

## GENERAL INFORMATION

### 1.1. Product description of the SAC 990 / 950 / 850

*Sample Changers for TitraLab® and MeterLab®*

**SAC850/950**  
**Sample Changers**  
**for Complete**  
**Automation**



**R** Radiometer  
analytical  
A Hach Company Brand

*- when you need to be sure...*

# Sample Changers

## *The right choice for your laboratory*

Radiometer Analytical sample changers are capable of handling multiple combinations of titrations, direct pH, pX and conductivity measurements fast and efficiently. Add a titrator or a direct measurement meter with or without PC software selected from our complete laboratory product range and your laboratory will virtually run itself!

### **Compact and Adaptable**

The SAC850 and SAC950 are compatible with a wide selection of removable turntables, making them remarkably space-efficient. They accept standard glass and disposable beakers with volumes ranging from 25 to 400 ml. Turntables are automatically identified thanks to a wireless RFID tag embedding all mechanical characteristics which ensures optimum vertical and lateral movements. A high rotation speed and smooth turntable movements allow fast and safe navigation between samples.

### **Quick and Efficient**

The Dynamic Spray Rinse feature and high flowrate pump ensure quick and thorough head cleaning with no risk of cross contamination between samples. Efficient rinsing is obtained thanks to the vertical movements combined with the mechanical action of the sprays. Solvent is sprayed in a circular motion over the entire height of the electrodes and tips while the waste pump empties beakers and evacuates rinse waste.

### **Tough and Hardworking**

If you are handling viscous samples, the Dynamic Spray Rinse/waste disposal function can be repeated several times either directly in the sample beaker to accelerate throughput or in a selected rinse positions to preserve samples. Pumps accept alternative solvents to distilled water for non aqueous titrations or sticky sample matrixes.

### **Flexible and Programmable**

Sample preparation sequences can be programmed from TitraMaster 85 Titration PC Software with specific macro commands to fit your requirements. User-defined sample preparation sequences offer all the benefits of full automation. You can activate the Start/Stop stirring function or the pumps for a chosen duration, wait or send a TTL command from/to an external device and wait for a temperature to be reached.

## Safe and Clean

The unique bayonet concept is designed to keep electrodes and delivery tips securely in place. This ensures reproducible results and allows you to use any combination of electrodes, temperature sensors or delivery tubes for your analyses. Tubes and cables can be inserted or removed in no time and are maintained in position in a cable carrier for maximum hygiene. Reagent addition tubes are visible for inspection.

## State of the Art

Beakers are automatically detected by an innovative ultra sonic transducer in the electrode head which immediately detects any missing beaker position and helps avoid any risk of unattended reagent spillages.

## Practical and User-friendly

Special park positions allow you to quickly swap between electrodes and tips according to your application. To protect samples from atmospheric contamination, cover discs can be dropped on the beaker in one easy movement by the operator then removed automatically and disposed of by the SAC in a dedicated position prior to analysis.

## Functions vs models

Functions	SAC850	SAC950
Propeller stirrer 0 - 1200 rpm	●	●
Magnetic stirring (mono radius only) 0 - 1000 rpm	●	●
Beaker detection	●	●
Embedded programmable sample preparation sequences	●	●
2 Dip rinse-conditioning + 1 Park positions, External	-	●
2 Dip rinse-conditioning + 1 Park positions, on carousel	●	-
Unused electrode tip storage, 4 positions	●	●
Integrated keyboard for SAC manual control	●	●
Dynamic rinse/waste disposal pumps, 1 module	○	○
Reagent addition peristaltic pump, 1 module	○	○
Beaker cover module (Sample protection prior to analysis)	-	○

- : Standard
- : Option
- : Not available

## General specifications

Ambient temperature	10 to 40 °C
Relative humidity	20 to 80%
Altitude	≤ 2000 m
Casing materials	PETP – PVC/PE - Protected against projections, IP54 – For use in a laboratory environment (interior use only)
Level of pollution	2
Power supply	47,5-63 Hz. 115 to 230 Vac +15 to -18%. 76 VA
Transitory over voltage	Level II
Dim. H x W x D cm	70 x 58 x 68
Weight (Kg)	27 Kg
Operating area requirement	80 x 80 cm
Compliance	- CE, EMC Directive (89/336/CEE), Low Voltage Directive (73/83/CEE) and R&TTE Directive. - cETLus certification, UL 61010A-1 and CAN/CSA C22.2 n°1010.1-92. - FCC part 15 Directives.

**Inputs/outputs**

Connector type	Connector description
USB-B (Slave)	PC connection
Sub-D9 RS232C	Connection to analyzer
RJ11	0-5 V TTL Input/output commands
RJ11	Beaker cover module
RJ11	Propeller stirrer
Cinch	Temperature input (for use in sample preparation sequence only)
Jack 3.5 mm	Ultrasonic transducer for beaker detection

**1.2. Related Submittal(s) / Grant(s)**

All host equipments used in the test configuration are FCC granted, when relevant.

**1.3. Tested System Details**

The FCC IDs for all equipment, with description of all cables used in the tested system are:

Trade Mark – Model Number (Serial number)	FCC ID	Description	Cable description
<b>RADIOMETER – SAC xx0 *</b> Sn: Proto1	UHC-TTL075	Samples changer	Power cable, unshielded Serial cable: shielded TTL I/O cable: unshielded USB cable : shielded with one ferrite
DELL INSPIRON 9100 M/N: PP09L Sn: (01) 07898349890344	DOC	Laptop Personal Computer	Power cable: unshielded USB cable: shielded Serial cable: shielded
Inside OUT Edge port/2 RS232 P/N: (1P) 50000785-01 B Sn: V32088968	DOC	RS232 to USB converter	Power cable unshielded USB cables: shielded

**\*: Equipment under test. (Sample tested was SAC990, which is the most complete hardware configuration of the product range)**

- Moving arm (rotation)
- Burette function
- Full option (Baker cover module, peristaltic pump, dynamic rinse/waste disposal pumps)
- Multi radii carrousel (70 samples on turntable)

#### **1.4. Test Methodology**

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4-2003, FCC Part 15 Subpart C.

Radiated testing was performed at an antenna to EUT distance of 10 meters. During testing, all equipment's and cables were moved relative to each other in order to identify the worst case set-up.

#### **1.5. Test facility**

Tests have been performed on April 23<sup>rd</sup> to 27<sup>th</sup>, 2007.

This test facility has been fully described in a report and accepted by FCC as compliant with the radiated and AC line conducted test site criteria in ANSI C63.4-2003 in a letter dated July 14, 2005 (registration number 94821).

This test facility has also been accredited by COFRAC (French accreditation authority for European Union test lab accreditation organization) according to NF EN ISO/IEC 17025, accreditation number 1-1633 as compliant with test site criteria and competence in 47 CFR Part 15/ANSI C63.4 and EN55022/CISPR22 norms for 89/336/EEC European EMC Directive application. All pertinent data for this test facility remains unchanged.