

MULTIPARAMETRIC STATION FOR THE ANALYSIS OF GRAPE MUST AT RECEPTION

SA 00

SA-00 analysis stations are the result of a project started 50 years ago. Designed with the aim to measure the sugar degree of grapes at reception, nowadays they have really become a centre of analysis and data elaboration, able to give an analytical description of each lot. In accordance with these parameters, processed in few time, it is possible to attribute an economic value to the grapes, and to decide the most suitable winemaking technology to obtain the best quality. Since it is a modular system it is possible to set it according to specific needs with eventual subsequent integration of further modules.

What it can measure?

The system can measure:

- sugar degree
- pH
- total acidity
- phenolic quality
- tonality

In particular the phenolic quality index (PQ) and the tonality (T) represent a new philosophy of the analysis at reception; indeed these indexes are essential for the evaluation of high quality grapes used for producing prestigious wines.

Technical solutions

The Automatic Station is an assembled single unit in which the following modules have been set and connected:

- Main control unit of the system
- Refractometric unit of analysis mod. "UR-25".
- Colorimetric unit of analysis mod. "UK-05".
- T.A. system of analysis with "Dispenser" group and accessories
- Must transferring system
- Analysis basin
- Printer unit for tickets

It is a rugged industrial construction specially engineered in order to be:
modular, easy to use, easy to maintain.

Measurement cycle and data managing

The cycle, entirely automatic, consists of:

- initial rinsing of the system
- must introduction
- analysis cycle
- display and data print
- rinsing at the end of the cycle

Data are directly displayed on the display unit and they may be transmitted to a data collection centre.

Who can use it and why?

Social and Private wineries which need a centre for analysis and data elaboration able to precisely define the analytical situation of each lot. These data are used for liquidation and especially for technological purposes.



SA00 Multiparametric station

Importance of the measure

Through the combination of parameters such as **Sugar, pH, Total Acidity and Pheonolic Quality** it is possible to draw and define in a technical and modern manner some factors of utmost importance.

With the measures of the **Pheonolic Quality** value matched with the **Sugar** content it is possible to know:

- the grapes maturation
- the probable content of aromatic polyphenolic substances according to the vine and the considered area.

Matching the value of **Total Acidity** with **pH** makes possible to state:

- the degree of acid salification and thus the tartaric precipitations during winemaking
- the efficiency of sulfitation, of the enzymatic activity and of the intensity of colour.

It is also been stated that:

- the hectar yield
- the fertilizing
- the prunings
- the climate
- the harvesting period
- the grape sanity may influence the above mentioned parameters.

The Pheonolic Quality index is function of the Quantity of Polyphenols, the Tonality depends on the oxydation which is influenced by the sanity of grapes (the better maturation the minor value).

Method

Sugars:

The measurement of sugar content is made by a refractometer.

pH and Total Acidity:

The free organic acids found in the must, constitute the titrable acidity. The Multiparametric Station determines this parameter by applying a neutralization method, measuring the quantity of sodium hydroxide required to neutralize the free organic acids

in a fixed volume of product, so that it can then indirectly calculate the Total Acidity value. The neutralization is determined by a phmetric process.

Pheonolic Quality and Hue:

Determination of **Pheonolic Quality** is relative and is carried out via spectral analysis of the must. From the spectrum it is possible to assume optical density values, which are displayed and transmitted.

With appropriate processing of the data, the Pheonolic Quality index can be calculated and expressed in PQ unit. The ratio between the values of optical density at 420 and at 520 nm represents the

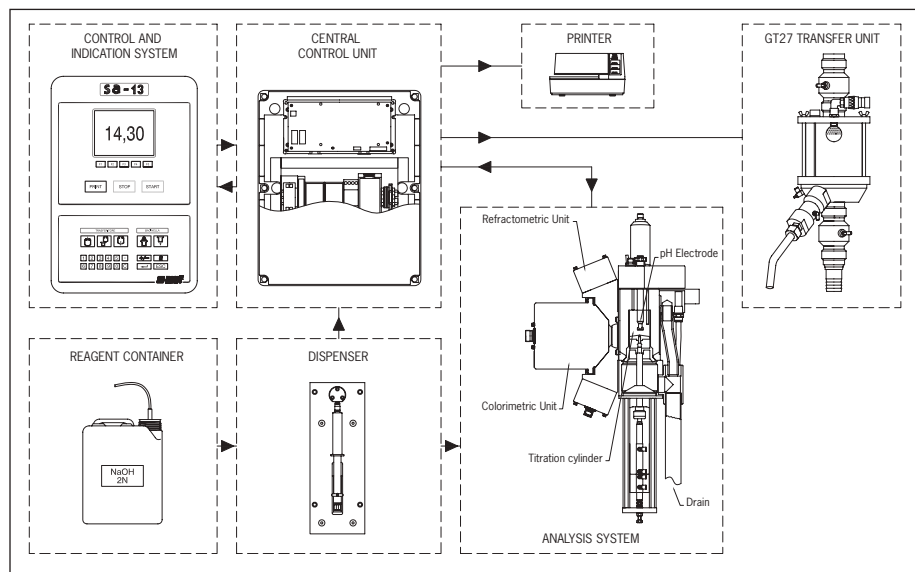
Tonality.

Exclusive features

The SA's special characteristics make it the number one titrator for industrial use. While maintaining high levels of performance, it meets the needs of industrial analysis on the process.

Among its special features, the following are worthy of particular note:

- **Rugged industrial construction**, specially engineered so the titrator can be used "on Site" and designed to operate in demanding conditions.
- **Easy to use**. Even untrained staff will find this instrument easy to use. Operation via simplified keyboard is continuously guided by the instrument itself.
- **Fast Display**; Alphanumeric Display with 160 characters to show the data from the analyzer.
- **Patented system for constant volume supply** to guarantee a high level of reliability and repeatability of measurements.
- **Password protected access** to protect important analysis parameters from unintentional modifications.
- **Fast analysis** to meet the grape receiving station's required.



Technical and construction characteristics:

Refractometric measurement

- Measurement ranges (all available and menu selectable)
 - 5...35 degree Brix
 - 4...30 degree Babo
 - 0...22 degree Alcole
 - 3...20 degree Baumé
 - 3...32 kg/q
 - 20...153 degree Oechsle
- Accuracy: 0.3% of the Full Scale.
Maximum accuracy $\geq \pm 0.1$ Brix or equivalent of a corresponding scale.

pH measurement

Measurement limits: 2...14 pH
Accuracy: ± 0.05 pH units

Total Acidity measurement

Measurement scale range:
0...30 g/l of Tartaric Acid
Accuracy: ± 0.10 g/l of Tartaric Acid

PQ/Tonality measurement:

Measurement limits: PQ: 90...250 PQ units
Tonality: 0...2.5
Accuracy: PQ: ± 1 PQ unit
Tonality: ± 0.03

Product temperature:

5...40 °C with automatic temperature compensation

Outputs:

- RS485 for connection to PC and/or Remote Enology indicator "IREO".
- RS232 for connection to an External Printer.

Power supplies

Electrical:
AC 230V $\pm 10\%$ 50...60Hz $\pm 2\%$ 300VA
Pneumatic:
Dry air 4...10 bar (58...145 psi)
Water:
Water 1.5...4 bar (22...58 psi)

Measurement Display: high contrast "Graphic display" for concentration pH, TA and PQ/Tonality measurements, service messages and software menus.

Control Keyboard; Polyester membrane with domed keys, for accessing software menus equipment customization, cycle management and manual activation of the main operating procedures (washing, draining, printing).

Printer Unit

- Ticket dot-matrix printer using a one-way (RS232 connection).
- Supports different size tickets (min. 70x75, max 120x220).
- Possibility to print multiple tickets (1 original + 2 copies) and/or with cardboard support.
- Completely Personalized choice of data types to be printed (Sugar degree, pH, A.T., Date, time, etc.).

Metal structure AISI 304 stainless steel

Materials in contact with the product: AISI 304 stainless steel, Food-grade rubber, Fused Silica, Pirex, PVC.

Quantity of product analyzed:

- ~ 500 cc for concentration, PQ and Tonality measurement
- 50 cc for "pH" and "Total Acidity" analysis.

Duration of the complete measurement cycle (washing and analysis): minimum 70 seconds, average 90 seconds (depending on acidity, washing and printing times).

Dimensions and total weight: 915 (w) x 1750 (h) x 500 (d), ~ 100 kg.

SA00 station

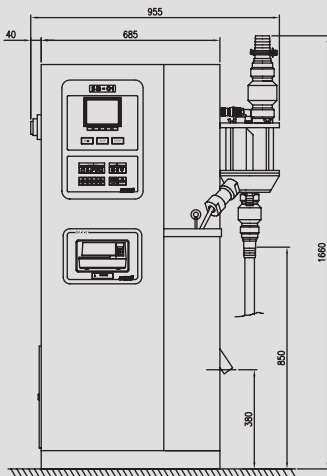


SA00 station with GT27 transfer unit



SA 00

Dimensions



Analysis station

The SA analysis station is a modular unit that can be set up in different configurations to meet your needs:

	CONCENTRATION	pH	TOTAL ACIDITY	COLOUR
SA01	●			
SA02	●	●		
SA03	●	●	●	
SA11	●			●
SA12	●	●		●
SA13	●	●	●	●

When the SA-01, SA-02, SA-03 are requested with P.Q (Phenolic Quality) determination, they become SA-11, SA-12, SA-13.

It is also possible to complete the station at a later date. Whichever configuration is selected the instrument can be used with the must transfer unit, or operated with manually supplied samples. The SA-00 may also be combined with other types of transfer units for sampling grapes or must after the crusher (documentation available on request).

Grape analysis centre

The SA-00 multiparametric station is the heart of Maselli Misure' complete delivery quality control system. The complete analysis system includes the following elements:

- CC-01 Sampling Unit
- GT-27 must transfer unit with remote control
- SA-00 Multiparametric Station
- Repeater



MASELLI MISURE s.p.a.

43125 Parma - Italy
Via Baganza 4/3
Tel. +39.0521.257411
Fax +39.0521.250484
info@masellimisure.com
www.masellimisure.com

