

pH & Temperature Meter

HD 2105.2

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1 General Description

HD2105.1 is a portable instruments with a large LCD display. It measures pH and redox potential (ORP) in mV along with temperature by using PT100 or PT1000 immersion, penetration or contact probes. The electrode calibration can be carried out on one, two or three points and the calibration sequence can be chosen from a list of 13 buffers. The temperature probes are equipped with an automatic recognition module and factory calibration data are stored inside. The instrument embeds a datalogger able to store up to 34k temperature and pH samples which can be transferred to a personal computer via RS232C or USB 2.0 ports. Storing interval, printing and baud rate can be easily configured. The instrument is fitted with an RS232C serial port and can transfer the acquired measurements in real time to a PC or to a portable printer. The *Max*, *Min* and *Avg* function calculate the maximum, minimum or average values. Other functions include: the relative measurement REL, the Auto-HOLD function, and the automatic turning off that can also be excluded. **Protection degree IP66.**





2 Metrological Properties

2.1 Instrument

Dimensions (L x W x H)	185 x 90 x 40mm
Weight	470g (with batteries)
Materials	ABS, rubber
Display	2 x 4½ digit plus symbols – visible area: 52 x 42mm

2.2 Operating Conditions

Working Temperature	-5 to +50°C
Storage Temperature	-25 to 65°C
Working Humidity	0 to 90%RH without condensation
Protection Degree	IP66

2.3 Power

Batteries	4x 1,5V AA batteries
Autonomy	200h with 1800mAh alkaline batteries
Absorbed Power (OFF)	20µA
Mains IN	Main adapter output 12VDC 1A

2.4 Time

Data and Time	In real time
Accuracy	max error: 1min/month

2.5 Serial Interface RS232C

Type	RS232C electrically isolated
Baud Rate	From 1200 to 38400
Data Bit	8
Parity	None
Stop Bit	1
Flow Control	X _{ON} /X _{OFF}
Serial Cable Length	15m maximum
Print Interval	Immediate or selectable among: 1s, 5s, 10s, 15s, 30s, 1min, 2min, 5min, 10min, 15min, 20min, 30min, 1h

2.6 USB Interface

Type	1.1 – 2.0 electrically isolated
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2.7 Connections

pH Input	BNC
Temperature Input Module	8-pole male DIN45326 connector
Serial Interface & USB	8-pole & miniUSB type B
Mains In Adapter	2-pole connector (positive at centre)

2.8 Measurement of pH

Measuring Range	-2,000 to +19,999pH
Resolution	0,01 or 0,001pH (selectable from menu)
Accuracy	$\pm 0,001\text{pH} \pm 1\text{digit}$
Input Impedance	$> 10^{12}\Omega$
Calibration Error at 25°C	$ \text{offset} > 20\text{mV}$ slope $< 50\text{mV/pH}$ or slope $< 63\text{mV/pH}$ sensitivity $< 85\%$ or sensitivity $< 106,5\%$
Temperature Compensation	-50 to +150°C (automatic or manual)

2.9 Measurement of mV

Measuring Range	-1999,9 to +1999,9mV
Resolution	0,1mV
Accuracy	$\pm 0,1\text{mV} \pm 1\text{digit}$
Drift after 1 year	0,5mV/year

2.10 Measurement of Temperature

PT100 Measuring Range	-200 to +650°C
PT1000 Measuring Range	-200 to +650°C
Resolution	0,1°C
Accuracy on Temperature	$\pm 0,1^\circ\text{C} \pm 1\text{digit}$
Drift	0,1°C/year



3 Accessories and Spare Parts

The following pH electrodes and temperature probes can be used with HD2105.2 pH and Temperature Meter, please refer to AMEL's pH Electrodes and temperature probes catalogues for drawings and dimensions.

211/GG/12	pH sensitive membrane, 12mm glass body
411/CGG/12	Combined electrode for pH measurement, 12mm glass body
411/CGG/6	Combined electrode for pH measurement, 6mm glass body
411/CGG/6JZ	Combined electrode for pH measurement, 6mm short glass body
401/PM3/12	Combined electrode for pH measurement, 12mm glass body, triple frit
421/CGP/12	Combined electrode for pH measurement, 12mm plastic body
411/TGG/12	Combined electrode for pH measurement, 12mm glass body, double salt bridge
405/DXK/12	Combined electrode for pH measurement, 12mm glass body, gel electrolyte
194	Glass cell for flow measurements

TP47/1000 Temperature probe

Few replacements are needed for everyday use and maintenance of the HD2105.2 meter.

9811	Saturated KCl solution 250mL
9813	1M KNO ₃ solution 250mL
9848	Friscolyt-B solution for argenthal electrodes
9863	4,01pH buffer solution 250mL
9865	7,00pH buffer solution 250mL
9866	9,21pH buffer solution 250mL