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**JUMO Instrument Co. Ltd.**

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**JUMO Process Control, Inc.**

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# Hand-held Meters for analytical measurement variables

Type 202710

## Brief description

Product Group 202710 instruments are battery-powered hand-held meters for measuring

- pH, redox potential (ORP) and temperature or
- electrolytic conductivity and temperature.

They are used in laboratories, industrial and wastewater plant, in aquaria or fish farms, etc.

The instruments feature a memory for the MIN/MAX value, and a "Hold" function. To increase the operational life of the battery, the instrument can be switched off automatically within the range from 1 minute to 2 hours; continuous measurements can also be performed. The instruments are operated from a membrane keypad.

The 202710/20 version is an instrument for measuring pH, redox potential (ORP) and temperature. It features both manual and automatic temperature compensation of the measurement. The Pt100 temperature probe necessary for this purpose is available as an option. A standard combination electrode can be connected via a BNC socket. The combination electrode is adjusted through a 2-point calibration.

The 202710/30 version is an instrument for measuring electrolytic conductivity and temperature. The pre-assembled conductivity cell incorporates graphite electrodes and has a cell constant of  $1.0 \text{ l/cm}$ . The temperature probe for automatic temperature compensation is integrated in the measuring cell. The hand-held meter always indicates the conductivity, which is compensated for 25°C. Thanks to the automatic range selection, the measurement is always displayed within the optimum range. This function can also be switched off.



Type 202710/20/000



Type 202710/30/000

## Key features

- MIN and MAX memory
- "Hold" function
- Adjustable automatic switch-off
- Easy-to-read, 2-line LC display
- Supply from a 9 V block battery
- Display of battery condition
- Compact design

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## Technical Data

### Device version 202710/20

pH range	0 to 14 pH
Accuracy	±0.01 pH
Redox range	-1999 to +2000 mV
Accuracy	±0.1 mV
Temperature range	-100 to +250 °C
Accuracy	±0.2 °C
Operating temperature	0 to 50 °C
Storage temperature	-20 to +70 °C
Voltage supply	9 V block battery, type IEC 6F22
Current drawn	Approx. 30 mA
Special functions	<ul style="list-style-type: none"> <li>• Segment test at switch-on</li> <li>• Measuring circuit monitoring</li> <li>• "Hold" function (freeze latest measurement)</li> <li>• MIN/MAX memory</li> <li>• Automatic switch-off (can be de-activated)</li> <li>• Battery change display</li> </ul>
Electrode/probe connection for pH/redox combination electrodes for temperature probe	BNC Mini DIN socket
Dimensions	142 mm × 71 mm × 26 mm (L × W × H)
Housing material	ABS
Protection class	IP65 at front
Weight	Approx. 145 g (without sensor)

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**Device version 202710/30**

Conductivity ranges	0 to 200 µS/cm 0 to 2000 µS/cm 0 to 20 mS/cm 0 to 200 mS/cm
Accuracy	±0.5 % of range
Resolution	0.1 µS/cm 1.0 µS/cm 10 µS/cm 0.1 mS/cm
Temperature range	0 to 85 °C
Accuracy	±0.2 °C
Resolution	0.1 °C
Cell constant of sensors	$K = 1.0 \frac{1}{\text{cm}}$
Temperature coefficient of sensors	According to EN 27888 (non-linear compensation)
Temperature compensation	Automatic
Operating temperature	
Device	0 to 50 °C
Sensor	-5 to +80 °C
Storage temperature	-20 to +70 °C
Voltage supply	9 V block battery, type IEC 6F22
Current drawn	Approx. 50 mA
Special functions	<ul style="list-style-type: none"> <li>• Segment test at switch-on</li> <li>• Measuring circuit monitoring</li> <li>• "Hold" function (freeze latest measurement)</li> <li>• MIN/MAX memory</li> <li>• Automatic range changeover</li> <li>• Automatic switch-off (can be de-activated)</li> <li>• Battery change display</li> </ul>
Dimensions	
Hand-held meter	142 mm × 71 mm × 26 mm (L × W × H)
Sensor	Length: 120 mm, diameter: 12 mm Attached connecting cable, approx. 1 m long
Housing material	ABS
Protection class	IP65 at front
Weight	Approx. 225 g (with sensor)

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## Order details

		<b>(1) Basic type</b>
202710/20		Hand-held meters for analytical measurement variables - pH, redox <sup>a</sup> , temperature <sup>b</sup>
202710/30		Hand-held meters for analytical measurement variables - conductivity <sup>c</sup> , temperature <sup>d</sup>
		<b>(2) Extra codes</b>
x	x	000 None
x		070 Including case with calibration solutions pH 4.00 and pH 7.00
x		071 Including case

<sup>a</sup> Combination electrode not included in delivery<sup>b</sup> Temperature sensor Pt100 not included in delivery<sup>c</sup> Including conductivity sensor<sup>d</sup> The temperature sensor is integrated in the sensor.

<b>Order code</b>	<input type="text" value="(1)"/>	/	<input type="text" value="(2)"/>
<b>Order example</b>	202710/20	/	070

## Stock versions

(delivery: 3 working days after receipt of order)

Type	Description	Part no.
202710/20/000	pH, redox, temperature	00453200
202710/20/070	pH, redox, temperature	00460986
202710/30/000	Conductivity, temperature	00454356

## Production versions

(delivery: 10 working days after receipt of order)

Type	Description	Part no.
202710/30/071	Hand-held meter for conductivity/temperature (including cell) in case	00454357

## Accessories

Type	Part no.
Pt100 immersion temperature probe for type 202710/20-000	00453208
JUMO ecoLine/JUMO BlackLine – pH combination electrodes (201005) <sup>a</sup>	
JUMO ecoLine/JUMO BlackLine – Redox combination electrodes (201010) <sup>a</sup>	
Laboratory pH single-rod electrodes (201030) <sup>a</sup>	
Laboratory redox single-rod electrodes (201035) <sup>a</sup>	

<sup>a</sup> Depending on application