

# UR 24

## REFRACTOMETER FOR ON LINE ANALYSIS OF CONCENTRATION

The microprocessor-based model UR-24 digital refractometer is a self-contained multifunction analyzer which mounts directly on the process line. It continuously measures the concentration, displays the temperature-compensated concentration value, and transmits this value to both analogue and digital remote receivers.

The UR-24 incorporates modern technologies such as:

- **Abrasion resistant sapphire prism**
- **Long life LED light source**
- **High resolution CCD digital optical sensor**

The instrument's membrane faceplate contains a back-lighted liquid crystal display and input keypad.

It is possible to personalize the instrument in the field, either from the keypad or remotely through the RS485 serial port.

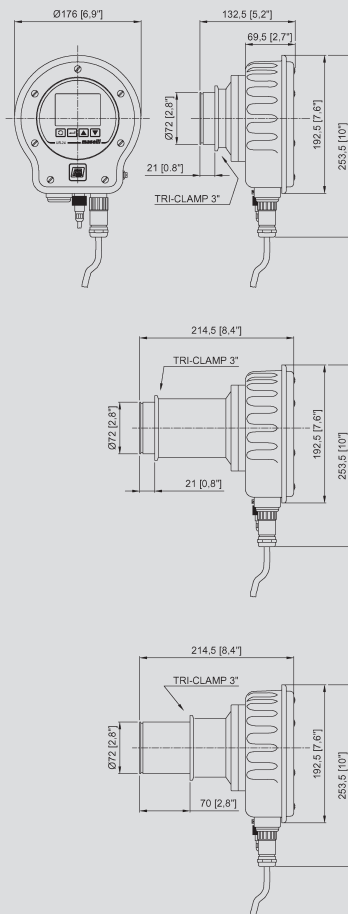
Further more versions with interfaces for ANYBUS COMMUNICATOR (PROFIBUS DP or others on request) modules are available.

A set of specially designed adapters, customized for each application, allow easy installation of the unit on a process line or on the side wall of a tank:

- Food & Beverage (Tri-Clamp®, 3-A, DIN 11851, Varivent®, weld ends)
- Industrial (weld ends, threaded ends, flange ends).



## Overall dimensions



## MASELLI MEASUREMENTS, Inc.

7746 Lorraine Avenue, Suite 201  
Stockton, California 95210 USA  
Phone: (+1) (209) 474-9178  
Fax: (+1) (209) 474-9241  
E-mail: info@maselli.com  
Web: www.maselli.com

# GENERAL CHARACTERISTICS

## TECHNICAL CHARACTERISTICS

### UR24 ST - Standard Version

#### Measurement limits:

1.3330...1.5318 nD (0...95 Brix)

#### Amplitude Scale Range:

Minimum 0.0482 nD (30 Brix)

Maximum 0.1988 nD (95 Brix)

#### Accuracy and Resolution:

Accuracy  $\pm 0.5\%$  of the selected scale amplitude

Max. accuracy  $\pm 0.0002$  nD ( $\pm 0.15$  Brix)

Resolution 0.1 Brix

### UR24 HA - High Accuracy Version

#### Measurement limits:

1.3330...1.5318 nD (0...95 Brix)

#### Amplitude Scale Range:

Minimum 0.0227 nD (15 Brix)

Maximum 0.1988 nD (95 Brix)

#### Accuracy and Resolution:

Accuracy  $\pm 0.3\%$  of the selected scale amplitude

Maximum accuracy  $\pm 0.00007$  nD ( $\pm 0.05$  Brix)

Resolution 0.01 Brix

#### Measurement Scales:

- Brix Range (referred to ICUMSA 1974 nD / Brix Conversion Tables)

- User Range upon request at time of order, or entered via the keypad or serial port

#### Temperature Compensation:

- Automatic over the range  $-5\text{ }^{\circ}\text{C} \dots +105\text{ }^{\circ}\text{C}$  ( $+23\text{ }^{\circ}\text{F} \dots +221\text{ }^{\circ}\text{F}$ )

- Special version up to  $140\text{ }^{\circ}\text{C}$  ( $284\text{ }^{\circ}\text{F}$ )

- User Range compensation defined by custom values entered

#### Interfaces:

(optically isolated)

- Analogue:

0...20mA or 4...20mA (on 470 $\Omega$ )

- Digital:

RS422/RS485

- Input contacts:

Hold measure input

- Output contacts:

Relay output with contact rating of maximum 24V 500mA AC/DC

#### Supply:

- AC 18V (12...24V) 50...60Hz 0.6A

- DC 24V (18...36V) 0.6A

- Optional AC 115/230V  $\pm 10\%$  50...60Hz 10VA with external power supply transformer

## CONSTRUCTION CHARACTERISTICS

### Measurement prism:

Synthetic sapphire or optical glass

### Light Source:

High efficiency LED electronically compensated

### Element of refractometric measurement:

High resolution CCD

### Element of temperature measurement:

- With Pt100 inserted on line

- Inside the appliance on request

### Controls:

Keypad in scratch-proof polyester

### Display:

Backlit graphic LCD display 128x64 point

### Language:

Choice of 5 interface languages (English, German, French, Italian, Spanish) for the display of menus and messages

### Execution:

- 304-316 AISI Stainless steel and PEEK™

- Protection IP67 (EN60529)

- 3-A USDA Approval (on request)

### Weight:

- 3.3 kg (7.3 lb) - Standard Version

- 5 kg (11 lb) - LP/HT Version

### Materials in contact with the process fluid:

- AISI 316 stainless steel

- Synthetic sapphire or optical glass

- Viton

- Other materials on request

### Dehumidification:

The optical section of the unit is dehumidified using a molecular sieve desiccant cartridge

### PROCESS FLUID OPERATING LIMITS:

#### Temperature:

$-20\text{ }^{\circ}\text{C} \dots +120\text{ }^{\circ}\text{C}$  ( $-4\text{ }^{\circ}\text{F} \dots +248\text{ }^{\circ}\text{F}$ )

on request  $150\text{ }^{\circ}\text{C}$  ( $302\text{ }^{\circ}\text{F}$ )

#### Pressure:

$-1 \dots +10$  bar ( $-14.5 \dots +145$  psi) at  $20\text{ }^{\circ}\text{C}$  ( $68\text{ }^{\circ}\text{F}$ )

$-1 \dots +8$  bar ( $-14.5 \dots +116$  psi) at  $100\text{ }^{\circ}\text{C}$  ( $212\text{ }^{\circ}\text{F}$ )

Execution up to 25 bar (362 psi) on request

### ACCESSORIES:

- In-line mounting fittings in various tubing diameters

- Adapter flanges for single- and double-wall tank mounting

