

# SevenExcellence™ pH/Ion

## Flexible and Precise



**SevenExcellence™ stands for convenient, easy-to-understand operation combined with high measurement accuracy and outstanding reliability and continues the tradition of the Seven™ series from METTLER TOLEDO. The instrument can effectively cope with complex applications and stringent requirements in regulated markets, but it also feels at ease with routine measurement tasks in the laboratory.**

SevenExcellence pH/Ion meter redefines flexibility and offers various measurement parameters, such as pH, mV, rel. mV and ion concentration in the form of one meter. For incremental ion measurements the instrument guides you through the various steps and does all the calculations for you. Starting an analysis, changing the settings and accessing the results is easily achieved thanks to the cleverly-devised touch screen menu operation.

#### **Seven good reasons for SevenExcellence™**

- User-friendly touch-screen operation
- Large well-arranged color display
- Menu guidance in 10 languages
- Modular expandable at any time
- Many peripheral options
- Method concept, including One Click™
- GLP compliant, including user management

# Productive Work from the Start

## Secure and Powerful

**SevenExcellence™** has been designed with the objective to optimize the workflow and increase the efficiency of your lab work. Just one click is required to start a sample or a series of samples. The interfaces on the instrument allow you to connect peripherals simultaneously supporting your workflow in the best possible way.

### Security

The instruments' focus on workflow is also reflected in its security package. Mistakes are minimized to an absolute minimum by using

methods, by using ISM® sensors, by the professional user management and the sophisticated calibration support. Archiving results can be done automatically by

creating a hardcopy on a line or network printer and/or transfer to LabX® direct PC software.

### Incremental methods



Special methods for the most common incremental ion measurements techniques are included, such as various standard addition/subtraction and sample addition/subtraction methods. This gives you a flexible and temporary tool kit for professional ion measurements!

### Full ion support



The twelve most commonly used ion types are pre-programmed in the instrument making the settings as convenient as possible. For others you can enter the ion charge and molar mass to ensure that all calculations and conversions are done for you.

### Ion measurements – flexible sensor choice



With SevenExcellence it is possible to use our perfectionION™ series of combined ion selective electrodes as well as our collection of half cells. For measurements with half-cell sensors there is an input for connection of a reference electrode.

## Specifications for SevenExcellence™ pH/Ion

	Measuring range	Resolution	Accuracy
<b>pH</b>	-2.000 ... 20.000	0.001 / 0.01 / 0.1	± 0.002
<b>mV</b>	-2000.0 ... 2000.0	0.1 / 1	± 0.1
<b>Rel. mV</b>	-2000.0 ... 2000.0	0.1 / 1	± 0.1
<b>Ion concentration</b>	0 ... 999 999 mg/L, ppm	0.001 ... 1	± 0.5%
	0 ... 100 mol/L, %	0.0001 ... 1	± 0.5%
	0 ... 100 000 mmol/L	0.001 ... 1	± 0.5%
	-2 ... 20 pX	0.001 ... 1	± 0.5%
<b>Temperature MTC / ATC</b>	-30.0 ... 130.0 °C	0.1 °C	± 0.1 °C
<b>Calibration</b>	Calibration points Buffer groups Buffer recognition Isopotential point Temperature capture Calibration reminder Electrode status icon Automatic pH calibration	Max. 5 8 pre-defined and 20 user-defined Automatic and manual pH 7.00 Automatic (internal and external*) and manual Yes: usable life for each sensor configurable Yes: shows quality of last pH calibration Yes: with rondolino sample changer	
<b>Measurement</b>	Choice of endpoint formats Choice of stability criteria Choice of pH decimal places Temperature capture Measurement type Interval measurements Methods Series	Automatic, manual, timed Fast, standard, strict, user-defined X.XXX, X.XX, X.X Automatic (internal and external*) and manual Direct measurements and methods Yes: time interval user-configurable 17 pre-defined and 50 user-defined Max. 9 samples	
<b>System and GLP</b>	Menu guidance Time and date Radioclock PIN protection User management Measurement limits ID input ID input automation	10 languages 2 time formats, 4 date formats WWVB, DCF77, JYJ protocols Yes: login (password or fingerprint reader) 4 groups: operator, technician, expert, administrator Yes: user-defined Yes: user ID, sample ID, Sensor name, sensor SN Barcode reader (USB)	
<b>Data processing</b>	Data storage Print formats Printing Data Export	At least 20 000 data points, 250 analyses Summary and user-defined US-P25, RS232 and network printer, memory stick (pdf) USB-stick, LabX® direct PC software	
<b>Connectors</b>	pH/Ion Sensor input Temperature sensor input Digital sensor input Communication interfaces Stirrer connector	BNC (impedance > 3 x 10 <sup>12</sup> Ω) Cinch/RCA (NTC30 kΩ or P11000) Mini-LTW RS232, USB-A, USA-B, LAN Mini-DIN	
<b>General</b>	Power requirements Size/weight instrument Module weight Display	DC 12V-10W 235 x 188 x 75 mm, 1120 g 111-130 g TFT	
<b>Ambient conditions</b>	Temperature Relative humidity Installation category Pollution degree Altitude	5 ... 40 °C 5 ... 80% (non-condensing) II 2 Up to 2000 m above sea level	
<b>Materials</b>	Housing instrument Housing expansion units Touch panel	ABS/PC reinforced ABS/PC reinforced Tempered glass	

\* The pH/Ion expansion unit has an additional RCA/Cinch connection to which a separate temperature sensor can be attached.

## Order Information

### Description and order information for SevenExcellence™ pH/Ion

Order info	Description and sensors	Order no.
S500-Basic (instrument)	Includes instrument, pH/Ion expansion unit, 2 blank expansion units, uPlace™ electrode holder, semi-transparent cover, operating instructions, installation and quick guide, LabX® direct pH PC software, declaration of conformity and test certificate.	30046248
S500-Kit (kit)	As S500-Basic, but also with InLab® Expert Pro-ISM, guide to pH measurements and 2 buffer sachets for pH 4.01, 7.00, 9.21 and 10.00.	30046249
S500-Bio (kit)	As S500-Kit but with InLab® Routine Pro-ISM cable kit instead of InLab® Expert Pro-ISM.	30046250
S500-F (kit)	As S500-Kit but with PerfectION™ Fluoride instead of InLab® Expert Pro-ISM.	30046251

### Triple channel instrument with pH/Ion, pH/mV and conductivity expansion units

S475-Basic (instrument)	Includes instrument, pH/Ion expansion unit, pH/mV expansion unit, conductivity expansion unit, uPlace™ electrode holder, semi-transparent cover, operating instructions, installation and quick guide, LabX® direct pH PC software, declaration of conformity and test certificate.	30046255
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### Accessories for SevenExcellence™

Modules	Order no.
pH/mV expansion unit	30034472
Conductivity expansion unit	30034473
pH/Ion expansion unit	30034471
Blank expansion unit	30034475

### General accessories

uPlace™: electrode holder (included in standard delivery)	30019823
Semi-transparent cover (included in standard delivery)	30041154
Protective film for display (2 pcs)	30041155
Mains adapter 12V (included in standard delivery)	11120270
uMix™ magnetic stirrer	30040000
US-P25 printer (with USB cable)	11124301
LogStraight™ fingerprint reader	51192107
Barcode reader	21901297
USB cable for barcode reader (not included with barcode reader body)	21901309
Rondolino sample changer, complete for SevenExcellence™	51302888
LabX® direct PC software (included in standard delivery)	51302876
USB A-B cable for LabX® direct PC software (not included with LabX® direct PC software)	51191926
Guide to pH measurement (included in kit versions)	51300058

### Sensors and cables for SevenExcellence™ pH/Ion

pH Sensors with fixed cable	Order no.
InLab® Expert Pro-ISM, rugged 3-in-1 pH sensor, PEEK shaft, ATC	30014096

### pH ISM® sensors with MultiPin™ head

InLab® Routine Pro-ISM, 3-in-1 pH sensor, glass shaft, ATC, refillable	51344055
InLab® Micro Pro-ISM, 3-in-1 pH sensor, glass shaft, 5 mm shaft diameter, ATC, refillable	51344163
InLab® Power Pro-ISM, 3-in-1 pH sensor, glass shaft, ATC, pressurized SteadyForce™ reference system	51344112
InLab® Pure Pro-ISM, 3-in-1 pH sensor, glass shaft, immovable glass sleeve, ATC, refillable	51344172
InLab® Science Pro-ISM, 3-in-1 pH sensor, glass shaft, movable glass sleeve, ATC, refillable	51344072
InLab® Solids Pro-ISM, 3-in-1 pH sensor, glass shaft, open junction, sharp membrane, ATC	51344155
ISM® cable 2 m, BNC/RCA-MultiPin™	51344291

### Ion selective electrodes with fixed cable (combined)

perfectION™ combined Ag <sup>+</sup> / S <sup>2-</sup> ISE, 1.2 m; BNC	51344700	perfectION™ combined F <sup>-</sup> ISE, 1.2 m; BNC	51344715
perfectION™ combined Ca <sup>2+</sup> ISE, 1.2 m; BNC	51344703	perfectION™ combined I <sup>-</sup> ISE, 1.2 m; BNC	51344718
perfectION™ combined Cl <sup>-</sup> ISE, 1.2 m; BNC	51344706	perfectION™ combined K <sup>+</sup> ISE, 1.2 m; BNC	51344721
perfectION™ combined CN <sup>-</sup> ISE, 1.2 m; BNC	51344709	perfectION™ combined NO <sub>3</sub> <sup>-</sup> ISE, 1.2 m; BNC	51344727
perfectION™ combined Cu <sup>2+</sup> ISE, 1.2 m; BNC	51344712	perfectION™ combined Pb <sup>2+</sup> ISE, 1.2 m; BNC	51344730

Our collection of solutions and standards for ion measurements as well our portfolio of perfectION™ combined electrodes, ISE half-cells and reference electrodes is described in our sensor brochure (order number 51724332).



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