bürkert
FLUID CONTROL SYSTEMS

pH- and ORP-probes

- For many different types of installations and applications
- Large selection of probe for a wide range of holder
- Useable for pipe DN15 to DN200

Type 8203 can be combined with...

Type 8200
Probe holder

Type 8200
Probe holder to install in Type S020 Fitting

Type 8619
multiCELL transmitter/controller

Type 8202
ELEMENT pH/ORP meter

Type 8202
ELEMENT neutrino pH/ORP meter

The pH or ORP Bürkert meter is a modular device designed for the measurement of:
- the pH in clean liquids or liquids containing solids, sulphides or proteins.
- the oxidation-reduction potential in clean liquids or liquids containing solids, sulphides or proteins which may present low conductivity.

The probes of Type 8203 are available in various models:

- for pH
  - Type PLASTRODE pH 120 mm
  - Type FLATRODE pH 120 mm
  - Type LOGOTRODE pH 120 mm
  - Type UNITRODE PLUS pH 120 mm
  - Type CERATRODE pH 120 mm
  - Type FERMTRODE VP pH 120 mm

- for ORP
  - Type FLATRODE O.R.P 120 mm
  - Type LOGOTRODE O.R.P 120 mm
  - Type UNITRODE PLUS O.R.P 120 mm

General data	
Measuring range Bürkert pH probe Bürkert ORP probe	 0... 14 pH -2000 mV... +2000 mV
Medium temperature	Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page. If the temperature ranges given for the holder and the inserted probe are different, use the most restrictive range.
Medium pressure	Pressure limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page. If the pressure ranges given for the holder and the inserted probe are different, use the most restrictive range.
Temperature compensation **(option for pH measurement)**	automatic (integrated Pt100 or Pt1000) or manual compensation reference temperature 25 °C *(77 °F)*
Electrical connection	Coaxial shielded cables with connector for pH/ORP and 4-wire cable for Pt1000/Liquid earth rod
Electrical data	
Output	Analog signal, to be connected to ELEMENT or ELEMENT neutrino pH/ORP meter Type 8202 or multiCELL transmitter/controller Type 8619
Environment	
Ambient temperature	Temperature limits may depend on the inserted probe. Refer to the relevant instruction manual or technical data on next page for more details

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pH probe - specific technical data

Probe	PLASTRODE pH 120	FLATRODE pH 120	LOGOTRODE pH 120
Medium	- cost effective probe for drinking water, aquarium, swimming-pool...	- Contaminated (viscous, suspended solids, small sized solids, paints, cosmetics, foodstuffs)	- Clean (drinking water, cooling-water, aquarium, swimming-pool...)
Measuring range	0... 14 pH	0... 14 pH	0... 14 pH
Medium pressure	0 - 6 bar *(0 - 87 PSI)*	0 - 6 bar *(0 - 87 PSI)*	0 - 6 bar *(0 - 87 PSI)*
Medium temperature	-10 °C to +40 °C *(14 °F to 104 °F)*	0 °C to +80 °C *(32 °F to 176 °F)*	-10 °C to +60 °C *(14 °F to 140 °F)*
Ambient temperature Operation Storage	 0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*	 0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*	 0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*
Minimal conductivity	50 µS/cm	50 µS/cm	2 µS/cm
Max. pressure at max. temperature	6 bar *(87 PSI)*	4 bar *(58 PSI)*	6 bar *(87 PSI)*
No. of diaphragms	1	1	1
Diaphragm	"single pore™"	Annular and centered, in High Density Polyethylen	"single pore™"
Reference electrolyte	polymer	Acrylamide gel KNO_3/3.5M KCl-AgCl	polymer
EHEDG	No	No	No
Temperature sensor	No	No	No
Electrical connector	S7/S8	S7/S8	S7/S8

	UNITRODE PLUS pH 120	CERATRODE pH 120	FERMTRODE pH 120
Medium	- Contaminated (waste water, cooling water, electroplating, paints, cosmetics...) - containing sulfides/proteins (tannery, animal breeding, waste water, foodstuffs, cosmetics, biotechnology)	- High pressure, high flowrate applications	biotechnology, pharma, food industry - containing proteins, cell cultures, injectable - applications requiring biocompatibility or suitability for food contact guarantee
Measuring range	0... 14 pH	0... 14 pH	0... 14 pH
Medium pressure	0 - 16 bar if medium temperature < +100 °C) *(0 - 232 PSI if medium temperature < 212 °F)* 0 - 10 bar if medium temperature between 100 °C and +130 °C *(0 - 145 PSI if medium temperature between 212 °F and 266 °F)*	0 - 16 bar at 25 °C *(0 - 232 PSI at 77 °F)* 0 - 6 bar at 130 °C *(0 - 87 PSI at 266 °F)*	0 - 6 bar *(0 - 87 PSI)*
Medium temperature	0 °C to +130 °C *(32 °F to 266 °F)*	0 °C to +130 °C *(32 °F to 266 °F)*	0 °C to +140 °C *(32 °F to 284 °F)*
Ambient temperature Operation Storage	 0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*	 0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*	 0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*
Minimal conductivity	2 µS/cm	50 µS/cm	100 µS/cm
Max. pressure at max. temperature	10 bar *(145 PSI)*	6 bar *(87 PSI)*	6 bar *(87 PSI)*
No. of diaphragms	2	3	1
Diaphragm	"single pore™"	HP ceramics	HP-COATRAMIC
Reference electrolyte	polymer	gel	Pressurized FOODLYTE
EHEDG	No	No	Yes
Temperature sensor	No	No	Yes, Pt100
Electrical connector	S7/S8	S7/S8	VP 6.0 multipin connector

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ORP probe - specific technical data

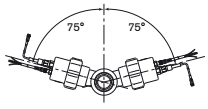
Probe	FLATRODE ORP 120	LOGOTRODE ORP 120	UNITRODE PLUS ORP 120
Medium	- Contaminated (viscous, suspended solids, small sized solids, paints, cosmetics, foodstuffs)	- Clean liquids (cooling-water, waste water or slightly contaminated) - with low conductivity (pure or rain-water...> 2 µS/cm)	- Clean liquids (drinking water, aquarium, swimming-pool...) - Contaminated (waste water, cooling water, electro-plating, paints...) - with low conductivity (pure or rainwater...> 2 µS/cm) - containing sulfides/proteins (tannery, animal breeding, waste water, foodstuffs, cosmetics, biotechnology...)
Measuring range	-2000... +2000 mV	-2000... +2000 mV	-2000... +2000 mV
Medium pressure	0 - 6 bar *(0 - 87 PSI)*	0 - 6 bar *(0 - 87 PSI)*	0 - 16 bar if medium temperature < +100 °C) *(0 - 232 PSI if medium temperature < 212 °F)* 0 - 10 bar if medium temperature between 100 °C and +130 °C *(0 -145 PSI if medium temperature between 212 °F and 266 °F)*
Medium temperature	0 °C to +80 °C *(32 °F to 176 °F)*	-10 °C to +60 °C *(14 °F to 140 °F)*	0 °C to +130 °C *(32 °F to 266 °F)*
Ambient temperature Operation Storage	0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*	0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*	0 °C to +60 °C *(32 °F to 140 °F)* 4 °C to +30 °C *(39.2 °F to 86 °F)*
Minimal conductivity	50 µS/cm	2 µS/cm	2 µS/cm
Max. pressure at max. temperature	4 bar *(58 PSI)*	6 bar *(87 PSI)*	10 bar *(145 PSI)*
No. of diaphragms	1	1	2
Diaphragm	Annular and centered, in High Density Polyethylen	"single pore™"	"single pore™"
Reference electrolyte	Acrylamide gel KNO_3/3.5M KCl-AgCl	polymer	polymer
EHEDG	No	No	No
Temperature sensor	No	No	No
Electrical connector	S7/S8	S7/S8	S7/S8

Principle of operation

The pH or redox probe built up on a glass membrane with variable sensitivity according to the pH or the redox, which must be screwed into the selected probe holder Type 8200, connected to the e.g. transmitter/controller 8619. The probe with S7/S8 electrical connector can be screwed into the pH/ORP ELEMENT meter 8202 (standard or neutrino version) too. The probe must be calibrated with buffer solution before the installation of the sensor into the pipe.

- When a pH probe is immersed into the solution a difference in potential is formed due to ions (H+) between the glass membrane and the solution. This difference in potential measured in relation to a reference electrode is directly proportional to the pH value (59.16 mV per pH unit at 25 °C). The pH meter can be calibrated in 1-point (Offset at pH7) or in 2-points (Offset at pH 7 and Span at pH 4 or pH 10).
- When a redox probe is immersed into the solution an ion exchange occurs between the oxidised and the reduced state of an electrolyte. The generated cell voltage is the oxidation-reduction potential value. The ORP meter can only be calibrated in 1-point (Offset).

Installation of the sensor



The device has to be installed with a maximum angle of 75 degrees against the vertical onto an horizontal pipe. Select and install the required fitting onto the pipe, according to specific requirements of the device and fitting material (temperature and pressure). After having connected the device to the Type 8619 (pH/ORP) multiCELL transmitter/controller and having calibrated the unit, cautiously install the complete pH/ORP meter on the fitting.
In order to get reliable measurement air bubbles must be avoided.
Please ensure that the mounting location provides a continuous and complete immersion of the probe in the flow stream.
The probe must continuously be immersed into the measuring fluid in order to protect it from drying out. The device must be protected from constant heat radiation and other environmental influences, such as direct exposure to sunlight.

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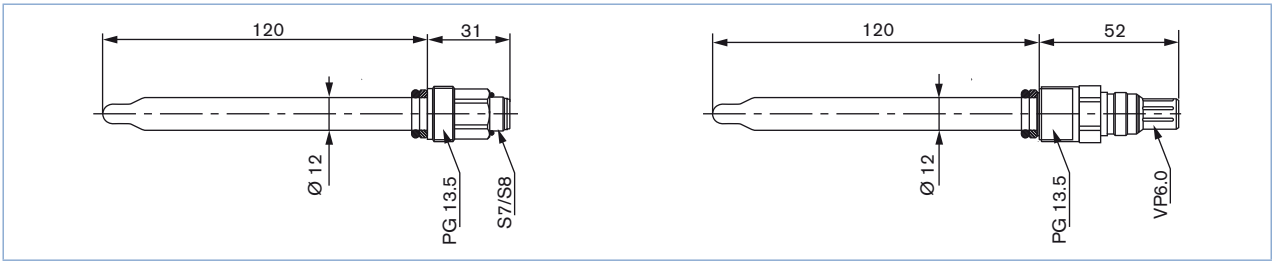
Dimensions [mm]



Ordering information for complete pH/ORP sensor

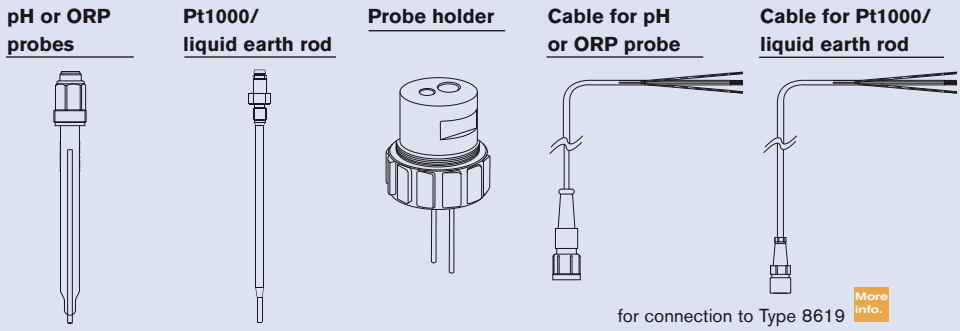
A complete pH/ORP sensor consists of a pH or O.R.P probe Type 8203, a Pt1000/liquid earth rod (option), a probes holder Type 8200 with seals, a pH/ORP shielded cable, a Pt1000/liquid earth rod shielded cable (option) .

The following information is necessary for the selection of a complete device:

- **Article no.** of the desired probes holder **Type 8200** (see separate data sheet) More info.
- **Article no.** of the selected pH or O.R.P probe **Type 8203** (see ordering chart, p. 5)
- **Article no.** of the Pt1000/liquid earth rod, if needed (see ordering chart, p. 5)
- **Article no.** of the pH/O.R.P shielded cable (see ordering chart, p. 5)
- **Article no.** of the Pt1000/liquid earth rod shielded cable, if needed (see ordering chart, p. 5)

When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet.

→ You have to order the components separately.



Ordering information for complete pH/ORP meter

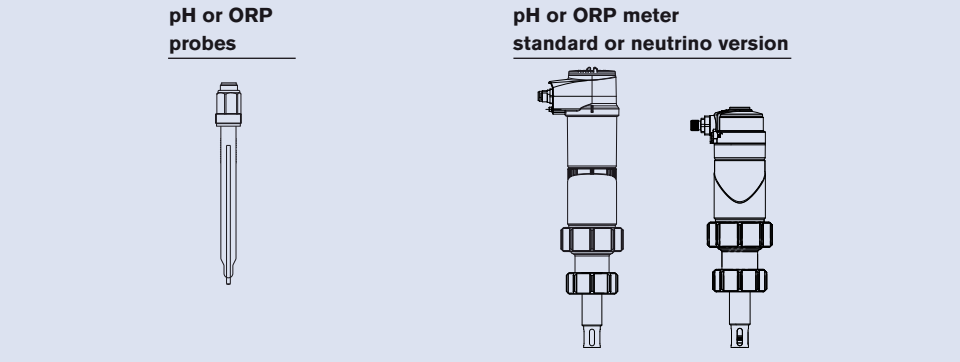
A complete ph/ORP meter consists of a replaceable standard 120 mm pH or ORP probe Type 8203 and a pH or ORP meter Type 8202.

The following information is necessary for the selection of a complete device:

- **Article no.** of the selected pH or O.R.P probe **Type 8203** (see ordering chart, p. 5)
- **Article no.** of the selected pH/ORP meter **Type 8202** (see separate data sheet) More info.

When you click on the orange box "More info.", you will come to our website for the resp. product where you can download the data sheet.

→ You have to order the components separately.



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Ordering chart for probe

Probe	Description	Article no.
PLASTRODE pH 120 mm	pH probe -10... 40 °C, 0... 6 bar, pH 0... 14	560377
FLATRODE pH 120 mm	pH probe 0... 80 °C, 0... 6 bar, pH 0... 14	561025
LOGOTRODE pH 120 mm	pH probe -10... 60 °C, 0... 6 bar, pH 0... 14	427114
UNITRODE PLUS pH 120 mm	pH probe 0... 130 °C, 0... 16 bar, pH 0... 14	560376
CERATRODE pH 120 mm	pH probe 0... 130 °C, 0... 16 bar, pH 0... 14	418319
FERMTRODE pH 120 mm	pH probe 0 ... 140 °C, 0... 6 bar, pH 0... 14	561727

Probe	Description	Article no.
FLATRODE ORP 120 mm	ORP probe 0... 80 °C, 0 ... 6 bar, -2000... +2000 mV	561027
LOGOTRODE ORP 120 mm	ORP probe -10... 60 °C, 0... 6 bar, -2000... +2000 mV	560379
UNITRODE PLUS ORP 120 mm	ORP probe 0... 130 °C, 0... 16 bar, -2000... +2000 mV	560378

Probe	Description	Article no.
Temperature probe	Pt1000/liquid earth rod - in stainless steel	427023
Temperature probe	Pt1000/liquid earth rod - in titanium	560317

Ordering chart for cables for probes

Description	Article no.
pH/ORP coaxial cable with standard probe plug - 3 m (for connection between 8619 transmitter and pH/ORP probe mounting into Type 8200)	561904
pH/O.R.P coaxial cable with standard probe plug - 5 m (for connection between 8619 transmitter and pH/ORP probe mounting into Type 8200)	561905
pH/O.R.P coaxial cable with standard probe plug - 10 m (for connection between 8619 transmitter and pH/ORP probe mounting into Type 8200)	561906
pH/ORP cable with VarioPin (VP 6.0) probe plug -3 meters (for connection between 8619 transmitter and pH/ORP probe mounting into Type 8200)	554855
pH/ORP cable with VarioPin (VP 6.0) probe plug -5 meters (for connection between 8619 transmitter and pH/ORP probe mounting into Type 8200)	554856
pH/ORP cable with VarioPin (VP 6.0) probe plug -10 meters (for connection between 8619 transmitter and pH/ORP probe mounting into Type 8200)	554857
Pt1000/liquid earth rod 4-wire cable with M8 connector - 2 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	427110
Pt1000/liquid earth rod 4-wire cable with M8 connector - 3 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	561907
Pt1000/liquid earth rod 4-wire cable with M8 connector - 5 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	427113
Pt1000/liquid earth rod 4-wire cable with M8 connector - 10 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into Type 8200)	554822
Pt1000/liquid earth rod 4-wire cable with plug-in connector - 5 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into the immersion fitting Type 8200)	562627
Pt1000/liquid earth rod 4-wire cable with plug-in connector - 10 m (for connection between 8619 transmitter and Pt1000/liquid earth rod mounting into the immersion fitting Type 8200)	562628

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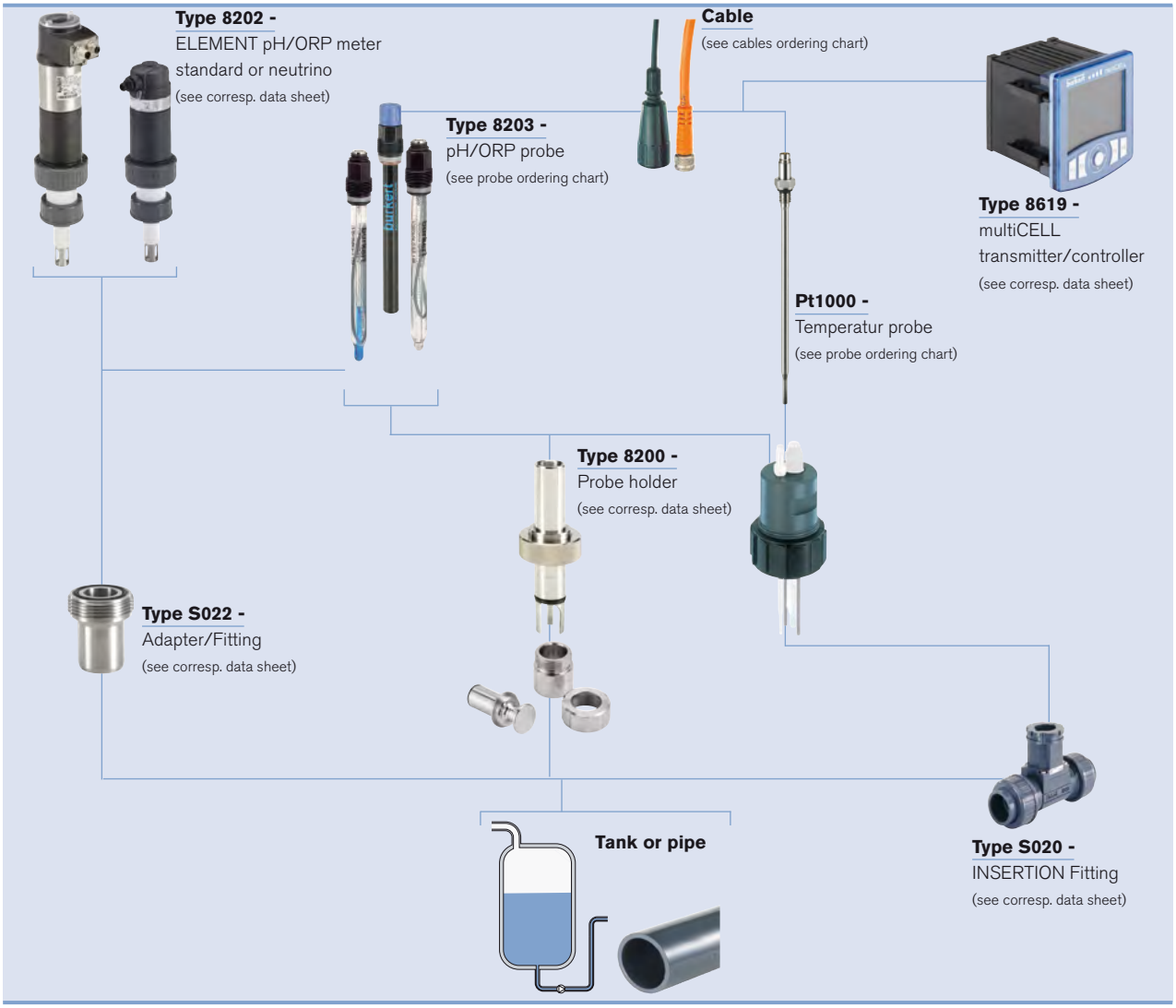
Ordering chart for accessories

Description	Article no.
Storage solution for probe (KCl 3M), 500 ml	418557
Cleaning solution set for probe, 3 x 500 ml	560949
Buffer solution, 500 ml, pH = 4.01	418540
Buffer solution, 500 ml, pH = 7	418541
Buffer solution, 500 ml, pH = 10.01	418543
Buffer solution, 500 ml, ORP = 475 mV	418555
Factory 2-point pH calibration certificate	550673
Factory 1-point ORP calibration certificate	550674

Interconnection possibilities with other Bürkert devices



To find your nearest Bürkert office, click on the orange box → **www.burkert.com**

In case of special application conditions, please consult for advice.

Subject to alteration.

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