Portavo 904 X pH

The world's only portable process analyzer for pH/ORP measurement, for use in hazardous locations. Ideal for applications in the process industry.

For the first time, Portavo makes it possible to check process measuring points directly on site. Memosens or analog pH and ORP sensors can be connected to the Portavo.

The MemoLog function enables the logging of calibration data from various Memosens measuring points. Up to 5,000 values can be recorded using the integrated data logger. Using the USB port and Paraly SW112 software, the logger data can be easily transferred to a PC for evaluation.

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 solutions, e.g., CaliMat, NIST, and DIN. A maximum permissible deviation (Delta pH) is entered for the verification buffer.

Security Package, Including
User Management

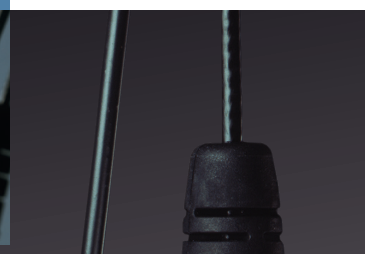
Professional user management regulates access to the device and the sensor.
- Increased security for configuration, calibration, measurement data, and data logger settings.
- No unauthorized interventions during the operating cycle
- Up to 4 user profiles can be set
- Different access rights can be established

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 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.

pH/ORP Measurement



Facts and Features

- Memosens sensors or analog sensors for pH or ORP measurement can be used with one device
- Sensor quiver protects the sensor from drying out and damage
- Sturdy housing with IP66/67 protection, also suitable for outdoor use
- Data logger with 5,000 values
- Micro USB port and Paraly SW 112 operating software
- Mineral glass screen can still be read perfectly after many years
- Use in hazardous locations
- Custom pH calibration Cal SOP
- User management for access control
- Sensor verification for clear assignment of the sensor to the device via sensor type, TAG, or group
- Temperature detector adjustment in the Memosens sensor (offset correction)

MEMOSENS

3-year warranty

Original size

Specifications

pH/mV input (analog)	pH socket DIN 19 262 (13/4 mm)		
	pH measuring range	–2 ... 16	
	Decimal places*)	2 or 3	
	Input resistance	1 x 10^{12} Ω	(0 ... 35 °C / 32 ... 86 °F)
	Input current	1 x 10^{-12} A (at RT, doubles every 10 K)	
	Measuring cycle	Approx. 1 s	
	Measurement error[1,2,3)]	< 0.01 pH, TC < 0.001 pH/K	
	mV measuring range	–1300 ... 1300 mV	
	Measuring cycle	Approx. 1 s	
	Measurement error[1,2,3)]	< 0.1 % meas. val. + 0.3 mV, TC < 0.03 mV/K	
Temperature input	2 x Ø 4 mm for integrated or separate temperature detector		
	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	
Memosens pH input, ISFET	M8 socket, 4-pin, for Memosens laboratory cable		
	Display ranges[4)]	pH	–2.000 ... 16.000
		mV	–2000 ... 2000 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	
	ISFET zero	Calibration of ISFET sensors	
	Data entry	Data entry of zero and slope	
	Cal-SOP (TAN option)	Software option SW-P001: Defining the pH buffers and the sequence of the calibration steps; defining the delta deviation for the verification buffer	
	Temperature calibration (TAN option)	Software option SW-P002: Temperature detector adjustment in the Memosens sensor (offset correction)	
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	
	–U1– (User)	loadable via Paraly SW 112	
Permissible calibration range	Zero point	6 ... 8 pH	
	Slope	Approx. 74 ... 104 %	
	ISFET	–750 ... 750 mV	Operating point (asymmetry)

pH/ORP Measurement

Specifications

Memosens ORP input	M8 socket, 4-pin, for Memosens laboratory cable		
	Display ranges[4)]	mV Temperature	–2000 ... 2000 mV –50 ... 250 °C / –58 ... 482 °F
Sensor adjustment*)	ORP calibration (zero offset) Permissible calibration range	 ΔmV (offset)	 –700 ... 700 mV
	Temperature calibration (TAN option)	Software option SW-P002 for temperature detector adjustment in the Memosens sensor (offset correction)	
Calibration timer*)	Interval	1 ... 99 days, can be deactivated	
Sensoface	Provides information on the condition of the sensor Evaluation of	 Zero point/slope, response time, calibration interval	
Connections	2 x socket Ø 4 mm for separate temperature probe 1 x M8 socket, 4-pin, for Memosens laboratory cable 1 x micro USB-B for data transmission to PC 1 x pH socket in acc. with DIN 19262		
Display	LCD STN 7-segment display with 3 lines and icons Status indicators Notices	 For battery condition, logger Hourglass	
Keypad	[on/off], [cal], [meas], [set], [▲], [▼], [STO], [RCL], [clock]		
Data logger	Space for 5,000 entries Recording	 Manual, interval- or event-controlled	
MemoLog calibration data logger (Memosens only)	Can save up to 100 Memosens calibration records – directly readable via MemoSuite (USB): Manufacturer, sensor type, serial no., zero point, slope, calibration date		
Communication	USB 2.0		
	Profile Usage	HID, driverless installation Data transfer and configuration via the Paraly SW 112 software	
Diagnostic functions	Sensor data (Memosens only)	Manufacturer, sensor type, serial number, operating time	
	Calibration data	Calibration date; zero point, slope	
	Device self-test	Automatic memory test (FLASH, EEPROM, RAM)	
	Device data	Device type, software version, hardware version	
Data retention	Parameter, calibration data > 10 years		
EMC	EN 61326-1 (General requirements) Emitted interference Immunity to interference EN 61326-2-3	 Class B (residential) Industrial applications	
Explosion protection	See Ex Certificates and EU Declaration of Conformity or www.knick.de		

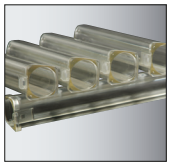
Specifications

RoHS conformity	According to Directive 2011/65/EU	
Power supply	4 x AA (Mignon) alkaline batteries	
	Operating time	Approx. 1000 h (alkaline)
Rated operating conditions	Ambient temperature	–10 °C ≤ Ta ≤ 40 °C T4 –10 °C ≤ Ta ≤ 50 °C T3
	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	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

*) User-defined
1) At rated operating conditions
2) ± 1 digit
3) Plus sensor error
4) Ranges dependent on Memosens sensor

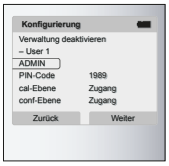
pH/ORP Measurement

Portable Device and Sensor Product Line for pH Measurement in Hazardous Locations

		Order No.
Portavo 904 X pH		
	Portavo 904 X for measurement with analog or Memosens pH/ORP sensors in hazardous locations, incl. USB connector cable.	904 X pH
Portavo 904XSET-PH		
	Portavo 904XPH, SE 554X/1-NMSN pH sensor, CA/MS-001XFA-L Memosens cable, CS-PSET479 Calimat pH buffer solution set, ZU 0934 field case (further pH and ORP sensors: www.knick.de).	904 X Set pH
SE 554 Memosens pH sensor		
	Low-maintenance sensor for demanding process applications in the chemical industry, digital, with Memosens technology Length 120 mm / 4.72 inches	SE 554X/1-NMSN
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
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	ZU 0934

pH/ORP Measurement

Portable Device and Sensor Product Line for pH Measurement in Hazardous Locations

		Order No.
pH/Pt1000 sensor		
	For measurement in Ex Zone 0, including equipotential bonding cable, glass body, ceramic junction	ZU 6979
Base stand		
	Base stand for mounting up to 3 sensors with base plate made of stainless steel	ZU 6953
Pt1000 temperature detector		
	For temperature measurements with quick response time: Monel 2.4360, –10 ... 100 °C / 14 ... 212 °F, accuracy class A according to IEC 751	ZU 6959
Inspection certificate 3.1		
	For Portavo/Portamess pH	ZU 0268/9nnpH
TAN options	For Portavo 904, 907, and 908	
	User management, sensor verification, temperature adjustment (offset)	SW-P001
	Temperature adjustment (offset)	SW-P002
Paraly SW 112 software	PC software for Portavo 904, 907, and 908	
	Software for configuration and firmware update (free download at www.knick.de)	

Accessories and Buffer Solution 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

pH/ORP Measurement

Buffer Solution 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	250 ml	ZU 0960