

# AT

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**MULTI-PARAMETRIC**

**AUTOMATIC**

**PROCESS**

**TITRATOR**



# Multi-parametric titrator AT-02

## Titration from the laboratory to the production line.



### MAIN CHARACTERISTICS

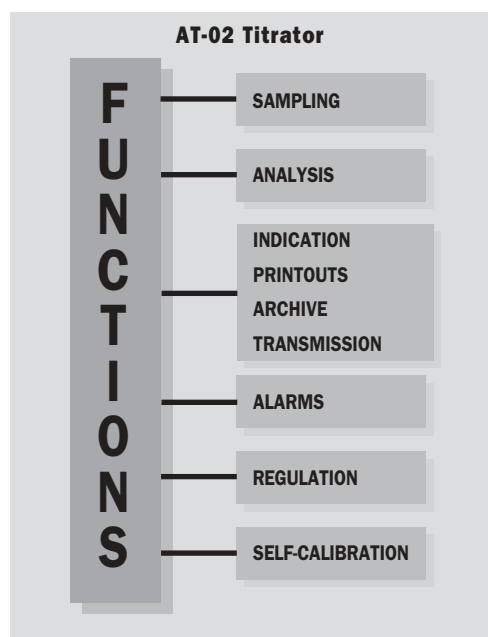
- Monobloc stainless steel structure
- Easy installation
- 6-line sampling capacity
- Differentiated line analysis
- Automatic self-calibration
- Analogue and serial output
- Data printouts
- Configuration of alarms
- On board controller
- data archive storage
- Reliable results
- Easy to use

**T**itration analysis of process parameters, until recently carried out only in the laboratory, is moving into a new era. New, increasingly automatic systems require the continual monitoring of process variables but feedback from laboratory testing simply isn't fast enough for today's needs. There is a growing need to transfer titration procedures from the laboratory to the production line itself and the answer to this problem lies in the use of specific and personalized automatic titrators which can be used directly on site.

The Maselli AT-02 Titrator, designed to be used directly on the production line for multi-parametric analyses on a wide range of products is the perfect solution.

### The AT-02 unit: multifunctional analysis centre

The AT-02 Titrator has been designed for use in working environment conditions without the need for specialized personnel. The AT-02 can be used as an 'analysis centre' checking various processes simultaneously and carrying out different types of analysis for each process. The integrated multifunctional unit is held within a stainless steel, air-tight container using simple and robust mechanical components; the hardware system allows samples to be taken from 6 lines and can carry out various analyses per line. The unit ensures that automatic self-calibration programmes are routinely carried out, its clear and simple operative menus are easy to use by non-specialized personnel and high standard personalized options can be configured directly from a keyboard by qualified personnel.



## Titrator AT-02: Multi-parametric for various sectors



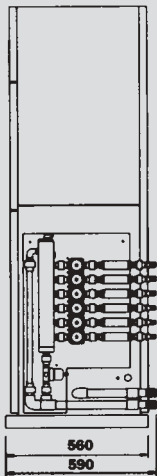
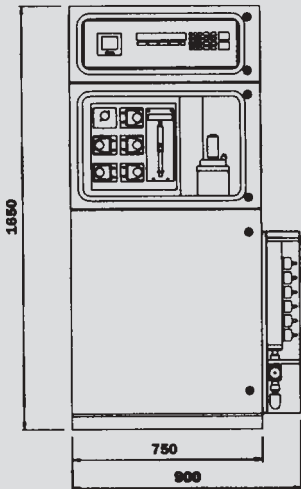
The AT-02, with its modular conception with options for a wide range of personalized settings can be used in diverse sectors. A number of applications are shown in the table below.

SECTOR	PRODUCT	ANALYSES
<b>Food and drink industry</b>	Juice	pH, total acidity, formalin number, °Brix
	Treated primary water	pH, Conductivity, Redox, Alkalinity/Acidity, Chlorine total/residue, hardness, turbidity, selective ions
	Milk	Lactic acid
	Preserving liquids	Total acidity, salt concentration, sugar concentration, dry residue
	Mayonnaise	Total acidity
<b>Chemical and biochemical industries</b>	Base products	Acids, bases, intermediates, finished products
	Synthetic fibres	DMF, formic acid
	Soaps	Alkalinity, sodium chloride
	Culture mediums	pH, total acidity, formalin number, °Brix
<b>Mechanical Industry</b>	Lubricant-cooling oils	% Oil, pH, Alkalinity, Conductivity
<b>Metal treatments</b>	Metals	Iron II, Iron III, Acceleration (hydrogen peroxide), Fluorides, Zinc, Nitrates
<b>Ecology</b>	Treated sewage	Metals, Neutralization
	Waste discharges	pH, turbidity, Metals
<b>Energy</b>	Treated primary waters	pH, Conductivity, hardness, Chlorides
	Condensation	pH, Conductivity, turbidity, Alkalizers



# AT 02

## Overall Dimensions



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## GENERAL CHARACTERISTICS

### TECHNICAL CHARACTERISTICS

#### Measurement limits:

pH measurement: 0...14 pH  
Redox measurement: 0...2000mV  
Conductivity measurement: 0...20 mS/cm  
Fluorides measurement: 100...1000 ppm  
Data relative to other measurements and analyses, which the appliance can perform, are not given since they vary depending on personalized setting options

#### Accuracy:

pH measurement:  $\pm 0.1$  pH  
Redox measurement:  $\pm 1$ mV  
Conductivity measurement:  $\pm 0.1$  mS/cm  
Fluorides measurement:  $\pm 1$  ppm

#### Temperature compensation:

Automatic between 0 °C...+45 °C  
(+32 °F...+113 °F)

#### Number of lines sampled:

The appliance can sample up to 6 lines  
Product analysis sampling carried out in by-pass circuit

**Quantity of product analysed:** 50 cc

**Quantity of product sampled:** ~ 800 cc

#### Interfaces:

- (optically isolated)
- Analogue optional:  
N° 6,12 or 36 independent channels  
4...20mA (on 470Ω)
  - Digital:  
RS232 for connection to PC or serial printer  
RS422 for connection to PC, serial printer or data acquisition and processing systems
  - Input contacts:  
N° 6 inputs for acquisition of "External Start" command relative to the line to be analyser
  - Output contacts:  
N° 3 relay outputs for signalling alarms and "Start Stand-by" status, with contact rating of 24V/2A DC/AC
  - Optional outputs:  
N° 6,12 or 18 optional relay outputs for On/Off control

#### Supplies:

- Power supply:  
AC 115/230V  $\pm 10\%$  50...60Hz 200VA
- Pneumatic:  
Dehydrated air 6...10 bar  
Connection via "Quick Coupler" for Plastic tube, diameter 6x4 mm
- Water:  
Water 1.5...4 bar  
Estimated consumption ~2 litres/analysis  
Connection via "hose connector" for reinforced  
Hose with 15 mm internal diameter

### CONSTRUCTION FEATURES

#### Elements of measurements:

Multiparametric analysis by means of "Titration Acid/Base, Oxide/Reductant, Complexometric, Precipitation", of a product sample of known volume, by means of measurement electrodes and various sensor options

#### Element of temperature measurement:

Thermometric probe Pt100 inserted on the line

#### Controls:

Polyester scratch-proof keyboard with dome keys

#### Display:

- Alphanumeric Display 2 rows x 40 characters
- Ribbon printer with paper reel and winder

#### Execution:

- Structure in INOX 304stainless steel
- Protection IP65 (EN60529)

#### Pump section:

Possibility to install between 1 and 6 pumps (expandable up to 8) with characteristic (rpm, pipeline material, etc.) which can be personalized depending on the type of application

#### Tank section:

Capacity to house up to 8 plastic 5-litre tanks or 6 10-litre tanks. Minimum level controlled by ball-cock and alarm system

#### Dispenser section:

Possibility to install between 1 and 3 glass or PES syringes with 5ml or 10ml capacity for correct Dosage of reagents and product to be analysed. Fully automatic filling, emptying and cleaning cycles

#### Analysis bowl:

Cylindrical bowl in transparent Plexiglas or PES Fitted with electromechanical shaker for mixing reagents.

Possibility to insert up to 3 different electrodes for single or combined readings.

Automatic cleaning cycle

#### Weight:

~190 kg (~419 lb)

### FLUID OPERATING LIMITS

#### Temperature:

0 °C...+45 °C (+32 °F...+113 °F)

#### Pressure:

1...6 bar (14.5...87 psi) a 20 °C (68 °F)

### OPTIONAL

Digital refractometer for refractometric measurements