



TECHNICAL-NORMATIVE SPECIFICATIONS

Environmental features

Temperature Limits:

Environment: +5°C...+45°C (23°F...113°F).

Storage: -20°C...+50°C (-4°F...122°F).

Humidity Limits:

Environment: +5%...+95% (R.H. without condensate).

Storage: +5%...+95% (R.H. without condensate).

Altitude Limits: <2000 m b.s.l.

Protection Degree: IP64 in accordance with EN60529.

Conformity to Directives and Standards

LVD: CEE 73/23, 93/68 and subsequent modifications;
EN 61010-1 (1994)

EMC: CEE 89/336, 93/68 and subsequent modifications;
EN 50081-2 (1994-Generic Emission)
EN 50082-2 (1994-Generic Immunity)
EN 61000-3-2 (2001-Harmonic Emission)
EN 61000-3-3 (2001-Voltage Fluctuations)
EN 61000-4-2 (1996-Electrostatic Discharges)
EN 61000-4-3 (1997-Electromagnetic fields RF)
EN 61000-4-4 (1996-Fast Transients)
EN 61000-4-5 (1997- High Volt. Impulse Immunity)
EN 61000-4-6 (1997- Conducted RF Disturb. Immunity)
EN 61000-4-11 (1997-Immunity to Voltage variation)

* CE marking of conformity to EU Directives and listed Standards.

The Standard System, structured according to the model, consists of:

- IB04 main electric panel
- MR01 model Control Panel
- UR21 model Digital Refractometer
- UC04 model Digital Carbometric Unit
- Recirculation pump

All installed, assembled and interconnected on a self-standing Frame, on a base with adjustable supports. As the system is modular, it can be structured according to specific requirements (only the concentration or CO₂ measurement, with single recirculation to a pump or separate) and integrate it with additional modules subsequently. The Standard System is the basic element of the "BAS-02" control System, which in its maximum extension allows complete management of the analytical parameters by bringing about the functions of direct Regulation on the Process Line, Remote Indication, Recording, Acquisition and data Processing.

OPERATING SPECIFICATIONS

Application: Measurement of sugared or dietetic carbonated drinks, non-carbonated drinks, mineral water, in process lines.

Type of measurement: A) Continuous refractometric measurement of Refractive Index and display of the relative concentration, already compensated in temperature, in the selected "REGULAR BRIX", "DIET BRIX" or "STANDARD %" scale.
B) Measurement, on the basis of the relationship between the Saturation Pressure and its temperature (Henry's Law), of continuous cycle carbonation and display of the value of dissolved CO₂ in the selected "g/l" or "V/V (Gas/Vol)" scale.

Concentration measurement:

Measurement Limits: 0...18.5 Brix for "REGULAR" Scale.
0...2000mBrix for "DIET" Scale.
0...200% for "STANDARD %" display Scale.

Accuracy: 0.1% of the scale range, maximum accuracy ±0.02Brix with ±10°C (±18°F) variation for "REGULAR" Scale.

0.15% of the scale range, maximum Accuracy ±0.003 Brix with ±2.5°C (±3.6°F) variation for "DIET" Scale.

Measuring Scale: "BRIX", "DIET" or "% STANDARD"; the "BRIX" Scale refers to the nD/Bx ICUMSA conversion tables (1974).

CO₂ measurement:

Measurement Limits: 0...5 V/V; 0...10g/l.

Accuracy: ±0.05 V/V; ±0,1g/l.

Measuring Scale: "V/V (Gas/Vol)" or "g/l".

Product temperature: -5°C...+35°C equivalent to 23°F...95°F with automatic compensation of sugar concentration by means of a Pt100 temperature probe in AISI 316 3/8" stainless steel, Class "A" in accordance with IEC751.

Line pressure: 0...7bar (0...110psi) at 20°C (68°F).

GENERAL SPECIFICATIONS

Power supply

Electric: AC 3/PE 230/400V ± 10%, 50Hz±2% - 460V±10%, 60Hz±2%, 1200VA (other power supplies on request).

Interfaces

Analog: No. 2, 4...20mA on 470Ω completely independent channels, that can be configured in the Start-Full scale values and in association with the required measurement variable (Diet or Regular Bx or Standard %, CO₂, CO₂ Pressure or Temperature, Bx Pressure or Temperature).

Digital: RS422/485 for connection to the "CM00" remote Control Unit, to a PC with RS422 Interface and "Labtech" or similar data acquisition Software Package, to a PC with RS485 Interface (Optomux Protocol)).
A "Multidrop" connection can be used to interface up to 8 "IB04" Analysis Systems.

Optional: - RS232 for an "IRI0" Remote Indication Repeater.
- RS422/485 for connection to the Regulation System of the "QC20" Process Line.

Inputs: No. 2 completely independent inputs for the acquisition of the "Brix and/or CO₂ Line Stop" status.

Outputs: No. 4 2A/24V DC/AC output relays, NO/NC contact, for signalling BRIX and CO₂ HI/LOW (1) and (2) measurement alarms; the activation values can be completely configured.

No.1 2A/24V DC/AC relay outputs, NO/NC contact, for indicating "General System Alarm" (Unit switched off or not working, pump magnetothermal blocked, etc).



All the interfaces are optoinsulated by the power supply (VDE0160) and can be completely configured from the keyboard. All external connections must be made by means of connections to the terminal in the box.

CONSTRUCTION FEATURES

“IB04” ELECTRIC PANEL

Function: Management of the systems and units power supplies, operator controls, interface with additional elements and with process plant layouts.

Execution: AISI 304 stainless steel panel (IP64) with hinged door and locking mechanism.

Electric Section:

- Circuits differentiated and protected by means of “Automatic Magnetothermal Circuit breakers”, “Differential Circuit breakers” and “Fuses”.
- “Disconnecting Switch”, “Main activation controls” and “luminous Indicators” relative to the main operating functions, located on the panel door.
- Terminal boards for connection of Inputs, Outputs, Analog and Digital Interfaces.

Dimensions and weight: 300 (b) x 1500 (h) x 140 (p), ~45kg.

“MR01” MULTIPARAMETRIC RECEIVER

Power supplies

Electric: AC 115...230V, 50...60Hz, 55VA.

Function: System management, data processing, operator interface, interface with analysis unit.

Execution: AISI 304 stainless steel panel (IP64) with hinged door with locking mechanism.

Electronic section:

- “CPU” control unit with microprocessor with management software on interchangeable EPROM; dialog, programming and interfaceability with Analysis Units by means of RS422/485 serial port.
- Scratchproof polyester keyboard with dome-shaped keys, preforming and 3-alarm indicator LEDs.
- Measurement indication, software menu display, diagnostics menu, error messages and indicating icons of the operating status, by means of a 128x64 points backlit graphic LCD with “LCD Saving” function.
- 3-level programming software with password protection, Check and Help menus.
- Choice of five languages (Italian, English, German, Spanish, French) for the display of menus and messages.
- Process temperature expressed in “C°” or in “F°” and pressure in “kg/cm²” or “psi”.
- Possibility, at any moment, to save and recall many recipes containing the set of production parameters.

Dimensions and weight: 520 (b) x 250 (h) x 425 (p), ~25kg.

“UR21” DIGITAL REFRACTOMETER

Power supply

Electric: AC 18V (12...24V), 50...60Hz, 10VA.
DC 24V (18...36V), 10W.

Electrical connections with the power board by means of plastic multipolar connector; dialog, programming and interfaceability with MR01 Multiparametric Receiver by means of RS422/485 serial protocol.

Execution: Enbloc Equipment (IP64) with the main mechanical components in AISI 304/316 stainless steel and C100 anodized Anticorodal; installed on the recirculation line among the System’s Units by means of a 1” mounting fitting with Tri-Clamp® ends.

Measuring section:

- Measuring prism made of “Optical glass”.
- Light source with electronically compensated high resolution “LED”.
- High resolution detecting element “CCD”.
- Temperature sensor “Pt1000” with 3/8” threaded clamps, installed on the unit’s mounting fitting + circular Temperature sensor “Pt1000” inside the unit.
- Relative Pressure Sensor in AISI 316 stainless steel & Hastelloy C276, that can be inserted on the process in mounting fitting’s pipes (optional).

The unit’s optical section is dehumidified by means of Dehydrating molecular sieve cartridge.

Electronic section:

- “CPU” control unit with microprocessor with direct protection against overcurrents by means of “PolyFuse”.
- Internal humidity sensor for continuous detection of humidity and consequent alarm indication.

Materials in contact with product:

- Pt1000, Mounting fitting complete with pipes, conveying plug and Prism holder in AISI 304/316 stainless steel and PVDF.
- O-RING and gaskets in EPDM and rubber.
- Measuring prism in optical glass.
- Pressure Sensor (optional) in AISI 316 stainless steel & Hastelloy C276.

Dimensions and weight:

Instrument with mounting fitting: 458 (b) x 400 (h) x 205 (p), ~10kg.

“UC04” CARBOMETRIC UNIT

Power supply

Electric: AC 18V (12...24V), 50...60Hz, 20VA.
DC 24V (18...36V), 20W.

Electrical connections with the power board by means of plastic multipolar connector; dialog, programming and interfaceability with MR01 Multiparametric Receiver by means of RS422/485 serial protocol.

Execution: Enbloc equipment (IP64) with its main mechanical components in AISI 304/316 stainless steel; installation on recirculation line among the System’s Units by means of 1” mounting fitting with Tri-Clamp® ends.

Measuring section:

- Relative Pressure Sensor in AISI 316 stainless steel & Hastelloy C276.
- “Mechanical Shock” degassing system with high extraction power, obtained by means of magnetic drive Rotor and polar expansion Stator.



- Continuous cyclic analysis, activation of the cam/connecting rod and consequent valves and depression membranes, by means of a low power absorption Brushless type drive motor.

Electronic Section: "CPU" microprocessor control unit with management software on interchangeable EPROM.

Materials in contact with the product:

- Pt1000, Connecting pipes and AISI 316 stainless steel measuring Cell.
- Pressure Sensor in AISI 316 stainless steel and HASTELLOY C276.
- ORING and Gaskets in EPDM.
- Extravolume diaphragm Membrane in food-compatible EPDM.
- TEFLON-coated magnetic rotor with PEEK ring.

Dimensions and weight:

Instrument with mounting fitting: 458 (b) x 428 (h) x 205 (p), ~20kg

RECIRCULATION PUMP AND HYDRAULIC CIRCUIT

Execution: Self-priming centrifugal pump (IP55) with side channel, stellar rotor directly keyed on motor shaft and mechanical type seal.

Connection to the recirculation line among the System's Units by means of 1" Tri-Clamp fittings; product inlet connection, with 1½" Tri-Clamp fittings.

Materials in contact with the product:

- Pump body, shield, AISI 304 and 316 stainless steel rotor and shaft.
- Hydraulic circuit's piping and fittings in AISI 316 stainless steel.
- Gaskets Light BUNA N.
- Product presence Sensor in Polysulphone resin.

Overall dimensions and weight:

660 (b) x 1650 (h) x 550 (p), ~150kg.