

# TR01

## AUTOMATIC JUICE PREPARATION AND TOMATO ANALYSIS UNIT BRUX - pH - a/b and L color indices - LYCOPENE

The **TR01 Grinding Unit** is an integrated module made up of a series of devices specifically designed to determine the qualitative parameters of tomatoes entering the processing plant.

In its maximum configuration, the **TR01**, after having reduced the tomato to juice, can automatically determine **the °Brix, the pH, the a/b and L color indices and the quantity of lycopene.**

The **TR01 unit**, in its top-of-the-range configuration is made up of:

**Base unit with PLC**

**Juice Preparation System**

**UR24 Process Refractometer**

**RM01 Receiver Transmitter**

**UK04 Spectrophotometer-Colorimeter**

The "en bloc" solution means installation times and costs are reduced to an absolute minimum and makes transfer and reinstallation in other areas quick and easy. All together these functions make this a **unique** system also because it is designed, constructed installed and assisted by a **single** partner; thus all problems concerning incompatibility of interconnections and later technical assistance and maintenance problems are eliminated.

There are two models which differ in their type of external interfacing:

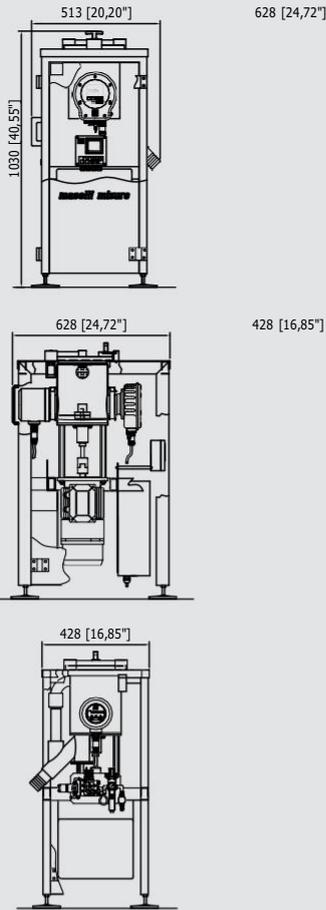
- The TR01, coupled with our SV01 System is directly controlled by the PLC and hence does not require a remote manual pushbutton panel;
- The TR01, not coupled with the SV01, comes with a remote pushbutton panel so that it can be activated and interfaced with the data acquisition system.

In the configuration which includes the UK04 spectrophotometer/colorimeter there is also the RS232 output because the datum must be processed by specific software to be installed on the external computer.



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## Dimensions



## TECHNICAL FEATURES

**Concentration measurement:**  
 Measurement limits: 0...10 Brix.  
 Accuracy: maximum  $\pm 0.15$  Brix.  
 Measurement scale: BRIX - ICUMSA (1974).

**pH measurement:**  
 Measurement limits: 2...14 pH.  
 Accuracy:  $\pm 0.05$  pH.  
 Reading resolution: 0.01/0.1 pH.

**Color/Lycopene measurement**  
 Indices: a/b - L  
 Lycopene measurement limits:  
 0...80 mg/100 g tomato  
 Accuracy: higher than 5% of the given reading

**Power supplies**  
 Electrical:  
 AC 3/N/PE 230/400V  $\pm 10\%$  50...60Hz 1.5kVA.  
 Connection via cable fitted with plug "4P+T" CEI EN 60309-2.  
 Pneumatic:  
 Dehydrated air 6...10 bar (87...145 psi).  
 Connection via "quick-release coupling" for plastic tube with diameter 6x4 mm.  
 Water supply:  
 Water 1.5...4 bar (22...58 psi),  
 expected consumption  $\sim 5$  l/grinding cycle.  
 Connection via "hose-connector" for fabric-faced tube with internal diameter 12 mm.

**Interfaces**  
 Digital:  
 RS422/485 for connection to PC or Data Acquisition and Processing Systems.  
 Inputs:  
 - 1 input for acquisition of "External Cycle Start" command for connection to PC in automatic System control.  
 - 1 input for acquisition of "Wash Cycle Progress" command.  
 Outputs:  
 1 "Data Ready" indication with contact having capacity 24V/1A-DC/AC.  
 All the interfaces are optically isolated from the power supply (VDE0160); all connections must be made by means of terminal board.

## CONSTRUCTION FEATURES

**TR-01, execution:**  
 INOX AISI 304 structure specially designed with access to the various machine sections by means of 3 doors fitted with locks.

**Base unit, PLC, features:**

- Polycarbonate "Primary" box (IP55) to house the "Electronic Control Section".
- Polycarbonate "Secondary" box (IP55) to house the "Electric Power Section".
- "Operating Controls" and "Indicator lights" by means of modular components on a  $\varnothing 22$  panel.
- "Automatic" Operating Cycle.
- Manual "Diagnostics" commands for activation of "Motor" and "Washing System".
- Electric protection against accidental opening of access doors to the machine by means of "Safety Limit switches".
- External pushbutton panel for remote control of "Washing Cycle Progress" complete with "Data Ready" warning sound and light (appliance not integrated in SV01 system).

**Juice preparation system, execution:**

- INOX AISI 304 cylindrical sampling tank with connectors for the analyzing units.

**Features:**

- Removable, overlapping circular blades.
- Blade rotation by means of 1.5HP-2850 rpm "self-braking motor".
- PVC tank cover with "Safety limit switch" for stopping motor immediately if opened during the cycle.
- Automatic washing with water at the end of each analysis cycle, pressure regulation by means of special Reducer.
- "Spray-Ball" tank washing system.
- Drainage of process residue and washing; drainage system opened by means of electro-pneumatically operated cylinder.

**UR20/24 Process Refractometer**  
 features: please refer to specific brochure

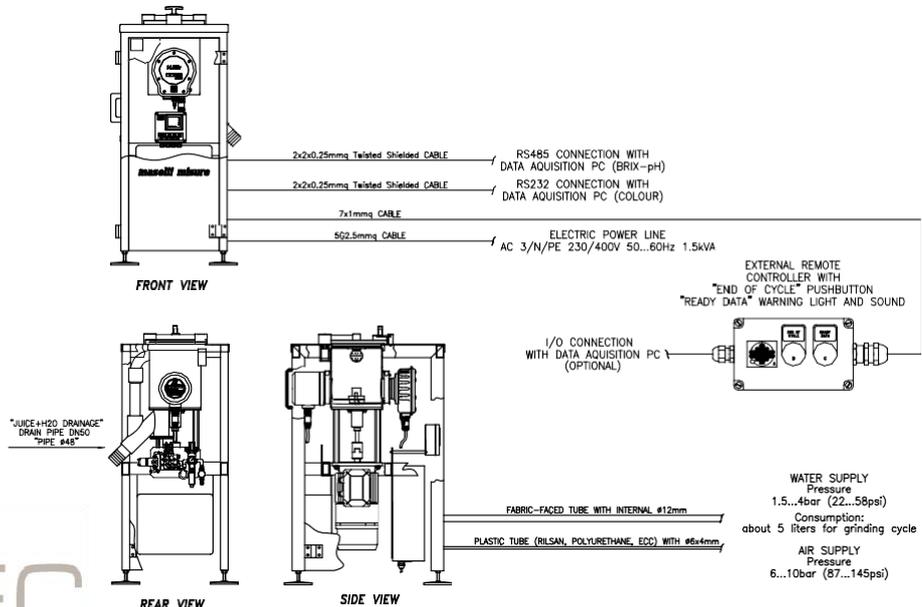
**RM01 Receiver Transmitter**  
 features: please refer to specific brochure

**Materials in contact with the product:**

- Pt100, blade, prism holder and UR20/24 external body in INOX AISI 304/316.
- Sampling tank and accessories in INOX AISI 304.
- PVC tank cover.
- Viton O-rings and seals.
- Synthetic sapphire.
- Glass.
- PVDF.

**Dimensions:** 428 (b) x 1030 (h) x 628 (p)

**Weight:** 115 kg



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