

**ANALYSIS UNIT mod. IB08 UR71+UC09**
**OPERATING SPECIFICATIONS**

<b>Application:</b>	Measurement of sugar-sweetened or diet carbonated soft drinks, alcoholic beverages, non-carbonated soft drinks, beer and mineral waters on the process line
<b>Type of measurement:</b>	<p>Continuous refractometric measurement of the Refractive Index and display in the selected scale (REGULAR BRIX, DIET BRIX or % STANDARD) of the relative concentration, with temperature compensation already applied.</p> <p>Dissolved CO<sub>2</sub> concentration measurement, based on IR ray absorption and transmission of the relative value. The technique used is known as "Attenuated Total Reflectance" (ATR): a collimated beam of infrared radiation passes through a prism in contact with the liquid, undergoes a number of internal reflections and is then collected by a suitably filtered detector as it exits the prism. The relationship between the intensity of the beam on exiting and on entering the prism is proportional to the concentration of dissolved CO<sub>2</sub>.</p> <p>Measurement, by means of special additional equipment, of the pH, <math>\mu</math>S, OX parameters.</p> <p>With the installation of a sonic unit it is possible to:</p> <ul style="list-style-type: none"> <li>Calculate, for sugar-sweetened soft drinks, the % of sugar inverted at the time of bottling.</li> <li>Predict the Brix of total inverted soft drinks (Brix with totally inverted sugar).</li> <li>Automatically update the production target based on the sugar inversion %.</li> <li>Calculate the alcohol content expressed in ALC/V for sugar-sweetened beverages containing alcohol.</li> </ul>
<b>Concentration measurement</b>	<p><b>Measurement limits:</b>            0...18.5 Brix for "REGULAR" scale            0...2000 mBrix for "DIET" scale            0...200% for "% STANDARD" display scale.</p> <p><b>Accuracy:</b>            0.1% of the range, maximum accuracy <math>\pm 0.01</math> Brix with variation of <math>\pm 10</math> °C (<math>\pm 18</math> °F) for "REGULAR" scale.            0.15% of the range, maximum accuracy <math>\pm 0.003</math> Brix with variation of <math>\pm 2.5</math> °C (<math>\pm 4.5</math> °F) for "DIET" scale.</p> <p><b>Measurement scale:</b>            "BRIX", "DIET" or "% STANDARD"; the "BRIX" scale is based on the nD/Bx ICUMSA conversion tables (1974)</p> <p><b>Response time:</b>            &lt;1.0 sec.</p>
<b>Response time to temperature variations:</b>	2'/10 °C (18 °F)
<b>CO<sub>2</sub> measurement</b>	<p><b>Measurement limits</b>            0...6 v/v (0...12 g/l)</p> <p><b>Accuracy:</b>  <math>\pm 0.05</math> v/v (<math>\pm 0.1</math> g/l)</p> <p><b>Measurement scales</b>            "v/v (Gas/Vol)" o "g/l"</p> <p><b>Measurement interval:</b>            3 sec.</p>
<b>Alcohol measurement</b>	<p><b>Measurement limits:</b>            0...13% w/w (0...16.5% v/v)</p> <p><b>Accuracy:</b>  <math>\pm 0.02</math> w/w, with CO<sub>2</sub> compensation and specific product calibrations</p>
<b>Oxygen measurement</b>	<p><b>Measurement limits:</b>            0...10 ppm</p> <p><b>Accuracy:</b>  <math>\pm 0.01</math> ppm</p>
<b>pH measurement</b>	<p><b>Measurement limits:</b>            2...10 pH</p> <p><b>Accuracy:</b>  <math>\pm 0.05</math> pH</p>

<b>Product temperature during measuring:</b>	-5...+35 °C [23...95 °F]. -5...+90 °C [23...194 °F] for "Regular" scale sugar-sweetened drinks with automatic compensation of sugar concentration by means of Thermometric Probe Pt1000 in AISI 316 3/8" stainless steel, Class "A" in accordance with IEC751. The maximum limit for the measurement of CO <sub>2</sub> is +45 °C (+113 °F).
<b>Relative line pressure:</b>	max. 10 bar (145 psi) at 20 °C (68 °F)
<b>Sanitization limit conditions:</b>	See specific Table

### GENERAL SPECIFICATIONS

<b>Power supplies</b>	<b>Electric:</b> DC 24V ±10% 10A Max Connection box without Transformer (optional): Power supply according to IB08 specifications. Terminal board connection. Connection box with Transformer (optional): AC 85...264V ±10% 50...60Hz 60VA (without pump) AC 85...264V ±10% 50...60Hz 480VA (with pump) Terminal board connection.
<b>Interfaces</b>	<b>Analog:</b> 2 output channels 0...20mA or 4...20mA active (470Ω) which can be configured in the "Initial and End Scale" values. N° 4 auxiliary input channels. <b>Digital:</b> RS485 for connection to the "M8" remote control unit. RS485 for connection to Maselli analyzers. PROFIBUS DP or ETHERNET/IP (optional). <b>Inputs:</b> N° 2 configurable inputs <b>Outputs:</b> 2 relay outputs for alarm signals with contacts of a maximum capacity of 1A/24V DC/AC
<b>Notes:</b>	All interfaces are optically isolated from the power supply (VDE0160) and are completely configurable from the keypad. All connections must be made via connections to connectors.

### CONSTRUCTION FEATURES

<b>Execution:</b>	The system is essentially made up of: Multiparametric Receiver MP01/02 Digital Refractometer, model UR71 Digital Carbometric Unit, model UC09 Recirculation Pump.
<b>Note:</b>	All components are assembled and interconnected on a self-standing frame with a base fitted with adjustable supports. Being modular, the system can be assembled to meet specific requirements (only concentration or CO <sub>2</sub> measurements, etc.) with the possibility to incorporate additional modules at a later date. In its standard configuration, the system allows the user to completely control analytical parameters (concentration and CO <sub>2</sub> measurement) directly on the process line with Remote Indication, Registration, Acquisition and Processing of data. The structure of the system with the relative Analysis Units in AISI 304 stainless steel is ideal for installation on board machinery or on the ground, the Multiparametric Receiver MP01/02 can be installed near the production line and the product recirculation pump directly on the line itself.
<b>Overall dimensions and weight:</b>	530.5 (w) x 660 (h) x 481 (d), 48 kg

### MULTIPARAMETRIC RECEIVER MP01/02

<b>Execution:</b>	AISI 304 casing for wall or post mounting, OR Panel Mounting (MP-01)
<b>Function:</b>	System management, data processing, operator interface, interfacing with analysis unit, interfacing with additional elements and with the process line
<b>Electronic section:</b>	Central "CPU" unit with microprocessor with management software, updatable via PC; communication, interfaceability with analysis units via serial RS485 protocol. Processing and indication of measurements, software menu display, diagnostics menus, error messages and operating status indicator icons on graphic backlit LCD 240x128 pix display with "LCD Saving" function or 10" 2048x2048 monitor. Multi-level programming software complete with password protection for certain functions and check menu.

	<p>Possibility to choose one of several menu and messages display languages.  Process temperature expressed in "°C" or "°F" and pressure expressed in "kg/cm<sup>2</sup>" or "psi".  Possibility to store and call up at any time groups of parameters known as "recipes" containing production parameters.</p>
<b>Dimensions and weight</b>	<p><b>MP01:</b> 270 (b) x 201.5 (h) x 115.5 (p), 3.2 kg.  <b>MP02:</b> 340 (b) x 389.5 (h) x 157.5 (p), ~5.5 kg</p>
<b>DIGITAL REFRACTOMETRIC UR71</b>	
<b>Execution:</b>	Enbloc appliance with main mechanical components made from AISI 304/316 stainless steel
<b>Measurement section:</b>	<p>Measurement prism in "N-BK10" optical glass.  Electronically compensated LED light source.  CCD sensitive element.  Pt1000 temperature probe installed on the appliance's deflector + circular PT1000 temperature probe inside the appliance.  Relative pressure sensor, AISI 316 stainless steel &amp; Hastelloy C276, which can be inserted on the process line (optional).</p>
<b>Electronic section:</b>	<p>Central "CPU" unit with microprocessor.  Internal humidity sensor for continuous detection of humidity with relative alarm signaling.</p>
<b>Notes:</b>	The optical section of the equipment is dehumidified by means of moisture extractor
<b>Power supply</b>	<p><b>Electric:</b>  DC 24V ±10%, 10W  Electrical connections by means of metal multipolar connector; communication, programming and interfacing with the Multiparametric Receiver MP01/02 via RS485 serial protocol.</p>
<b>Parts in contact with the product:</b>	<p>Pt1000.  Prism holder in AISI 314/316 stainless steel and PVDF.  Measurement prism in "N-BK10" optical glass.  Pressure sensor (optional) in AISI 316 stainless steel &amp; Hastelloy C276.</p>
<b>Dimensions and weight</b>	<p><b>equipment without deflector:</b>  320 (b) x 230 (h) x 200 (d), 8.5 kg</p>
<b>CARBOMETRIC UNIT UC09</b>	
<b>Execution:</b>	Enbloc housing with AISI 316 stainless steel lid, PEEK™ heat insulating flange, AISI 316L stainless steel prism holder with N type Varivent® fitting for installation on the process line
<b>Power supply</b>	<p><b>Electric:</b>  DC 24V ±10%, 10W  Electrical connections by means of metal multipolar connector; communication, programming and interfacing with the Multiparametric Receiver MP01/02 via RS485 serial protocol.</p>
<b>Measurement section:</b>	<p>Synthetic sapphire measurement prism.  Pt1000 temperature probe inside the appliance.</p>
<b>Electronic section:</b>	Central "CPU" unit with microprocessor.
<b>Parts in contact with the product:</b>	<p>Prism holder in AISI 316L stainless steel.  O-rings and gaskets in VITON+ KALREZ 6230.  Synthetic sapphire measurement prism.</p>
<b>Notes:</b>	The optical section of the equipment is dehumidified by means of a desiccant cartridge.
<b>Dimensions and weight:</b>	∅176 (b) x 255 (h) x 143 (p), 3.3 kg
<b>RECIRCULATION PUMP AND FLUID CIRCUIT</b>	
<b>Execution:</b>	Recirculation pump specially customized for the system, controlled directly by the Multiparametric Receiver MP01/02
<b>Notes:</b>	Connection between the recirculation line and the system units using 3/4" Tri-Clamp® for both product inlet and outlet connections
<b>Parts in contact with the product:</b>	<p>Pump body and recirculation components in AISI 304 and 316.  Piping and fittings for the fluid circuit in AISI 304 and 316 stainless steel.  Gaskets in clear BUNA N.  Plastic deflector.</p>
<b>SONIC UNIT "US01" (optional)</b>	
<b>Execution:</b>	Enbloc housing with AISI 316 stainless steel lid, probe holding insulating flange in PET or Arnite, Liquisonic Probe in AISI 316(Ti) stainless steel with N type Varivent® fitting.
<b>Power supply</b>	<p><b>Electric:</b>  DC 24V±20% 6W</p>

	Electrical connections by means of metal multipolar connector communication and interfacing with the Multiparametric Receiver MP01/02 via RS485 serial protocol.
<b>Measurement section:</b>	Liquisonic Probe
<b>Electronic section:</b>	Central "CPU" unit with microprocessor
<b>Parts in contact with the product:</b>	Liquisonic Probe in AISI 316 (Ti) stainless steel. ORING Viton.
<b>Dimensions and weight</b>	<b>Standard version:</b> Ø176 (b) x 192.5 (h) x 132.5 (p), 3.3 kg.

#### TECHNICAL-NORMATIVE SPECIFICATIONS

<b>Environmental features</b>	<p><b>Temperature limits:</b> Environment: -10...+45 °C (14...113 °F) Storage: -20...+70 °C (-4...+158 °F)</p> <p><b>Humidity limits:</b> Environment: 5%...95% (U.R. without condensate) Storage: 5%...95% (U.R. without condensate)</p> <p><b>Altitude limits:</b>&lt;2000 m a.s.l.</p> <p><b>Degree of Protection:</b> IP67 in accordance with EN60529 "on board line" IP65 in accordance with EN60529 "MP01/02" IP55 in accordance EN60529 "Recirculation pump"</p>
<b>Conformity to Directives:</b>	<p>EMC: 2014/30/EU EC: REGULATION 1935/04/EC CE marking of conformity to EU Directives</p>