

765 Laboratory pH Meter

The requirements for lab measurements become stricter every day. Quality assurance and measurement documentation in accordance with GLP are a must in many areas.

To make reliable pH measurements easier than ever, Knick has equipped the Model 765 Laboratory pH Meter with an exemplary package of safety functions.

Fullcheck

automatically checks the device functions during power-on.

Also during operation, a complete instrument check can be carried out at a single keystroke.

Here, also display and keypad are checked besides the electrical characteristics.

Record printouts

With record printouts of the device self-test, the calibration, and the parameter settings, it is possible (as part of quality management to ISO 9000 and GLP) to document the serviceability and the regular maintenance and calibration of the unit.

Sensoface

checks the electrode and provides information on the electrode condition. The zero, slope, response time, and glass impedance of the electrode as well as the calibration interval are evaluated.

Calimatic

automatically recognizes the right buffer. It allows calibration at the stroke of a key, providing ease of use and – above all – safety.

You simply immerse the electrode in two buffers of the selected set, no matter which one you take first, and press the cal key. The meter automatically recognizes the buffer and calibrates itself.

It does not matter which buffer solution is taken first.

Trueline

delivers a calibrated analog recorder signal, of course electrically isolated. This provides you with a true pH signal, calibrated for the electrode and without disturbing quantizing levels, permitting undistorted recording of pH curves.

Sockets

Robust gold plated sockets are standard equipment.

EMC

EMC design protects the meter from electromagnetic interferences, ensuring reliable measurement results even under unfavorable conditions.

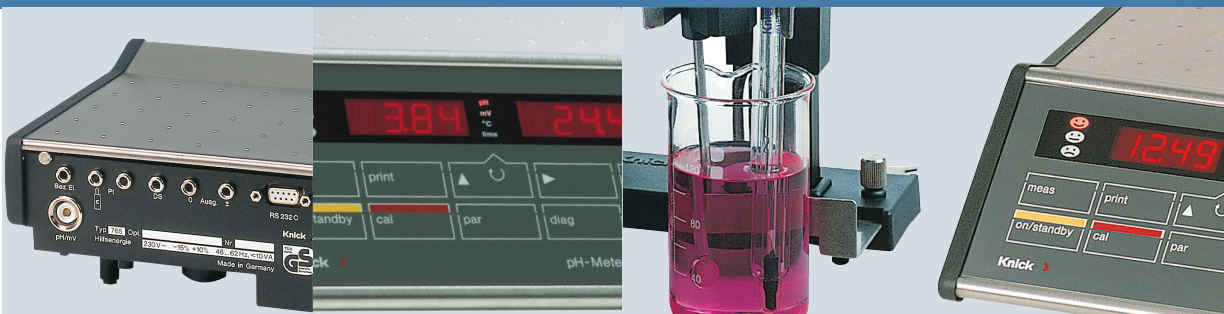
Numerous practical features allow comfortable and safe pH measurement.

Temperature compensation manual or automatic

Temperature compensation is either automatic with Pt 100 or Pt 1000 temperature probes or manual, as selected.



765 Laboratory pH Meter



Standard RS 232 interface

Via the standard RS 232 interface your data can be immediately processed by a computer. Even direct output to a printer is no problem.

Sensor statistics for monitoring the sensor status

The sensor statistics give an overview of the sensor wear. You can track the change in sensor data from calibration to calibration and even compare the values to the initial calibration data.

Displaymatic for easier reading

Displaymatic facilitates readout. If the measured signal changes rapidly, the running characters are blanked in order to allow easy reading. This allows you to read the currently measured value without problems.

Easy-to read LED display for two measured values

The large, bright LED display allows simultaneous readout of two measured values, such as pH and temperature. LED display for alphanumeric characters allows.

Double insulation provides electrical safety in wet locations

The well-designed enclosure has proved successful in practical use. A waterproof membrane keyboard and drain grooves protect the meter from moisture. The robust, stainless steel covered enclosure resists even strong mechanical stress.

The facts

- Fullcheck automatic device test
- Records for QM documentation to ISO 9000 and GLP
- Trueline calibrated analog recorder output, galvanically isolated
- Electrode monitoring with Sensoface icons
- Automatic calibration with patented Calimatic
- EMC to NAMUR
- Electrode statistics
- RS 232 interface for computer and printer
- Displaymatic:
Two user-defined measured value displays, simultaneous
- Dead-stop operation
- Self-contained clock
- Liquid-proof membrane keypad
- Robust enclosure
- IP 54 protection



Keypad

Exit function and return to measuring mode	Print currently measured values or function data	Select line, edit value or select variable	Select parameter or position	Select line, edit value or select variable
--	--	--	------------------------------	--

On/off (standby)	Activate calibration	Activate parameter setting	Activate diagnostics	Take over value or entry
------------------	----------------------	----------------------------	----------------------	--------------------------

Record printouts

Records of parameter setting, calibration, and diagnostics are particularly helpful for QM documentation to ISO 9000 and GLP. The records can be printed out directly to any commercially available printer with a serial port at the press of a key.

Knick 765	Parameter Setting	15.03.21
Serial Number:	01125464	
Software Version:	3.3	
Hardware Version:	11	
Options:	No	
Manual Temperature:	25.0CEL	
Sensoface:	On	
Displaymatic:	Off	
Buffer Set:	-01-	
Cal Timer:	48h	
Recorder Output:	pH	
Baud Rate:	4800	
Data Bits/Parity:	7 Even	
Protocol:	Xon/Xoff	
Interface:	Printer	
Printer Timer:	0.0min	
Time:	12:08	
Date:	15.03.	
Year:	2021	

Knick 765	Diagnostics	14.03.21
Serial Number:	01125464	
Software Version:	3.3	
Hardware Version:	11	
Options:		
Last Fullcheck:	14.03.21	14:55
RAM:	-ok-	
PROM:	-ok-	
EEPROM:	-ok-	
Amplifier:	-ok-	
Display:	-tested-	
Keys:	-ok-	
Sensoface(++/oo/--)		
Zero Point/Slope:	++	
El Response Time:	++	
Glass Impedance:	++	
Drycheck:	++	
Cal Timer:	++	

765 Laboratory pH Meter

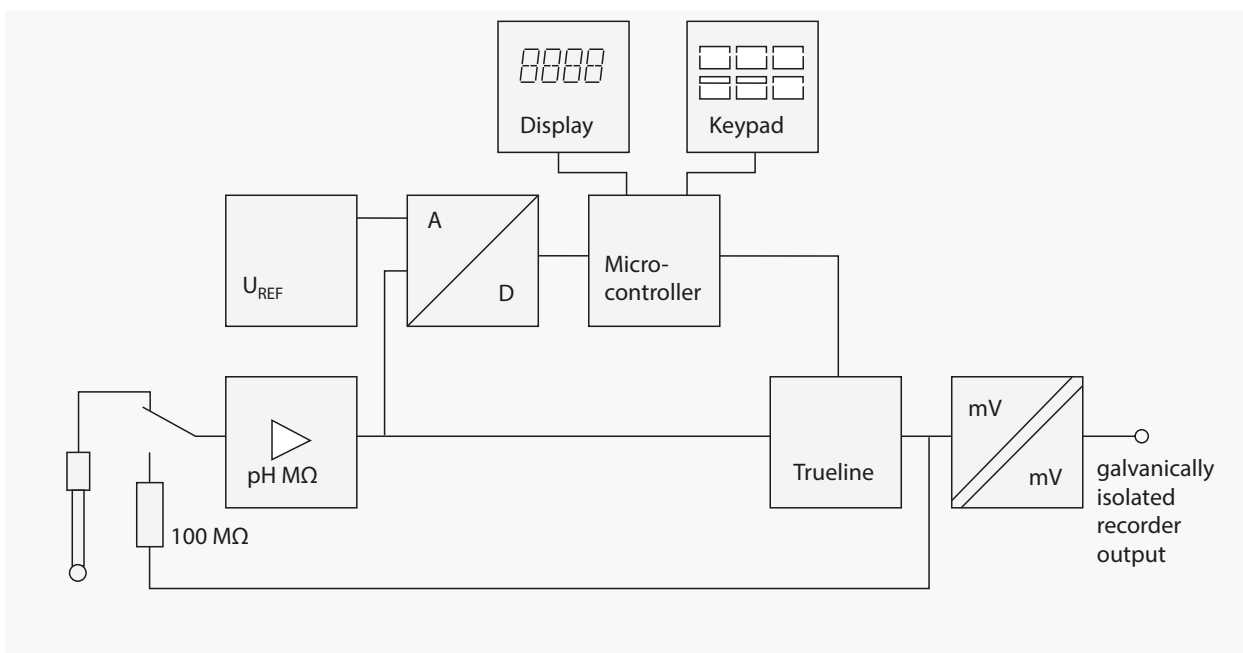
Fullcheck device self-test

For the self test, the electrode is automatically switched off and the input internally connected to the recorder output over a 100 MOhm resistor.

The microcontroller sends defined voltage steps to the recorder output. These are measured with the input amplifier and the A/D converter and compared with a highly accurate reference voltage.

The 100 MOhm resistor at the same time serves as reference for the impedance measuring circuit, which thus is tested as well.

This means, a complete test of the signal path is implemented with a pH meter for the first time. In addition, all memories, the display, and the keypad are tested.



Specifications

Equipment	Meter with power cord, without electrode		
Ranges	pH	-2,00 ... +16,00	
	mV	-1999 ... +1999	
	°C	-50,0 ... +150,0	
Display	Alphanumeric 2 x 4 digits		
	14-segment LED		
	Character height	13 mm	
	measurement symbols	pH/mV/°C/man	
	3 Sensoface status indicators inform on the condition of electrode and equipment (GLP) ³⁾		
Measuring cycle	Approx. 1/s		
Accuracy ¹⁾	pH	< 0,01	
	mV	< 0,1 % ± 0,3 mV	
	°C	< 0,3 K	
Input	DIN 19262		
Input resistance	> 1 x 10 ¹² Ohm		
Input current (20 °C) ²⁾	< 1 x 10 ⁻¹² A		
	Characteristic: linear	0,00 ... + 9,99 %/K	
	Reference Temp.	20 °C/25 °C selectable	
Temperature coefficient	< 0,1 count / K		
Electrode standardization	pH-calibration		
	Calimatic	automatic calibration and buffer recognition	
	permitted	Zero	pH 6 ... 8
	calibration ranges	Slope	47 ... 61 mV/pH (25 °C)
	(Option 346)	Nominal zero/Nominal slope/V _{iso} [*])	
		Zero	pH 0 ... 14
		Slope	25 ... 61 mV/pH
		V _{iso}	- 500 ... + 500 mV
Electrode monitoring	Sensoface: evaluates zero, slope, response time, and glass impedance of the electrode, as well as the calibration interval, electrode condition displayed as good / average / poor, can be disabled		
	Cal timer	monitors the calibration interval	
Fullcheck device self-test	Tests complete measurement electronics incl. analog output, segment and keypad test in diagnostics mode, automatic short-check at power-on		
Records	Records of parameter setting, calibration, and diagnostics, records for QM documentation to ISO 9000 and GLPS ³⁾ , retrievable in diagnostics mode or via interface (printer)		
Displaymatic	Digit suppression according to signal change, can be disabled		
Temperature compensation	Pt 100 / Pt 1000, automatic selection		
	manual	-50,0 ... +150,0 °C / -58,0 ... +302,0 °F [*])	
Dead stop current	-10 µA		
Recorder output [*])	Galvanically isolated	mV	1 mV/mV
		pH	100 mV/pH
		°C	10 mV/°C

765 Laboratory pH Meter

continued - Specifications

Interface	RS 232 without control lines, galvanically isolated, can be used either as printer or computer interface
Baud rate	600 / 1200 / 2400 / 4800 / 9600*)
Data formats	7 Bit, even/odd parity*) 8 Bit, no parity*)
Protocol	none, xon/xoff*)
Stop bits	1
Software	Control of the Model 765 pH Meter is integrated in the automation software for lab meters "labworldsoft" (Fisher Scientific) for display and control of device functions for Version 4.0 or higher.
Printer control	For standard printer with serial port, printing at keystroke, via print interval timer 0.1 ... 999.9 min*), or external floating contact
Clock	Real-time clock with date, self-contained
Calibration data storage	Automatic storage of calibration data, self-contained
Data retention	Parameters, statistics, and factory settings: >10 years (EEPROM) Clock reserve power >1 year (battery-backed)
Protection against electrical shock	Protective separation as defined in DIN 57100 / VDE 0100 Part 410 and DIN VDE 0106 Part 101, power supply against all other inputs and outputs, in accordance with the NAMUR recommendation "Extra-low voltage circuits with protective separation"
EMC directive	89/336/EWG
Standards	EN 61326 VDE 0843 Part 20: 2002-3
Ambient Conditions	Ambient temperature 0 ... +45 °C / +32 ... +113 °F Storage and transport temp -20 ... +70 °C / -4 ... +158 °F
Power supply	230 V -15 % +10 %, 48 ... 62 Hz, <10 VA optional 115 V AC (Opt. 363)
Protection class	II
Sensor connection	The meter allows connection of any commercial electrodes with DIN plug or banana plug
Enclosure	Glass-reinforced polyamide 12, stainless steel cover, IP 54 protection, prepared for connecting ZU 6954 attachable stand
Dimensions (W x H x D)	244 x 95 x 255 mm / 9,61 x 3,74 x 10,04 inches
Weight	Approx. 2 kg / 4,41 lbs

*) User defined 1) ± 1 count

2) 45 °C factor 10 3) Good Laboratory Practice

Buffer sets

Buffer set – 00 –	CaliMat technical buffers
Buffer set – 01 –	Mettler-Toledo technical buffers
Buffer set – 02 –	Merck, Riedel
Buffer set – 03 –	Technical buffer solutions to DIN 19 267
Buffer set – 04 –	DIN 19 266 and NIST (NBS)
Buffer set – 05 –	Merck, Riedel
Buffer set – 06 –	Merck
Buffer set – 07 –	Ciba (94)
Buffer set – 10	Mettler-Toledo (USA)

Specifications Accessories

Printer**Order No.: ZU 0244**

Type	Matrix printer
Interface	Serial RS 232-port
Paper	Standard paper, width: 57,5 mm (2,25 Zoll)
Baud rate	4800 bauds
Data bits	7,1 stop bit
Parity	even
Protocol	no
Power supply	230 V AC $\pm 10\%$
Dimensions (W x H x D)	197 x 73 x 153 mm / 7,76 x 2,87 x 6,02 inches
Weight	Approx. 1,2 kg / 2,65 lbs (incl. power pack)

Stand**Order No.: ZU 6954**

Material	Pillar carriage and base Beaker stop, vertical stop and electrode clasp	anodized aluminum polyamide 12 glass reinforced stainless steel
Carriage stroke	190 mm	
Clamping possibilities	2 x 12 $\pm 0,5$ mm	1 x 4 ... 14 mm
Stop for sample beakers	from \varnothing 30 ... 150 mm	1 x 6 ... 16 mm
Beaker height	up to 130 mm	
Dimensions (W x H x D)	130 x 300 x 145 mm / 5,12 x 11,81 x 5,71 inches	
Weight	Approx. 410 g / 0,9 lbs	

Immersion stirrer**Order No.: ZU 6955**

Material	Enclosure impeller and shaft	PVC stainless steel
Dimensions	Unit: 250 x \varnothing 25/12 mm impeller: \varnothing 12 mm immersion depth: ca. 90 mm	
Weight	Approx. 140 g / 0,31 lbs	

**Plug-in power pack
for immersion stirrer****Order No.: ZU 6956**

Power supply	230 V AC -15% $+6\%$ <8 VA
Cable length	2 m
Weight	Approx. 380 g / 0,84 lbs

765 Laboratory pH Meter

Combination pH electrodes for lab and field units

The SE 100 N and SE 103 N electrodes with a glass body are combination electrodes for standard applications in the lab. The Model SE 100 N has an integrated Pt 1000 temperature probe. The Model SE 103 N with its high-temperature dissipation system is suitable for measurements in media up to 100 °C.

For use in rougher environments, Knick offers the SE 101 AN electrode with plastic body. It is also equipped with an integrated Pt 1000 temperature probe. In addition, Knick also offers the SE 104 N puncture electrode. This thin, gel-filled combination electrode is particularly robust and insensitive to pollution. Therefore, it is suited especially for measurements in semi-solid substances such as meat or cheese.

A special feature of the SE 106 N electrode is its ground diaphragm, which achieves a comparatively large, continuous electrolyte flow. The electrode is a good choice when it comes to prevent junction blocking by solids or proteins, minimize charge effects caused by surfactants or dispersions, for example, or measuring in low-ion solutions. The electrode can also be used in high-temperature and/or high-pH solutions.

pH Electrodes	SE 100 N	SE 101 AN	SE 103 N	SE 104 N	SE 106 N
Temperature probe	Pt 1000	Pt 1000	–	–	Pt 1000
Body material	Glass	Plastic (Noryl/PPO)	Glass	Plastic (Noryl/PPO)	Glass
Body length	170 mm	120 mm	170 mm	65 / 25 mm	165 mm
Body diameter	12 mm	12 mm	12 mm	15 / 5 mm	12 mm
Junction	Ceramic	Fibre junction	Ceramic	Open Joint	Ground joint
Electrolyte	3 mol/l KCl, refillable	Gel	3 mol/l KCl, refillable	Polymer	3 mol/l KCl, refillable
pH meas. range	0 ... 14	0 ... 14	0 ... 14	2 ... 13	0 ... 14
Temperature range	–5 ... +100 °C / +23... +212 °F	–5 ... +80 °C / +23... +176 °F	–5 ... +100 °C / +23... +212 °F	–5 ... +80 °C / +23... +176 °F	0 ... +100 °C / +32... +212 °F
Recommended temperature probe	Integrated	Integrated	ZU 6959	ZU 0156	Integrated
Remarks	–	–	High-temperature dissipation system	Puncture electrode	High-temperature dissipation system



Product line Laboratory pH meters and pH combination electrodes

765 Laboratory pH Meter



Set

Unit with power cord, without electrode

Order No.

765

765 Laboratory pH Meter,
pH/Pt 1000-combination electrode. SE 100 N,
attachable stand ZU 6954 and
ZU 6928 buffer set
(no further optional equipment possible)

765 Set

Options

Power supply 115 V AC

363

nominal electrode zero point and slope
user defined

346

pH/Pt-1000 combination electrode



Glass body, Ceramic junction, length 170 mm

SE 100 N

pH/Pt-1000 combination electrode



Plastic body, fibre junction, length 120 mm

SE 101 N

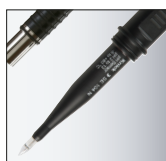
Combination pH electrode



Glass body, Ceramic junction, length 170 mm

SE 103 N

Combination pH puncture electrode



Plastic body, Open Joint, length 65 / 25 mm

SE 104 N

765 Laboratory pH Meter

Product line Laboratory pH meters and combination pH electrodes

pH/Pt-1000 Sensor



Glass body, Ground joint, length 165 mm

SE 106 N

Attachable stand



Besides the immersion stirrer, the attachable stand can hold three sensors of any kind. The adjustable stops prevent damage of sensor and beaker glass. Time-consuming adjustment during sample changes has been eliminated. An integrated cable duct does away with the "spaghetti cables" on your benchtop. For ZU 6955 immersion stirrer and three sensors, directly connected to the meter.

ZU 6954

Immersion stirrer



The immersion stirrer reduces electrode response time for measurement and calibration. Precision measurements to DIN 19268 even require stirring. To prevent splattering of test liquid, the stirrer automatically stops as the carriage moves up. The stirrer is supplied via the ZU 6956 plug-in power pack.

ZU 6955

Plug-in power pack



For immersion stirrer ZU 6955

ZU 6956

Pt 1000 temperature probe



For fast response temperature measurements:
Monel 2.4360, -10 ... +100 °C,
accuracy class A to IEC 751

ZU 6959

Product Line Accessories

Interface cable



For meter – computer connection
(special EMC cable)

Order No.

ZU 0152

Lab printer



With the Lab Printer, you can document your measured values either at the press of a key or timer-controlled. Also records for QM documentation to ISO 9000 and GLP can be printed out with a single keystroke. The printer is equipped with a replaceable ribbon cartridge and prints on standard paper. It is connected to the 765 Laboratory pH Meter or the 703 Laboratory Conductivity Meter via ZU 0245 interface cable.

ZU 0244

Interface cable



For meter – computer connection

ZU 0245

Printer paper



For ZU 0244 Lab Printer, 5 rolls

ZU 0249

Ink ribbon



For ZU 0244 Lab Printer, 5 ribbons

ZU 0250

pH buffer solutions CaliMat



pH 2,00 (20 °C)

Menge










250 ml

Order No.

CS-P0200/250

765 Laboratory pH Meter

Product Lines buffer solutions

	pH 4,00 (20 °C)	250 ml 1000 ml	CS-P0400/250 CS-P0400/1000
	pH 7,00 (20 °C)	250 ml 1000 ml	CS-P0700/250 CS-P0700/1000
	pH 9,00 (20 °C)	250 ml 1000 ml	CS-P0900/250 CS-P0900/1000
	pH 12,00 (20 °C)	250 ml	CS-P1200/250
	Set pH 4,00 (20 °C)	3 x 250 ml	CS-PSET4
	Set pH 7,00 (20 °C)	3 x 250 ml	CS-PSET7
	Set pH 9,00 (20 °C)	3 x 250 ml	CS-PSET9
	Set pH 4,00 / 7,00 / 9,00 (20 °C)	3 x 250 ml	CS-PSET479
	KCl-solution	250 ml	ZU 0062