



## Portavo 904 X Cond

**The world's only portable analyzer for conductivity measurement in hazardous locations. Ideal for applications in the process industry.**

Portavo 904 X Cond enables direct on-site testing of process measuring points. Memosens or analog conductivity sensors can be connected.

Up to 5,000 values can be recorded using the integrated data logger. The MemoLog function allows the user to log calibration data from various Memosens measuring points, which can then be easily transferred to a computer via the USB connection. The Paraly SW 112 software enables user-friendly management of all recorded data.

### Security Package Included

#### User management

The 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 entered
- Different access rights can be established

Depending on user experience, the role profile can be selectively defined for configuring the device and sensor as well as for calibrating the sensor. The risk of changing settings inadvertently is clearly minimized in this way.

### More Safety During Operation

Memosens sensors can be assigned directly to the Portavo. As such, data saved in the sensor can be consulted, including

Sensor type  
TAG  
Group

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

### Facts and Features

- Memosens sensors or analog sensors for conductivity measurement can be used on one device.
- A sensor quiver protects the sensor from damage
- Robust housing with IP66/67, also for outdoor use
- Data logger with 5,000 values
- Micro USB port and Paraly SW 112 software
- The mineral glass display is perfectly readable even after years
- Hazardous-area application
- User management for access control
- Sensor check for clear sensor-to-device assignment via sensor type, TAG or "Group"
- Temperature probe adjustment in the Memosens sensor (offset correction)



Authorised distributor

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3-year  
warranty!

### Specifications

Conductivity input, analog	Multi-contact for 2-/4-electrode sensors with integrated temp detector		
	Measuring ranges	SE 202 sensor:	0.01 ... 200 µS/cm
		SE 204 sensor:	0.05 ... 500 mS/cm
		2-electrode sensors:	0.1 µS • c ... 200 mS • c <sup>4)</sup>
		4-electrode sensors:	0.1 µS • c ... 1000 mS • c <sup>4)</sup>
	Permissible cell constant	0.005 ... 200.0 cm <sup>-1</sup> (adjustable)	
	Measurement error <sup>1,2,3)</sup>	< 0.5 % meas.val. + 0.4 µS • c <sup>4)</sup>	
Temperature input	2 x 4 mm dia. 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 <sup>1,2,3)</sup>	< 0.2 K (Tamb = 23 °C / 73.4 °F); TC < 25 ppm/K	
Conductivity input, Memosens	M8 socket, 4 pins, for Memosens lab cable		
Conductivity input	Measuring cycle	Approx. 1 s	
	Temperature compensation	Linear 0 ... 20 %/K, reference temp. adjustable	
		nLF: 0 ... 120 °C / 32 ... 248 °F	
		NaCl (ultrapure water with traces)	
		HCl (ultrapure water with traces)	
		NH3 (ultrapure water with traces)	
		NaOH (ultrapure water with traces)	
Display resolution (autoranging)	Conductivity <sup>4)</sup>	0.001 µS/cm	(c < 0.05 cm <sup>-1</sup> )
		0.01 µS/cm	(c = 0.05 ... 0.2 cm <sup>-1</sup> )
		0.1 µS/cm	(c > 0.2 cm <sup>-1</sup> )
	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 ... 9.99 wt%	
Concentration determination	NaCl	0.00 ... 9.99 wt% (0 ... 60 °C / 32 ... 140 °F)	
	HCl	0.00 ... 9.99 wt% (-20 ... 50 °C / -4 ... 122 °F)	
	NaOH	0.00 ... 9.99 wt% (0 ... 100 °C / 32 ... 212 °F)	
	H <sub>2</sub> SO <sub>4</sub>	0.00 ... 9.99 wt% (-17 ... 110 °C / 1.4 ... 230 °F)	
	HNO <sub>3</sub>	0.00 ... 9.99 wt% (-17 ... 50 °C / 1.4 ... 122 °F)	
Sensor standardization	Cell constant	Input of cell constant with simultaneous display of conductivity value and temperature	
	Input of solution	Input of conductivity of the calibration solution with simultaneous display of cell constant and temperature	
	Auto	Automatic determination of the cell constant with KCl solution or NaCl solution	
	Temperature calibration (TAN option)	Software option SW-P002 for temperature probe adjustment in the Memosens sensor (offset correction)	
Connections	2 x socket, 4 mm dia., for separate temperature probe 1 x M8 socket, 4 pins, for Memosens lab cable 1 x micro USB-B for data transmission to PC 1 x multi-contact socket for analog 2- and 4-electrode sensors		

## Specifications

Display	LCD STN 7-segment display with 3 lines and icons Sensoface Provides information on the sensor condition Status indicators For battery power level, logger Notices Hourglass
Keypad	[on/off], [cal], [meas], [set], [▲], [▼], [STO], [RCL], [clock]
Data logger	5,000 memory locations Recording Manual, interval- or event-controlled
MemoLog calibration data logger (Memosens only)	Up to 100 Memosens calibration records can be saved – directly retrievable via MemoSuite (USB) Manufacturer, sensor type, serial no., zero, slope, calibration date
Communication	USB 2.0 Profile HID, driverless installation Usage Data exchange and configuration via Paraly SW 112 software
Diagnostic functions	Sensor data (Memosens only) Manufacturer, sensor type, serial number, operating time Calibration data Calibration date; 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 environment) Immunity to interference Industrial applications EN 61326-2-3 (Particular Requirements for Transmitters)
Explosion protection	IECEX Ex ia IIC T4/T3 Ga ATEX II 1 G Ex ia IIC T4/T3 Ga cFMus IS Class I, Division 1, Groups A,B,C,D, T4/T3, Ta = 40 °C / 50 °C; Entity – 209.009-110 IP 67 IS Class I, Zone 0, Group IIC Ta = 40 °C / 50 °C; Entity – 209.009-110 IP 67 See Control Drawing or <a href="http://www.knick.de">www.knick.de</a>
RoHS conformity	According to directive 2011/65/EU
Power supply	4 x AA alkaline batteries Operating time Approx. 1000 h (alkaline)
Nominal 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 %, short-term condensing allowed
Housing	Material PA12 GF30 (silver 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

\* user-defined

1) at nominal operating conditions

2) ± 1 count

3) plus sensor error

4) c = cell constant



## Portables and Sensors for Conductivity Measurement in Hazardous Areas – Product Range

### Portavo 904 X Cond



Portavo 904 X for conductivity measurements in hazardous areas with analog or Memosens conductivity sensors, incl. USB connector cable.

Order No.

904 X Cond

### Portavo 904XSET-COND



Portavo 904 X COND, SE 204 conductivity sensor with cable  
ZU 6945 NaCl calibration solution, ZU 0934 field case

Order No.

904 X Set Cond

### SE 604 Memosens Conductivity Sensor



Robust 2-electrode sensor, for precise and reliable measurement of low and very low conductivities, particularly in ultrapure water, digital, with Memosens technology.  
More conductivity sensors: [www.knick.de](http://www.knick.de)

SE 604X-MS

### Memosens cable



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

CA/MS-001XFA

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

CA/MS-003XFA-L

Measuring cable for digital toroidal conductivity sensors with Memosens protocol, length 1.5 m / 4.92 ft

CA/M12-001M8-L

### Adapter



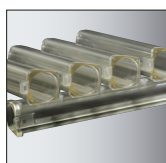
For connecting a conductivity sensor with 2 banana plugs to a Portavo Cond device

ZU 0289

For connecting the ZU 6985 4-electrode sensor to a Portavo Cond device

ZU 0290

### Sensor Quiver



5 quivers, as replacement, for leak-proof storage of sensors

ZU 0929




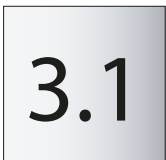
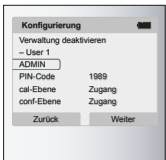

### Robust Field Case



For meter and sensor

ZU 0934

## Portables and Sensors for Conductivity Measurement in Hazardous Areas – Product Range

Conductivity Standard		Order No.
	For determination and checking of cell constants, 1 ampoule for producing 1000 ml of 0.1 mol/l NaCl solution (12.88 mS/cm)	ZU 6945
	For determination and checking of cell constants. Conductivity: 12.88 mS/cm $\pm$ 1 % (0.1 mol/l KCl), 500 ml solution, ready for use	CS-C12880K/500
	For determination and checking of cell constants. Conductivity: 1413 $\mu$ S/cm $\pm$ 1 % (0.01 mol/l KCl), 500 ml solution, ready for use	CS-C1413K/500
	For determination and checking of cell constants. Conductivity: 147 $\mu$ S/cm $\pm$ 1 %, 500 ml solution, ready for use	CS-C147K/500
	For determination and checking of cell constants. Low conductivity: 15 $\mu$ S/cm $\pm$ 5 %, 500 ml solution, ready for use	CS-C15K/500
	For determination and checking of cell constants. Conductivity standard: 1.3 $\mu$ S/cm KCl 300 ml	ZU 0701
Base Stand		
	Base stand for accepting up to 3 sensors with base plate made of stainless steel	ZU 6953
Pt1000 Temperature Probe		
	For fast response temperature measurements: Monel 2.4360, $-10 \dots 100 \text{ }^{\circ}\text{C}$ / $14 \dots 212 \text{ }^{\circ}\text{F}$ , accuracy class A to IEC 751	ZU 6959
Inspection Certificate 3.1		
	For Portavo/Portamess Cond	ZU 0268/9nnCOND
TAN Options	For Portavo 904, 907, 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, 908	
	Software for configuration and firmware update (free download at <a href="http://www.knick.de">www.knick.de</a> )	