



Portavo 908 Multi

Portable multiparameter analyzer for the pharmaceutical and biotechnology industries.

Portavo 908 Multi is the first portable Memosens-based measuring device for liquid analysis with direct printer control. A printer can be connected directly to the micro USB interface to print the calibration record (GLP compliant).

Many new features distinguish the Portavo 908 Multi for use in the pharmaceutical and biotech fields. These include

- new pH calibration procedure with a set process flow
- multi-level user management with access control
- direct assignment of Memosens sensors to device, for increased safety during operation

Custom pH Calibration

Cal SOP

The new Cal SOP calibration procedure allows pH sensors to be checked with up to 3 calibration points. A further buffer is used as the verification buffer. The buffer set for each calibration point can be separately selected, thus also allowing their order to be determined.

Custom buffer solutions can be used, or choose from a list of commercially available buffer sets, e.g., CaliMat, NIST, and DIN. A maximum permissible deviation (Delta pH) is entered for the verification buffer.

Security Package Included

User management

The Portavo 908 Multi's professional user management regulates access to the device and the sensor.

- Increased security for configuration, calibration, and measurement data
- No unauthorized interventions during the operating cycle
- Up to 4 user profiles can be set
- Different access rights can be established

Depending on the user's experience, the role profile can optionally be defined for configuration of the device and sensor or for sensor calibration. This clearly minimizes the risk of inadvertently changing settings.

Greater Reliability During Operation

Memosens sensors can be assigned directly to the Portavo 908 Multi using the data stored in the sensor, such as

Sensor type

TAG

Group

Unambiguous assignment of the sensor to the device reduces the potential for errors. This ensures that only the right sensors are used for the selected measuring point.

Multi-Channel Function for Simultaneous Operation of 2 Sensors

If equipped with the multi-channel option, Portavo 908 Multi can be used for simultaneous measurements using 2 flexibly combined sensors. The multi-channel function is added to the functionality of the data logger.

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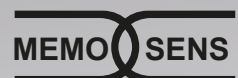


Facts and Features

- Multiparameter:
 - pH
 - ORP
 - Contacting conductivity
 - Toroidal conductivity
 - Amperometric oxygen
 - Optical oxygen
 - Temperature
- Multi-channel function
- GLP compliant
- Direct printer control
- User management
- pH calibration with set process flow
- Digital Memosens sensors
- Concentration measurement with toroidal conductivity sensors
- Sturdy, practical, convenient
- Li-ion rechargeable battery
 - USB chargeable



Calibration Record	
Date	26.11.2015 11:41
Device Information	
Manufacturer	Knick
Serial No.	0003792
Type	908 Multi
SW Version	1.5.0.Build 10904
Sensor Information	
Sensor Type	Memosens
Manufacturer	pH
Order No.	Knick
Serial No.	SE 555X/1-NMSN
Software Ver.	2180694
Hardware Ver.	1.0.6
TAG	1.5.2
Temp. Offset	ABC 13.11.12_wo
Operating Time	0.0 K
Wear	50 h
SIP	0 %
Calibration Data	
Calibration Date	14.06.15 14:48
Zero Point	pH 7.201 11.8 mV
Slope	99.154 % 58.7 mV
Buffer 1	pH 4.005
Buffer 2	pH 6.996



Specifications

Connections	2 x socket Ø 4 mm for separate temperature probe 1 x M8 socket, 4-pin, for flexible Memosens laboratory cable 1 x micro USB-B for data transmission to PC or for connecting a printer 1 x M12 socket, 8-pin, for flexible connecting cable for Memosens sensors or SE 340 sensor (optical oxygen)		
Air pressure measurement	700 ... 1100 hPa		
Device operation	Easy-to-use menu navigation with graphic symbols and detailed user hints in plain text		
Languages	German, English, French, Spanish, Italian, Portuguese		
Sensoface	Status display (friendly, neutral, sad)		
Status indicators	For battery condition, logger		
Graphic display	QVGA TFT display with white backlighting		
Keypad	[on/off], [meas], [enter], [◀], [▶], [▲], [▼], 2 softkeys with context-dependent assignment		
Data logger	Space for 10,000 entries		
Recording	Manual, interval- or event-controlled with management of tag numbers and annotations		
MemoLog calibration data logger (Memosens only)	Can save up to 100 Memosens calibration records		
	Recording	Directly readable via MemoSuite or Paraly SW 112 (USB)	
	Can be shown on the display	Manufacturer, sensor type, serial no., zero point, slope, calibration date	
Temperature input	2 x Ø 4 mm for integrated or separate temperature probe		
	Measuring ranges	NTC 30 kΩ	-20 ... 120 °C / -4 ... 248 °F
		Pt1000	-40 ... 250 °C / -40 ... 482 °F
	Measuring cycle	Approx. 1 s	
	Measurement error ^{1,2,3)}	< 0.2 K (Tamb = 23 °C / 73.4 °F); TC < 25 ppm/K	
Communication	USB 2.0		
	Profile	HID, driverless installation	
	Usage	Data transfer and configuration via the Paraly SW 112 software	
Diagnostic functions			
Sensor data (Memosens only)	Manufacturer, sensor type, serial number, wear, operating time, remaining lifetime, maximum temperature, adaptive calibration timer, calibration and adjustment data, SIP, CIP, and autoclaving counter		
Calibration data	Calibration date; pH/Oxy: Zero point, slope; Cond: Cell constant		
Device self-test	Automatic memory test (FLASH, EEPROM, RAM)		
Device data	Device type, software version, hardware version		
Data retention	Parameters, calibration data	> 10 years	
EMC	EN 61326-1 (General requirements)		
	Emitted interference	Class B (residential)	
	Interference immunity	Industrial applications	
	EN 61326-2-3 (Particular requirements for transducers)		
RoHS conformity	According to Directive 2011/65/EU		
Power supply	4 x AA (Mignon) alkaline batteries or 1 x Li-ion rechargeable battery (rechargeable via USB)		
Rated operating conditions			
Ambient temperature	-10 ... 55 °C / 14 ... 131 °F		
Transport/Storage temperature	-25 ... 70 °C / -13 ... 158 °F		
Relative humidity	0 ... 95 %, brief condensation permissible		

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Specifications

Housing		
Material	PA12 GF30 (silvery gray RAL 7001) + TPE (black)	
Protection	IP 66/67 with pressure compensation	
Dimensions	Approx. 132 x 156 x 30 mm / 5.2 x 6.14 x 1.18 inches	
Weight	Approx. 500 g / 1.10 lbs	
Printer	Printer protocols HP-PCL, Epson, Samsung, IBM (ASCII texts) Connection via standard USB cable and USB adapter (A female to B male)	
Memosens pH input	M8 socket, 4-pin, for flexible Memosens laboratory cable, or M12 socket, 8-pin, for flexible connecting cable for Memosens sensors	
Display ranges ⁴⁾	pH	-2.00 ... 16.00
	mV	-1999 ... 1999 mV
	Temperature	-50 ... 250 °C / -58 ... 482 °F
Sensor adjustment ^{*)}	pH calibration	
Operating modes ^{*)}	Calimatic	Calibration with automatic buffer recognition
	Manual	Manual calibration with entry of individual buffer values
	Data entry	Data entry of zero point and slope
Calimatic buffer sets ^{*)}	-01- Mettler-Toledo	2.00/4.01/7.00/9.21
	-02- Knick CaliMat	2.00/4.00/7.00/9.00/12.00
	-03- Ciba (94)	2.06/4.00/7.00/10.00
	-04- NIST Technical	1.68/4.00/7.00/10.01/12.46
	-05- NIST Standard	1.679/4.006/6.865/9.180
	-06- HACH	4.01/7.00/10.01/12.00
	-07- WTW techn. buffers	2.00/4.01/7.00/10.00
	-08- Hamilton	2.00/4.01/7.00/10.01/12.00
	-09- Reagecon	2.00/4.00/7.00/9.00/12.00
	-10- DIN 19267	1.09/4.65/6.79/9.23/12.75
	-11- Metrohm	4.00/7.00/9.00
	-U1- (User)	Chargeable via Paraly SW 112
Permissible calibration range	Zero point	6 ... 8 pH
	Slope	approx. 74 ... 104 % (Sensoface may indicate restrictions)
Calibration timer ^{*)}	Interval 1 ... 99 days, can be switched off	
Sensoface	Provides information on the condition of the sensor	
Evaluation of	Zero point/slope, response time, calibration interval	
Memosens ORP input	M8 socket, 4-pin, for flexible Memosens laboratory cable, or M12 socket, 8-pin, for flexible connecting cable for Memosens sensors	
Display ranges ⁴⁾	mV	-1999 ... 1999 mV
	Temperature	-50 ... 250 °C / -58 ... 482 °F
Sensor adjustment ^{*)}	ORP calibration (zero offset)	
Permissible calibration range	ΔmV (offset)	-700 ... 700 mV

Specifications

Memosens conductivity input	M8 socket, 4-pin, for flexible Memosens laboratory cable, or M12 socket, 8-pin, for flexible connecting cable for Memosens sensors	
Measuring range	Sensor SE 615/1-MS	10 $\mu\text{S}/\text{cm}$... 20 mS/cm
Measuring cycle	Approx. 1 s	
Temperature compensation	Linear 0 ... 20 %/K, adjustable reference temperature nLF: 0 ... 120 °C/32 ... 248 °F NaCl (ultrapure water with traces) HCl (ultrapure water with traces) NH ₃ (ultrapure water with traces) NaOH (ultrapure water with traces)	
Display resolution	Conductivity	0.001 $\mu\text{S}/\text{cm}$ ($c < 0.05 \text{ cm}^{-1}$) 0.01 $\mu\text{S}/\text{cm}$ ($c = 0.05 \dots 0.2 \text{ cm}^{-1}$) 0.1 $\mu\text{S}/\text{cm}$ ($c > 0.2 \text{ cm}^{-1}$)
	Resistivity	00.00 ... 99.99 $\text{M}\Omega \text{ cm}$
	Salinity	0,0 ... 45.0 g/kg (0 ... 30 °C / 32 ... 86 °F)
	TDS	0 ... 1999 mg/l (10 ... 40 °C / 50 ... 104 °F)
	Concentration	0.00 ... 100 wt%
Concentration determination	NaCl	0–26 wt% (0 °C/32 °F) ... 0–28 wt% (100 °C/212 °F)
	HCl	0-18 wt% (-20 °C/-4 °F) ... 0-18 wt% (50 °C/122 °F)
	NaOH	0-13 wt% (0 °C/32 °F) ... 0-24 wt% (100 °C/212 °F)
	H ₂ SO ₄	0–26 wt% (-17 °C/-1.4 °F) ... 0-37 wt% (110 °C/230 °F)
	HNO ₃	0–30 wt% (-20 °C/-4 °F) ... 0–30 wt% (50 °C/122 °F)
	H ₂ SO ₄	94-99 wt% (-17 °C/-1.4 °F) ... 89-99 wt% (115 °C/239 °F)
	HCl	22-39 wt% (-20 °C/-4 °F) ... 22-39 wt% (50 °C/122 °F)
	HNO ₃	35-96 wt% (-20 °C/-4 °F) ... 35-96 wt% (50 °C/122 °F)
	H ₂ SO ₄	28-88 wt% (-17 °C/-1.4 °F) ... 39-88 wt% (115 °C/239 °F)
NaOH	15-50 wt% (0 °C/32 °F) ... 35-50 wt% (100 °C/212 °F)	
Sensor adjustment	Cell constant	Input of cell constant with simultaneous display of conductivity value and temperature
	Solution input	Input of calibration solution conductivity with simultaneous display of cell constant and temperature
	Auto	Automatic determination of cell constant with KCl or NaCl solution

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Specifications

Memosens amperometric oxygen input	M8 socket, 4-pin, for flexible Memosens laboratory cable, or		
	M12 socket, 8-pin, for flexible connecting cable for Memosens sensors		
	Display ranges ⁴⁾	Saturation	0.000 ... 200.0 %
		Concentration	000 µg/l ... 20.00 mg/l
		Partial pressure	0.0... 1000 mbar
	Temperature range ⁴⁾	-20 ... 150 °C / -4 ... 302 °F	
Sensor adjustment	Automatic calibration in air (100 % rel. hum.) Zero calibration		
Storage	In quiver with moisture sponge		
Optical oxygen input	M12 socket, 8-pin		
	OXY measuring ranges at 20 °C / 68 °F	Saturation	0.000 ... 200.0 %
		Concentration	000 µg/l ... 20.00 mg/l
		Partial pressure	0.0... 1000 mbar
	Response time	t ₉₀ < 30 s	t ₉₉ < 60 s
	Measurement error ^{1,2,3)}	Zero signal < 0.1 % of final saturation value	
	Temperature range ⁴⁾	0 ... 50 °C / 32 ... 122 °F	
	Measurement error ^{1,2,3)}	Temperature ± 0.2 K	
	Sensor adjustment	Automatic calibration in air	
		Zero calibration	
	Max. gauge pressure	2.5 bar	
Immersion depth	Min. 60 mm	Max. 25 m	
Storage	In quiver with moisture sponge		

*) User-defined

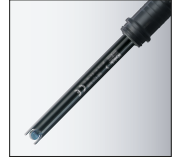

1) At rated operating conditions

2) ± 1 digit

3) Plus sensor error

4) Ranges dependent on Memosens sensor

Portavo 908 Multi Product Line

Portavo 908 Multi		Order no.
	<p>Portavo 908 Multi for measurement using digital Memosens sensors for pH/ORP, conductivity (contacting or toroidal), and oxygen or using the SE 340 optical oxygen sensor, incl. Paraly SW 112 configuration software with USB connector cable and USB adapter (A female to B male) for printer connection.</p>	908 Multi
pH/Pt1000 sensor		
	<p>Digital Memosens pH sensor Polymer body, ceramic junction, length 120 mm / 4.72 inches</p>	SE 101 MS
pH/Pt1000 sensor		
	<p>Digital Memosens pH sensor Glass body, ceramic junction, length 110 mm / 4.33 inches</p>	SE 102 MS
pH/Pt1000 sensor		
	<p>Digital Memosens pH puncture sensor Polymer body, length 90 mm / 2.36 inches</p>	SE 104 MS
2-electrode sensor		Order no.
	<p>Digital conductivity sensor with Memosens technology Stainless steel body, length 120 mm / 4.72 inches</p>	SE 202-MS
2-electrode sensor		Order no.
	<p>Digital conductivity sensor with Memosens technology Polymer body, length 120 mm / 4.72 inches</p>	SE 615/1-MS
Toroidal conductivity sensor (digital)		
	with dairy pipe DN 50 process connection	SE 680N-C1N4U00M
	with Varivent DN 50 process connection	SE 680N-V1N4U00M
	with 2" clamp process connection	SE 680N-J2N4U00M
	with process connection for für ARF 210/215	SE 680N-K8N4U00M

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Portavo 908 Multi Product Line

Oxygen sensor



The SE 715 oxygen sensor with Memosens plug-in system requires little maintenance and is equipped with a temperature probe. It features high long-term stability, a fast response, and low flow dependence. The sensor is designed for the simultaneous measurement of dissolved oxygen and temperature.

SE 715 MS

Optical oxygen sensor



Thanks to its optical measuring function and digital data transmission, the SE 340 oxygen sensor is ideal for use with the Portavo 907. It is sturdy and waterproof (IP 68), and, with its extremely fast response time, suitable for a wide range of applications. A further plus point is the beveled membrane, which is both free from incident flow and easy to clean. With a 1.5 m / 4.92 ft fixed cable.

SE 340

Memosens cable



Measuring cable for digital sensors with Memosens connector
Length 1.5 m / 4.92 ft

CA/MS-001XFA-L

Measuring cable for digital sensors with Memosens connector
Length 2.9 m / 9.51 ft

CA/MS-003XFA-L

Measuring cable for digital sensors with M12 socket, 4-pin, M8 connector, 4-pin, length 1.5 m / 4.92 ft

CA/M12-001M8-L

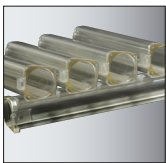
Adapter



Adapter for 12 mm / 0.47 inch industrial sensors with PG 13.5 thread.

ZU 0939

Sensor quiver



5 pcs., replacement, for leak-proof storage of sensors

ZU 0929

Sturdy field case



For device and sensor

Order no.

ZU 0934

Li-ion rechargeable battery



Li-ion rechargeable battery (USB chargeable with Portavo 904, 907, and 908 only)

ZU 0925

Portavo 908 Multi Product Line

Impact receipt printer



EPSON TM_U220B

ZU 1000

Ink ribbon



for EPSON TM_U220B

ZU 1001

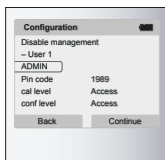
Receipt rolls



for EPSON TM_U220B, 70 mm x 80 m (WxL),
available in packs of 32 units

ZU 1002

TAN Options



Cal SOP calibration method: User management, sensor check,
temperature adjustment (offset)

Order no.

SW-P001

Temperature adjustment (offset)

SW-P002

Multi-channel function

SW-P003

Software







PC software for configuration and firmware update
(free download at www.knick.de)

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Portavo 908 Multi Product Line

CaliMat pH Buffer Solutions

	Quantity	Order no.
	pH 2.00 (20 °C / 68 °F) 250 ml	CS-P0200/250
	pH 4.00 (20 °C / 68 °F) 250 ml 1000 ml	CS-P0400/250 CS-P0400/1000
	pH 7.00 (20 °C / 68 °F) 250 ml 1000 ml	CS-P0700/250 CS-P0700/1000
	pH 9.00 (20 °C / 68 °F) 250 ml 1000 ml	CS-P0900/250 CS-P0900/1000
	pH 12.00 (20 °C / 68 °F) 250 ml	CS-P1200/250
	Set pH 4.00 (20 °C / 68 °F) 3 x 250 ml	CS-PSET4
	Set pH 7.00 (20 °C / 68 °F) 3 x 250 ml	CS-PSET7
	Set pH 9.00 (20 °C / 68 °F) 3 x 250 ml	CS-PSET9
	Set pH 4.00 / 7.00 / 9.00 (20 °C / 68 °F) 3 x 250 ml	CS-PSET479
	KCl solution, 3 molar 250 ml	ZU 0062