



## CERTIFICATED TECHNICAL ASSISTANCE

Our experience  
at your disposal

- Technical/analytical advice
- Technical maintenance contracts
- Repair/setting/calibration

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# TITREX

# ACT<sub>2</sub>

AUTOMATIC COMPACT TITRATION

Immagini elaborate da foto di Roberto Vercel - Design: TITREX ACT<sub>2</sub> GEN. INCL. REV. 1 - DICEMBRE 09

## TITREX

## ACT<sub>2</sub>

AUTOMATIC COMPACT TITRATION

Automatic  
titration

The highest  
performance  
with the  
greatest  
simplicity





# TITREX ACT<sub>2</sub>

AUTOMATIC COMPACT TITRATION

**Titrex ACT<sub>2</sub> Titrator was designed to suit laboratory needs and to carry out simple, potentiometric titration for a wide range of applications:**

- ACID-BASE
- REDOX
- ARGENTOMETRIC

**ACT<sub>2</sub> meets the most demanding analytical requirements for research applications as well as for users who routinely analyze a large number of samples every day.**

## On line graphics

The backlit large graphic display contains all the messages and icons that make Titrex extremely easy to use. The titrator software guides the user through every single step of programming, analysis and data interpretation. The titration curve is displayed graphically in real time, thus immediately informing the operator as to the progress of the analysis. By simply pressing a key you will change the graphic display to numerical values of the individual titration points; the results will be then displayed if needed.

## Clear and descriptive documentation: GLP

The possibility of documenting the different stages during each individual analysis process is a fundamental requirement for modern laboratory instruments. Therefore every analytical report obtained with Titrex ACT<sub>2</sub> gives: name of company/agencies and operator, analysis date and time, alphanumeric sample code, titrant consumption, sample volume/weight, results expressed in the desired unit (e.g. %, g/l), etc. The pH calibration and reagent standardization programs, with warnings for any buffer/electrode or titrant anomalies, avoid risk of unsuitable working conditions. "Memorized" programs are protected by a password to prevent unauthorized personnel from tampering with them.

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# OPERATION SOFTWARE: USER-FRIENDLY

TITREX ACT<sub>2</sub>

AUTOMATIC COMPACT TITRATION

The large graphic display allows immediate and intuitive access to all software functions:

- **Programming:** construction and/or changing of methods
- **Execution:** carrying out the titration
- **pH and mV measuring**
- **Electrode calibration**
- **Service programs:** for rinsing with solution or cleaning the dispensers (pumps and/or burettes) in the event of "machine stoppage" or reagents substitution.

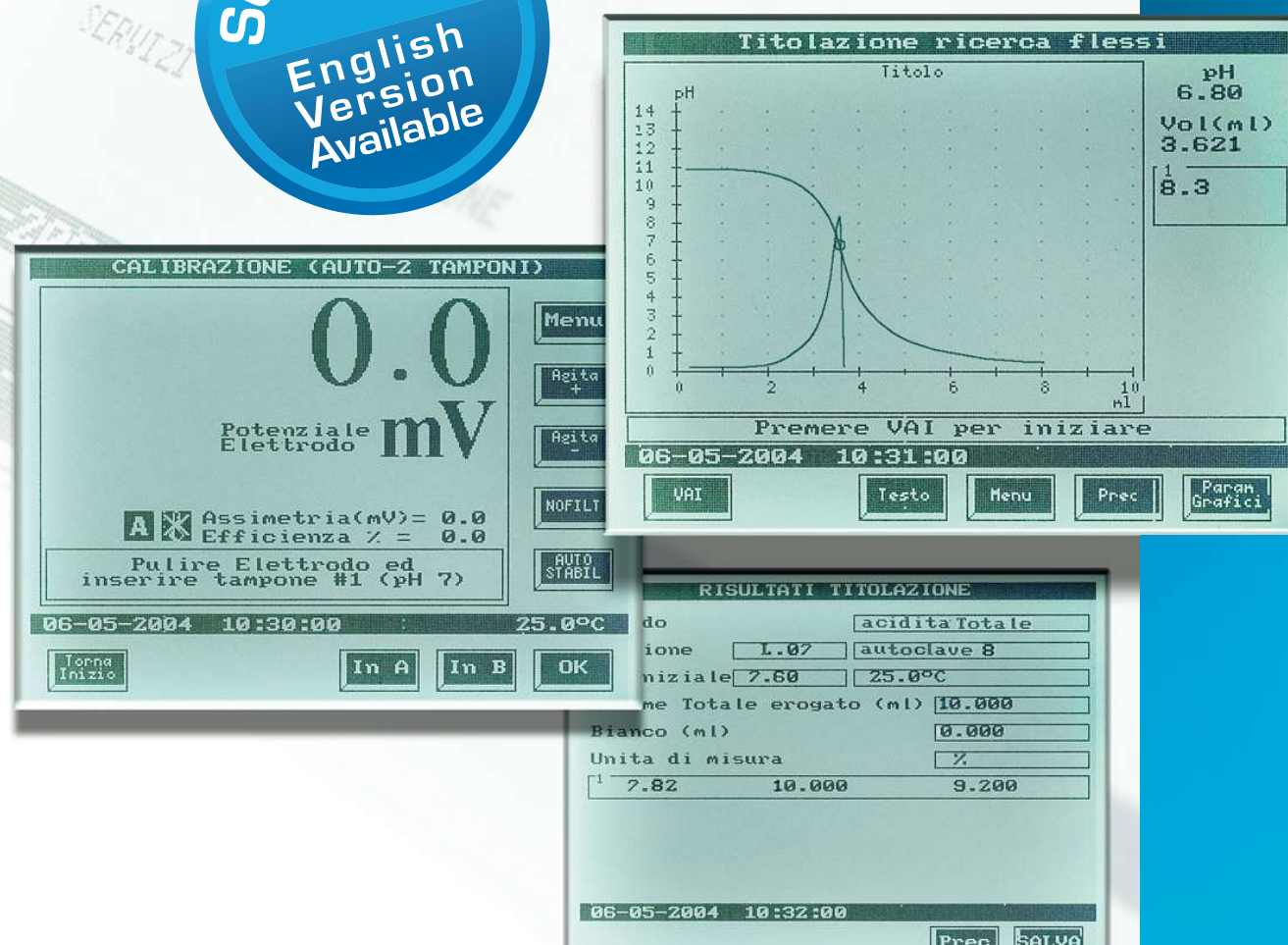
The intuitive software with icons guides the user in accessing the selected operations. A special area of the memory for "preferred" programs makes the most frequently used programs immediately available.

- The titration curve is displayed in real time. If this process does not advance correctly, it can be interrupted momentarily, and then re-started, eliminated or started over, without any loss of time or titrant wasting.
- The pH calibration can be done on 1 or 2 points using buffers pre-defined or pre-chosen by the user. In the event of malfunctioning of the pH electrode or anomalies in the buffer solutions used, a warning message will appear, so as to avoid working with an inefficient electrode.
- When titration is completed, the results are displayed in a detailed, easy-to-read manner: initial pH/mV, temperature, sample volume/weight, equivalent volume and pH/mV expressed in the desired unit of measurement. The last 15 samples data are automatically memorized: this option is very useful for those who do not print data at the end of each process.

With its flexibility and low costs, Titrex ACT<sub>2</sub> is ideal both for those who need to analyze a large number of samples and for those wishing to automate individual titration processes. By using the automatic sampler, total reproducibility of every individual titration and/or calibration process is guaranteed, thus avoiding errors caused by manual operation.

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SOFTWARE  
English  
Version  
Available





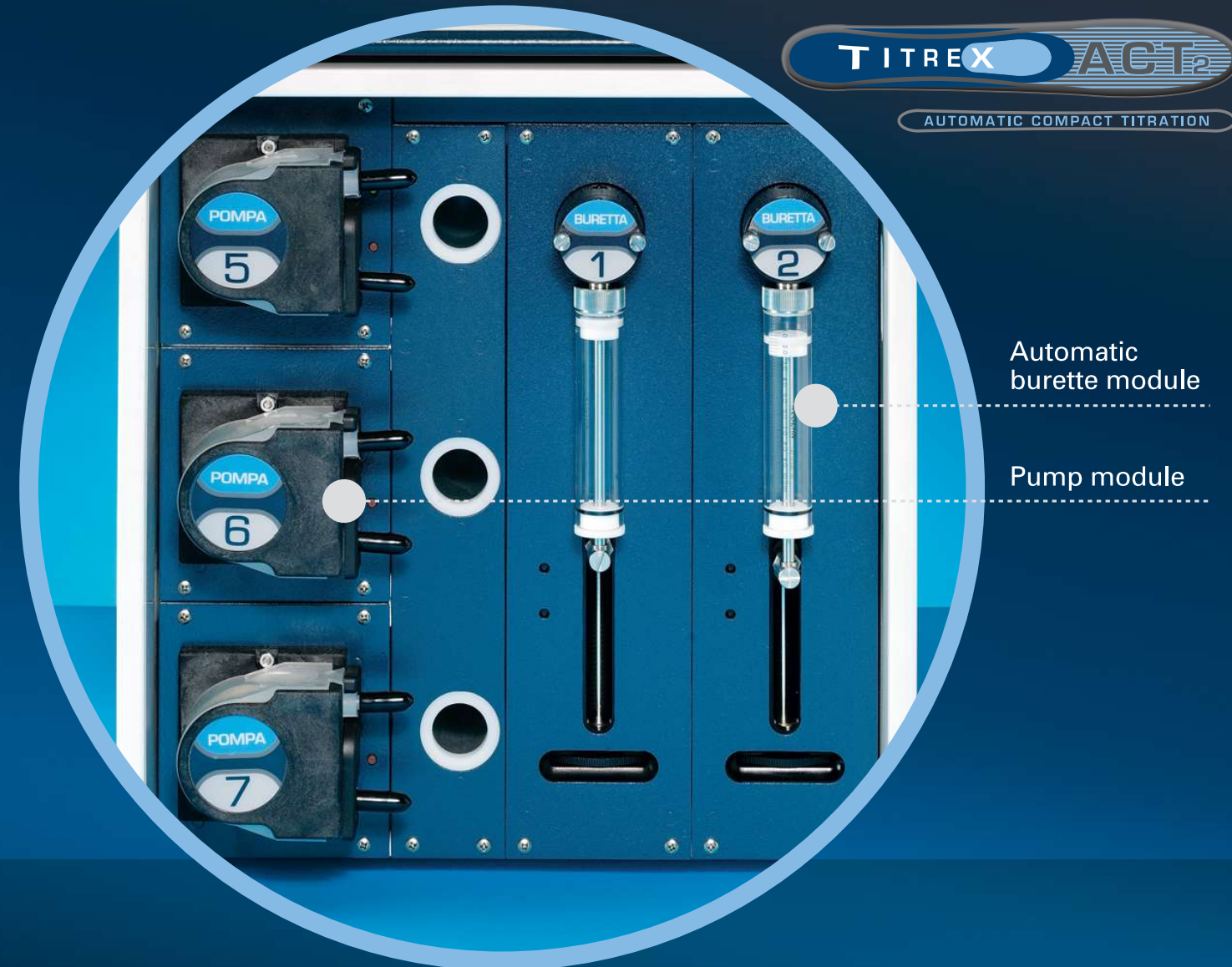
# TITRATION PROGRAMS

## Standard programs:

- **End point:** pre-defined pH/mV value titration, with dosage control by means of control band
- **Equivalence:** titrations with automatic localization of equivalent point(s), with pre-defined or incremental additions during titration
- **Dosage:** dispensing of pre-defined fixed volumes
- **Rinsing with solution and washing:** for loading reagents and washing at the end of titration

## Specific programs:

- **Oenology:** pH/total acidity, reducing sugars, free and total SO<sub>2</sub>
- **Titrant reagents standardization:** calculation of the exact titer
- **Milk (°SH), yoghurt, fruit juices and drinks, wine:** pH/total acidity/formol number
- **Oils, fats:** total acidity, peroxides and iodine number
- **Kjeldahl**
- **Tap water, waste water:** pH/alkalinity/acidity
- **Acid-base, redox, argentometric titrations.**



## TITREX ACT<sub>2</sub>

- **Dimensions (LxDxH):**  
291x315x465 mm  
(single analysis stand not included)
- **Power:**  
220V; 50/60 Hz;  
CE approved

## Memories available for programs:

- For 30 programs, user-changeable and can be protected by password
- **Preferred:** for memorizing up to 8 "preferred" programs, i.e. those used most frequently.

## Expression of analysis results

Calculation and free choice of desired unit of expression (e.g. %, g/l, ppm, mol/l. etc.), starting with a sample by weight or volume.

## Compact and modular at the same time

**Titrex ACT<sub>2</sub>** is a compact as well as modular instrument. It can be configured at will, therefore it is fitted to satisfy the ever-changing laboratory requirements. The burettes for titrant solution and the peristaltic pumps for the auxiliary reactants can be integrated to the system at any time.

## Automatic burettes:

Up to 2 burettes can be installed featuring:

- 48,000 stepper motor
- 10 ml graduated clear glass syringe and interchangeable PTFE tip
- Four-way valve (titrant/cleaning reactant suction, titrant delivery, syringe) in anticorrosive material

## Pumps:

Very often a titration process requires adding of auxiliary reagents (that do not participate in the stoichiometry of the reaction), such as acid for acidifying, water for diluting, etc. With up to a maximum of 3 peristaltic pumps, operated together or separately, every stage of the titration process can be made truly automatic. The final result can be obtained by just inserting the sample and pressing a key.

Features:

- Delivery: 2 ml/second
- Internal tube: neoprene - External tube: PVC and PTFE



# HARDWARE TECHNICAL FEATURES

## Control module:

- Wide, clear and evident graphic display
- N° 2 outputs for combined electrodes:  
pH: 0.00...14.00 (0.01 pH)  
mV: - 1999.9... +1999.9 (0.1mV)
- N° 1 output for reference electrode
- N° 1 output for temperature sensor: 0 ÷ 100°C
- Parallel connection to printer and RS 232C serial connections to external PC and scale, RS 485 serial connection to burettes, optional peristaltic pumps, 16-position sampling plate
- 24 Vdc input voltage

## Anti-acid plastic body:

**TITREX ACT<sub>2</sub>** is equipped with a save-space tray, placed above the instrument, suitable for reagent bottles.

## TITREX ACT<sub>2</sub> can be connected with:

- Standard Autosampler AS23 (with 16 positions for 120ml sample vessels)
- Single analysis stand (ideal if autosampler is not required)

## Application fields:

- Tomato sauces, preserves, tomato purée
- Olive oil, seed oils
- Cheeses, yoghurt
- Milk
- Fruit juices, beverages
- Feeds for zootechny
- Food







## HOW TO ORDER

### TITRATOR

<b>TITREX ACT<sub>2</sub> STANDARD VERSION</b>	<b>SQTZ060211</b>
N° 01 TITREX ACT <sub>2</sub> WITH 1 BURETTE	
N° 01 BURETTE DELIVERY PIPE KIT WITH 80 mm ENDING TUBE	
N° 01 TITREX ACT <sub>2</sub> BURETTE SUCTION/WASHING PIPE L=1,5 m	
N° 01 STOPPER FOR TITREX BURETTE VALVE	
N° 01 ELECTRODE CABLE S7 BNC L=1,4 m	

### SINGLE ANALYSES

<b>KIT REQUIRED</b>	<b>SQFT060213</b>
N° 01 SINGLE ANALYSIS STAND (ST 21 MODEL)	
N° 01 MECHANICAL STIRRER (AG 21 MODEL)	
N° 01 EXTENTION CABLE FOR TITREX ACT <sub>2</sub> STIRRER L=15 cm	

### MULTIPLE ANALYSES

<b>AS23 AUTOSAMPLER</b>	<b>SQTR058908</b>
N° 01 AS23 AUTOSAMPLER	

### OPTIONAL BURETTE KIT

<b>OPTIONAL BURETTE KIT</b>	<b>SQFV060214</b>
N° 01 AUTOMATIC BURETTE EQUIPPED WITH 48.000 STEPPER MOTOR	
N° 01 10 ml SYRINGE (17600 MODEL)	
N° 01 FOUR-WAY VALVE	
N° 01 STOPPER FOR TITREX BURETTE VALVE	
N° 01 BURETTE DELIVERY PIPE KIT WITH 80 mm ENDING TUBE	
N° 01 TITREX ACT <sub>2</sub> BURETTE SUCTION/WASHING PIPE L=1,5 m	

### OPTIONAL PERISTALTIC PUMP KIT

<b>OPTIONAL PERISTALTIC PUMP KIT</b>	<b>SQFV060215</b>
N° 01 PERISTALTIC PUMP	
Mt. 5 FLEXIBLE PVC TUBE D. 3x5 mm	
N° 01 PTFE ENDING TUBE FOR PERISTALTIC PUMP AS23	

## OTHER ACCESSORIES

### ELECTRODES AND CABLES

FLUSHTRODE ELECTRODE S7 pH 0-14 10-50°	<b>HIFM009178</b>
REDOX COMBINED ELECTRODE	<b>HIFM043541</b>
DOUBLE PLATINUM ELECTRODE FOR SO <sub>2</sub>	<b>MLSM046402</b>
SILVER COMBINED ELECTRODE	<b>HIFM043542</b>
CABLE FOR DOUBLE PLATINUM ELECTRODE S7 DOUBLE BNC L=1,4 m	<b>SQFT054043</b>
ELECTRODE CABLE S7 BNC L=1,4 m	<b>SQFT054082</b>

### TEMPERATURE SENSOR

PT100 PTFE COATED PROBE L=1,2 m	<b>SQFT055954</b>
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### PRINTER

80 COLUMNS PRINTER SET	<b>SQFV060216</b>
40 COLUMNS PRINTER SET	<b>SQFV060217</b>

### BARCODE READER

BARCODE READER TOUCH 90	<b>SQFV060218</b>
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### VESSELS

PLASTIC VESSEL PACKAGE 100 pcs.	<b>SQFV046495</b>
120 ml PYREX GLASS TITRATION VESSEL	<b>SQUA043914</b>

### AUTO-LEVEL SYSTEM

AUTO-LEVEL SYSTEM FOR AS23 AUTOSAMPLER	<b>SQFV059205</b>
(To be used with an available peristaltic pump and AS23 autosampler)	

### BUFFER SOLUTIONS AND ELECTROLYTES

250 ml pH 4 BUFFER	<b>PAPE022003</b>
250 ml pH 7 BUFFER	<b>PAPE022011</b>
250 ml pH 10 BUFFER	<b>PAPE021990</b>
KCL 3M ELECTROLYTE SOLUTION 100 ml (for pH/Redox electrodes)	<b>HIPE009306</b>
KNO3 1M FILLING SOLUTION (for Ag electrodes)	<b>IEPE021903</b>

## SPARE PARTS

10ml SYRINGE (17600 MODEL)	<b>KLJS042400</b>
THREE-WAY VALVE FOR BURETTE	<b>KLJS038703</b>
PTFE ENDING TUBE FOR PERISTALTIC PUMP (AS23)	<b>VAJT059012</b>
FLEXIBLE PVC TUBE D. 3x5 mm	<b>AGOY024204</b>
BURETTE DELIVERY PIPE KIT WITH 80mm ENDING TUBE	<b>SQFT060219</b>
BURETTE DELIVERY PIPE KIT WITH 55mm ENDING TUBE	<b>SQFT060220</b>
TITREX ACT <sub>2</sub> BURETTE SUCTION/WASHING PIPE L=1,3 m	<b>SQFT053978</b>
STOPPER FOR TITREX BURETTE VALVE	<b>VAJT056530</b>
NEOPRENE TUBE WITH CONNECTIONS FOR PERISTALTIC PUMP	<b>VAJT056492</b>
MECHANICAL STIRRER WITH GLASS BLADE (Mod. AG21)	<b>SQTR044169</b>
EXTENTION CABLE FOR TITREX ACT <sub>2</sub> STIRRER L= 15 cm	<b>SQFT053981</b>
MECHANICAL STIRRER WITH BLADE (AS23)	<b>VAJT058919</b>
GLASS BLADE FOR AG21 MECHANICAL STIRRER	<b>SQFT043954</b>
GLASS BLADE FOR AS23 MECHANICAL STIRRER	<b>VAJT059225</b>
24x11mm CONTINUOUS PAPER, N° 500 SHEETS	<b>SQFV047074</b>
40 COLUMNS PRINTING PAPER	<b>SQFV060221</b>
EPSON CARTRIDGE RIBBON LX8/4/300 82.01	<b>VAJS046403</b>
40 COLUMNS PRINTER CARTRIDGE RIBBON	<b>SQFT060222</b>
N° 5 PTFE GASKETS FOR TITREX	<b>SQFT060223</b>
PTFE ENDING TUBE WITH ANTIDIFFUSER L=80 mm	<b>VAJT056397</b>
PTFE ENDING TUBE WITH PUNCHED ANTIDIFFUSER L=55 mm	<b>VAJT056398</b>