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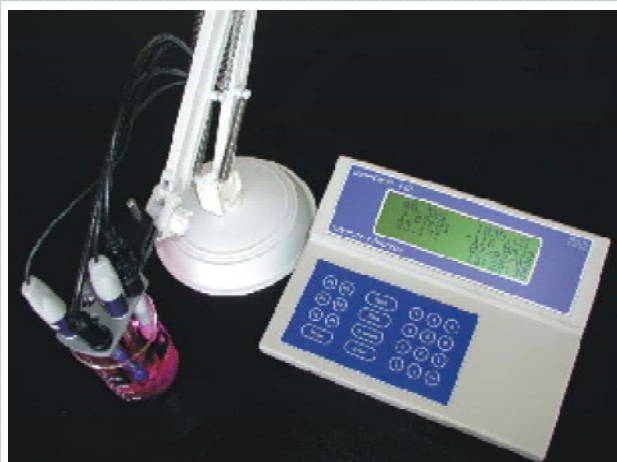
## smartCHEM-Lab



请使用翻译作用于这页底部以翻译页对汉语。

TPS Australia - Quality hand-made instruments since 1968.

### smartCHEM-LAB Multi-Parameter Laboratory Analyser



[Full size image](#)

#### *Simultaneous display of...*

- ◆ *Dissolved Oxygen*
- ◆ *Conductivity / TDS*
- ◆ *2 channels of Ion, pH or mV*
- ◆ *Temperature*
- ◆ *Date & Time*

*Automatic Stability Function*

*PIN Code Access*

*Programmable "Calibration Due" Alarm*

*240 x 64 dot graphic display with large digits, full text messages and backlight.*

*1489 reading memory with Automatic Datalogging.*

*RS232 computer interface port.*

*Automatic calibration.*

*Readout of probe condition for instant troubleshooting.*

**Fully waterproof design.**

The **smartCHEM-LAB** is a complete water quality laboratory with Dissolved Oxygen, Conductivity, TDS, 2 channels of Ion/pH/mV and Temperature readouts.

**Datalogging**

The **smartCHEM-LAB** comes with a 1489 reading memory. Readings can be recorded manually, or automatically logged at preset intervals.

**RS232 Serial Port Interface**

The capabilities of the **smartCHEM-LAB** have been expanded with the RS232 port, which is standard equipment (cable sold separately). All readings stored in memory can be downloaded to an RS232 printer or PC. The RS232 port also allows the **smartCHEM-LAB** to log directly to the printer or PC. [WinTPS](#) Communication software for Windows 3.1 or 95, 98 & ME is available.

**Automatic Stability Function (ASF)**

ASF adds an extra level of versatility to the **smartCHEM-LAB**. When ASF is activated, the **smartCHEM-LAB** monitors all parameters that are currently in use. When ALL parameters become stable, the readings are frozen on the display. ASF is automatically activated with extra fine settings during calibration, to ensure the most accurate possible results for the user.

ASF can also be used during Manual and Automatic Datalogging. When used during Automatic Datalogging, the **smartCHEM-LAB** will log until a stable end-point is reached for all parameters, then stop logging.

**Good Laboratory Practices**

To comply with GLP guidelines the

**PIN Code Access**

The Access Code system is provided for those users who need to ensure the integrity of recorded data, calibration settings and so forth. The Access Code function will prevent anyone who does not know the code from entering the menu system. Keys that are available during normal measurement, (Store, Print, Autolog and F1 to F5) are still available without the Access Code. This means that others are still able to carry out day-to-day work.

**Easy to use**

The **smartCHEM-LAB** has a 240 x 64 dot graphic display. It features a user-friendly menu system, making the handbook virtually unnecessary. Full-text help and error messages are provided. All readings and messages are provided in large, bold characters.

**Automatic Calibration**

Where necessary, the user is able to define the standards to be used for calibration. For pH calibration, the **smartCHEM-LAB** is programmed to automatically recognise the most popular buffers, making calibration a breeze. Any non-standard buffer value can be entered during calibration.

**Karl Fischer Measurements**

A polarisation output is provided for Karl Fischer moisture titrations.

**Dissolved Oxygen Stirrer Output**

A 4.5V DC output is provided for use with the YSI Self-Stirring BOD electrode. The output can be activated as required by the user, or automatically during Automatic Datalogging.

**Reliability and Service**

To comply with CEI guidelines, the date, time and results of the last calibration are stored in memory, along with the instrument's serial number. This data can be displayed or sent to the RS232 port. All readings stored in memory are stamped with the date and time. Warning of failed calibration is provided.

A calibration alarm can be programmed to whichever parameters the user chooses. The alarm can be set for Daily, Weekly, 2 Weekly or 4 Weekly. The calibration alarm can also be switched off.

The **smartCHEM-LAB** is fully waterproof to IP65, so it is suitable for even the harshest laboratory or factory environments.

TPS has been manufacturing top quality, reliable instruments and electrodes since 1968. The TPS Quality System has been certified in accordance with the AS/NZS ISO 9001 standard. Our service is also of the highest standard. Spares and accessories are always held in stock, and our modern service facilities ensure a rapid turn-around for maintenance and repair work.

## Specifications

### **Dissolved Oxygen**

**Ranges**

ED1 : 0.00 to 20.00 ppM  
 20.0 to 40.0 ppM  
 0.0 to 250.0 % Sat'n  
 250 to 450 % Sat'n  
 0.0 to 50.0 % Gaseous  
 50 to 100 % Gaseous

YSI : 0.00 to 25.00 ppM  
 25.0 to 40.0 ppM  
 0.0 to 300.0 % Sat'n  
 300 to 450 % Sat'n  
 0.0 to 60.0 % Gaseous  
 60 to 100 % Gaseous

Resolution : 0.01 & 1 ppM  
 0.1 & 1 % Saturation  
 0.1 & 1 % Gaseous

Accuracy : +/-0.2 % of full scale of selected ppM range  
 +/-0.3 % Saturation  
 +/-0.1 % Gaseous

### **Conductivity**

### **Temperature**

Range : -10.0 to 120.0 °C  
 (sensor limit 45 °C)  
 Resolution : 0.1 °C  
 Accuracy : +/-0.2 °C

### **Temperature Compensation**

0 to 100 °C, automatic or manual.

### **Calibration**

Automatic calibration for all parameters.  
 User can define standards where applicable.

### **Memory**

1489 readings including date and time.

### **Automatic Datalogging**

User-set for one reading every 2 to 90 seconds. minutes or hours.

Ranges	Resolution	Accuracy
<b>k=0.1 Sensor</b>		
0 to 2,000 $\mu\text{S/cm}$	0.001 $\mu\text{S/cm}$	±0.5% of full scale of selected range at 25 °C
0 to 20,00 $\mu\text{S/cm}$	0.01 $\mu\text{S/cm}$	
0 to 200.0 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$	
0 to 2000 $\mu\text{S/cm}$	1 $\mu\text{S/cm}$	
<b>k=1.0 Sensor</b>		
0 to 20,00 $\mu\text{S/cm}$	0.01 $\mu\text{S/cm}$	±0.5% of full scale of selected range at 25 °C
0 to 200.0 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$	
0 to 2000 $\mu\text{S/cm}$	1 $\mu\text{S/cm}$	
0 to 20.00 $\text{mS/cm}$	0.01 $\text{mS/cm}$	
<b>k=10 Sensor</b>		
0 to 200.0 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$	±0.5% of full scale of selected range at 25 °C
0 to 2000 $\mu\text{S/cm}$	1 $\mu\text{S/cm}$	
0 to 20.00 $\text{mS/cm}$	0.01 $\text{mS/cm}$	
0 to 200.0 $\text{mS/cm}$	0.1 $\text{mS/cm}$	

## TDS

Ranges	Resolution	Accuracy
<b>k=0.1 Sensor</b>		
0 to 1,000 $\text{ppV}$	0.001 $\text{ppM}$	±0.5% of full scale of selected range at 25 °C
0 to 10,00 $\text{ppV}$	0.01 $\text{ppM}$	
0 to 100.0 $\text{ppV}$	0.1 $\text{ppM}$	
0 to 1000 $\text{ppM}$	1 $\text{ppV}$	
<b>k=1.0 Sensor</b>		
0 to 10,00 $\text{ppV}$	0.01 $\text{ppM}$	±0.5% of full scale of selected range at 25 °C
0 to 100.0 $\text{ppV}$	0.1 $\text{ppM}$	
0 to 1000 $\text{ppM}$	1 $\text{ppV}$	
0 to 10.00 $\text{ppK}$	0.01 $\text{ppK}$	
<b>k=10 Sensor</b>		
0 to 100.0 $\text{ppV}$	0.1 $\text{ppM}$	±0.5% of full scale of selected range at 25 °C
0 to 1000 $\text{ppM}$	1 $\text{ppV}$	
0 to 10.00 $\text{ppK}$	0.01 $\text{ppK}$	
0 to 100.0 $\text{ppK}$	0.1 $\text{ppK}$	

## Note

**Dissolved Oxygen, Conductivity, and TDS ranges are automatically selected. Exact auto-range points are subject to sensor performance.**

## Specific Ions

Ranges : Auto-ranging in units of ppM, ppK, % and Exponential Notation  
 Resolution : User selectable for 3 significant digits, 2 significant digits or Auto-rounding  
 Accuracy : +/-Least significant digit

## pH

Ranges : 0.000 to 14.000 pH  
 0.00 to 14.00 pH  
 Resolution : 0.001 pH  
 0.01 pH  
 Accuracy : +/-0.002 pH  
 +/-0.01 pH

## Millivolts & Relative Millivolts

Range : 0 to +/-400.0 and  
 0 to +/-1500 mV  
 (auto-ranging)  
 Resolution : 0.1 mV  
 1 mV

## RS232 Serial Port Output

1200, 9600, 19200 and 38400 Baud.  
 8 Bits, No Parity, 1 Stop Bit, XON/XOFF Protocol

## Recorder Output (optional)

Max 0 to 2000mV output for any one parameter at one time.  
 Output impedance approx 1000 Ohms.  
 Resolution approx 2 mV.

## Clock

24 Hour Calendar clock.  
 Displays date, month, year, hours, minutes, seconds.

## Good Laboratory Practices

Date, time and value of last successful calibration for each parameter are stored. This information can be recalled or sent to the RS232 port at any time.

## Calibration Alarm

Calibration Alarm can be activated for parameter of user's choice. Calibration Alarm can be set to Daily, Weekly, 2 Weekly or 4 Weekly.

## Display

240 x 64 dot graphic LCD with large, bold digits, user-friendly menu system and full-text help and error messages.

## Enclosure

Tough, high impact ABS. Splash resistant one-piece lid.

## Dimensions

240 x 180 x 105 mm

## Mass

Instrument only : Approx 1.0 kg  
 Full Kit : Approx 5.0 kg

## Environment

Temperature : 5 to 45 °C  
 Humidity : 0 to 90% R.H.

## Power

12V DC via AC/DC adaptor.  
 AC/DC adaptor to suit specified country is supplied.

Accuracy · +/-0.15 uV  
+/-1 mV

## Ordering Information

**Part No**

smartCHEM-Lab Cond-TDS-pH-mV-DO.126124  
(Dual channel: Ion/pH/mV)

### Kit Includes

Combination pH Sensor.....121207  
k=1-Cond-ATC-Temp Sensor.....122230  
Temperature/ATC Sensor.....121248  
pH6.88 Buffer, 200mL.....121306  
pH4.00 Buffer, 200mL.....121381  
2.76 mS/cm Cond Standard, 200mL.122306  
2.0 ppK TDS Standard, 200mL.....122307  
AC/DC Power Adaptor.....130037  
Manual.....130050

### Optional Sensors

**pH Sensor Upgrade: for difficult samples such as meat,dairy,slurries...**  
pH, Intermediate Junc, 1m.....121200/1

### ORP Sensors:

ORP, Surface only, 1m.....121262  
ORP, Intermediate Junc, 1m.....121269  
ORP Calibration Solution.....121309

### ED1 Dissolved Oxygen Sensor:

DO2 Sensor - ED1 (no cable).....123400  
1m cable for Sensor (ED1).....123228  
Membrane & filling sol'n kit....123301  
BOD Bottle Adaptor (ED1).....123201

### YSI5739 Dissolved Oxygen Sensor:

DO2 Sensor YSI5739 (no cable)...123204  
1m cable for Sensor (YSI5739)...123212  
Membrane & filling sol'n kit....123300

### BOD Dissolved Oxygen Sensors:

YSI non-stirring BOD Sensor.....123214  
(1.5m cable)  
YSI self-stirring BOD Sensor....123213  
(1.5m cable)

**Please click the following links for**

### Options and Accessories

#### Dissolved Oxygen Sensor Maintenance:

##### ED1 Sensor

Membrane & filling sol'n kit....123301  
Filling Solution only, 45mL.....123303  
Zero calibration Sodium Sulphite123302  
BOD Bottle Adaptor (ED1).....123201

##### YSI5739 Field Sensor & Non Stir BOD

Membrane & filling sol'n kit....123300  
Filling Solution only, 45mL.....123303  
Zero calibration Sodium Sulphite123302  
Rejuvenation kit.....123037  
Diaphragm replacement kit.....123304  
(123304 for YSI5739 Field Sensor Only)

##### YSI Self-Stirring BOD Sensor

Membrane Cap Kit.....123308

#### Computer Interface:

RS232 Serial Port & cable.....130039  
Serial to USB adaptor cable.....130087  
**WinTPS** Software for Windows.....130086

#### Computer Interface:

Recorder Output & cable.....130028

#### Sensor Holder:

Flexible Sensor Holder.....130088

### **Same Price Interchange Option:**

**Choose between k=0.1, k=1 and k=10 Range Conductivity Sensors**

k=10 Cond/ATC/Temp 1m, glass...122234  
k=0.1 Cond/ATC/Temp 1m, glass...122232

***Further details on the IPS range of sensors...***

[Specific Ion and Reference sensors](#)

[pH Sensors](#)

[Redox \(ORP\) Sensors](#)



[Download this Specification Sheet in PDF format.](#)



[Download the full colour smartCHEM Series Brochure \(1.76 MB PDF\).](#)



[Download the handbook for this instrument.](#)

**Hint :** Right click on a link, then select "Save Target As..." or "Save Link As..." to save the file to your own computer.

If you do not have Adobe Acrobat in your computer, a free Acrobat Reader can be downloaded by clicking on the following link.



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*Version 1.0*

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A.B.N. 30 009 773 371

Last modified: January 23, 2009