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 the 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.

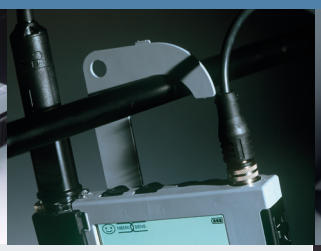
Greater Reliability During Operation

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.

Multiparameter

Facts and Features

- Multiparameter:
  pH
  ORP
  Contacting conductivity
  Toroidal conductivity
  Amperometric oxygen
  Optical oxygen
  Temperature
- Oxygen measurement in liquids or in the gaseous phase
- Multichannel function
- GLP compliant
- Direct printer control
- User management
- New add-on functions, such as a new pH calibration procedure, user management, sensor verification, and calibration of the temperature detector, are available as options.
- Digital Memosens sensors
- Concentration measurement with toroidal conductivity sensors
- Sturdy, practical, convenient
- Li-ion rechargeable battery
  – USB chargeable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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      Memosens
Sensor Type             pH
Manufacturer            Knick
Order No.               SE 555X/1-NMSN
Serial No.              2180694
Software Ver.           1.0.6
Hardware Ver.           1.5.2
TAG                     ABC 13.11.12_wo
Temp. Offset            0.0 K
Operating Time          50 h
Wear                    0 %
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
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MEMOSENS

3-year warranty

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 Memosens laboratory cable, 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, Chinese		
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)	
	Immunity to interference	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 temp.	–25 … 70 °C / -13 … 158 °F		
Relative humidity	0 … 95 %, brief condensation permissible		

Multiparameter

Specifications

Housing			
Material	PA12 GF30 (silver gray RAL 7001) + TPE (black)		
Ingress protection	IP66/67 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
		Cal SOP	Cal SOP calibration method (TAN option 001)
		Temperature	(TAN option 001/002)
		Manual	Manual calibration with entry of individual buffer values
		Data entry	Data entry of zero 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)	Loadable via Paraly SW 112
	Permissible calibration range	Zero point	6 ... 8 pH
		Slope	approx. 74 … 104 %
		(possibly restricting notes from Sensoface)	
	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)	
		Temperature (TAN option 001/002)	
	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 Memosens laboratory cable		
	Measuring range	Sensor SE 615/1-MS	10 µS/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 µS/cm (c < 0.05 cm^{-1}) 0.01 µS/cm (c = 0.05 … 0.2 cm^{-1}) 0.1 µS/cm (c > 0.2 cm^{-1})
		Resistivity	00.00 … 99.99 MΩ 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_2SO_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_2SO_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_2SO_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	
	Temperature	(TAN option 001/002)	

Multiparameter

Specifications

Memosens amperometric oxygen input	M8 socket, 4-pin, for flexible Memosens laboratory cable, or M12 socket, 8-pin, for flexible Memosens laboratory cable		
	Display ranges[4)]	Saturation	0.000 … 200.0 %
		Concentration	000 µg/l … 20.00 mg/l
		Partial pressure	0.0… 1000 mbar
		Volume concentration in gas	0.00 … 99.99 Vol%
	Temperature range[4)]	–20 … 150 °C / -4 … 302 °F	
	Sensor adjustment	Automatic calibration in air (100 % rel. humidity)	
		Zero calibration	
		Temperature	(TAN option 001/002)
	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
		Volume concentration in gas	0.00 … 99.99 Vol%
	Response time	t90 < 30 s	t99 < 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	

*) User-defined

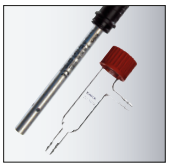
1) At rated operating conditions

2) ± 1 digit

3) Plus sensor error

4) Ranges dependent on Memosens sensor

Portavo 908 Multi Product Line

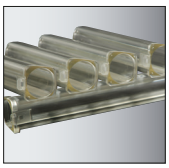
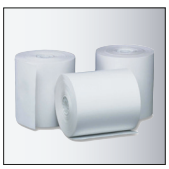
Portavo 908 Multi		Order No.
 pH/Pt1000 sensor	Portavo 908 Multi for measurement using digital Memosens sensors for pH/ORP, conductivity (contacting or toroidal), and oxygen or using the SE 340 optical oxygen sensor, incl. Paraly SW 112 configuration software with USB connector cable and USB adapter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

Multiparameter

Portavo 908 Multi Product Line

		Order No.
Oxygen sensor		
	The SE 715 oxygen sensor with Memosens plug-in system requires little maintenance and is equipped with a temperature detector. 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
	Measuring cable with M12 connector for sensors with Memosens connector Length 1.5 m / 4.92 ft	CA/MS-001XDA-L
	Measuring cable with M12 connector for sensors with Memosens connector Length 2.9 m / 9.51 ft	CA/MS-003XDA-L
Sensor protection / calibration cap		
	Sensor protector that also serves as a calibration beaker for the SE 340 optical oxygen sensor.	ZU 0911
Protective cap		
	Sensor cap, spare part for the SE 340 optical oxygen sensor.	ZU 0913
Maintenance kit		
	Electrolyte, 3 membrane caps for amperometric oxygen sensors	ZU 0879

Portavo 908 Multi Product Line

Adapter		Order No.
	Adapter for 12 mm / 0.47 inch industrial sensors with PG 13.5 thread.	ZU 0939
	Adapter for BNC pH sensors to DIN socket	ZU 1190
Sensor quiver		
	5 pcs., replacement, for leak-proof storage of sensors	ZU 0929
Sturdy field case		
	For device and sensor	ZU 0934
Li-ion rechargeable battery		
	Li-ion rechargeable battery	ZU 0925
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

Multiparameter

Portavo 908 Multi Product Line

TAN options

	Order No.
 Cal SOP*) calibration method, user management, sensor verification, temperature detector adjustment in the Memosens sensor (offset correction) *)Cal SOP for pH only	SW-P001
Temperature detector adjustment in the Memosens sensor (offset correction)	SW-P002
Multi-channel function	SW-P003

Paraly SW112

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

Conductivity standard	Order No.
 For determining and checking cell constants, 1 ampoule for producing 1000 ml 0.1 mol/l NaCl solution (12.88 mS/cm)	ZU 6945
For determining and checking cell constants, conductivity 12.88 mS/cm ±1 % (0.1 mol/l KCl), 500 ml ready-to-use solution	CS-C12880K/500
For determining and checking cell constants, conductivity 1413 µS/cm ±1 % (0.01 mol/l KCl), 500 ml ready-to-use solution	CS-C1413K/500
For determining and checking cell constants, conductivity 147 µS/cm ±1 %, 500 ml ready-to-use solution	CS-C147K/500
For determining and checking cell constants, low conductivity 15 µS/cm ±5 %, 500 ml ready-to-use solution	CS-C15K/500
For determining and checking cell constants, conductivity standard 1.3 µS/cm KCl 300 ml	ZU 0701

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	CS-P0400/250
		1000 ml	CS-P0400/1000
	pH 7.00 (20 °C / 68 °F)	250 ml	CS-P0700/250
		1000 ml	CS-P0700/1000
	pH 9.00 (20 °C / 68 °F)	250 ml	CS-P0900/250
		1000 ml	CS-P0900/1000
	pH 12.00 (20 °C / 68 °F)	250 ml	CS-P1200/250

Multiparameter

Portavo 908 Multi Product Line

CaliMat pH Buffer Solutions		Quantity	Order No.
	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