



Portavo 907 Multichannel MS

Portable multiparameter analyzer with multi-channel function for simultaneous measurement with Memosens sensors

Portavo 907 Multichannel MS is the first multi-channel device in the Portavo product line. Any 2 Memosens sensors can be connected at the same time. In addition to a Memosens sensor, it is also possible to use the SE 340 digital optical oxygen sensor.

Many new features distinguish the Portavo 907 Multichannel MS 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.

Full Measured Value Recording

Data logger functionality for both sensors in use. Measurement data is saved and displayed directly in the device.

Security Package Included

User management

The Portavo 907 Multichannel MS'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 Portavo 907 Multichannel MS 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.

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
- 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



MEMO SENS



Specifications

Connections	2 x socket Ø 4 mm for separate temperature probe 1x M8 socket, 4-pin, for flexible Memosens laboratory cable, or measuring cable for digital CONDI sensors with Memosens protocol, 4-pin M12 coupling; 4-pin M8 connector 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 SW112 (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)	

Multiparameter

Specifications

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	
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
	Manual	Manual calibration with entry of individual buffer values
	Data entry	Data entry of zero and slope
	Cal SOP	Cal SOP calibration method (TAN option 001)
	Temperature	(TAN option 001/002)
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	

Specifications

Memosens ORP input	M8 socket, 4-pin, for flexible Memosens laboratory cable, or M12 socket, 8-pin, for flexible Memosens laboratory cable
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	Δ mV (offset) -700 ... 700 mV
Memosens conductivity input	M8 socket, 4-pin, for flexible Memosens laboratory cable, or measuring cable for digital CONDI sensors with Memosens protocol, 4-pin M12 coupling; 4-pin M8 connector M12 socket, 8-pin, for flexible Memosens laboratory cable
Measuring range	Sensor SE 615/1-MS 10 μ S/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 μ S/cm ($c < 0.05 \text{ cm}^{-1}$) 0.01 μ S/cm ($c = 0.05 \dots 0.2 \text{ cm}^{-1}$) 0.1 μ S/cm ($c > 0.2 \text{ cm}^{-1}$) Resistivity 00.00 ... 99.99 M Ω cm Salinity 0,0 ... 45.0 g/kg (0 ... 30 °C / 32 ... 86 °F) TDS 0 ... 5000 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 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	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		

*¹⁾ User-defined


¹⁾ At rated operating conditions

²⁾ ± 1 digit

³⁾ Plus sensor error

⁴⁾ Ranges dependent on Memosens sensor

Portavo 907 Multichannel MS Product Line

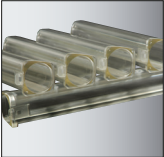
Portavo 907 Multichannel MS		Order No.
 <p>pH/Pt1000 sensor</p>	<p>Portavo 907 Multichannel MS for simultaneous measurement using 2 digital Memosens sensors for pH/ORP value, conductivity (contacting or toroidal), and oxygen or using the SE 340 optical oxygen sensor, incl. Paraly SW 112 configuration software with USB connector cable and USB adapter (A female to B male) for printer connection.</p>	<p>Portavo 907 Multichannel MS</p>
 <p>pH/Pt1000 sensor</p>	<p>Digital Memosens pH sensor Polymer body, ceramic junction, length 120 mm / 4.72 inches</p>	<p>SE 101 MS</p>
 <p>pH/Pt1000 sensor</p>	<p>Digital Memosens pH sensor Glass body, ceramic junction, length 110 mm / 4.33 inches</p>	<p>SE 102 MS</p>
 <p>2-electrode sensor</p>	<p>Digital Memosens pH puncture sensor Polymer body, length 90 mm / 2.36 inches</p>	<p>SE 104 MS</p>
 <p>2-electrode sensor</p>	<p>Digital conductivity sensor with Memosens technology Stainless steel body, length 120 mm / 4.72 inches</p>	<p>SE 202-MS</p>
 <p>Toroidal conductivity sensor (digital)</p>	<p>Digital conductivity sensor with Memosens technology Polymer body, length 120 mm / 4.72 inches</p>	<p>SE 615/1-MS</p>
	<p>with dairy pipe DN 50 process connection</p>	<p>SE 680N-C1N4U00M</p>
	<p>with Varivent DN 50 process connection</p>	<p>SE 680N-V1N4U00M</p>
	<p>with 2" clamp process connection</p>	<p>SE 680N-J2N4U00M</p>
	<p>with process connection for ARF 210/215</p>	<p>SE 680N-K8N4U00M</p>

Multiparameter

Portavo 907 Multichannel MS Product Line


Oxygen sensor		Order No.
	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
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
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

Portavo 907 Multichannel MS 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
Base stand 	Base stand for mounting up to 3 sensors with base plate made of stainless steel	ZU 6953
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
TAN options 	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
Paraly SW112 	PC software for configuration and firmware update (free download at www.knick.de)	

Multiparameter

Portavo 907 Multichannel MS Product Line

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 $\pm 1\%$ (0.1 mol/l KCl), 500 ml ready-to-use solution	CS-C12880K/500
	For determining and checking cell constants, conductivity 1413 μ S/cm $\pm 1\%$ (0.01 mol/l KCl), 500 ml ready-to-use solution	CS-C1413K/500
	For determining and checking cell constants, conductivity 147 μ S/cm $\pm 1\%$, 500 ml ready-to-use solution	CS-C147K/500
	For determining and checking cell constants, low conductivity 15 μ S/cm $\pm 5\%$, 500 ml ready-to-use solution	CS-C15K/500
	For determining and checking cell constants, conductivity standard 1.3 μ S/cm KCl 300 ml	ZU 0701

Portavo 907 Multichannel MS 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 907 Multichannel MS 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