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
Email: mail@jumo.net
Internet: www.jumo.net

JUMO Instrument Co. Ltd.
JUMO House
Temple Bank, Riverway
Harlow, Essex CM 20 2DY, UK
Phone: +44 1279 63 55 33
Fax: +44 1279 62 50 29
Email: sales@jumo.co.uk
Internet: www.jumo.co.uk

JUMO Process Control, Inc.
6733 Myers Road
East Syracuse, NY 13057, USA
Phone: +1 315 437 5866
Fax: +1 315 437 5860
Email: info.us@jumo.net
Internet: www.jumousa.com

Handheld Meters for analytical measurement variables

Type 202710/20 – Handheld Meter for pH, Redox, and rH
Type 202710/30 – Handheld Meter for Conductivity (CR), Specific Electrical Resistivity, TDS, and Salinity

Brief description

Product Group 202710 instruments are battery-powered hand-held meters for measurments in laboratories, industrial and wastewater plants, 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 $^{1}/_{cm}$. 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

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 Type 202710/20

Measuring ranges

pH	0.00 to 14.00 pH
Redox voltage (mV) Redox voltage (mV_H)	-1999 to +2000 mV -1792 to +2207 mV_H (referring to hydrogen system, at 25 °C, DIN 38404)
rH	0.0 to 70.0 rH
Temperature	-5.0 to +150.0 °C (23.0 to 302.0 °F), Pt1000

Accuracy

pH	±0.01 pH
Redox voltage	±0.1 % FS
Temperature	±0.2 K (in the range of -5 to +100 °C)

Connections

pH, redox	BNC socket, additional connection for reference electrode: banana socket (4 mm)
Temperature	Pt1000 via banana sockets (4 mm)

Input resistance

pH, redox	$>10^{12}\ \Omega$

pH calibration

Automatic	1, 2, or 3 point calibration, either DIN 19266 buffer or technical buffer GPH/PHL
Manual	1, 2, or 3 point calibration

Display

2 4-digit, 7-segment LCD displays (main display 12.4 mm high, subsidiary display 7 mm high) with additional symbols.

Additional functions

Calibration memory	Adjustable calibration intervals (1 to 365 days, CAL warning after expiry)
Min./max. memory	Minimum/Maximum value are saved together with the temperature at which the extreme value occurred
Hold function	Standard hold function at the push of a button or Auto Hold
Auto-off function	If activated, the device switches off automatically if it is not operated for an extended period of time (select period between 1 and 120 min)

Housing

Material	ABS, break-proof
Protection type	IP65 (front)
Dimensions	142 × 71 × 26 mm (L × W × H without BNC socket)
Ambient temperature	-25 to +50 °C; 0 to 95% relative humidity (non-condensing)
Storage temperature	-25 to +70 °C
Weight	approx. 170 g (including battery)

Power supply

Battery operation	9 V battery, type IEC 6F22 (included in scope of delivery)
Mains operation	External power supply unit (DC 10.5 to 12 V) with coaxial power connector, exterior Ø 5.5 mm (-), inner pin Ø 1.9 mm (+) (not included in scope of delivery)
Current consumption	<1 mA (with serial interface switched off)
Battery display	" ⚠ " and "bAt" displayed automatically when battery is used up

EMC

The device complies with the significant protection requirements defined in the Directive of the Council on the approximation of the laws of the Member States relating to electromagnetic compatibility (2004/108/EC). Additional error: <1%

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Technical Data Type 202710/30

Measuring ranges

Conductivity	0.0 to 200.0 µS/cm
	0 to 2000 µS/cm
	0.00 to 20.00 mS/cm
	0.0 to 200.0 mS/cm
Specific electrical resistivity	0.005 to 100.0 kΩ × cm
TDS	0.0 to 1999 mg/l
Salinity	0.0 to 70.0 g/kg (PSU)
Temperature	-5.0 to +100.0 °C

Accuracy

Conductivity	±0.5 % from mean value, ±0.3 % margin of error or ±2 µS/cm
Temperature	±0.2 K

Connections

Conductivity	Measuring cell securely connected to device
Temperature	

Measuring cell

Version	2-pin graphite measuring cell with integrated temperature sensor
Temperature compensation	automatically, selectable: nonlinear according to EN 27888[a] or linear
Material	Electrode: Special graphite, Shaft: Polysulfone (PSU)
Dimensions	Ø 12 mm × 120 mm
Ambient temperature	-5.0 to +80.0 °C (long term), briefly up to +100 °C

[a] Factory-preset.

Display

2 4-digit, 7-segment LCD displays (main display 12.4 mm high, subsidiary display 7 mm high) with additional symbols.

Additional functions

Min./max. memory	Minimum/Maximum value is saved together with the temperature at which the extreme value occurred
Hold function	Standard hold function at the push of a button or Auto Hold

Case

Material	ABS, break-proof
Protection type	IP65 (front)
Dimensions	142 × 71 × 26 mm (L × W × H)
Ambient temperature	-25 to +50 °C; 0 to 95 % relative humidity (non-condensing)
Storage temperature	-25 to +70 °C
Weight	Approx. 225 g (including battery and measuring cell)

Power supply

Battery operation	9 V battery, type IEC 6F22 (included in scope of delivery)
Mains operation	External power supply unit (DC 10.5 to 12 V) with coaxial power connector, exterior Ø 5.5 mm (-), inner pin Ø 1.9 mm (+) (not included in scope of delivery)
Current consumption	2 mA (with serial interface switched off)
Battery display	" ⚠ " and "bAt" displayed automatically when battery is used up

Auto-off function

If activated, the device switches off automatically if it is not operated for an extended period of time (select period between 1 and 120 min).

EMC

The device complies with the significant protection requirements defined in the Directive of the Council on the approximation of the laws of the Member States relating to electromagnetic compatibility (2004/108/EC). Additional error: <1 %.

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Order details

			(1)	Basic type
		202710/20		Handheld meter for pH, redox[a], and rH
		202710/30		Handheld Meter for conductivity[b] (CR), specific electrical resistivity, TDS, and salinity
			(2)	Extra codes
x	x	000		None
x		070		Including case with calibration solutions pH 4.00 and pH 7.00
	x	071		Including case

[a] Combination electrode not included in delivery
[b] Including conductivity sensor

	(1)		(2)
Order code		/	
Order example	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.
Immersion temperature probe for type 202710/20-000 up to July 2015	00453208
Immersion temperature probe for type 202710/20-000 as of August 2015	00648463
JUMO ecoLine/JUMO BlackLine – pH combination electrodes (201005)	depending on the application
JUMO ecoLine/JUMO BlackLine – Redox combination electrodes (201010)	
Laboratory pH single-rod electrodes (201030)	
Laboratory redox single-rod electrodes (201035)	