



- TPS Home
- Contact Us
- Products
- Distributors
- Brochures
- Prices

## 90-FL Series



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.

### Field-Lab Analysers for pH, mV, Conductivity, TDS, Dissolved Oxygen, Turbidity & Temperature



[Full Size Image](#)

- ◆ **90FL measures pH, Conductivity, TDS, Dissolved Oxygen & Temperature**
- ◆ **90FL-MV measures pH, mV, Conductivity, TDS, Dissolved Oxygen & Temperature**
- ◆ **90FL-T measures pH, mV, Conductivity, TDS, Dissolved Oxygen, Turbidity & Temperature**
- ◆ **Automatic calibration**
- ◆ **Automatic datalogging and RS232 Serial Port Computer interface standard (cable sold separately)**

The TPS range of Field Lab Analysers provide a complete measurement solution for several of the most important water quality parameters.

***User-friendly***

All measurements are shown simultaneously on the 80 character display. There is no need to change modes to check any of your vital data.

***Notepad Function***

A standard feature of the 90 series is the Notepad function. Up to 8100 sets of readings (depending on model) can be recorded for later review. These can be downloaded to a printer or computer via the RS232 port. For added functionality, the user is able to enter up to two additional items to be tagged on to the readings. Many operators use

The user-friendly menu system guides the operator through all operations such as calibration, setup etc. Full text help and error messages are provided along the way.

### **Waterproof**

The 90 series is designed for rugged field applications in wet environments. The case, keypad and connectors are rated to IP65.

### **Good Laboratory Practices**

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

this function as a pond or site identifier, depth or readings from other instruments.

### **Datalogging**

Automatic datalogging provides the capability to automatically record up to 8100 sets of readings (depending on model) at user-set intervals. The unit remains dormant between readings and only wakes up whenever a reading is due. Battery life is considerably improved with this facility.

### **RS232 Serial Port Interface**

All recorded data can be downloaded directly to a Printer or Computer with the standard RS232 port (cable sold separately). With the **WinTPS** communication software, many instrument functions can be controlled from the computer. This makes the units ideal for remote monitoring.

The 90 Series is proudly designed and manufactured in Australia. Our aim is to provide you with the best quality, service and value for money. The TPS Quality System has been certified in accordance with the AS/NZS ISO 9001 standard. Since 1968, TPS has built a reputation for excellent backup service that is second to none.

## Specifications

### **pH**

Range : 0.00 to 14.00 pH  
 Resolution : 0.01 pH  
 Accuracy : ±0.01pH  
 Impedance : >3 x 10<sup>12</sup> Ohms  
 Asymmetry : -1.00 to +1.00 pH  
 Range : 85 to 105%  
 Temperature  
 Compensation : Automatic. 0 to 100°C

### **Turbidity (90FL-T only)**

Range : 0 to 1000 NTU  
 Linearity : 3%  
 Temperature  
 Coefficient : <-0.3%/°C, 0 to 40°C  
 Zero  
 Calibration : Automatic in distilled water.  
 Span

Calibration : 2 Point automatic  
 pH Buffers : Auto recognition of  
 pH4.00, pH6.88, pH7.00,  
 pH9.23 and pH10.06.  
 Other buffers can be  
 keyed in at  
 calibration.

### Millivolts (90FL-T & 90FL-MV only)

Range : 0 to +/-1999 mV  
 Resolution : 1 mV  
 Accuracy : +/-1 mV

### Conductivity

Ranges : 4 ranges with auto  
 range selection

k=0.1 Sensor : 0 to 2.000 uS/cm  
 0 to 20.00 uS/cm  
 0 to 200.0 uS/cm  
 0 to 2000 uS/cm

k=1 Sensor : 0 to 20.00 uS/cm  
 0 to 200.0 uS/cm  
 0 to 2000 uS/cm  
 0 to 20.00 mS/cm

k=10 Sensor : 0 to 200.0 uS/cm  
 0 to 2000 uS/cm  
 0 to 20.00 mS/cm  
 0 to 200.0 mS/cm

Resolution : 0.05% of full scale of  
 selected range.

Accuracy : ±0.5% of full scale of  
 selected range at 25°C.

Temperature  
 Compensation : All readings  
 automatically  
 normalised to 25°C at  
 -2.2%/°C.

Zero  
 Calibration : Automatic in air.  
 Span  
 Calibration : Automatic to user-  
 defined standard.

### TDS

Ranges : 4 ranges with auto range  
 selection.

k=0.1 Sensor : 0 to 1.000 ppM  
 0 to 10.00 ppM  
 0 to 100.0 ppM  
 0 to 1000 ppM

k=1 Sensor : 0 to 10.00 ppM  
 0 to 100.0 ppM  
 0 to 1000 ppM  
 0 to 10.00 ppK

k=10 Sensor : 0 to 100.0 ppM  
 0 to 1000 ppM  
 0 to 10.00 ppK  
 0 to 100.0 ppK

Resolution : 0.1% of full scale of  
 selected range.

Accuracy : ±0.5% of full scale of

Calibration : Automatic to user-  
 defined standard.

### Temperature

Range : -10.0 to 110.0 °C  
 (sensor limit 45 °C)

Resolution : 0.1 °C  
 Accuracy : +/-0.2 °C  
 Calibration : Automatic, 1 or 2  
 point

### Good Laboratory Practices

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

Warning of failed calibration is  
 provided.

All readings stored in memory are  
 stamped with the date and time.

### Datalogging

#### Memory Capacity

90FL : 8100 readings (6500 with  
 extra data input active).  
 90FL-MV : 7200 readings (5900 with  
 extra data input active).  
 90FL-T : 6500 readings (5400 with  
 extra data input active).

#### Extra Data Input

2 extra items of data can be input when  
 using the Notepad function.  
 Each item can be a maximum of 4  
 characters, including a decimal point.  
 Extra Data items are labelled A and B.

#### Automatic Logging

All 3 models can be programmed to...

- Automatically log from 1 to 288  
 readings per day.
- Automatically log at up to 12  
 specific times of the day.
- Automatically log readings at a  
 preset interval for a preset  
 duration.

### RS232 Serial Port Output

8 Bits, No Parity, 1 Stop Bit,  
 XON/OFF Protocol.  
 300, 9600 & 19200 baud available.

### Display

90-FL Series

Temperature selected range at 25°C.  
 Compensation : All readings automatically normalised to 25°C at -2.2%/°C.  
 Zero  
 Calibration : Automatic in air.  
 Span  
 Calibration : Automatic to user-defined standard.

**Dissolved Oxygen**

Ranges : 0 to 32.00 ppM (mg/L)  
 0 to 320.0 %Saturation  
 0 to 66.0 % Gaseous  
 Resolution : 0.01 ppM (mg/L)  
 0.1 %Saturation  
 0.1 % Gaseous  
 Accuracy : ±0.02 ppM (mg/L)  
 ±0.3 %Saturation  
 ±0.1 % Gaseous  
 Temperature  
 Compensation : Automatic for solubility (ppM only) and membrane permeability.  
 Zero  
 Calibration : Automatic at less than 5%.  
 Span  
 Calibration : Automatic in air.

2 line x 40 Character alphanumeric LCD shows all readings simultaneously.

**Keypad**

5 Function keys, Menu key, 14 data entry keys, OFF, ON.

**Dimensions**

230 x 140 x 100 mm

**Mass**

Meter only : Approx 1.5 kg  
 Full Kit : Approx 6.5 kg

**Environment**

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

**Power**

7.2V Rechargeable NiCad Battery  
 Any 12VDC supply will recharge the battery.

**Ordering Information**

**90FL**

**Part No**

**5 metre bundle 126103/5:**

90-FL including 5m cables & sensors.....126103/5

**5 metre Option Includes**

Submersible pH, sensor, 5m cable.....111224  
 k=1 Conductivity/TDS/Temperature Sensor, 5m....122196  
 YSI 5739 Dissolved Oxygen Sensor (no cable)....123204  
 5m cable for sensor.....123219  
 pH6.88 Buffer, 200mL.....121306  
 pH4.00 Buffer, 200mL.....121381  
 2.76mS/cm Conductivity Standard 1 Litre 122305

## 90-FL Series

2.76mS/cm Conductivity Standard, 1 Litre.....122305  
(1 Litre Salinity or TDS standard to suit k=10, k=1, or k=0.1 sensor)  
Battery Charger.....130009  
Manual.....130050

### **90FL-MV**

**Part No**

#### **5 metre bundle 130018/5:**

**90-FLMV** including 5m cables & sensors.....130018/5

#### **5 metre Option Includes**

Submersible pH, sensor, 5m cable.....111224  
ORP, Submersible, 5m.....111259  
k=1 Conductivity/TDS/Temperature Sensor, 5m....122196  
YSI 5739 Dissolved Oxygen Sensor (no cable)....123204  
5m cable for sensor.....123219  
pH6.88 Buffer, 200mL.....121306  
pH4.00 Buffer, 200mL.....121381  
2.76mS/cm Conductivity Standard, 1 Litre.....122305  
(1 Litre Salinity or TDS standard to suit k=10, k=1, or k=0.1 sensor)  
Battery Charger.....130009  
Manual.....130050

### **90FL-T**

**Part No**

#### **5 metre bundle 126105/5:**

**90-FLT** including 5m cables & sensors.....126105/5

#### **5 metre Option Includes**

Submersible pH, sensor, 5m cable.....111224  
ORP, Submersible, 5m.....111259  
k=1 Conductivity/TDS/Temperature Sensor, 5m....122196  
YSI 5739 Dissolved Oxygen Sensor (no cable)....123204  
5m cable for dissolved oxygen sensor.....123219  
Turbidity Sensor, no cable.....125196  
5m cable for turbidity sensor.....125187  
pH6.88 Buffer, 200mL.....121306  
pH4.00 Buffer, 200mL.....121381  
2.76mS/cm Conductivity Standard, 1 Litre.....122305  
(1 Litre Salinity or TDS standard to suit k=10, k=1, or k=0.1 sensor)  
90 NTU Diluted Standard, 200 mL.....125216  
900 NTU Diluted Standard, 200mL.....125220  
Black wide neck jars for calibration x 2.....125300  
Battery Charger.....130009  
Manual.....130050

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

##### **Choose between k=0.1, k=1 and k=10 Conductivity Sensor**

k=10 Conductivity/TDS/Temperature Sensor, 5m....122218  
K=0.1 Conductivity/TDS/Temperature Sensor, 5m..122197

#### **Options and Accessories**

##### **pH Sensor Upgrade: difficult samples such as meat, dairy, slurries...**

pH, Intermediate Junc, 5m.....121200/5

## 90-FL Series

### ORP Sensor for difficult samples & ORP Calibration Standard:

ORP, Intermediate Junc, 5m.....121267  
ORP Calibration Solution.....121309

### Dissolved Oxygen Field Stirrer:

YSI 5739 Dissolved Oxygen Sensor Stirrer.....123306

### BOD Dissolved Oxygen Sensors:

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

### Dissolved Oxygen Sensor Maintenance:

#### YSI5739 Field Sensor & Non Stirring BOD Sensor

Membrane & filling solution kit.....123300  
Filling Solution only, 45mL.....123303  
Zero calibration Sodium Sulphite.....123302  
Rejuvenation kit.....123037  
Diaphragm replacement kit.....123304  
(Above for YSI5739 Field Sensor Only)

#### YSI Self-Stirring BOD Sensor

Membrane Cap Kit.....123308

### Temperature Sensor:

Temperature Sensor, 5m cable.....124210

### Sensor Holders:

Sensor holder for 90FL & 90FL-MV, 5m cable.....121343  
Sensor holder for 90FL-T, 5m cable.....121345

### Cable Extension:

Extra cable, per metre.....130040

### Computer Interface:

RS232 serial port cable to connect to computer.130015  
Serial to USB adaptor cable (used with 130015).130087  
WinTPS Software for Windows.....130086

### Power options:

12V Solar charging panel.....130012  
12V Car cigarette lighter lead.....130013  
Clip lead for external 12V battery.....130024

### Carry case:

Waterproof carry case.....130058



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



[Download the full colour 90 Series Brochure \(1.45 MB PDF\).](#)



[Download the handbook for the 90-FL.](#)



[Download the handbook for the 90-FLMV.](#)

## 90-FL Series



[Download the handbook for the 90-FLT.](#)

**Hint :** Right click on a link, then select "Save Target As..." or "Save Link Sas..." 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.



*TPS reserves the right to change any part of this specification without notice.*

*Version 6.2*

*Copyright © 2002-2004 T.P.S. Pty Ltd*

Aqua-CP/A

WP-81

Aqua-DP

WP-91

90-FL Series

labCHEM-CP

smartCHEM-CP

smartCHEM-Lab

Web Author : TPS Pty Ltd  
Copyright © 2002-2004, T.P.S. Pty Ltd  
A.B.N. 30 009 773 371  
Last modified: January 23, 2009