard length: 1000 mm = 1 m)
	<b>(8) Fitting length</b>	
x	120	fitting length 120 mm (standard)
o	225	fitting length 225 mm
		other fitting lengths on request

x = standard  
o =optional  
- =not possible

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)							
<b>Order code</b>	<input type="text" value="201080"/>	<input type="text" value="11"/>	<input type="text" value="89"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>							
<b>Order example</b>	201080	/	11	-	89	-	04	-	07	-	22	-	0000	-	120

**Note:**

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## Stock versions (delivery: 3 working days after receipt of order)

### Reference electrodes

<b>Type</b>	<b>Brief description</b>	<b>Sales No.</b>
201080/11-89-04-07-22-0000-120	Reference electrode, 1 zirconium diaphragm, gel filling, threaded cap Pg13.5 (S8), 120 mm	20/00083865

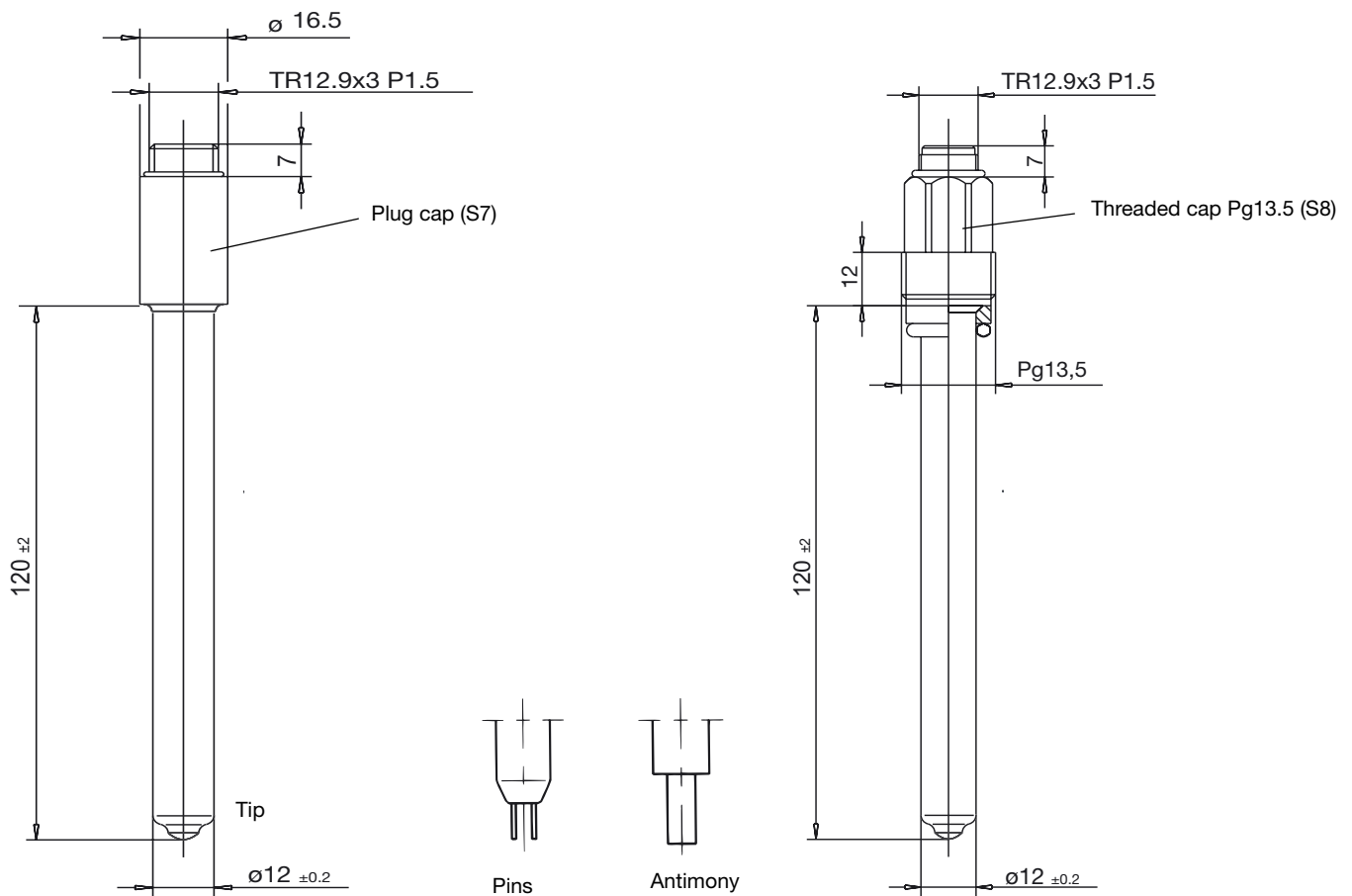
# Redox metal electrodes

## Brief description

Metal electrodes consist of a glass or plastic shaft that has a metal pin or metal tip fused or glued into the lower end. Metal electrodes are used to determine the redox potential of aqueous media, in conjunction with reference electrodes. Twin metal electrodes are used for measuring the end point in amperometric titrations. The following active components are available:

- gold tip for strongly oxidizing media, for example in cyanide decontamination
- platinum tip for strongly reducing media, for example in chromate reduction
- platinum / gold pins in twin metal electrodes
- platinum / platinum pins in twin metal electrodes
- antimony for determining the pH value in media containing high levels of hydrofluoric acid

## Dimensions



## Order details

	<b>(1) Basic type</b>	201080	JUMO single sensors
	<b>(2) Basic type extension</b>		
	12	antimony electrode for pH measurement	
	13	redox metal electrode	
	14	redox twin metal electrode	
	<b>(3) Shaft material</b>		
	89	glass	
	85	plastic	
	<b>(4) Active component</b>		
	22	platinum tip / redox range +/-2000 mV / -5 to +135°C	
	23	platinum / platinum pin / redox range +/- 2000 mV / -5 to +135°C	
	24	platinum / gold pin / redox range +/- 2000 mV / -5 to +135°C	
	27	antimony / pH 0 – 10 / -10 to +80°C / fluoride concentration larger than 1000 mg HF/l	
	32	gold tip / redox range +/-2000 mV / -5 to +135°C	
	<b>(5) Connection</b>		
	21	plug cap (S7)	
	22	threaded cap Pg13.5 (S8)	
	<b>(6) Fitting length</b>		
	120	fitting length 120 mm (standard)	
	225	fitting length 225 mm	
		other fitting lengths on request	

x = standard  
o = optional  
- = not possible

	(1)	(2)	(3)	(4)	(5)	(6)					
<b>Order code</b>	201080	/		-		-		-		-	
<b>Order example</b>	201080	/	13	-	89	-	22	-	22	-	120

**Note:**

The type code is a type designation, not a modular system.  
If at all possible, please choose the items listed under "Stock versions" or "Production versions" when placing your order.  
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## Production versions (delivery: 10 working days after receipt of order)

### Redox metal electrodes

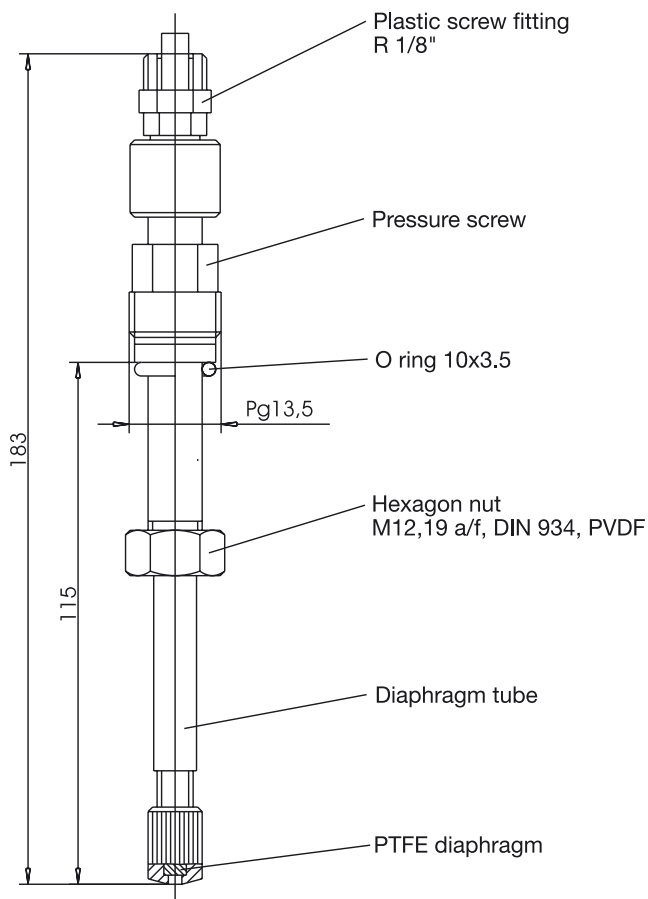
Type	Brief description	Sales No.
201080/13-89-22-21-120	Redox metal electrode, platinum tip, plug cap (S6), 120 mm	20/00300402
201080/13-89-22-22-120	Redox metal electrode, platinum tip, threaded cap Pg13.5 (S8), 120 mm	20/00300403
201080/12-85-27-22-120	Antimony electrode, threaded cap Pg13.5 (S8), 120 mm	20/00325951

## Diaphragm tubes

### Brief description

Due to physical and/or chemical interactions between sample medium and reference system, potentiometric measurements can be disturbed or falsified by electrochemical sensors. In such cases, it is advisable to use an electrolyte bridge, which is set up with the help of a diaphragm tube (see diagram below for the construction principle). Diaphragm tubes can be manufactured from PVDF or PTFE. The diaphragm is made from PTFE and has a diameter of 5 mm.

### Dimensions



## Order details

	<b>(1) Basic type</b>	201080	JUMO single sensors
	<b>(2) Basic type extension</b>	15	diaphragm tube
x	<b>(3) Shaft material</b>	87	PP (polypropylene)
o		88	PVDF (PolyVinylidene DiFluoride)
x	<b>(4) Diaphragm</b>	04	PTFE diaphragm
x	<b>(5) Connection</b>	22	threaded cap Pg13.5
x	<b>(6) Fitting length</b>	120	fitting length 120 mm (standard)
o		225	fitting length 225 mm
			other fitting lengths on request

x = standard  
o =optional  
- =not possible

<b>Order code</b>	(1)	(2)	(3)	(4)	(5)	(6)
	201080	15		04	22	
<b>Order example</b>	201080	/ 15	- 87	- 04	- 22	- 120

**Note:**

The type code is a type designation, not a modular system.  
If at all possible, please choose the items listed under "Stock versions" or "Production versions" when placing your order.  
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Please ask us in case of doubt.

## Production versions (delivery: 10 working days after receipt of order)

### Diaphragm tubes

Type	Brief description	Sales No.
201080/15-87-04-22-120	Diaphragm tube, PTFE diaphragm, threaded cap Pg13.5, 120 mm, material: PP	20/00084582

### Accessory

Description	Sales No.
10 spare PTFE diaphragms	20/00304567

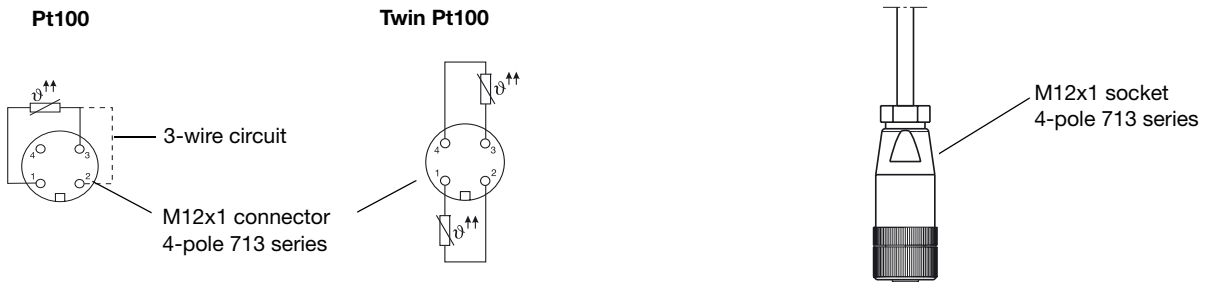


# Compensation thermometers

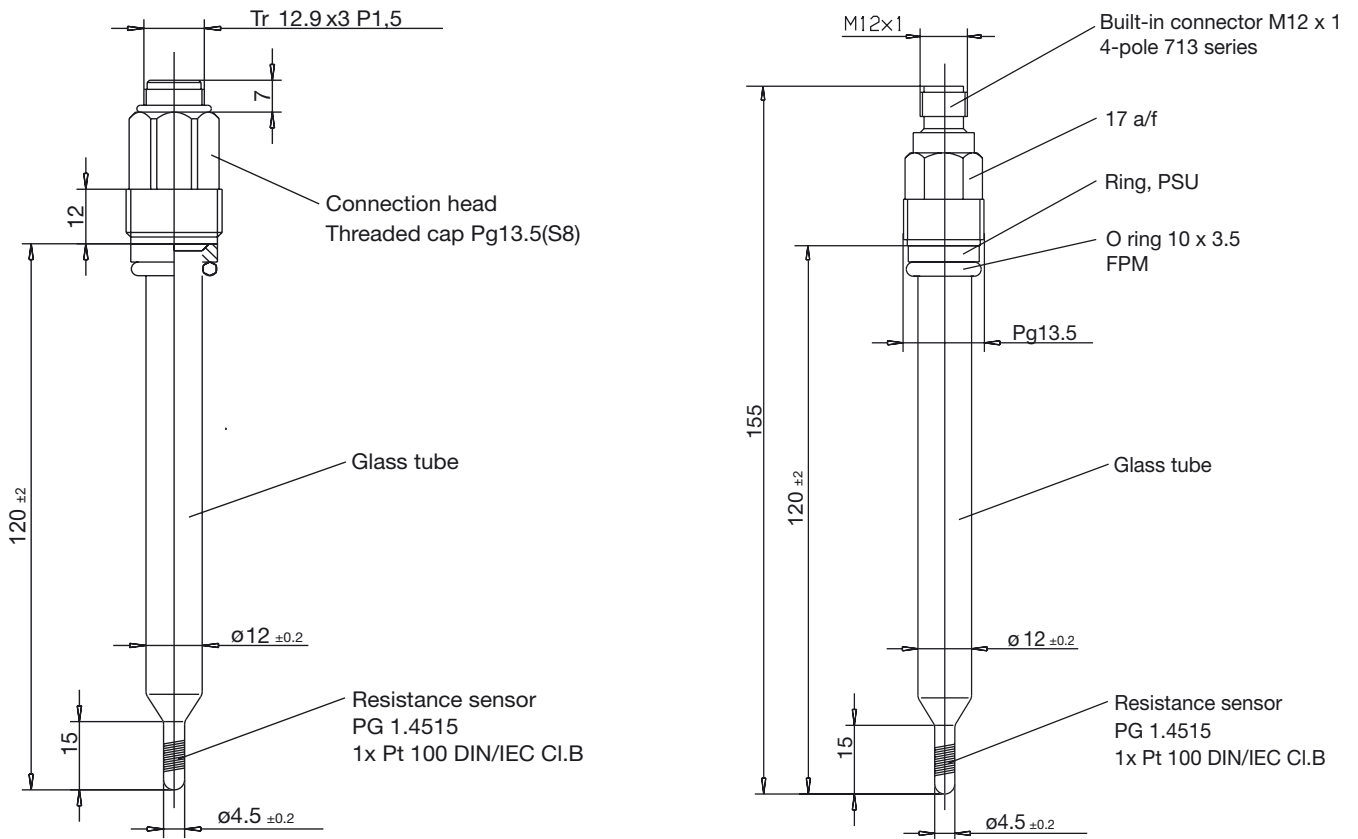
## Brief description

Temperature errors may falsify the measurement signal during electrochemical measurements. Measurement errors due to temperature can be compensated by using compensation thermometers. Compensation thermometers acquire the temperature of the sample solution. The signal that is acquired is transmitted to a connected transmitter. The transmitter then recalculates the measured value for the 25°C reference temperature.

## Terminal assignment



## Dimensions



## Order details

	<b>(1) Basic type</b>	
	201080	JUMO single sensors
	<b>(2) Basic type extension</b>	
	16	compensation thermometer
x	<b>(3) Shaft material</b>	
	89	glass
	<b>(4) Active component</b>	
x	1001	Pt100 in a 3-wire circuit / Class B / 0 to 150°C <sup>1</sup>
x	1003	Pt100 in a 2-wire circuit / Class B / 0 to 150°C
o	1005	Pt1000 in a 2-wire circuit / Class B / 0 to 150°C
o	1006	Pt1000 in a 3-wire circuit / Class B / 0 to 150°C <sup>1</sup>
o	2003	twin Pt100 / Class B / 0 to 150°C <sup>1</sup>
	<b>(5) Connection</b>	
o	21	N plug cap (S6)
x	22	threaded cap Pg13.5 (S8)
o	70	threaded cap Pg13.5 with M12 plug connector
	<b>(6) Fitting length</b>	
x	120	fitting length 120 mm (standard)

x = standard  
o =optional  
- =not possible

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Order code</b>	201080	/ 16	- 89	-	-	- 120
<b>Order example</b>	201080	/ 16	- 89	- 1003	- 22	- 120

**Note:**

The type code is a type designation, not a modular system.  
If at all possible, please choose the items listed under "Stock versions" or "Production versions" when placing your order.  
Any free combination of individual code features must be technically checked and approved by us.  
Please ask us in case of doubt.

### Stock versions (delivery: 3 working days after receipt of order)

Type	Brief description	Sales No.
201080/16-89-1003-22-120	Compensation thermometer, Pt100, threaded cap Pg13.5 (S8), 120 mm	20/00300443

### Production versions (delivery: 10 working days after receipt of order)

Type	Brief description	Sales No.
201080/16-89-1003-21-120	Compensation thermometer, Pt100, plug cap (S6), 120 mm	20/00300442
201080/16-89-1003-70-120	Compensation thermometer, Pt100, threaded cap Pg13.5 with M12 plug connector, 120 mm	20/00492092

<sup>1</sup> only in conjunction with connection -70

## Glass conductivity cells

Glass conductivity cells are used to determine the electrolytic conductivity of aqueous solutions.

The cells have the cell constant  $K = 1.0 \text{ }^1/\text{cm}$ .

As an option, the cells can be supplied with an integrated Pt100 temperature probe.

The versions with a Pg13.5 threaded cap can be installed in appropriate fittings (see data sheets 20.2810, 20.2820, 20.2822 and 20.2825).

## Special features

- For electrolytic conductivity measurement in aqueous solutions
- Standard dimensions: 120 x 12 mm (DIN 19 263)
- Special styles on request
- Cell constant:  $K = 1 \text{ } +/- 10\%$
- Integrated Pt100 is possible (version: Pg 13.5 threaded plug cap with M12 plug connector)
- Pressure-resistant up to 10 bar
- Ranges: platinum (raw): 0 – 1 mS/cm  
platinum (platinized): 0 – 100 mS/cm



Type 201080/17...

## Order details

	(1) <b>Basic type</b>	
	201080	JUMO single sensors
	(2) <b>Basic type extension</b>	
	17	glass conductivity cells
	(3) <b>Active component</b>	
x	40	platinum (platinized), K=1.0
o	41	platinum (raw), K=1.0
	(4) <b>Connection</b>	
o	21	plug cap (S6)
x	22	threaded cap Pg13.5 (S8)
o	70	threaded cap Pg13.5 with M12 plug connector
	(5) <b>Fitting length</b>	
x	120	fitting length 120 mm (standard)
	(6) <b>Extra codes</b>	
x	000	none
o	840	with integrated Pt100 temperature probe <sup>1</sup>

x = standard  
o = optional  
- = not possible

<b>Order code</b>	(1)	(2)	(3)	(4)	(5)	(6)
	201080	/ 17	-		-	120 /
<b>Order example</b>	201080	/ 17	- 40	- 21	- 120	/ 000

### Note:

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If at all possible, please choose the items listed under "Stock versions" or "Production versions" when placing your order.

Any free combination of individual code features must be technically checked and approved by us.

Please ask us in case of doubt.

<sup>1</sup> Only in conjunction with connection 70.

**Stock versions** (delivery: 3 working days after receipt of order)

Type	Brief description	Sales No.
201080/17-40-22-120/000	Glass conductivity cell, threaded cap Pg13.5 (S8), platinum (platinized), 120 mm, K=1.0	20/00303396

**Production versions** (delivery: 10 working days after receipt of order)

Type	Brief description	Sales No.
201080/17-41-22-120/000	Glass conductivity cell, threaded cap Pg13.5 (S8), platinum (raw), 120 mm, K=1.0	20/00300408
201080/17-40-70-120/000	Glass conductivity cell, threaded cap Pg13.5 with M12 plug connector, platinum (platinized), 120 mm, K=1.0	20/00442442