

# TitraLab® 980 Titration Workstation

The RFID revolution:  
a new dimension in  
potentiometric and  
Karl Fischer titration



## Smart

- Wireless RFID technology
- Quick-change detachable stands
- Automatic recognition for GLP

## Intuitive

- Large display with clear menus
- Live titration curve
- Instantly recognisable status icons

## Versatile

- Method coupling
- Sequencing of analyses
- Flexible QC definition

# TitraLab<sup>®</sup> 980

## Volumetric KF and Potentiometric Titration Workstation -

The TitraLab 980 Titration Workstation incorporating the high-performance biburette TIM980 is the first titrator of its kind to communicate with its detachable burette stands via wireless RFID technology. Stand changeover is fast and reliable thanks to instant data recognition which ensures you use the right reagent with the right data every time.

### *Enjoy the best of both worlds*

#### **Combined volumetric Karl Fischer and potentiometric titrator gives you outstanding performance**

The TitraLab 980 includes two full-featured titrators in the same workstation: a standard potentiometric plus a volumetric Karl Fischer titrator. Implementation of the latest technology ensures safe and efficient titrimetric analyses and water content determination. Solvent addition and cell emptying are performed in a matter of seconds using large suction tubes.

### *Take no risks*

#### **Wireless burette stand communication simplifies GLP compliance**

With the new TitraLab 980 reagent handling is foolproof thanks to the RFID tags located on each stand. As soon as the stand is fitted, the workstation automatically recognises and updates the stored data: reagent name, date of first use and last calibration, expiry date etc. Reagent traceability is greatly simplified and accurate results are secured.

### *Follow simple instructions*

#### **Intuitive interface guides you at every step**

Your titration workstation prompts you through each stage of operation with clear-text messages in a choice of languages. The user-friendly assistant function helps you navigate efficiently through application development and implementation.

### *See key data at a glance*

#### **A large graphic display gives an instant view of results and analysis status**

The titration curve is easy to follow live on the large graphic display together with important data such as the flow rate, time and dispensed volume. All parameters are displayed in clear text and results can be seen at a glance. Electrode and titrant status are visualised using easily recognisable icons.

### *Get measurements right first time*

#### **Versatile programming and a high-resolution burette ensure speed and accuracy**

The TitraLab 980 provides you with flexibility to adapt your methods to your needs. Automatic sequencing and repetition of measurements are ideal for programming a direct measurement followed by a titration on the same sample or including a calibration in a series of analyses. For greater control, QC intervals can be defined.

### *Save time and energy*

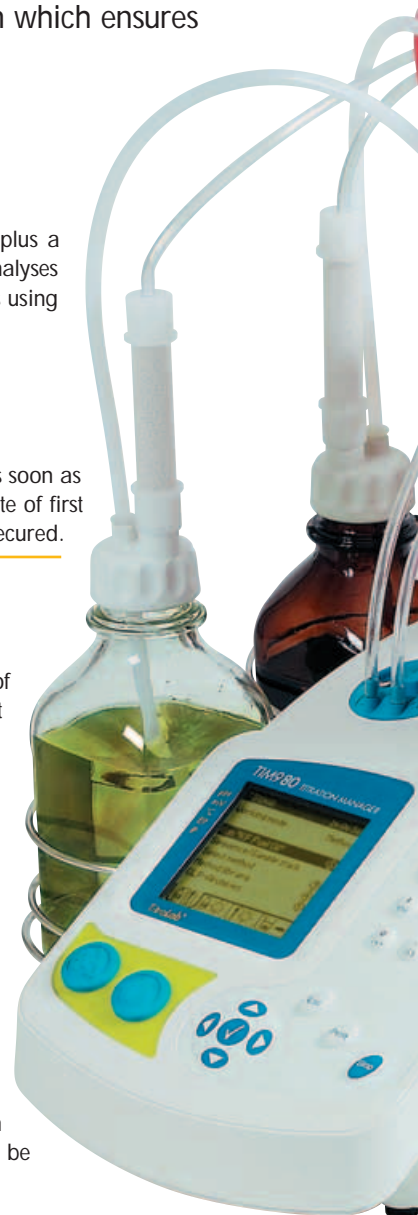
#### **Detachable stand changeover is fast and reliable**

For convenient installation and maintenance, the detachable monobloc burette stands are mounted in no time. When not in use, stands are placed directly on their reagent bottle to save bench space. Electrodes and tubing slot securely in place in one easy movement thanks to our unique bayonet concept.

### *Think of tomorrow*

#### **Customisable design meets your future needs**

All interfaces are standard so you can adapt your system as and when you wish with a sample changer, standard PC keyboard and/or bar code reader or a PC with TitraMaster 85 Software. You can add up to 4 burette motors and 4 electrode inputs by connecting two ABU62 Biburettes.



## Ready for immediate analysis



### *Ensuring the right choice for your application*

At Radiometer Analytical, we put applications first. We offer you a dedicated package ready to use straightaway: electrodes, specific accessories, standards, maintenance solutions and, of course, methods and application notes. The only thing you have to supply is the sample!

With nearly 70 years' experience in electrochemistry, we know your business. Visit us at [www.titration.com](http://www.titration.com) to get the latest updates on customised solutions for your application.

## *TitraLab: a totally reliable solution*

### **All the elements are provided for an immediately functional workstation**

- A versatile workstation integrating all the functions of a volumetric Karl Fischer and potentiometric titrator with a built-in air pump module for KF solvent handling
- Two detachable burette stands
- High-resolution burettes with a wide choice of volumes
- Two electrode inputs for standard pH or mV potentiometric titration, one for imposed current titration and a differential measurement mode
- A titration stand accommodating beakers from 5 to 400 ml and a choice of magnetic or propeller stirring
- KF equipment including electrode, cell and accessories
- Four bottle holders for keeping reagents securely in place
- A full set of accessories and cables for easily completing your workstation installation.

# Technical Specifications

## Methods

- End point titration:  
1 to 4 pre-set end points.
- Inflection point titration:  
auto determination of 1 to 8 inflection points.
- Programmable IP acceptance windows.
- Volumetric KF titration.
- Titration stops at: pH, mV, ml, IP number.
- Titrant addition techniques: incremental dynamic, incremental monotonic and continuous dynamic.
- Titrant calibration.
- pH electrode calibration: up to 5 points
- Direct pH/mV measurements  
with recording on stable reading.
- Titration modes: direct, back, with blank, with QC, repeat measurements.
- Sequencing of up to 10 methods within a sample changer or analysis series.
- Coupling of 2 to 8 methods.
- Automatic or manual reprocessing of last titration method.

## Measuring ranges

-9.00 to 23.00 pH  
±2000 mV  
-10°C to +100°C

## Resolution

0.001 pH  
0.1 mV  
0.1°C

## GLP printout

Automatic with 3 levels of detail.  
Selectable: no, 80 columns.  
Mode: continuous, page to page.

## Results

Automatic calculation of up to 8 results in the chosen unit.  
2 equations with user-defined results units.  
User-defined result IDs.  
QC check on results with visual alarm.  
Statistical calculations.

## Storage capacity

Non-volatile memory.  
User programmable: 50 methods.  
Storage of last 200 results and last 100 calibrations.  
Libraries for 30 electrodes and 30 reagents: pre-identified with ID and type

## Data security and GLP

Methods protected by password.  
Embedded operating procedures for electrode and reagent exchange.  
Automatic electrode, titrant calibration and QC prompt.

## Electrode stand - stirring

Magnetic stirrer, 22 reproducible speeds (0 to 1100 rpm) in 50 rpm steps.  
Propeller connection.  
Beaker volume: 5 to 400 ml.  
KF cell volume: 35 to 150 ml ±5 ml.

## Sample list

Up to 126 data with alphanumeric ID.  
QC sample definition.

## Pneumatic circuit functions

Built-in air pump module.  
Solvent addition and cell emptying.

## Burette

2 detachable burette stands.  
Burette volumes available: 1, 5, 10, 25, 50 ml.  
Burette motor: 18000 steps.  
Complies with ISO 8655-3.  
UV-protected encapsulated glass syringe.  
Burette stands: up to 6 with 2 ABU62s.  
Air bubble removal, rinse-fill-empty functions.

## Inputs/outputs

2 indicator electrode inputs.  
1 reference electrode input.  
Selectable polarised input from -1 mA to 1 mA in 1 µA steps, DC or AC.  
Differential measurement mode.  
Temperature input.  
0-5 V TTL output.  
0-12 V TTL output.  
TTL input to start analysis.  
Up to 6 electrode inputs with 2 ABU62s.  
Serial connections for Printer/PC, balance and sample changer.  
PS/2 port for PC keyboard and/or barcode reader.

## Languages

English, German, Danish, French, Italian, Spanish and Swedish.

## General specifications

**Casing:**  
Fully splashproof latene®.  
Graphic 128x128 dot LCD (TPX®).  
Alphanumeric keypad (silicone).

**Dimensions (H x W x D) and weight:**  
380 x 230 x 450 mm (excl. tubing).  
5 kg (excluding reagent bottles).

**Power requirements:**  
47.5 – 63 Hz  
115/230 Vac +15 -18%.



## International standards (TIM980):

CE marking: complies with EMC directive 89/336/EEC and LV directive 73/23/EEC.  
cETLus certification issued by ITS/SEMKO UL Standard 61010A-1.  
CSA Standard C22 2 No. 1010.1-92.  
RFID technology complies with R&TTE and FC part 15 directives.

## Environmental operating conditions:

5 to 40°C temperature.  
20 to 80% relative humidity.

## Ordering information

### TitraLab system

The TIM980, NB Potentiometric Titration Workstation consists of the TIM980 pH/EP/IP/KF Titrator, biburette delivered with a full set of connecting cables and cell accessories but no stand. The following detachable burette stands are available: 1 ml (B601), 5 ml (B605), 10 ml (B610), 25 ml (B625) or 50 ml (B650). The equipment required for KF titration (cell, electrode, accessories) is also supplied.

### Metrology

To comply with ISO 9001 and ISO 17025 requirements, our Metrology Dept. can supply calibration and verification certificates. Our COFRAC accredited laboratory produces pH and conductivity standards with certificates of traceability and conformity.

## Applications

The TitraLab 980 Titration Workstation, used in conjunction with our comprehensive range of electrodes and accessories, are ideal for performing the majority of industrial aqueous and non aqueous titrations:

Acid/base titration in aqueous or non-aqueous media
Complexometric titrations
Argentimetric titration (halides and silver)
Redox titration (zero and imposed current)
Photocolorimetric titrations
Volumetric Karl Fischer titrations

Consult the full list of dedicated applications developed by our Applications Chemist at [www.titration.com](http://www.titration.com)



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