

Portable conductivity meters with GLP functions handylab LF 11 and LF 12

The handylab LF 11 and LF 12 portable conductivity meters in shock-proof, water-tight casings are ideally suited for field work.

Measurement parameters

The versatile conductivity meters can be used to measure electrical conductivity, total dissolved solids (TDS), salinity and temperature.

Measurement memory and interface

In comparison with the handylab LF 11, the handylab LF 12 additionally has a data memory, which makes it possible to save measurements manually or automatically using a timer control, and then evaluate them at a later time. Furthermore, this conductivity meter has a configurable interface with a recognition function (RS-232) so that it can be connected to a computer (bidirectional) or a recorder.

Measurement reliability

The special AutoRead function, which can be additionally activated, serves to monitor the drift of the combination electrode. The measure value is only released when the stability criteria are fulfilled. This ensures the reproducibility of measurement results.

Temperature compensation

The automatic temperature compensation works in various selectable modes:

- with an adjustable linear temperature coefficient,
- with a fixed non-linear temperature coefficient or
- with the temperature compensation deactivated.

A reference temperature of 20 °C or 25 °C can be selected.

Calibration

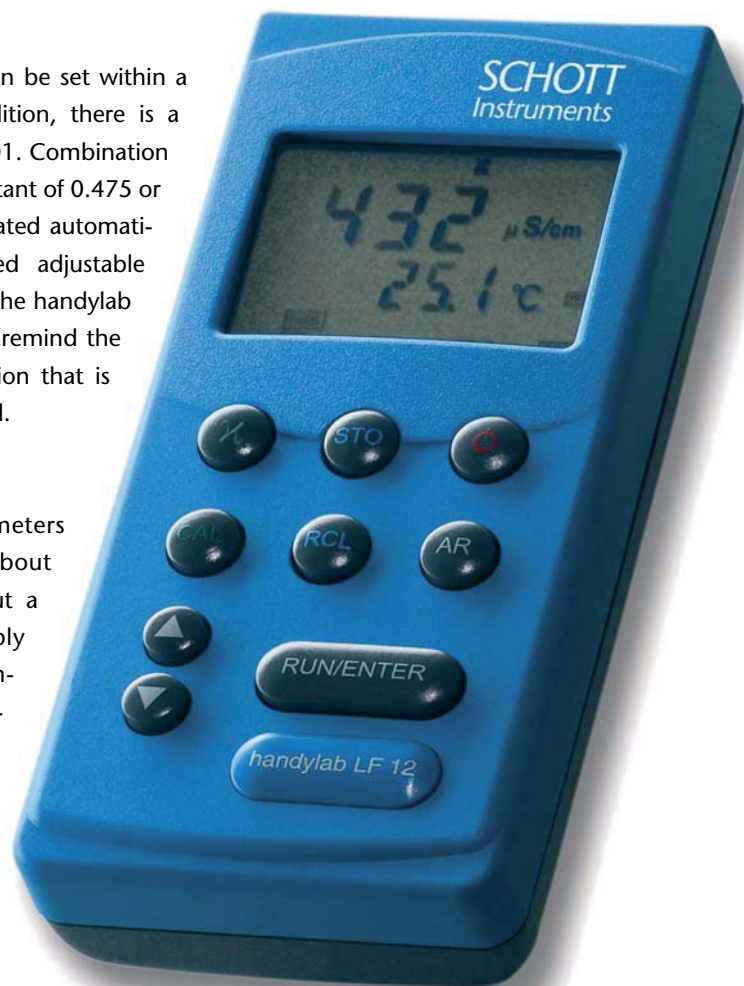
The cell constant can be set within a wide range. In addition, there is a fixed constant of 0.01. Combination cells with a cell constant of 0.475 or 1 can also be calibrated automatically. The integrated adjustable calibration timer in the handylab LF 12 can be set to remind the user of any calibration that is due to be performed.

Power supply

The conductivity meters can be used for about 2,500 hours without a mains power supply using four conventional batteries. A reminder is shown on the display when the batteries have to be replaced. When the batteries are changed, the calibration data are retained in the memory. The handylab LF12 can also be operated with the optional powerpack.

Sensors

Either type LF 513 T electrodes (two pole technology) or type LF 613 T electrodes (four pole technology) can be utilized alternatively. Both types have an integrated temperature sensor. We would be pleased to advise you about your specific application.



Included in the set

The LF 11 and LF 12 conductivity meters are also available as part of a cost-effective set in a carrying case, which includes a combination electrode, calibration solutions and a measuring beaker. With this set, you can get to work right away.

Technical data

handylab LF 11, handylab LF 12

Parameter		handylab LF 11	handylab LF 12	
Measuring ranges				
conductivity	in 5 ranges or AutoRange	0.0 µS/cm...500 mS/cm	0.0 µS/cm...500 mS/cm	
	at k = 0.1 and k = 0.01	0.00 µS/cm...19.99 µS/cm	0.00 µS/cm...19.99 µS/cm	
	at k = 0.01	0.000 µS/cm...1.999 µS/cm	0.000 µS/cm...1.999 µS/cm	
specific resistance		0.000...1999 MΩ·cm	0.000...1999 MΩ·cm	
salinity	acc. to IOT table	0.0...70.0	0.0...70.0	
TDS	factor adjustable 0.40...1.00	0...1999 mg/l	0...1999 mg/l	
temperature	automatic, 3 modes selectable	-5.0...+105.0 °C	-5.0...+105.0 °C	
	resolution	0.1 K	0.1 K	
	manual adjustment	-5...+100 °C	-5...+100 °C	
Cell constants	adjustable	0.01; 0.090...0.110;	0.01; 0.090...0.110;	
		0.250...2.500	0.250...2.500	
	calibrate	0.450...0.500 ; 0.800...1.200	0.450...0.500 ; 0.800...1.200	
	calibration interval control	-	1...999 days	
Accuracy	conductivity	± 0.5 % of measured value	± 0.5 % of measured value	
	salinity	± 0.2	± 0.2	
	TDS	± 2 %	± 2 %	
	temperature (NTC 30)	±0.1 K	±0.1 K	
	Reference temperature	selectable	20 °C or 25 °C	20 °C or 25 °C
temperature compensation mode	non-linear function natural water	acc. to EN 27 888 (DIN 38 404)	yes	yes
	linear compensation		0.001...3.000 %/K	0.001...3.000 %/K
	no compensation		yes	yes
real time clock	integrated with time/date	-	yes	
Data storage				
storage by depression of key		-	800 data records	
time controlled storage	in 7 intervals (5 sec ... 60 min)	-	800 data records	
Connections				
for 2 and 4 pole cells				
with/without temperature sensor (NTC 30)		8 poles socket	8 poles socket	
Interface				
for analogue recorder cable Z 394		-	4 poles socket	
for RS-232 cable Z 395, bi-directional		-	4 poles socket	
Ambient temperature				
operating temperature		-10...+55 °C	-10...+55 °C	
relative humidity (annual average)		< 90 %	< 90 %	
Power supply				
battery operated		4 x 1.5 V mignon cells	4 x 1.5 V mignon cells	
battery life time (data remain when changing batteries)		approx. 2,500 h	approx. 2,500 h	
power supply (no akku)		-	optionally	
automatic switch-off at operation		60 min	60 min	
Housing				
dimensions (H x W x D)		ABS, water-tight key pad 172 mm x 80 mm x 37 mm	ABS, water-tight key pad 172 mm x 80 mm x 37 mm	
weight		approx. 0.3 kg	approx. 0.3 kg	
Display				
LCD multi-function display		60 mm x 45 mm	60 mm x 45 mm	
Instrument safety				
protection class		3, EN 61010-1 A2	3, EN 61010-1 A2	
	protection type	IP 66, EN 60529	IP 66, EN 60529	
approvals/marks of conformity		cETLus, CE	cETLus, CE	
instrument warranty		3 years	3 years	

Order overview handylab pH meters, conductivity meters and oxygen meters

pH meters	Type no.	Order no.
handylab pH 11, individual meter	handylab pH 11	28 520 2871
handylab pH11, individual meter with carrying case	handylab pH 11/K	28 520 2863
handylab pH 11, case set, complete, ready to use with pH combination electrode BlueLine 23 pH, calibration solutions and plastic beakers	handylab pH 11/23 pH	28 520 2917
handylab pH 11, case set, complete, ready to use with pH combination electrode BlueLine 24 pH, calibration solutions and plastic beakers	handylab pH 11/24 pH	28 520 2982
handylab pH 11, case set, complete, ready to use with pH combination electrode BlueLine 14 pH, calibration solutions and plastic beakers	handylab pH 11/14 pH	28 520 2999
handylab pH 12, individual meter	handylab pH 12	28 520 2896
handylab pH12, individual meter with carrying case	handylab pH 12/K	28 520 2888
handylab pH 12, case set, complete, ready to use with pH combination electrode BlueLine 24 pH, calibration solutions and plastic beakers	handylab pH 12/24 pH	28 520 3054
handylab pH 12, case set, complete, ready to use with pH combination electrode BlueLine 14 pH, calibration solutions and plastic beakers	handylab pH 12/14 pH	28 520 3062
Conductivity meters		
handylab LF 11, individual meter	handylab LF 11	28 520 3292
handylab LF11, individual meter with carrying case	handylab LF 11/K	28 520 3276
handylab LF11, case set, complete, ready to use with 4-pole conductivity cell LF 413T, calibration solutions and plastic beaker	handylab LF 11/413 T	28 520 3310
handylab LF 11, case set, complete, ready to use with 2-pole conductivity cell LF 513 T, calibration solutions and plastic beaker	handylab LF 11/513 T	28 520 3321
handylab LF 11, case set, complete, ready to use with 4-pole conductivity cell LF 613 T, calibration solutions and plastic beaker	handylab LF 11/613 T	28 520 3346
handylab LF 12, individual meter	handylab LF 12	28 520 3362
handylab LF12, individual meter with carrying case	handylab LF 12/K	28 520 3354
handylab LF12, case set, complete, ready to use with 4-pole conductivity cell LF 413T, calibration solutions and plastic beaker	handylab LF 12/413 T	28 520 3330
handylab LF 12, case set, complete, ready to use with 4-pole conductivity cell LF 613 T, calibration solutions and plastic beaker	handylab LF 12/613 T	28 520 3379
Oxygen meter		
handylab OX12, individual meter with carrying case	handylab LF 12/K	106 3835
handylab OX 12, case set, complete, ready to use with oxygen sensor 9009/61, calibration and maintenance accessories	handylab OX12-Set	28 520 2793

Order overview handylab multi-parameter portable meters

Multi-Parameter meters	Type no.	Order no.
handylab pH/LF 12, individual meter	handylab pH/LF 12	28 520 3465
handylab pH/LF 12, case set, complete, ready to use with pH combination electrode BlueLine 24-3 pH, 4-pole conductivity cell LF 413-3 T, calibration and maintenance accessories	handylab pH/LF 12-Set	28 520 3473
handylab multi 12, individual meter	handylab multi 12	28 520 3502
handylab multi 12, case set, complete, ready to use with pH combination electrode BlueLine 24-3 pH, 4-pole conductivity cell LF 413-3 T, oxygen sensor 9009/63, calibration and maintenance accessories	handylab multi 12-Set	28 520 3519
Accessories		
Redox combination electrode with plug head	BlueLine 31 Rx	28 512 9311
Plug cable combination e.g. for BlueLine 31 Rx, 1 m cable, DIN plug	LB 1 A	28 512 2653
Electrolyte solution KCl 3 mol/l, 1000 ml DURAN® bottle	L 300	28 513 8554
Technical buffer solutions pH 4.00 / 7.00, 2 x 30 ampoules	L 4690	28 513 8398
Redox test solution 180, 430, 600 mV Pt/calomel; 220, 470, 640 mV Pt/Ag/AgCl, 3 x 20 ampoule	L 4648	28 513 8784
Conductivity test solutions KCl 0.01 / 0.1 / 1 mol/l (1.41 mS/cm / 12.9 mS/cm / 112 mS/cm), 3 x 6 ampoules	LF 995	28 512 6293
Field armouring with holder carrying handle and shoulder strap, for handylab pH meters	Z 384	28 520 4848
Protective armouring with holder and carrying handle, for handylab pH meters	Z 385	28 520 4856
Holder set for protective armouring, for handylab OX12 meters	Z 386	28 520 4864
Rubberized elastic protective armouring with handle support, for all handylab meters	Z 387	28 520 4872
Universal mains power supply unit, 100...240 V for all handylab 12 models	Z 850	28 520 4889
Connecting cable for analogue recorder, for handylab pH 12, LF 12, OX12	Z 394	28 520 4942
Connecting cable for PC, for all handylab 12 models (software included)	Z 395	28 520 4959

Subject to technical changes.

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