

JUMO GmbH & Co. KG
Delivery address: Mackenrodtstraße 14,
36039 Fulda, Germany
Postal address: 36035 Fulda, Germany
Phone: +49 661 6003-0
Fax: +49 661 6003-607
e-mail: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex CM 20 2TT, UK
Phone: +44 1279 635533
Fax: +44 1279 635262
e-mail: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
8 Technology Boulevard
Canastota, NY 13032, USA
Phone: 315-697-JUMO
1-800-554-JUMO
Fax: 315-697-5867
e-mail: info@jumo.us
Internet: www.jumo.us



pH and Redox Combination Electrodes JUMO ecoLine / JUMO BlackLine

versions with glass or plastic shaft

201005 Series - pH electrodes

201010 Series - redox electrodes

Brief description

Electrodes in the JUMO ecoLine und JUMO BlackLine series are high-quality measuring sensors with an optimum price/performance ratio.

Active pH element: JUMO ecoLine electrodes have been manufactured using the JUMO U glass that has proved itself for many years. JUMO BlackLine electrodes are equipped with the low-resistance JUMO UW glass. This guarantees fast and safe measurement results.

Active redox element: A robust platinum tip ensures reliable measurements and allows simple cleaning of the sensor.

Reference system: The acrylamide-free JUMO gel is used for the glass version and the PEI plastic version. This highly viscous KCl solution lends itself ideally to measurements in general aqueous media. For measurements in media containing few ions, or with high flow rates, the electrolyte can be equipped with an optional "salt reservoir" for a longer operational life. The JUMO BlackLine model employs a polymerized KCl solid electrolyte. The JUMO cartridge-type conduction system – tried and tested for many years – is used as the reference system. So the electrolyte remains free from silver ions and therefore less susceptible to electrode poisons.

In the glass shaft version (1), JUMO ecoLine electrodes feature a ceramic diaphragm. The model with plastic shaft in transparent PEI (2) comes with a glassfiber diaphragm. A push-on protection basket protects the sensor when used with handheld measuring equipment. The JUMO BlackLine (3) has an open annular-gap diaphragm, the shaft is made from black PPO and features an integral protection basket.

The electrodes can optionally be supplied in a storage receptacle, which is recommended if the sensors are only used sporadically, for refreshing them after lengthy and intensive use, or if stored for an extended period.

All sensors can be supplied as OEM versions to special order.

Special versions are available on request.

Application areas

- Monitoring and treatment of drinking water
- Swimming pools
- Aquariums (also seawater aquariums)
- Greenhouses
- Mildly contaminated domestic/process water, and wastewater
- Rain/pond/surface water
- Handheld meters

Not recommended for:

- Treatment of electroplating-plant water
- Industrial process water, wastewater
- Ultrapure water
- Therapeutic baths
- Biotechnology, sterilizing processes

Additional applications can be found in the data sheets
or JUMO tecLine or JUMO labLine pH and redox electrodes.



- (1) Version with glass shaft
- (2) Version with plastic shaft and push-on protection basket
- (3) JUMO BlackLine Version with plastic shaft and integral protection basket

Technical data

	Version with glass shaft (Fig. 1, page 1/8)	Version with plastic shaft and push-on protection basket (Fig. 2, page 1/8)	JUMO BlackLine Version with plastic shaft and integral protection basket (Fig. 3, page 1/8)
Shaft material	glass	PEI ¹	PPO ²
Diaphragm	ceramic	glass filament	annular gap
Conductive system	plastic cartridge		
Temperature range	0 to +60°C		
Pressure range ³	0 to 6 bar		
Fitting length	120 mm		
Electrode head	plug cap (S6) plug cap with fixed cable screw cap Pg13.5 (S8) screw cap Pg13.5 with fixed cable		
Active pH element	U glass (pH 0 – 12, briefly pH 14)		UW glass (pH 0 – 12, briefly pH 14)
Active redox element	platinum tip (±2000 mV)		
Electrolyte	gel (highly viscous KCl solution)		solid electrolyte

Extra codes

KCl receptacle, extra code /052



The foot of the KCl receptacle can also be used as a wrench for assembling pH or redox electrodes with a Pg13.5 thread. The recesses on the (removable) foot fit on the hexagon of the electrode head.

When storing the electrodes, the receptacle must be filled with KCl (**not with buffer solution or similar**).

Salt reservoir, extra code /837



The electrode can optionally be equipped with a salt reservoir in the form of four salt rings (see picture). This reservoir is recommended whenever the electrode is used in media containing few ions, or with high flow rates.

The salt reservoir serves to increase the operational life of the electrode. The rings are not a manufacturing flaw (settling as salt crystals).

Salt reservoir

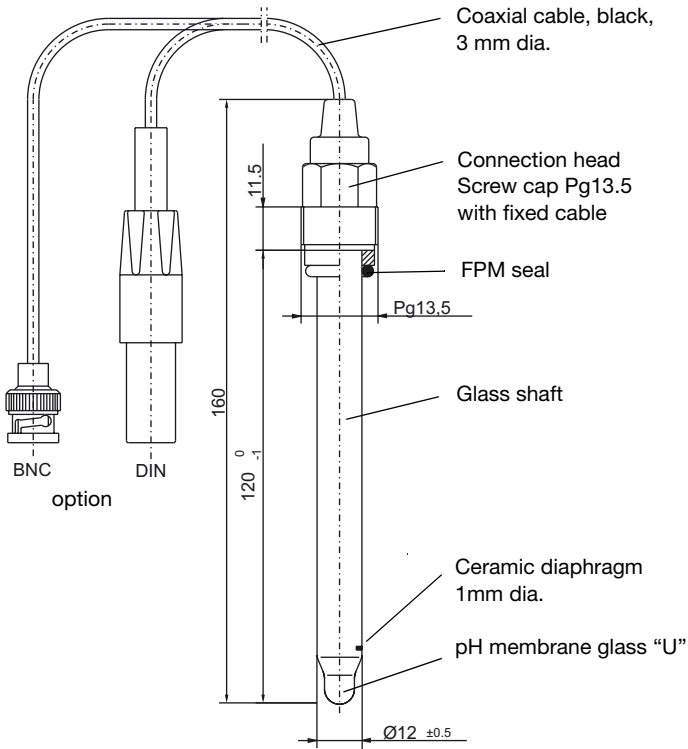
¹ PEI = polyetherimide

² PPO = polyphenylene oxide

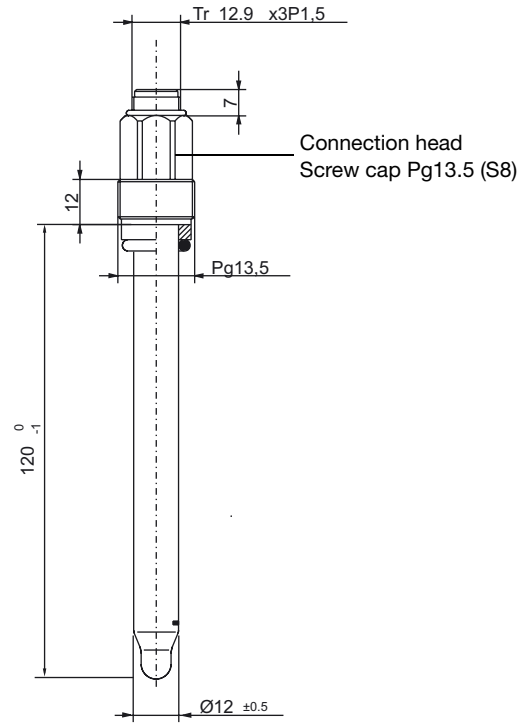
³ The pressure specified refers to stable conditions at the installation site. Pressure surges or fluctuations should be avoided.

Dimensions

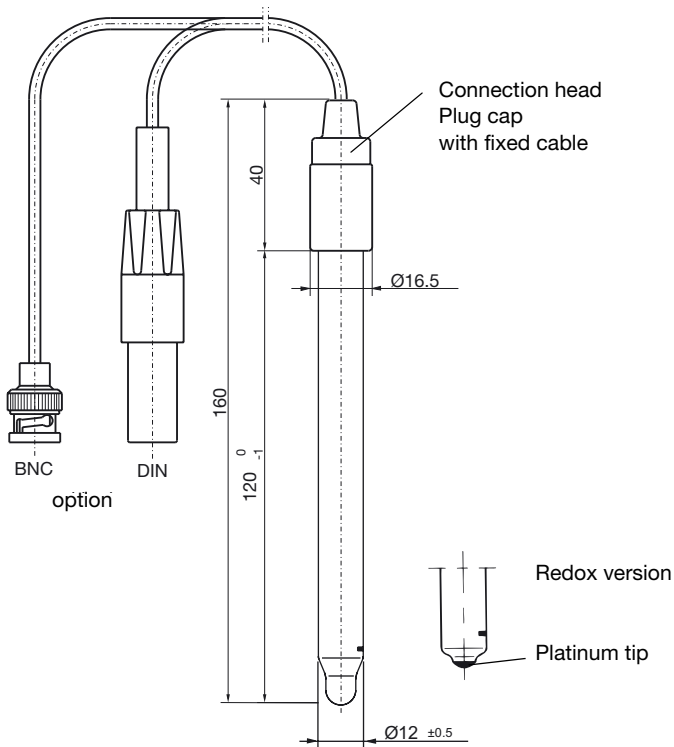
Version with glass shaft



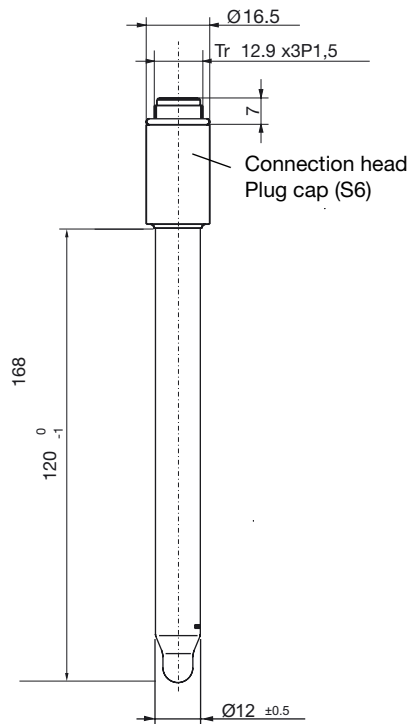
Type 2010xx/51-10-60-xxxx-xx-120/000



Type 2010xx/51-10-22-0000-00-120/000



Type 2010xx/51-10-40-xxxx-xx-120/000



Type 2010xx/51-10-21-0000-00-120/000

Order details: JUMO ecoLine / BlackLine pH / redox combination electrodes with glass shaft

		(1) Basic type	
	201005	pH electrodes	
	201010	redox electrodes	
x	x	(2) Basic type extension	51 glass version, ceramic diaphragm, gel-sealed, cartridge K
x	-	(3) Active element	10 U glass (for pH version)
-	x		22 platinum tip (for redox version)
		(4) Electrical connection	
o	o		21 plug cap (S6)
o	o		22 screw cap Pg13,5 (S8)
o	o		40 plug cap with fixed cable
o	o		60 screw cap Pg13.5 with fixed cable
		(5) Cable length ¹	
o	o		0000 no cable
o	o		xxxx length in mm (only whole meters, maximum: 10 m), standard length is 1000mm (1 m)
		(6) Instrument connector	
o	o		00 none
o	o		76 BNC connector
o	o		78 DIN connector
		(7) Fitting length	
x	x		120 120 mm
		(8) Extra codes	
x	x		000 none
o	o		052 KCl receptacle
o	o		837 salt reservoir

Order code (1) (2) (3) (4) (5) (6) (7) (8) , ...²

Order example 201005 / 51 - 10 - 21 - 1000 - 76 - 120 / 000

Stock versions

(shipment: 3 working days after receipt of order)

Type
201005/56-10-22-0000-00-120/000
201010/56-22-22-0000-00-120/000

Description
pH, glass shaft, screw cap Pg13.5 (S8)
redox, glass version, screw cap Pg13.5 (S8)

Sales No.
20/00405532
20/00413906

Production version

(shipment: 10 working days after receipt of order)

Type
201005/56-10-60-1000-76-120/000

Description
pH, glass shaft, with 1 m fixed cable, screw cap Pg13.5

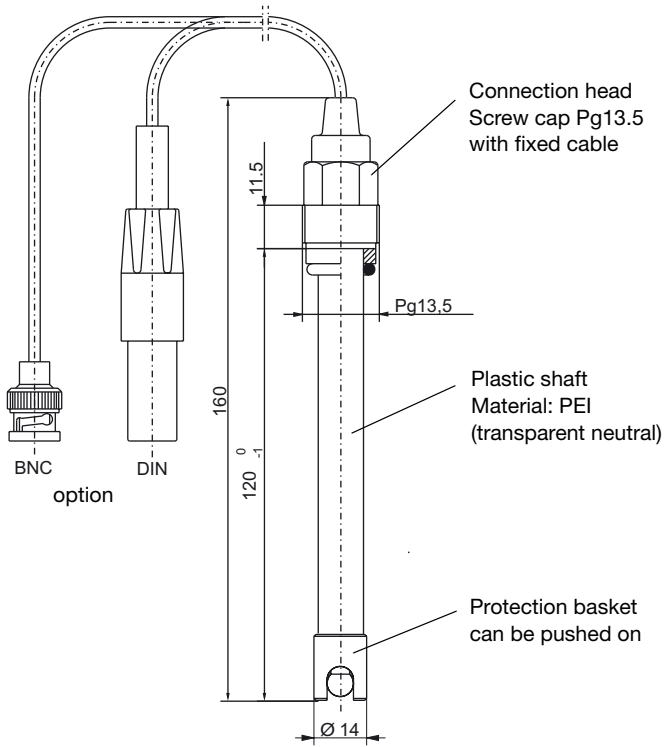
Sales No.
20/00459671

¹ Only with "electrical connection" 40 or 60.

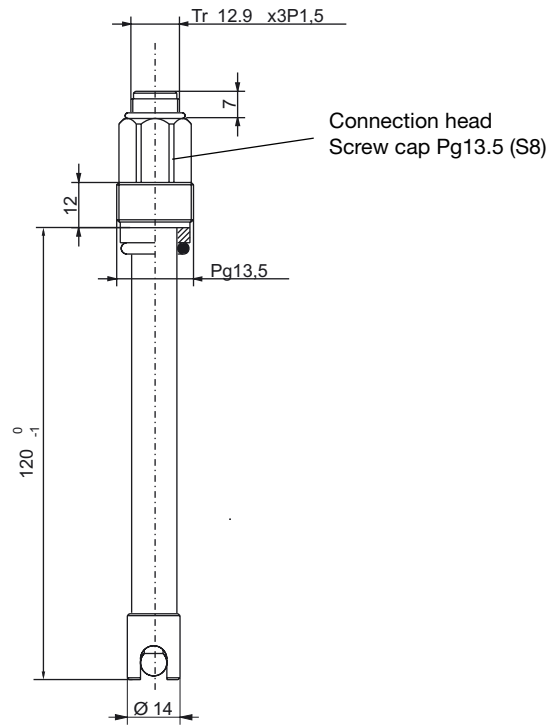
² List extra codes in sequence, separated by commas.

Dimensions

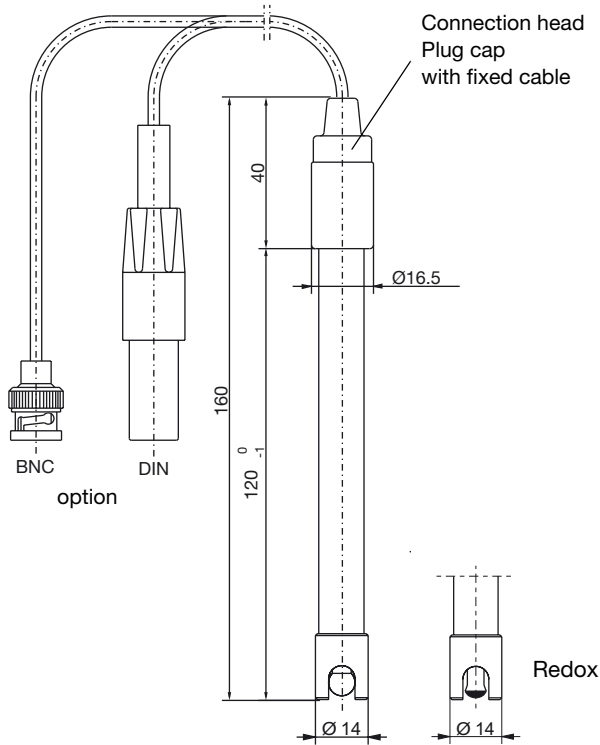
Version with plastic shaft (PEI) and push-on protection basket



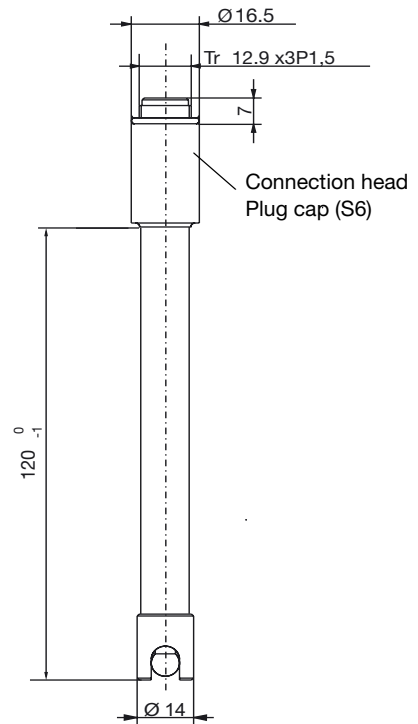
Type 201005/53-10-60-xxxx-xx-120/000 (pH)
 Type 201010/53-22-60-xxxx-xx-120/000 (redox)



Type 201005/53-10-22-0000-00-120/000 (pH)
 Type 201010/53-22-22-0000-00-120/000 (redox)



Type 201005/53-10-40-xxxx-xx-120/000 (pH)
 Type 201010/53-22-40-xxxx-xx-120/000 (redox)



Type 201005/53-10-21-0000-00-120/000 (pH)
 Type 201010/53-22-21-0000-00-120/000 (redox)

Order details

JUMO ecoLine / BlackLine pH / redox combination electrodes
with plastic shaft and push-on protection basket

		(1) Basic type	
	201005	pH electrodes	
	201010	redox electrodes	
x	x	(2) Basic type extension	
	53	plastic shaft PEI ¹ , gel-sealed, glass-filament diaphragm, cartridge K	
		(3) Active element	
x	-	10	U glass (pH version)
-	x	22	platinum tip (redox version)
		(4) Electrical connection	
o	o	21	plug cap (S6)
x	x	22	screw cap Pg13.5 (S8)
o	o	40	plug cap with fixed cable
o	o	60	screw cap Pg13.5 with fixed cable
		(5) Cable length²	
x	x	0000	no cable
o	o	xxxx	length in mm (only whole meters, maximum: 10 m), standard length 1000mm (1 m)
		(6) Instrument connector	
x	x	00	none
o	o	76	BNC connector
o	o	78	DIN connector
		(7) Fitting length	
x	x	120	120 mm
		(8) Extra codes	
x	x	000	none
o	o	052	KCl receptacle
o	o	837	salt reservoir

Order code (1) / (2) - (3) - (4) - (5) - (6) - (7) / (8) , ...³

Order example 201005 / 53 - 10 - 21 - 1000 - 76 - 120 / 000

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

Type	Description	Sales No.
201005/53-10-22-0000-00-120/000	pH, PEI shaft, screw cap Pg13.5 (S8)	20/00357022
201010/51-22-22-0000-00-120/000	redox, PEI shaft, screw cap Pg13.5 (S8)	20/00357020

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

Type	Description	Sales No.
201005/53-10-40-1000-78-120/000	pH, PEI shaft, 1 m fixed cable, DIN connector	20/00300149
201005/53-10-21-0000-00-120/000	pH, PEI shaft, plug cap (S7)	20/00300192
201005/53-22-40-1000-76-120/000	redox, PEI shaft, 1 m fixed cable, no thread, BNC connector	20/00343525

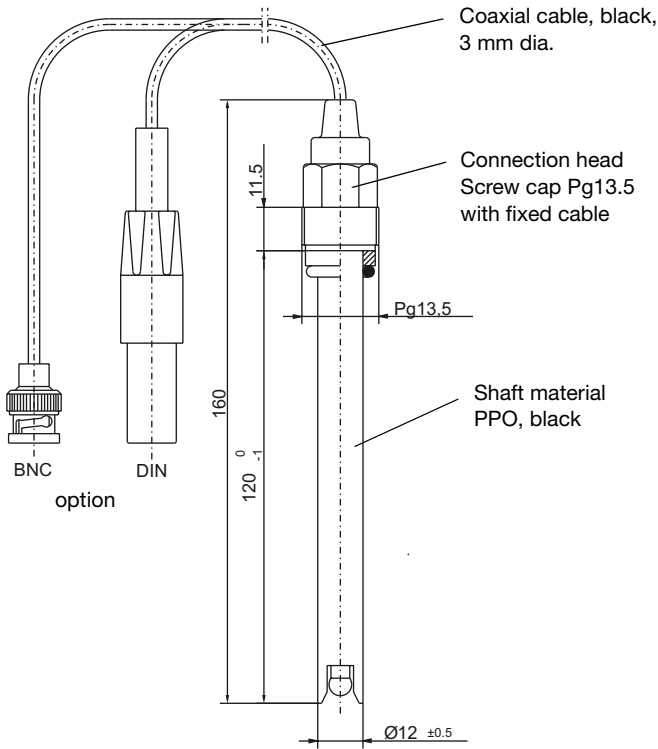
¹ PEI = polyetherimide.

² Only with "electrical connection" 40 or 60.

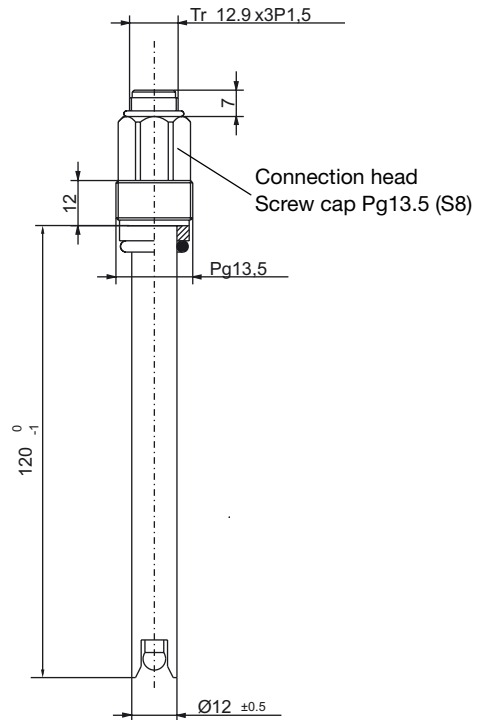
³ List extra codes in sequence, separated by commas.

Dimensions

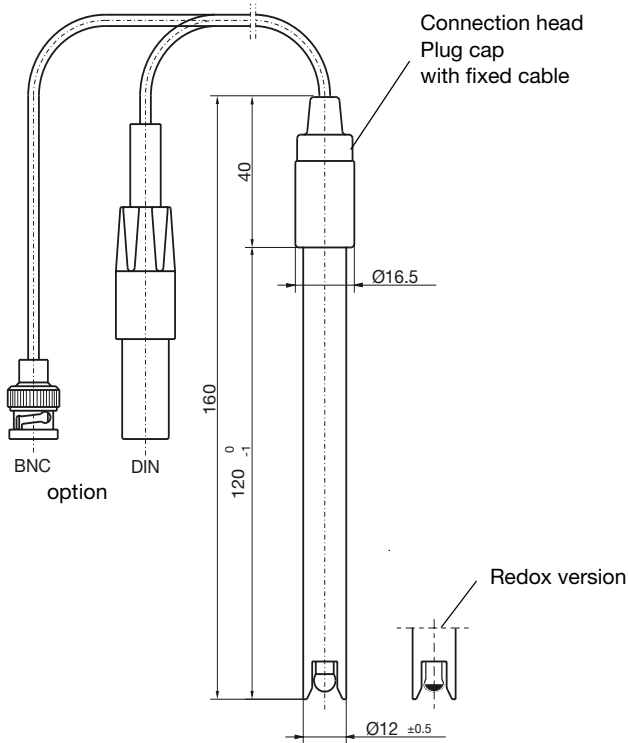
JUMO BlackLine: version with plastic shaft (PPO) and integral protection basket



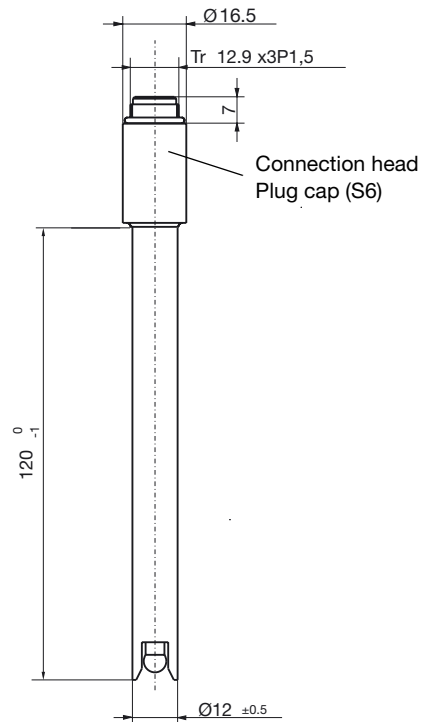
Type 201005/85-18-65-xxxx-xx-120/000 (pH)
 Type 201010/85-22-65-xxxx-xx-120/000 (redox)



Type 201005/85-18-22-0000-00-120/000 (pH)
 Type 201010/85-22-22-0000-00-120/000 (redox)



Type 201005/85-18-45-xxxx-xx-120/000 (pH)
 Type 201010/85-22-45-xxxx-xx-120/000 (redox)



Type 201005/85-18-21-0000-00-120/000 (pH)
 Type 201010/85-22-21-0000-00-120/000 (redox)

Order details:

**JUMO ecoLine / BlackLine pH / redox combination electrodes
with plastic shaft and push-on protection basket**

		(1) Basic type	
	201005	pH electrodes	
	201010	redox electrodes	
x	x	(2) Basic type extension	
	85	BlackLine version, black plastic shaft PPO ¹ , gel-sealed, annular-gap diaphragm, solid electrolyte, cartridge-style conduction system	
x	-	(3) Active element	
	18	UW glass (pH version)	
-	x	22	platinum tip (redox version)
		(4) Electrical connection	
o	o	21	plug cap (S6)
o	o	22	screw cap Pg13.5 (S8)
o	o	45	plug cap with fixed cable
o	o	65	screw cap Pg13.5 with fixed cable
		(5) Cable length²	
o	o	0000	no cable
o	o	xxxx	length in mm (only whole meters, maximum: 10 m), standard length 1000mm (1 m)
		(6) Instrument connector	
o	o	00	none
o	o	76	BNC connector
o	o	78	DIN connector
x	x	(7) Fitting length	
	120	120 mm	
x	x	(8) Extra codes	
	000	none	
o	o	052	KCl receptacle
o	o	837	salt reservoir

Order code / - - - - - / , ...³

Order example 201005 / 54 - 10 - 22 - 2000 - 00 - 120 / 000

Stock versions

(shipment: 3 working days after receipt of order)

Type	Description	Sales No.
201005/54-18-22-0000-00-120/000	pH, screw cap Pg13.5 (S8), no cable	20/00419812
201005/54-18-45-2000-76-120/000	pH, no thread, 2 m fixed cable, BNC connector	20/00417300
201010/54-22-45-2000-76-120/000	redox, no thread, 2 m fixed cable, BNC connector	20/00417301
201010/54-18-65-2000-76-120/000	pH, with thread Pg13.5, 2 m fixed cable, BNC connector	20/00424828
201010/54-22-65-2000-76-120/000	redox, with thread Pg13.5, 2 m fixed cable, BNC connector	20/00424950

¹ PPO = polyphenylene oxide.
² only with "electrical connection" 40 or 60.
³ List extra codes in sequence, separated by commas.