



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)



MEMO SENS



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 | -2000 ... 2000 mV |
| | | Temperature | -50 ... 250 °C / -58 ... 482 °F |
| Sensor adjustment*) | ORP calibration (zero offset) | | |
| | Permissible calibration range | Δ mV (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 \varnothing 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 | For battery condition, logger | |
| | Notices | Hourglass | |
| Keypad | [on/off], [cal], [meas], [set], [\blacktriangle], [\blacktriangledown], [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 | 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, 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 | Class B (residential) | |
| | Immunity to interference | Industrial applications | |
| | EN 61326-2-3 | | |
| 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

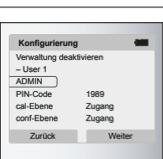
pH/ORP Measurement

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

| Portavo 904 X pH | | Order No. |
|---|---|----------------|
|  | 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

| pH/Pt1000 sensor | | Order No. |
|---|--|--------------|
|  | 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/Portames pH | ZU 0268/9npH |
| 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 |