

RT-50 *PRISM*

Inline Refractive Index / BRIX Sensor for Cutting Fluid

Product Description

The Pyxis RT-50 Prism is an inline digital refractometer that measures the refractive index of a liquid sample and provides a direct reading of highly accurate concentration values for a wide variety of process applications including cutting fluid concentration detection. It is a stand-alone device capable of self-sustained operation, live data display and data logging. The RT-50 Prism also offers fully integrated 4-20mA and RS-485 Modbus output signals for connectivity to any microprocessor-based controller, display, PLC or DCS network. The RT-50 Prism has built-in temperature dependent equations to convert the measured sample temperature and refractive index to the Brix concentration. User defined concentration curves and output may also be programmed to the RT-50 through the uPyxis APP interface through user entry of know formula coefficient values. This enables the RT-50 to provide a user-customized display and output of the concentration of the material being measured, as desired.

The RT-50 Prism is a very robust, digital sensor and is capable of operating in contaminated fluid samples. It is important however to note that users should take all precautions to mitigate and filter suspended solids from the sample stream prior to the sensor to avoid tenacious deposit build-up on the sensor eye. In highly fouled applications, Pyxis recommends users conduct sensor eye cleaning on a regular basis per the manual guidelines. The RT-50 may also be utilized with the optional accessory Pyxis RT Series Ultrasonic Cleaning Module Kit for automatic sensor eye cleaning while installed in the Tri-Clamp Flow Cell assembly (purchased separately).

Typical Applications

- Refractive Index Direct Read for Process Applications
- User Defined or Brix Concentration Process Applications
- Ideal for Cutting Fluid Concentration Measurement
- Specific Gravity Determination via Refractive Index



Figure 1. RT-50 Prism – Inline Refractometer



Figure 2
RT-50 Prism Installed in Tri-Clamp Flow Cell Assembly

Features

- 4-20 mA output of temperature and concentration unit of display selected via the screen interface
- User Defined Product Concentration Curve Entry via uPyxis APP
- User Customizable 4-20mA concentration output ranges with uPyxis APP
- RS-485 Modbus RTU output of temperature, refractive index and other diagnosis parameters
- Built-in temperature dependent equations % BRIX
- Local Display and Push-Button Interface
- Optional 110/220VAC – 24 VDC Wall Outlet Powered for Independent Operation w/out controller
- Built-In Historical Data Log up to 56 Days of Storage at 1 Reading Per Minute via uPyxis APP
- Bluetooth Enabled when used with MA-CR Bluetooth Adapter
- Sturdy 316L stainless-steel construction and suitable for harsh application environments
- Convenient Stainless-Steel Tri-Clamp Flow Cell Assembly w ¾-inch NPT Flange
- Easy Installation and Removal for Cleaning and Maintenance – No Tools Needed
- Automatic Cleaning with RT-Series Ultrasonic Cleaning Module Kit (Purchased Separately)

Specifications

ITEM	RT-50 Prism
P/N	10013
Range of Measurement	Refractive Index: 1.3200 – 1.400 Brix: 0.00 – 38.00% (<i>by mass</i>) Temperature: -20°C – 80°C
Resolution	Refractive Index: 0.0001 Brix and Glycol: 0.1%
Accuracy	Refractive Index: ±0.0002 Brix and Glycol: ±0.2%
Sample Temperature	14 – 158 °F (-10 – 70 °C)
Max Sample Pressure / Flow	≤142 psi (0.98 MPa) / <13.5 GPM (9.8 ft/s)
Environmental Temperature	14 – 104 °F (-10 – 40 °C)
Weight	3.2 pound (1.45 kg)
Dimension	4.33 x 4.2 inch (110 x 107 mm)
Protection	IP-67
Light Source	LED
Wet Materials	Sapphire, 316L Stainless steel
Signal Output	2x 4-20 mA and RS-485 Modbus
Power	24 VDC (1.5W)
Regulation	CE / RoHS Marked

Pyxis Lab is constantly updating technology, as such specifications are subject to change

RT-50 Prism Package (P/N 10013)

- The package should include one RT-50 Prism Refractive Index Sensor w/8Pin Female Cable
- One 316L Stainless Steel Tri-Clamp Flow Cell Assembly for RT-50 (P/N 56206)
- One MA-1.5CR Cable (1.5 Meter/ 4.9 ft 8Pin Male Adapter/Flying Lead) (P/N 50746)
- One RT-Series Wall Outlet Power Adapter (110/220VAC-24VDC-2Pin) (P/N 56207)

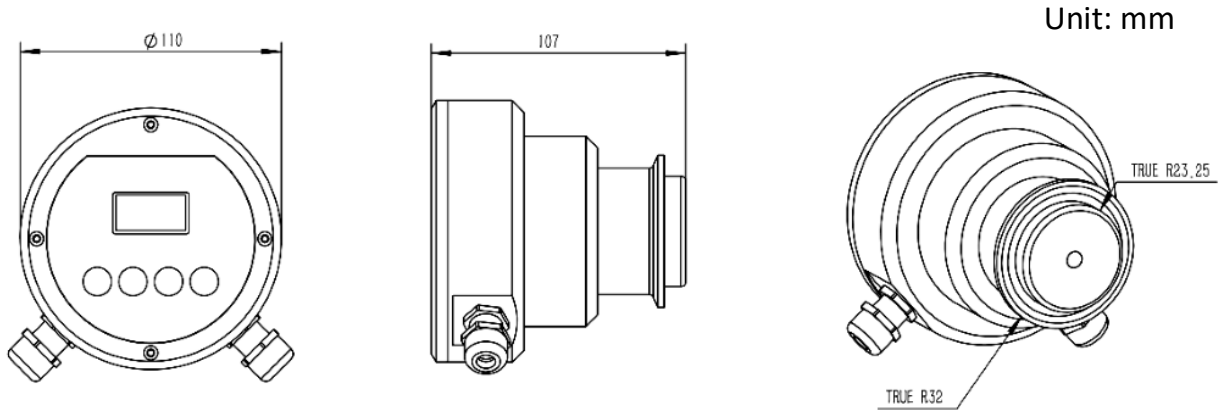


Figure 3 - RT-50 Prism Inline Refractometer / Tri-Clamp Flow Cell Assembly/ MA-1.5 Flying Lead Cable

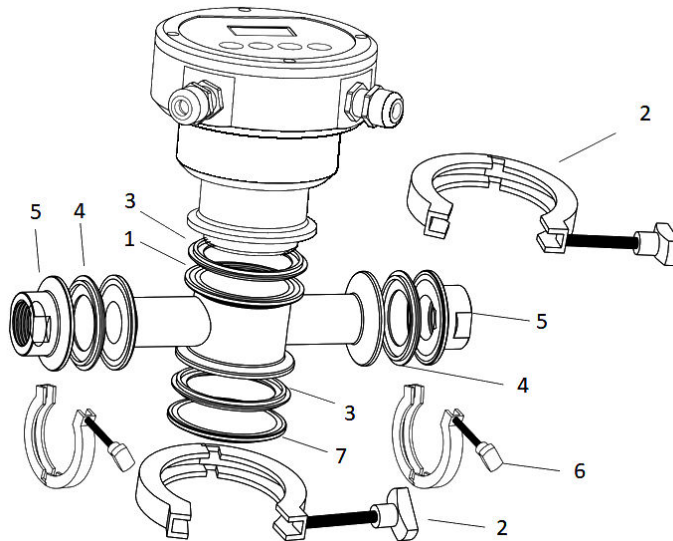
RT-50 Prism Optional Accessories – Purchased Separately

Replacement & Optional Accessories	P/N
RT-Series Prism Wall Outlet Power Supply Adapter Kit <i>(Plug In Power Supply Kit - Converts Wall Outlet 110VAC to 24VDC for Prism RT-50 – 2Pin)</i>	56207
MA-CR <i>(Bluetooth Adapter for 8-Pin Pyxis Sensors for use with uPyxis Mobile & Desktop)</i>	MA-CR
MA-NEB <i>(USB Bluetooth Adapter for PC to use uPyxis Desktop)</i>	MA-NEB
MA-50CR (50' Extension Cable w/8Pin Adapters)	50743
Pyxis Probe Cleaning Kit	SER-01
Tri-Clamp Flow Cell Assembly Complete Replacement	56206
Tri-Clamp Flow Cell Replacement Gasket Kit	56209
RT-Series Ultra-Sonic Cleaning Module Kit	56208

RT-50 Prism Dimensions (mm)



Tri-Clamp Flow Cell Components (included with each RT-50 Purchase)



ITEM	ID #	DESCRIPTION	P/N
TRI-CLAMP FLOW CELL ASSEMBLY	1	Flow cell with 2.5-inch Port for Prism RT-50 Sensor Head	56206
	2	Sensor Tri-Clamp 2.5-inch	
	3, 4, 8	Tri-Clamp Flow Cell Gasket Kit (PN:56209)	
	5	¼ inch FNPT Flange	
	6	Flange Tri-Clamp 2-inch	
	7	Plug Cap ϕ 64mm Reserved for Ultra-sonic cleaning Transducer	

Tri-Clamp Flow Cell Assembly

uPyxis APP Diagnosis, Calibration and Historical Data Transfer

The uPyxis APP manages all Pyxis portable meter and inline sensors on mobile and desktop devices, including Apple iPhones and Samsung Android smartphones. When connected to the Pyxis RT-50 Prism, the uPyxis APP enables users to diagnose, air-calibrate Refractive Index value, Off-Set Calibrate Liquid Concentrations to Refractive Index Value, Restore Factory Settings, Transfer Historically Logged Data and View Live Sensor Refractive Index and Temperature Data Trends. For wireless access to RT-50, the MA-CR Bluetooth Adapter will be required and should be purchased as an optional accessory. ***Note*** The uPyxis Mobile APP is evolving rapidly and users can find the latest version at no cost on Apple iStore or Google Play. The uPyxis Desktop APP may be downloaded at <https://pyxis-lab.com/support-2/>



MA-CR

Order Information

RT-50 Prism – Inline Refractometer <i>(Includes Tri-Clamp Flow Cell Assembly and Flying Lead Cable)</i>	P/N 10013
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Optional Accessories Information

RT-Series Prism Wall Outlet Power Supply Adapter Kit <i>(110VAC to 24VDC Power Supply – 2 wire)</i>	56207
RT-Series Ultra-Sonic Cleaning Module Kit <i>(Enables Online Ultra-Sonic Cleaning – Sold Separately)</i>	56208
MA-CR Bluetooth Adapter <i>(8Pin Adapter Enables Wireless Calibration w/uPyxis APP)</i>	MA-CR
MA-NEB <i>(USB Bluetooth Adapter for PC to use uPyxis Desktop)</i>	MA-NEB
MA-50CR <i>(50ft Extension Cable w/8Pin Adapters)</i>	50743
Pyxis Probe Cleaning Kit	SER-01
Tri-Clamp Flow Cell Assembly Complete Replacement	56206
Tri-Clamp Flow Cell Replacement Gasket Kit	56209