Handheld instrument

Display / Controller

Logger / EASYBus

Transmitter

Temperature probe

Alarm / Protection

Water-proof handheld device for conductivity measurement with external electrodes

• **Serial interface**

• **Analog output (GMH 5450)**

• **Data logger and alarm function (GMH 5450)**

• **Measurement of conductivity, resistance, salinity, TDS**

• **Robust silicone protection cover**

• **Large double display with background illumination**

• **Automatic cell correction with reference solutions**

• **Incl. calibration protocol**

WATER-PROOF

DEVICE AND PLUG CONNECTIONS

GMH 5430
Water-proof handheld device without electrode

GMH 5450
Water-proof handheld device with analog output and data logger, without electrode

Application:

Mobile use for:
• industry and craft
• measurements of waters and aquaristics, fish farming
• drinking water monitoring, process control, soil measurements
• food production and control
• quality management

Additional applications at laboratory:
• medicine, pharmacy, chemistry

Specifications:

Measuring range:	
Number of meas. Ranges: 5	
smallest range:	0.000 ... 5.000 µS/cm * or 0.0 ... 500.0 µS/cm **
biggest range:	0 ... 5000 µS/cm * or 0 ... 1000 mS/cm **
Resistivity:	0.005 ... 500.0 kOhm * cm (depends on cell constant)
TDS:	0 ... 5000 mg/l (depends on cell constant)
Salinity:	0.0 ... 70.0 (g salt / kg water)
Temperature:	-5.0 ... +100.0 °C, Pt1000 or NTC (10 k)
Supported cell constants:	4.000 ... 15.000 / cm - 0.4000 ... 1.5000 / cm - 0.04000 ... 0.15000 / cm - 0.004000 ... 0.015000 / cm
Accuracy (at nominal temperature = 25 °C):	
Conductivity:	±0.5 % of m.v. ±0.1 % FS (depends on electrode)
Temperature:	±0.2 K
Connection:	
Conductivity, temperature:	1x 7-pole bayonet connector for connection of different measuring cells, supported temperature sensors: Pt1000 or NTC (10 k)
Interface / ext. supply:	4-pole bayonet connector for serial interface and supply (with accessory: USB adapter USB 5100)
Display:	4 ½ digit 7-segment, illuminated (white)
Operating conditions:	-25 ... 50 °C, 0 ... 95 % RH (non-condensing)
Storage temperature:	-25 ... 70 °C
Housing:	Impact-resistant ABS plastic housing, integrated pop-up clip
Protection class:	IP65 / IP67
Dimensions:	160 x 86 x 37 mm (H x B x T) incl. silicone protection cover
Weight:	approx. 250 g incl. battery and protection cover
Power supply::	2x AAA battery (included), power consumption 6.25 mA
Battery life time:	approx. 160 h (without background illumination)
	depends on cell constant of used electrode ** cell constant 0.01 / cm ** cell constant 0.1 ... 1.2 / cm (standard)*

Functions:

Min / Max Value Memory: highest and lowest measured value is saved

Auto-Hold: automatic freezing of a constant measuring value

Auto Power Off: device is automatically switched off after a selected period if unused (0 to 120 min, or deactivated)

Status display for battery (bar) and **Low Battery Display** "BAT"

Background illumination: duration adjustable (off, 5 s ... 2 min)

Cell correction: manually or automatically with reference solution

Automatic temperature compensation: As conductivity depends strongly on temperature, each conductivity value is only valid at the corresponding temperature. Therefore the device supports temperature compensation, i.e. referring the conductivity to a reference temperature (selectable: 20 °C or 25 °C).
Supported types of compensation:
- nLF: Non-linear function of natural waters acc. to DIN EN 27888 (ISO 7888) (Reference temperature 25 °C)
- Lin: adjustable linear compensation
- off: no compensation

Salinity measurement: Salinity means the sum of the concentrations of all dissolved salts in water. The unit is g/kg. (equals PSU = Practical Salinity Unit).

TDS measurement (total dissolved solids): TDS means the mass concentration of dissolved media in a liquid. The unit is mg/l.

	GMH 5430	GMH 5450
GLP (Good Laboratory Practice)	adjustable calibration intervals	adjustable calibration intervals Calibration memory: latest 16 calibrations
Real-time clock	–	X
Analog output	–	0 - 1 V, freely adjustable, connection with 4-pole bayonet connector, Resolution 13 bit, accuracy 0.05 % at nominal temperature
Data logger	–	cyclic: 10.000 data sets
		manual: 1.000 data sets (with measuring point input, 40 adjustable measuring point texts or measuring point numbers)
Min-/max-alarm	–	Permanent monitoring of alarm boundaries for conductivity (or Resistivity, TDS, SAL) and temperature 3 alarm conditions - off: Alarm function inactive - on: Alarm report via display, integrated buzzer and interface - no Sound: Alarm report only via display and interface

further informationen on www.greisinger.de

Accessories

Electrodes:

	LF 200 RW	LF 210
Measuring range:	0 ... 100 µS/cm	0 ... 1000 µS/cm
Cell constant *:	approx. 0.1	approx. 1
Temperature measurement:	NTC 10k	NTC 10k
Dimensions:	Ø 12 mm	Ø 12 mm
Characteristics:	2-pole stainless steel	2-pole glass/platinum
Applications:	Pure and ultra pure water	Alcohol, fuel, diesel
cable length:	1 m	1 m

	LF 400	LF 425
Measuring range:	0 ... 200 mS/cm	0 ... 1000 mS/cm
Cell constant *:	approx. 0.55	approx. 0.42
Temperature measurement:	NTC 10k	Pt 1000
Dimensions:	Ø 12 mm	Ø 16 mm
Characteristics:	4-pole graphite	4-pole graphite
Applications:	Universal application, Economy Class	Tight tolerances, robust and precise for highest demands, High End Class
cable length:	2 m	1 m

* Note: The particular cell constant (appears in calibration protocol and electrode's label) has to be entered to device. Then it is ready-to-use.

Accessories and spare parts:

GEH 1
Electrode holder for measuring electrodes with plastic handle (p.r.t. page 64)

GKL 100
Conductivity control solution
(100 ml bottle with 1413 µS/cm according to DIN EN 27888)

GKL 101
Conductivity control solution (250 ml bottle with 84 µS/cm)

GKL 102
Conductivity control solution (100 ml bottle with 50 µS/cm)

EBS 20M
software for long-term monitoring (p.r.t. page 66)

GSOFT 3050
Software for operation of logger devices (p.r.t. page 66)

USB 5100
Electrically isolated interface converter, supplied via USB

GNG 5 / 5000
Plug-in power supply 5 V DC, suitable for devices of the series GMH 5000 (p.r.t. page 65)

GKK 3500
Device case (394 x 294 x 106 mm) with eggcrate foam and cut-outs for 1 device (p.r.t. page 64)

Handheld instruments incl. electrode

i.e. GMH 5450

READY-TO-USE

LF 400

LF 425

GMH 5430-400
Handheld instrument incl. electrode LF 400

GMH 5450-400
Handheld instrument incl. electrode LF 400, with data logger

GMH 5430-425
Handheld instrument incl. electrode LF 425

GMH 5450-425
Handheld instrument incl. electrode LF 425, with data logger

Description:
All sets get preadjusted and are ready-for-use. They do not include a case.

Accessories and spare parts:
GKK 3500
Case with foam lining and cut-outs for 1 device (394 x 294 x 106 mm)

Handheld instrument

Display / Controller

Logger / EASYBus

Transmitter

Temperature probe

Alarm / Protection