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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: Excellent measuring results thanks to the JUMO U glass, which has been optimized for many years.

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

Reference system: The acrylamide-free JUMO gel consists of a highly viscous KCl solution. For measurements in media containing few ions, or with high flow rates, the "salt reservoir" option is available for a longer operational life. According to choice, the electrodes are equipped with either a cartridge or a wire conductive system. Wire systems can be used if the medium does not contain any significant concentration of electrode poison (for example, sulfide, cyanide etc.), as well as for measurements with handheld or laboratory equipment. In the cartridge version, the reference electrolyte remains free from silver ions throughout the lifetime of the sensor and therefore less susceptible to electrode poisons.

In the "glass shaft" version (1), JUMO ecoLine electrodes feature a ceramic diaphragm, the version 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 a fast-response polyolefine diaphragm, the shaft is made from black PPO, featuring 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 for
JUMO tecLine or JUMO labLine pH and redox electrodes!**



Technical data

	Fig. (1) Version with glass shaft	Fig. (2) Version with plastic shaft and push-on protection basket	Fig. (3) Version with plastic shaft and integral protection basket JUMO BlackLine
Shaft material	glass	PEI ¹	PPO ²
Diaphragm	ceramic	glass filament	polyolefine
Conductive system	plastic cartridge or wire		
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)		
Active redox element	platinum tip (±2000 mV)		
Electrolyte	gel (highly viscous KCl solution)		

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.

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



When the electrode is installed or stored vertically, the salt reservoir settles in the form of salt crystals, as shown.

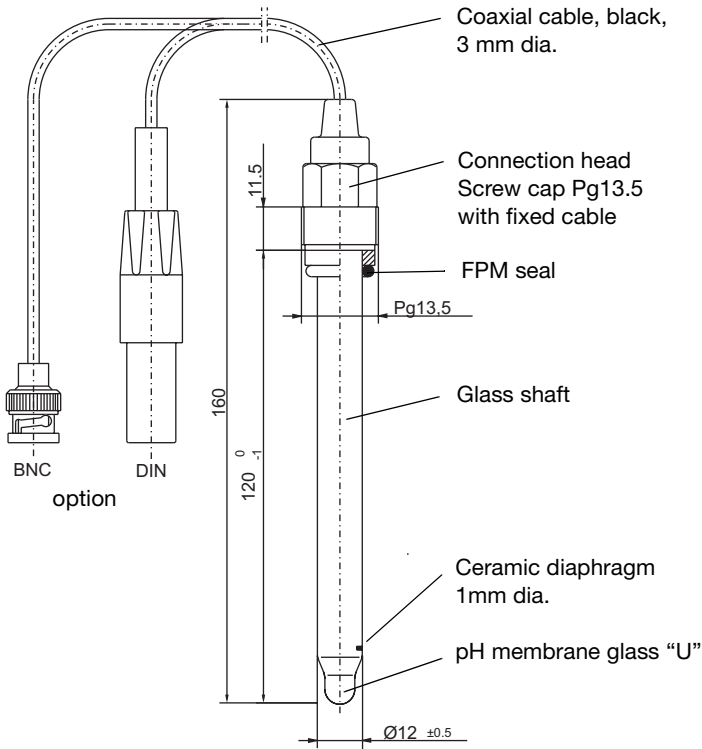
In general, however, the salt crystals can move freely in the reference electrolyte (highly viscous KCl solution).

The salt reservoir does not affect the electrode function and is not a manufacturing flaw!

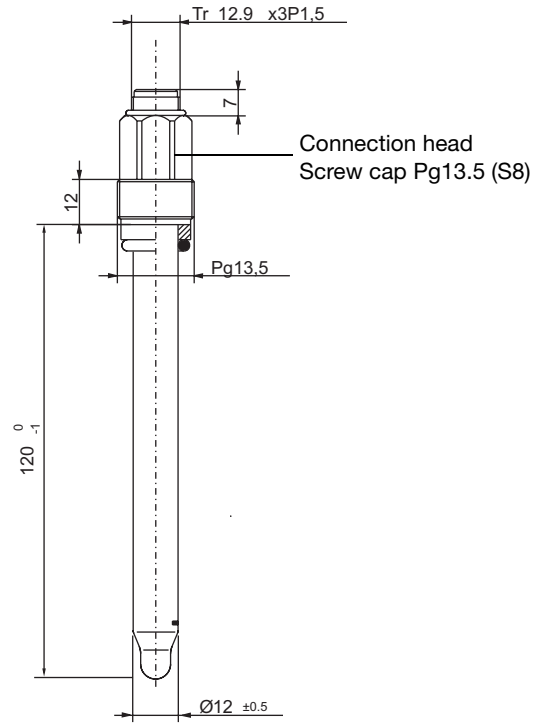
Salt reservoir

Dimensions

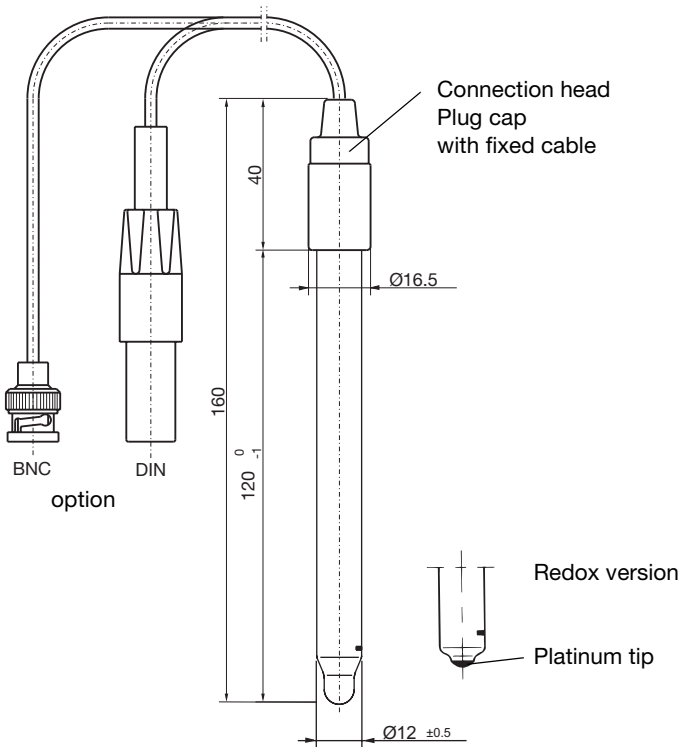
Version with glass shaft



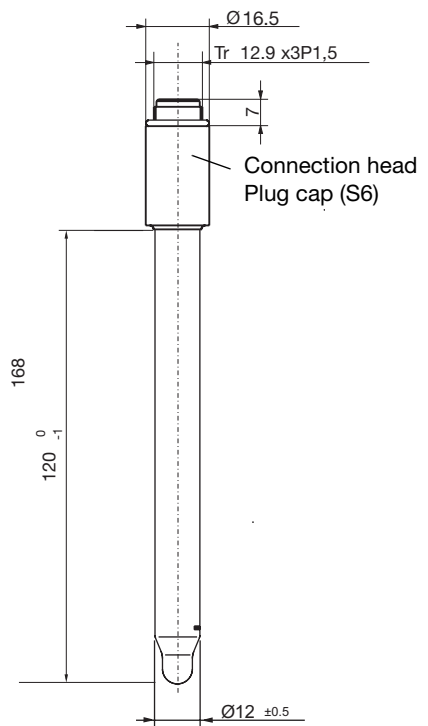
Type 2010xx/51-10-60-xxxx-xx-120/000
 Type 2010xx/56-10-60-xxxx-xx-120/000



Type 2010xx/51-10-22-0000-00-120/000
 Type 2010xx/56-10-22-0000-00-120/000



Type 2010xx/51-10-40-xxxx-xx-120/000
 Type 2010xx/56-10-40-xxxx-xx-120/000



Type 2010xx/51-10-21-0000-00-120/000
 Type 2010xx/56-10-21-0000-00-120/000

Order details

Version with glass shaft

		(1) Basic type	
		201005	pH electrodes
		(2) Basic type extension	
		201010	redox electrodes
o	o	51	glass version, ceramic diaphragm, gel-sealed, cartridge K
x	x	56	glass version, ceramic diaphragm, gel-sealed, wire conduction ¹
		(3) Active element	
x	-	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 (only with "Electrical connection" 40 or 60)	
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

x = combination is standard
o = combination is optional
- = combination is not available

¹ not in conjunction with extra cpde 56

Order code	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	120	<input type="text"/>	<input type="text"/>
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Available from stock

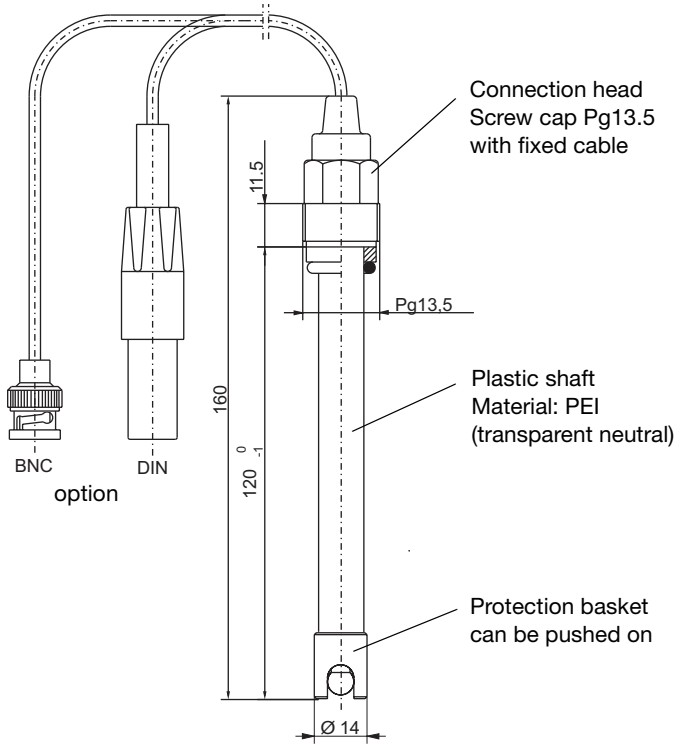
Sales No.	Type	Description
20/00405532	201005/56-10-22-0000-00-120/000	pH electrode, ceramic diaphragm, U glass, screw cap Pg13.5 (S8), 120mm
20/00413906	201010/56-22-22-0000-00-120/000	redox electrode, glass version, ceramic diaphragm, platinum tip, screw cap Pg13.5 (S8), 120mm

Not available from stock (delivery time: 2 weeks)

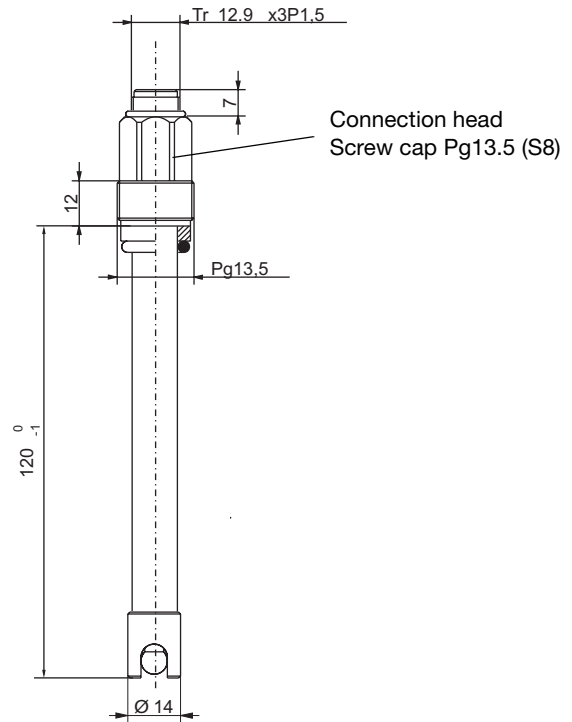
Sales No.	Type	Description
20/00434348	201005/56-10-60-1000-76-120/000	pH electrode, ceramic diaphragm, U glass, screw cap Pg13.5, 120mm, with 1 m fixed cable

Dimensions

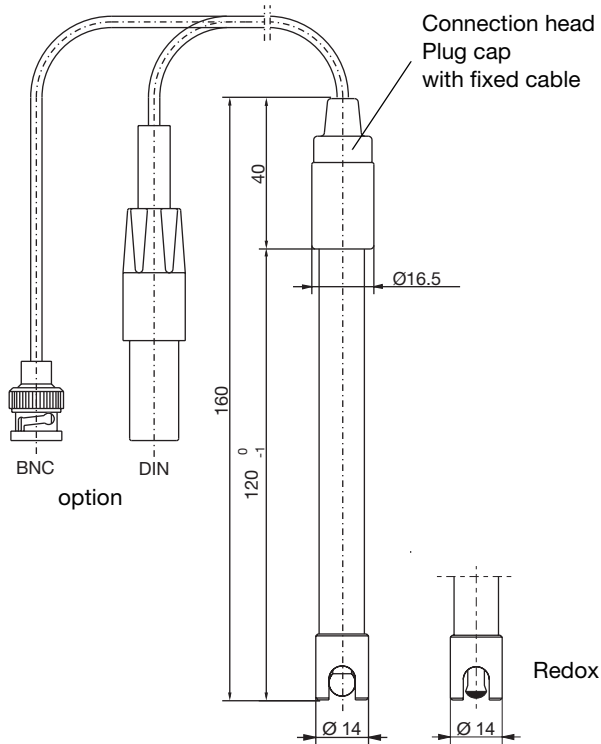
Version with plastic shaft (PEI) and push-on protection basket



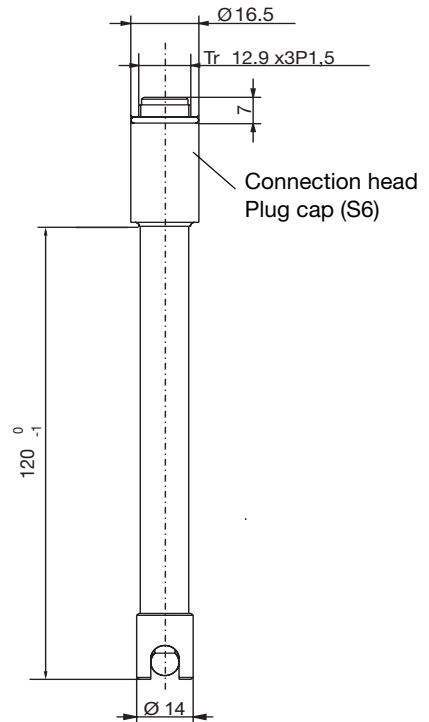
Type 201005/53-10-60-xxxx-xx-120/000 (pH)
 Type 201010/53-22-60-xxxx-xx-120/000 (redox)



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

Version with plastic shaft (PEI¹) and push-on protection basket

		(1) Basic type	
	201005	pH electrodes	
	201010	redox electrodes	
x	x	(2) Basic type extension	
	53	plastic shaft PEI, gel-sealed, glass-filament diaphragm, cartridge K	
x	-	(3) Active element	
	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 length (only with "Electrical connection" 40 or 60)	
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

x = combination is standard
o = combination is optional
- = combination is not available

¹ PEI = polyetherimide

Order code	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)							
		53	-		-		-	120	/		,					
Order example	201005	53	-	10	-	21	-	1000	-	76	-	120	/	000	,	000

Available from stock

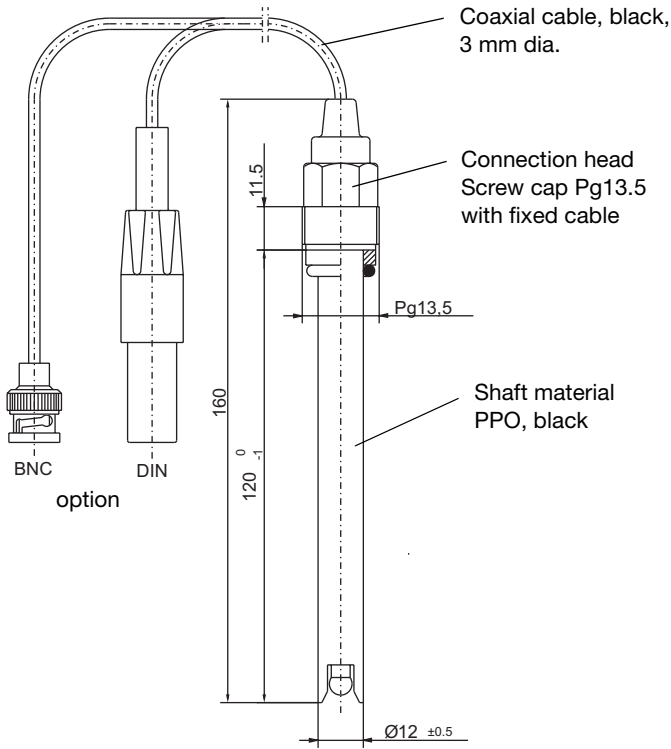
Sales No.	Type	Description
20/00357022	201005/53-10-22-0000-00-120/000	pH electrode, gel, glass-filament diaphragm, screw cap Pg13.5 (S8), 120mm
20/00357020	201010/53-22-22-0000-00-120/000	redox electrode, gel, glass-filament diaphragm, screw cap Pg13.5 (S8), 120mm

Not available from stock (delivery time: 2 weeks)

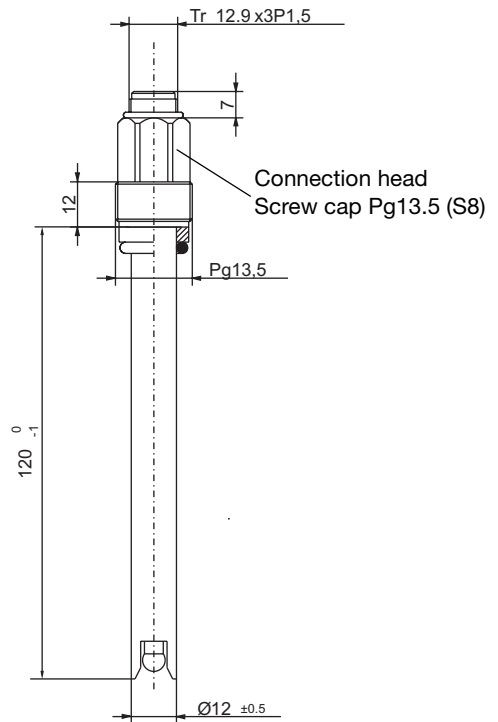
Sales No.	Type	Description
20/00300149	201005/53-10-40-1000-78-120/000	pH, gel, glass-filament diaphragm, 1 m fixed cable, 120 mm
20/00300192	201005/53-10-21-0000-00-120/000	pH, gel, glass-filament diaphragm, plug cap S6, 120 mm
20/00343525	201005/53-22-40-1000-76-120/000	redox, gel, glass-filament diaphragm, 1 m fixed cable, no thread, 120 mm

Dimensions

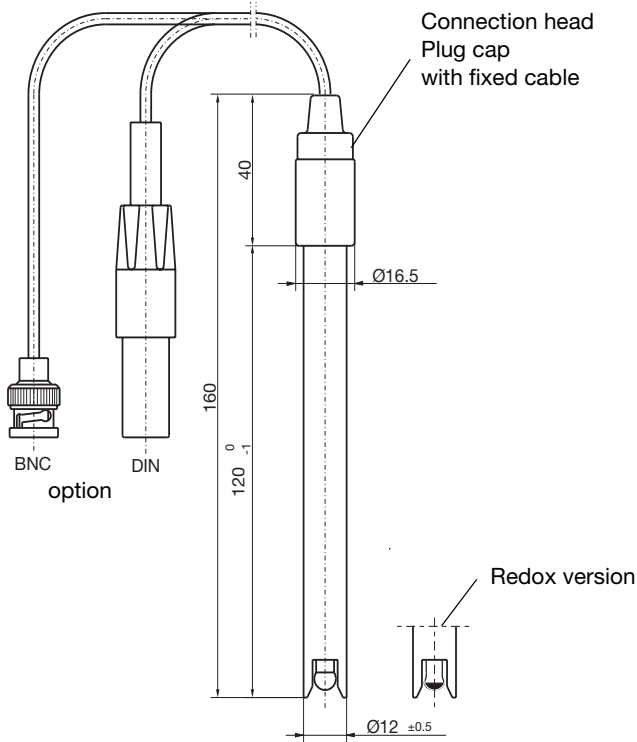
JUMO BlackLine: version with plastic shaft (PPO) and integral protection basket



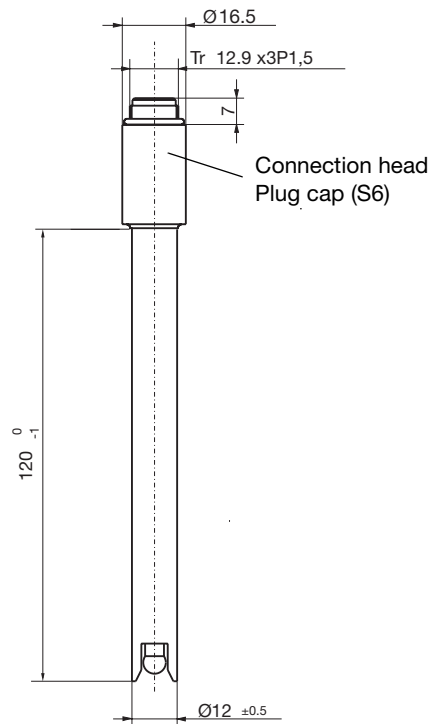
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 Type 201010/54-22-60-xxxx-xx-120/000 (redox)



Type 201005/54-10-22-0000-00-120/000 (pH)
 Type 201010/54-22-22-0000-00-120/000 (redox)



Type 201005/54-10-40-xxxx-xx-120/000 (pH)
 Type 201010/54-22-40-xxxx-xx-120/000 (redox)



Type 201005/54-10-21-0000-00-120/000 (pH)
 Type 201010/54-22-21-0000-00-120/000 (redox)

Order details

JUMO BlackLine: version with plastic shaft (PPO¹) and integral protection basket

		201005	pH electrodes
		201010	redox electrodes
		(1) Basic type	
x	x	54	(2) Basic type extension BlackLine version, black plastic shaft PPO, polyolefine diaphragm, wire conduction gel-sealed
x	-	10	(3) Active element U 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 length (only with "Electrical connection" 45 or 65)	
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
		(7) Fitting length	
x	x	120	120 mm
		(8) Extra codes	
x	x	000	none
o	o	052	KCl receptacle

x = combination is standard
o = combination is optional
- = combination is not available

¹ PPO = polyphenylene oxide

Order code	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	120	<input type="text"/>	<input type="text"/>
Order example	201005	54	10	22	2000	00	120	000	000

Available from stock

Sales No.	Type	Description
20/00419812	201005/54-10-22-0000-00-120/000	pH electrode, wire conduction, U glass, screw cap Pg13.5 (S8), 120mm
20/00424946	201010/54-22-22-0000-00-120/000	redox electrode, wire conduction, screw cap Pg13.5 (S8), 120mm
20/00417300	201005/54-10-45-2000-76-120/000	pH, no thread, 2 m fixed cable, BNC connector
20/00417301	201010/54-22-45-2000-76-120/000	redox, no thread, 2 m fixed cable, BNC connector
20/00424828	201010/54-10-65-2000-76-120/000	pH, with thread Pg 13.5, 2 m fixed cable, BNC connector
20/00424950	201010/54-10-65-2000-76-120/000	redox, with thread Pg 13.5, 2 m fixed cable, BNC connector

Not available from stock (delivery time: 2 weeks)

Sales No.	Type	Description
20/00424821	201005/54-10-21-0000-00-120/000	pH, plug cap (S6), no cable, U glass, 120 mm
20/00424944	201010/54-22-21-0000-00-120/000	redox, plug cap (S6), Pt tip, 120 mm
20/00424826	201005/54-10-45-2000-78-120/000	pH, plug cap with 2 m fixed cable, DIN connector
20/00424949	201010/54-22-45-2000-78-120/000	redox, plug cap with 2 m fixed cable, DIN connector
20/00424829	201010/54-10-65-2000-78-120/000	pH, screw cap Pg 13.5 with 2 m fixed cable, DIN connector
20/00424951	201010/54-22-65-2000-78-120/000	redox, screw cap Pg 13.5 with 2 m fixed cable, DIN connector