Artisan Technology Group is your source for quality new and certified-used/pre-owned equipment

- FAST SHIPPING AND DELIVERY
- TENS OF THOUSANDS OF IN-STOCK ITEMS
- EQUIPMENT DEMOS
- HUNDREDS OF MANUFACTURERS SUPPORTED
- LEASING/MONTHLY RENTALS
- ITAR CERTIFIED SECURE ASSET SOLUTIONS

SERVICE CENTER REPAIRS
Experienced engineers and technicians on staff at our full-service, in-house repair center

WE BUY USED EQUIPMENT
Sell your excess, underutilized, and idle used equipment
We also offer credit for buy-backs and trade-ins

IntraView™ REMOTE INSPECTION
Remotely inspect equipment before purchasing with our interactive website at www.Instraview.com

LOOKING FOR MORE INFORMATION?
Visit us on the web at www.artisantg.com for more information on price quotations, drivers, technical specifications, manuals, and documentation

Contact us: (888) 88-SOURCE | sales@artisantg.com | www.artisantg.com
Precision In Vitro & Extracorporeal Tubing Flow Measurement

TS410 Flowmeter Module

Whether you require tubing flow measurements in the animal lab or in the R & D engineering suite, Transonic Systems TS410 Tubing Flowmeter Module gives you precision volume flow measurements in tubing with user friendly features applicable to laboratory bench settings, in vitro and extracorporeal use.

Compact single-channel TS410 Flowmeter modules plug into 400-Series Instrumentation Consoles (T402/T403) to mix or match measurement capabilities with other Transonic Systems laboratory modules and provide:

- True Volume Flow Measurement in Tubing
- Gold Standard Transit-time Technology
- Measurement Capability for Diverse Fluids: Blood, Saline, Water, Cell Culture, Physiological Buffer Solutions, Blood Analogs such as Glycerine/Water Solutions
- Programmable Alarm Conditions:
  - High / Low Flow Threshold Alarm
  - Bubble / “Received Signal” Alarm
- On-site Recalibration of Flowsensors for changed or new parameters (or conditions)
- 400-Series Instrumentation Console compatibility: T402, T403.

Two tubing flowsensor styles and multiple sizes from 1.2 mm ID to 25.4 mm ID offer versatile functionality to fit every flow circuit application including:

- Circulatory support device development (VAD Performance & Artificial Heart Development)
- Isolated heart and perfused organ studies
- Mock circulatory models
- Non-contact sterile flow measurement of biologicals and bioreactors
- Flow phantoms and any experimental, or non-human clinical or process application where flow measurement in tubing is needed.
**TS410 Tubing Module Specifications**

**GENERAL FEATURES**
- **Weight/ Size**: 5.125" high x 4" wide x 9.062" deep; 2.3 lbs.
- **Module**: 2 console slots (20HP) wide.
- **Console Compatibility**: 400-Series Flowmeter Consoles (T402, T403): 96 pin DIN connector to proprietary backplane. Thumb-screw to lock into console on front panel
- **Power**: Derives input power from 400-Series Consoles

**AUTOMATIC FLOWMETER ADJUSTMENTS**
- **Sensor size identification** and corresponding flow output ranges.
- **Volume flow calibration** of applied sensor; serial number displayed of active Flowsensor.

**SET/UP STATUS & PROGRAM PARAMETERS**
- **STATUS MODE** (White button labels)
  - Status message displayed on LCD.
  - Sensor Status: sensor type & calibration
  - Meter Status: Active flowmeter settings & alarm status
- **Alarm Mute**: Audible alarm On/Off
- **PROGRAM MODE** (Blue button labels) - EXIT; SCROLL; SELECT.
- **SENSOR CONTROLS**: Select factory preprogrammed calibration options; Adjust Flowsensor gain to change calibration on-site
- **METER CONTROLS**
  - **1/4 Flow Scale**: increases flow gain by factor of 4 for low flow measurements
  - **Calibrate Scale**: sets output to 0 and 1 Volt to calibrate external recording devices with scale factor flow.
  - **Invert flow**: inverts polarity of analog outputs & flow display
  - Alarms Menu: 3 level program to select, set thresholds, and activate Alarms for “Low Flow”, “High Flow” and “Received Signal” Interruption

**FILTER PROPERTIES**: 0.1, 10, 40 Hz: 2nd order Butterworth, with a third passive pole at 160 Hz 160 Hz: 3rd order Butterworth

**ZERO FLOW ADJUST**: momentary recessed push button to zero flow reading at stopped flow.

**DIGITAL DISPLAY**: 4-Digit (14 segment) LED
- Displays Volume flow / Probe data / Error Messages
- **Bar Indicator Light**: Displays received signal for continuous monitoring of sensor signal quality

**LCD DISPLAY**: One line 16-character alpha numeric LCD displays program parameters, sensor and meter status, alarm settings.
- Default displays sensor serial number.

**FLOW OUTPUT**: Front panel mounted BNC output connector & rear panel terminal block:
- **Pulsatile/Average Volume Flow**
- Filtering controlled by front panel selectable filters
- **Voltage range**: -5 to +5 volts
- **Output resistance**: 500 Ohm
- **Full Range for Flow**: -5 to +5 V (bidirectional flows, with range of 5 x scale factor flow)

**SENSOR CONNECTOR**: Front panel 16-pin connector
- Accepts research Inline and Clamp-on Flowsensors and extension cables with male ODU16-pin connectors.

**AUTOMATIC DIGITAL SENSOR IDENTIFICATION & CALIBRATION**: TS410 circuitry reads connector operational data (size, scale & calibration) programmed in the sensor’s EPROM.

**ULTRASONIC FREQUENCY RANGE**: 600 KHz to 14.4 MHz; Sensor size dependent

**FLOWSENSOR COMPATIBILITY**
- Accepts Transonic “Precision” Tubing Flowsensors with 16-pin ODU connectors
- **ME-Prefix**: Extracorporeal Sensors for 400-Series Flowmeters
- **PXL-Series**: Precision XL-Series Clamp-on Sterile Tubing Flowsensors with 4 transducers
- **PXN-Series**: Precision XN-Series Inline Flowsensors with 4 transducers

**SIGNAL OUTPUTS**: 8 accessible signals via 400-series Flowmeter Console’s odd numbered back-panel terminal block connections:
- Pulsatile Volume Flow; Mean Volume Flow
- Received Signal Amplitude (2); Phase (4)

**SYNCHRONIZATION**: Module rear panel switch for selecting synchronization mode
- **Self-triggering Mode**: “SYNC IN” to “SYNC OUT” jumper on each module
- **Sequential Triggering Mode**: “SYNC IN” crossed to “SYNC OUT” between modules.
Artisan Technology Group is your source for quality new and certified-used/pre-owned equipment

- FAST SHIPPING AND DELIVERY
- TENS OF THOUSANDS OF IN-STOCK ITEMS
- EQUIPMENT DEMOS
- HUNDREDS OF MANUFACTURERS SUPPORTED
- LEASING/MONTHLY RENTALS
- ITAR CERTIFIED SECURE ASSET SOLUTIONS

SERVICE CENTER REPAIRS
Experienced engineers and technicians on staff at our full-service, in-house repair center

WE BUY USED EQUIPMENT
Sell your excess, underutilized, and idle used equipment
We also offer credit for buy-backs and trade-ins
www.artisantg.com/WeBuyEquipment

IntraView™ REMOTE INSPECTION
Remotely inspect equipment before purchasing with our interactive website at www.Instraview.com

LOOKING FOR MORE INFORMATION?
Visit us on the web at www.artisantg.com for more information on price quotations, drivers, technical specifications, manuals, and documentation

Contact us: (888) 88-SOURCE | sales@artisantg.com | www.artisantg.com