

TitraLab[®] 960 and 965 Titration Workstations

The RFID revolution:
a new dimension in
potentiometric 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



Radiometer
analytical

A Hach Company Brand

- when you need to be sure...

TitraLab[®] 960 and 965

Potentiometric Titration Workstations -

The TitraLab 960 and 965 Titration Workstations incorporating the high-performance monoburette TIM960 or biburette TIM965 are the first titrators of their kind to communicate with their 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.

Take no risks

Wireless burette stand communication simplifies GLP compliance

With the new TitraLab 960 and 965, 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 960 and 965 provide 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

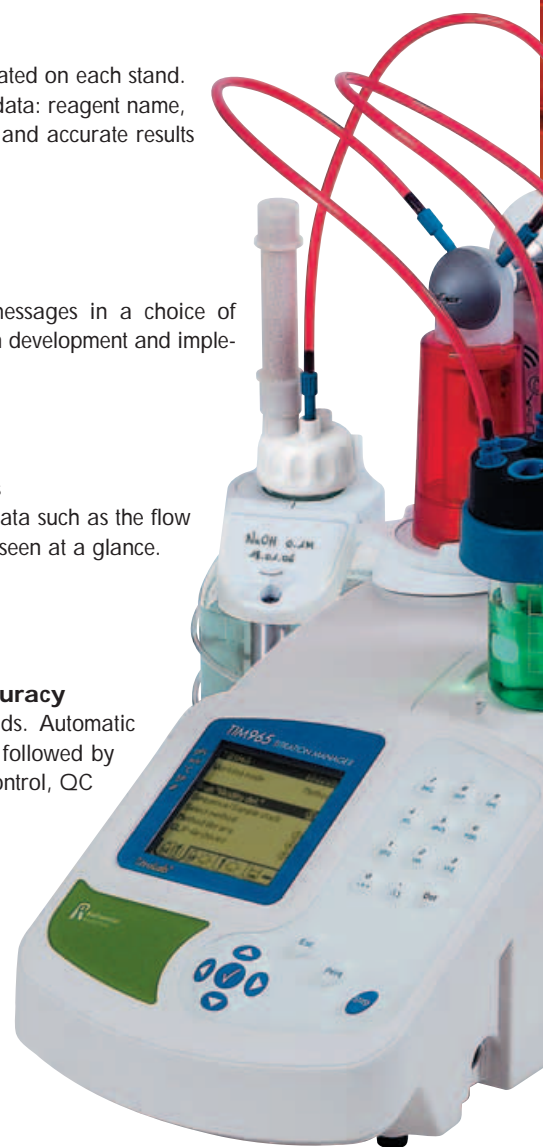
Detachable stand changeover is fast and reliable

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 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, full-featured titration manager
- One or 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
- One or two bottle holders for keeping reagents securely in place
- A full set of accessories and cables for easily completing your workstation installation.

Technical Specifications

TitraLab®
960 and
965

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.
- 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 range

-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.
Continuous, page to page.

Results

Automatic calculation of up to 8 results in the chosen unit.
2 equations with user-defined result 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.

Sample list

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

Electrode stand - stirring

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

Burette

1 detachable burette stand - TIM960.
2 detachable burette stands - TIM965.
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.
Electrode inputs: up to 6 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 chemical resistant latene®.
Graphic 128x128 dot LCD protected from spillages with TPX® cover.
Soft-touch alphanumeric keypad (silicone).

Dimensions (H x W x D):
380 x 230 x 450 mm (excl. tubing).

Weight: 5 kg (excluding reagent bottles).

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

Environmental operating conditions:
5 to 40°C temperature.
20 to 80% relative humidity.



International standards (TIM960 and 965):
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 FCC part 15 directives.

Ordering information

TitraLab systems

The TIM960, NB or TIM965,NB Potentiometric Titration Workstation consists of the TIM960 pH/EP/IP Titrator, monoburette or the TIM965 pH/EP/IP 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).

Metrology

To comply with ISO 9001 and ISO 17025 requirements, our Metrology Dept. can supply calibration and verification certificates.

Applications

The TitraLab 960 and 965 Titration Workstations, 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
Precipitation titrations

Consult the full list of dedicated applications developed by our Applications Chemist at www.titration.com



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