

Multi-parameter Measurement Redefined

Multi 3410, 3420, 3430:

The new multi-parameter standard

The new multi-parameter systems with intelligent, digital sensors for pH, dissolved oxygen and conductivity measurement revolutionize multi-parameter measurement: The signal processing is completely located in the sensor, and the measuring signal is transmitted to the meter without interference and in a clearly identifiable manner via thin, high-strength cables. A wide range of sensors are available for virtually every application.

The MultiLine® meters are in a class of their own:

3 models with one, two or three universal channels measure every parameter either sequentially or simultaneously. Every model possesses a brilliant color graphic display, two USB interfaces (USB-A and Mini-USB), and rechargeable batteries that can be charged directly in the device.

- Universal multi-parameter devices for pH, dissolved oxygen and conductivity available as 1, 2 or 3-channel device
- Multi 3420/3430:
Any combinations of the same or different sensors can be used
- High resolution color graphic display, safe data transmission to USB stick



INTELLIGENT **I**
DIGITAL **D**
SENSORS **S**

I

Intelligent:

Intelligent sensors always store their identification data

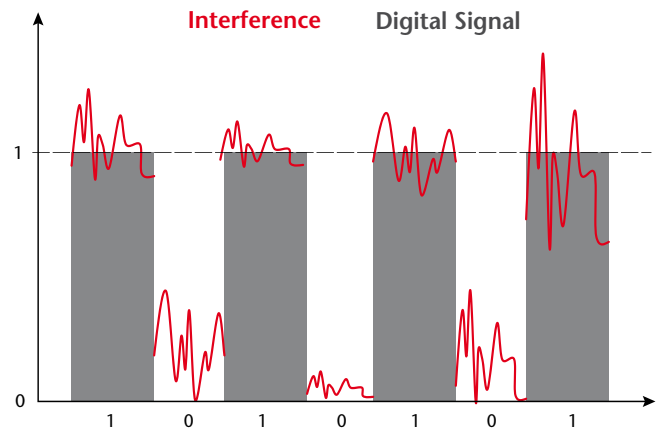
- Every sensor is identified uniquely
- Automatic login to the meter
- Calibration values are stored directly in the sensor

D

Digital:

Digital signal processing and transmission

- No interference with digital signal transmission
- Long cable lengths do not affect signal
- High accuracy through digital signal processing directly in the sensor



S

Sensor:

Sensors for every application

- Application-specific IDS sensors for every parameter
- Built upon proven WTW technology
- Special pH electrodes can be connected by using an adapter

One – Two – Three ...

Measure every parameter sequentially or simultaneously:

One – Multi 3410:

One measurement channel for different parameters: For those who need to measure mainly one parameter, but occasionally require a second or third.

Two – Multi 3420:

Two measurement channels: For simultaneous measurement with two similar or different sensors.

Three – Multi 3430:

Three measurement channels can be used in any combination for similar or different parameters: Simultaneous multi-measurement without compromise.



Immediately ready to measure: MultiLine® sets for measuring on location. Depending on the number of sensors, sets come complete with the meters and accessories conveniently packaged in a carry case.

Left:
Single parameter set – Multi 3410 SET 4 with optical dissolved oxygen sensor FDO® 925 in a handy carry case with accessories.



Right:
Multi 3430 SET F with IDS pH sensor SenTix® 940, optical dissolved oxygen sensor FDO® 925, IDS conductivity cell TetraCon® 925 in field case with accessories.

Quality at a Glance

Housing

MultiLine® instruments feature a waterproof housing and are equipped with rubber armor in all sets. The silicon mat keypad is also fully waterproof, and the large keys, with defined pressure points, ensure reliable operation, even while wearing gloves and in rough conditions.

Display

The brilliant, high-resolution graphic display guarantees excellent readability under adverse lighting conditions. The color coding icons on the display clearly differentiate the parameters being measured simultaneously.

Connector jack panel

All MultiLine® connector panels are injection molded and fully waterproof, including the two USB interfaces. The Mini-USB interface is used to transmit data to a PC or to update the firmware. The devices also have a USB-A interface that enables data to be transmitted directly to a USB stick or a selected printer without needing a PC.

The waterproof, color coded connector jacks with locking system are simple and secure. Color coding is clearly visible on the display and directly correlates with the sensor connected. The locking system ensures proper electrode connection.



General Features	
Model	MultiLine®
Data storage	Manually: 500 records / automatic: 10,000 records
Data logger	Manual/time-controlled
Interface	USB-A and Mini-USB
Power supply	Power supply with charging function or 4 x 1.2 V NiMH batteries
Continuous operation	100 h
IP protection class	IP 67

Ordering Information		
MultiLine®		Order No.
Multi 3410	1 measurement channel	2FD 450
Multi 3420	2 measuring channels	2FD 460
Multi 3430	3 measurement channels	2FD 470

Unique and Distinctive: IDS Sensors



The new IDS sensors – intelligent, digital sensors – represent the next generation of WTW electrochemical sensor technology. Equipped with innovative measurement electronics, IDS sensors automatically store their unique serial number and calibration data. IDS sensors not only store data, but also process signals providing superior data integrity. This enables effective evaluation of the sensor quality by means of the Quality Sensor Control (QSC) function.

FDO® 925 – the Optical Dissolved Oxygen Sensor for Field and Lab



FDO® 925

- Robust and waterproof
- Extremely fast ($t_{99} < 60s$)
- Free of incident flow with beveled membrane
- Factory calibrated sensor cap with intelligent chip
- Low maintenance

The FDO® 925's small dimensions make it suitable for **lab and process**. The flow-free, easy-to-clean, beveled membrane allows it to be used in containers with low sample volumes. Low oxygen concentrations under 1 mg/l can also be detected accurately.



The fast and flow-free FDO® 925 is perfectly suited for **field measurement**. Accessories such as protective armor made of plastic or stainless steel, make this sensor ideal for use in harsh environments. The Kevlar®-strengthened cables of varying lengths allow reliable measurements in deep lakes or raging rivers.

In the **sewage plant**, FDO® 925 excels at BOD measurement in the Karlsruhe bottle as well as in the monitoring of stationary measurement systems. In connection with the AutoRead function of the MultiLine® devices, its characteristics can be aligned to that of the online sensor FDO® 700 IQ and thus guarantees comparable measured values.

IDS Dissolved Oxygen Sensors

Model	FDO® 925
Order No.	201 300
Concentration measuring range	0.00...20.00 mg/l ± 0.5 % of value
Saturation measuring range	0.0 ... 200.0 % ± 0.5 % of value
Partial pressure measuring range	0.0 to 400 hPa ± 0.5 % of value
Temperature	0 ... 50.0 °C (32 ... 122 °F) ± 0.2 °C
Membrane shape	Beveled
Shaft material	POM, Stainless steel
Shaft dimensions	Length, 140 mm (0.46 ft.) ± 1 mm, Ø 15.3 mm (0.05 ft.) ± 0.2 mm
Cable length	1,5 m* (4.92 ft.)

IP 68

*Also available in 3 m, 6 m and 25 m
(9.84 ft., 19.68 ft. and 82.02 ft.)



IDS pH/ORP Electrodes

pH/ORP electrodes are the most commonly used electrochemical sensors. At the same time, they provide the most sensitive measuring signals and must be serviced and calibrated on a routine basis. The concept of IDS sensors precisely takes effect here.

The technology of the new IDS pH/ORP electrodes is built on the proven, high quality electrodes of the SenTix®- and SensoLyt® series. Measurement and maintenance of the electrodes remain unchanged: the only difference is in the electrode head.



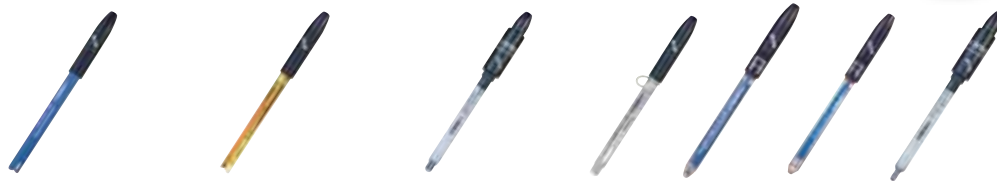
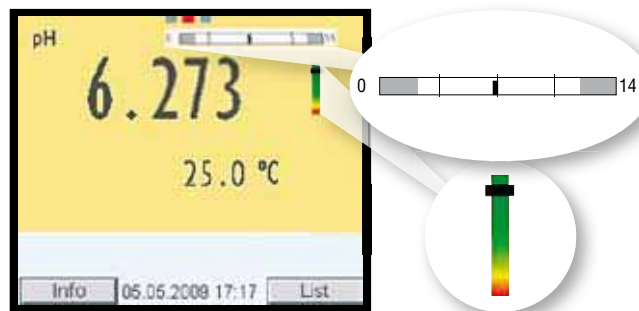
IDS pH/ORP Electrodes

- Fail-safe measuring signal
- Calibration status in the electrode
- Proven reliability and accuracy

Special electrodes such as spear-type or surface electrodes with an S7 connector head can be easily connected to a MultiLine® device with the ADA S7/IDS® adaptor.

QSC (Quality Sensor Control) is a process to assess the actual condition of a pH electrode. An initial calibration is performed with the precision buffers contained in the QSC kit. Each subsequent calibration is now compared with this initial calibration and the result is displayed graphically as a color bar with a gradient from green to red. The current condition of the electrode is displayed permanently.

- The conversion of the measuring signal into an interference-proof digital signal takes place directly in the electrode. This also means a pH measurement with long cables is now possible.
- The calibration data are stored in the electrode itself, transmitted to the meter and displayed. In addition to the proven CMC function for the visual presentation of the calibration point, the new QSC function provides a graphic assessment of the actual electrode quality for IDS pH electrodes.



IDS pH/ORP Electrodes

Model	SenTix® 940	SenTix® 940-3	SenTix® F 900	SenTix® F 900-3	SensoLyt® 900-6	SensoLyt® 900-25	SenTix® 950	SenTix® 980	SenTix® ORP 900	SensoLyt® ORP 900-6	SensoLyt® ORP 900-25
Order No.	103 740	103 741	103 785	103 786	103 742	103 745	103 750	103 780	103 790	103 746	103 747
pH measuring range	pH: 0.000 ... 14.000 ± 0.004		pH: 0.000 ... 14.000 ± 0.004		pH: 2.000 ... 12.000 ± 0.004		pH: 0.000 ... 14.000 ± 0.004		mV: ± 1200.0 ± 0.2		
Temperature range	0 ... 80 °C (32 ... 176 °F)		0 ... 80 °C (32 ... 176 °F)		0 ... 60 °C (32 ... 140 °F)		0 ... 80 °C (32 ... 176 °F)	0 ... 100 °C (32 ... 212 °F)	0 ... 100 °C (32 ... 212 °F)	0 ... 60 °C (32 ... 140 °F)	
Reference electrolyte	Gel		Gel		Polymer		3 mol/l KCl		3 mol/l KCl	Polymer	
Membrane shape	Cylinder		Cylinder		Cylinder		Cylinder	Cone	—		
Diaphragm	Fiber		Fiber		Hole		Ceramic	Platinum wire	Ceramic	Hole	
Shaft material	Plastic		Plastic		Glass		Plastic	Glass	Glass		
Shaft dimensions	Length 120 mm (0.39 ft.) ± 2 mm, Ø 12 mm (0.04 ft.) ± 0.5 mm										
Temp. accuracy	± 0.2 °C										
Cable length	1.5 m (4.92 ft.)	3 m (9.84 ft.)	1.5 m (4.92 ft.)	3 m (9.84 ft.)	6 m * (19.68 ft.)	25 m * (82.02 ft.)	1.5 m (4.92 ft.)	1.5 m (4.92 ft.)	1.5 m (4.92 ft.)	6 m * (19.68 ft.)	25 m * (82.02 ft.)

* IP 68

IDS Conductivity Cells

WTW offers decades of expertise in high quality, rugged conductivity cell technology, and now the new IDS conductivity cells build upon this proven technology including the automatic transfer of the cell constant feature to eliminate operation errors.

IDS Conductivity Cells

- Proven sensor technology
- Easy-to-handle
- Wide range of applications

Two models are available to cover the entire conductivity range:

The four electrode cell TetraCon® 925 for medium and high level conductivity samples, and the two electrode cell LR 925/01 with flow-through vessel for pure-water and low conductivity samples.



TetraCon® 925

LR 925/01

IDS Conductivity Cells

Model	TetraCon® 925	LR 925/01
Order No.	301 710	301 720
Type	4-electrode, graphite	2-electrode, stainless steel
Conductivity	10 µS/cm ... 2000 mS/cm ± 0.5 % of value	0.01 ... 200 µS/cm ± 0.5 % of value
Specific resistance	0.5 Ohm cm ... 100 kOhm cm ± 0.5 % of value	5 kΩ ... 100 MΩ ± 0.5 % of value
Salinity	0.0 ... 70.0 ± 0.5 % of value	—
TDS	0 ... 1999 mg/l, 0,0 ... 199.9 g/l ± 0.5 % of value	—
Temperature	0 ... 100.0 °C (32 ... 212 °F) ± 0,2 °C	0 ... 100.0 °C (32 ... 212 °F) ± 0.2 °C
Cell constant	0.475 cm ⁻¹ ± 1.5 %	0.1 cm ⁻¹ ± 2 %
Shaft material	Epoxy	Stainless steel
Shaft dimensions	Length 120 mm (0.39 ft.) ± 1 mm, Ø 15.3 mm (0.05 ft.) ± 0.2 mm	Length 120 mm (0.39 ft.) ± 1 mm, Ø 12 mm (0.04 ft.) ± 0.2 mm
Cable length	1.5 m* (4.92 ft.)	1.5 m (4.92 ft.)

IP 68

*Also available at 3 m, 6 m and 25 m
(9.84 ft., 19.68 ft. and 82.02 ft.)

Accessories: Protective Armor for IDS Sensors

Removable armor for electrode protection in harsh environments or when additional weight is required for depth measurement: Removable armor for the pressure-resistant IDS sensors, type SensoLyt® 900, FDO® 925 and TetraCon® 925. Available with protective shrouds made of plastic or stainless steel.

Ordering Information

		Order No.
A 925/K	Removable plastic armor suitable for IDS FDO® 925, TetraCon® 925 and SensoLyt® 900	903 836
A 925/S	As above, but with stainless steel shroud	903 837



A925/S

A925/K