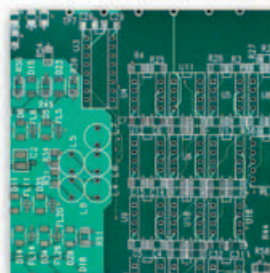


# TitraLab<sup>®</sup> 840 and 845 Titration Workstations

## Routine Analysis

Potentiometric Titrations:  
Customised to *YOUR*  
Exact Application



### Food & Beverage

- **Total acidity:** wine, vinegar, fruit juices, milk
- **Chloride:** milk, butter, other dairy products
- **Ascorbic acid:** fruit juice and food
- **Free & Total SO<sub>2</sub>:** wine and fruit juice

### Environment & Water

- **pH & Alkalinity**
- **Total Hardness**
- **Chloride**
- **Chemical Oxygen Demand**

### Chemical & Plating

- **Acid-base** determinations in aqueous/non-aqueous media
- **Imposed & zero current redox** determinations
- **Complexometric** determinations
- **Silver & precipitation** determinations

### Petrochemical

- **TAN/TBN:** according to ASTM D664, D1159, D2896, ISO 3771
- **Bromine Index and Bromine Number:** according to ASTM D1491, D7210
- **Hydrogen sulphide and Mercaptans:** according to ASTM D3227

# *TitraLab® 840 and 845*

## *Routine Potentiometric Titration Workstations -*

No more wasting time setting up. Order your TitraLab system incorporating the high-performance single burette TIM840 or biburette TIM845 Titration Manager with the appropriate application package and it will arrive with all you need. Getting started couldn't be simpler:

### ***Save time and energy***

#### **Intelligent design ensures effortless application setup and maintenance**

The TIM840 and 845 are delivered with preprogrammed methods so you can get your analyses started in no time. Electrodes and reagent addition tubing slot securely in place in a single movement thanks to our unique bayonet concept.

### ***Follow the display***

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

The TIM840 and TIM845 prompt you with clear-text messages in a choice of languages, making it so much easier when you're doing routine work. The titration curve is easy to follow live on the large graphic display together with electrode and titrant status. Your titrator beeps each time an action is required or the final result is obtained allowing the operator to multi-task.

### ***Press just one key***

#### **One-touch selections and preprogrammed functions make titrations easy to run**

The TIM840 and TIM845 give instant access to all main routine functions, making them by far the simplest titrators of their generation. Preset routines guide the operator through each step of the analysis providing assistance with alphanumeric sample ID and sample quantity entry and repeat measurements. Shortcuts allow you to run an analysis from start to finish by pressing a single key.

### ***Get it right first time***

#### **High-resolution burette and unique addition technique ensure accurate results**

The TIM840 and TIM845's titrating burettes offer unbeatable accuracy for your potentiometric titrations. Incremental or dynamic continuous titrant addition modes allow you to reach end points or to determine inflection points quickly whether you are working with sharp or weak curves or running single or multiple IP.

### ***Stay in control***

#### **Assistant function and extensive data storage give complete confidence in your results**

You can ensure your analysis stays on track thanks to an embedded assistant mode which guides you through operations such as calibration or reagent installation as well as graphic icons that indicate calibration status. An extensive non-volatile memory saves your current application methods and lets you check the last results obtained. When you select a method from the library, the required electrode and reagents are displayed so there is no risk of error.

### ***Plan ahead***

#### **Modular concept allows expansion to your future needs**

On the TIM840 and TIM845, all interfaces are standard so you can add to your system as and when you wish. Increase your sample throughput by using our SAC80 Sample Changer. Simplify data entry by connecting a standard PS2 computer keyboard and/or a bar code reader. Obtain virtually unlimited storage capacity for your results with TitraMaster 85 Data Collector Software.





## 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 more than 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 is a complete solution*

### **All the elements are provided for a fully functional workstation**

- A titration manager integrating all functions of a modern potentiometric titrator
- One or two high-resolution burettes with a wide choice of volumes
- One electrode input for standard pH or mV potentiometric titration, one for imposed current titration
- A titration stand with a magnetic stirrer accommodating beakers from 5 to 400 ml and offering optional propeller stirring
- A full set of accessories and cables for easily completing your workstation installation.

# Technical Specifications

**TitraLab®**  
840 and  
845

## Methods

- End point titration: 1 to 2 preset end points.
- Inflection point titration:  
Auto determination of 1 to 4 inflection points, programmable IP acceptance windows.
- IP detection using 1st & 2nd derivative curve.
- Titration stops at: pH, mV, ml, IP number.
- Titrant addition techniques:  
incremental dynamic, incremental monotonous and continuous dynamic.
- Titrant calibration.
- pH electrode calibration: up to 5 points using IUPAC standards or 4-7-10 Series buffers with error recognition.
- Direct pH/mV measurements:  
with recording on stable reading.
- Back titration with manual (TIM840) or automatic (TIM845) reagent addition.
- Sequencing of up to 3 consecutive methods within a sample changer series.
- Coupling of 2 methods in one beaker.

## Measuring ranges Resolution

-9 to 23 pH	0.001 pH
±2000 mV	0.1 mV
-10°C to +100°C	0.1°C

## Printout

Automatic. GLP compliant.  
Selectable: no, 80 columns.  
3 levels of detail defined by method.  
Printed data can be sent as a single character string for LIMS connection.

## Results

In each method, calculation of up to 4 results and 1 user-defined equation.  
Statistical calculations. Optional result recalculation in case of sample quantity modification before archiving.

## Units

All standard units for samples/results.  
User-defined result units.

## Storage capacity

Global password protection for programming access.  
Non-volatile memory.  
User programmable: 10 methods.  
Libraries for 15 electrodes and 15 reagents: more than 30 electrodes and 20 titrants pre-identified (ID and type) to help programming.  
Storage of last 60 results, last electrode and last reagent calibration for each library.  
Stored parameters characterised by own ID, location and calibration data.  
Embedded operating procedures for reagent exchange and burette operations.

## Sample list

Up to 20 data with alphanumeric ID.

## 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 or 2 embedded burette stands.  
Burette volumes available: 1, 5, 10, 25, 50 ml.  
Delivered with 25 ml burette.  
Burette motor: 18000 steps.  
Complies with ISO 8655-3.  
UV-protected encapsulated glass syringe.  
Embedded operating procedures for burette exchange, air bubble removal (Flush).  
Fill, Empty functions.

## Inputs/outputs

1 indicator and 1 reference electrode input.  
Selectable polarised input from -1 mA to 1 mA in 1 µA steps, DC or AC.  
Differential input for a third platinum electrode.  
Temperature input. 0-5 V TTL output.  
Serial connections: printer, balance, additional titrator, PC with TitraMaster 85 Data Collector software and SAC80 Sample Changer fitted with 10 to 20-position tray.  
PS/2 port: PC keyboard, barcode reader.

## Languages

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

## General specifications

**Casing:**  
Fully splashproof latene®.  
Graphic 128x128 dot LCD protected from spillages with TPX® cover.  
Alphanumeric keypad (silicone).

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

**CE marking (TIM840 and 845):**  
Complies with EMC directive 89/336/EEC and LV directive 73/23/EEC.



## Power requirements:

47.5 – 63 Hz, 115/230 Vac +15 -18%.

## Environmental conditions:

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

## Ordering information

### TitraLab systems

The TitraLab 840/25 or TitraLab 845/25-25 Potentiometric Titration Workstation consists of TIM840 pH/EP/IP Titrator, monoburette or TIM845 pH/EP/IP Titrator, biburette with full set of connecting cables, cell accessories and one or two 25 ml burette(s). Also available without burette (TIM840,NB and TIM845,NB) for use with one of the following volumes: 1, 5, 10, 25 & 50 ml.

### 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.

## Application Packages Available

### Technique-based

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

### Dedicated

Water hardness, calcium and magnesium determination  
TAN and TBN, bromine number and bromine index according to ISO and ASTM  
Hydrogen sulphide and mercaptans according to ASTM  
Peroxide number in edible fats and oils  
Chloride in milk, butter and other dairy products  
Ascorbic acid determination in food and beverages

Consult our on-line application catalogue at [www.titration.com](http://www.titration.com)



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