

**LAB SPECTROPHOTOMETER mod. LC01**
**OPERATIVE SPECIFICATIONS**

<b>Application:</b>	Measurement of colours and concentrations on turbid products
<b>Type of measurement:</b>	The Laboratory Spectrophotometer unit functions in the NUV - VIS - NIR range, by taking a reflectance measurement
<b>Calibration:</b>	White target for initial calibration. "Reference Tile" B.C.R. 400 for checking calibration (provided only on the customer's request).
<b>Spectrum data:</b>	Discrete spectrum calculated starting from 10 wavelengths; default :420- 470 - 520- 568- 589- 620- 670- 880 nm, or other customized configurations
<b>Spectrum resolution:</b>	2 nm
<b>Spectrum definition:</b>	5 nm
<b>Reflectance measurement for each wavelength</b>	<b>Measurement limits:</b> 0.25%R...150.00%R; configurable scale range <b>Accuracy:</b> 0.5% better on scale range <b>Accuracy maximum:</b> 0.03%R
<b>Absorbance measurement for each wavelength</b>	<b>Measurement limits:</b> 0...100 Abs [Abs = S * (1 - R/100)² / (2R/100); where "Abs" is the absorbance unit, "R" is the reflectance and "S" is the scattering] <b>Accuracy:</b> Reading 1.25% better
<b>Visualization:</b>	Up to 8 variables can be displayed, these may be the absorbance of each wavelength or the result of customizable functions which transform these into concentration units
<b>Color measure</b>	<b>Illuminating:</b> C <b>Observer:</b> Standard CIE 1931 2° <b>Colour scale:</b> Tristimol components (X,Y,Z) Hunter (L,a,b)
<b>Visualization:</b>	It is possible to alternately display (X,Y,Z) or (L,a,b) and a variable result of customized functions which transform these and the reflectances into specific indices for application (e.g. a/b). Up to 5 different customized functions can be set.
<b>Repeatability:</b>	It is possible to check the repeatability of the measurements, using the grey target, by repeating the measurement 20 times after thermal stabilization of the instrument and target (DX,DY,DZ must be < 0.07).
<b>Caratteristiche of the product</b>	<b>Measurement limits:</b> Minimum turbidity value 200 FTU Minimum volume sample 100 ml Measurement time 10 s Wavelength range 380...900 nm
<b>Product temperature:</b>	5...40 °C (operating under DEW POINT)
<b>LC01 Tomato application</b>	<b>Absorbance display:</b> Three default transformation functions are introduced: Lycopene Other carotenoids Chlorophyll
<b>Lycopene measurement limits:</b>	0...80 mg/100 g (When the product is diluted with distilled water, the upper limit increases by the dilution ratio).
<b>Accuracy:</b>	Reading 5% better
<b>Accuracy maximum:</b>	0.5 mg/100 g
<b>Repeatability:</b>	±0.25 mg/100 g better

<b>Notes:</b>	The "Other carotenoids" and "Chlorophyll" variables must be considered as indices always expressed in mg/100 g.
<b>Colour display:</b>	Coordinates introduced: L,a,b Variables introduced: a / b = a/b TPS = $-81.582 + 1.069 * a + 15.39 * b - 0.591 * b^2$ TJS = $25.963 + 0.989 * a - 1.787 * b$ TSS = $-153.1 + 1.187 * a + 22.332 * b - 0.864 * b^2$ TCS = $-80.888 + 8.355 * a - 0.144 * a^2 - 1.194 * b$ Among the variables set, display of a/b

### GENERAL SPECIFICATIONS

<b>Supplies</b>	<b>Electric:</b> DC +5V 4A, +12V 2A, -12V 0.5A by means power supplier: AC 100...240V ±10% 47...63Hz 50VA. Connection via cable with SP7748 (CEE-7) 10A/250V plug for EC versions or con P620 15A/125V plug for US versions.
<b>Interfaces</b>	<b>Serial:</b> RS232 for connection to a PC via 9-pin male D-connector <b>Parallel:</b> CENTRONICS for Printer connection – via 25-pin female D-connector <b>Usb:</b> A type for external connection <b>Ethernet:</b> RJ-45 for external connection <b>PS/2:</b> MiniDIN 6P F for external connection keyboard and mouse

### CONSTRUCTION FEATURES

<b>Execution:</b>	One-piece enclosure in INOX 304 AISI stain-less steel
<b>Measuring section:</b>	Measuring tank made of "PVC". Light sources with 8 electronically compensated LEDs. Illumination area diameter 10 mm. Measurement area diameter 10 mm. Analysis test tubes made of "PVC" and "optic glass". Optic glass window with diameter 40 mm. Illumination/detection geometry 45°/0°.
<b>Electronic section:</b>	External temperature sensor "Pt100", for automatic adjustment of thermostat. Internal temperature sensor "Pt1000", for constant luminosity compensation of LEDs. Light detector: photodiode with large sensitive surface. "CPU" central unit with microprocessor.
<b>Materials in contact with the product:</b>	PVC and optic glass
<b>Processing system</b>	<b>Execution:</b> One-piece enclosure in INOX 304 AISI stainless steel
<b>Electronic section:</b>	Industrial monoboard microprocessor CPU. Graphic displays on 800x600 10.4" touch screen and touch pen. 512 MB Flash Memory. External power supplier housed in black ABS bookstand enclosure. A choice of 3 languages (Italian, English and Spanish) for menus and messages display.
<b>Dimensions and weight:</b>	503 (w) x 319 (h) x 275 (d), 11.7 kg

**TECHNICAL NORMATIVE SPECIFICATIONS**

<b>Environmental features</b>	<b>Temperature limits:</b> Ambient: 5...40 °C (41...104 °F) Storage: -20...+70 °C (-4...+158 °F) <b>Humidity limits:</b> Ambient: 5%...95% (R.H. non-condensing) Stoccaggio: 5%...95% (R.H. non-condensing) <b>Altitude limits:</b> <2000 m b.s.l. <b>Protection degree:</b> IP50 to EN60529
<b>Conformity to Directives:</b>	EMC: 2014/30/EU WEEE: 2012/19/EU CE marking of conformity to EU Directives