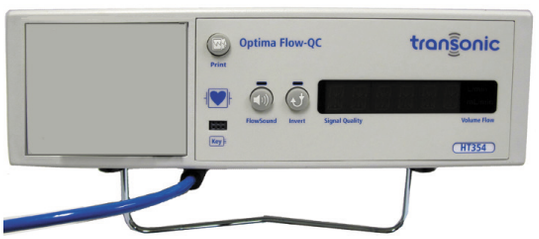
Verify Pump & ECMO Circuit Flows For Critical Safety & Quality Assurance

Introduction

Perfusionists operating cardiopulmonary bypass pumps in surgery suites or tending to ECMO circuits in critical care units have relied on Transonic's Tubing Sensors and the HT110 Flowmeter to provide them with an accurate value for delivered blood flow. Now that the HT110 Flowmeter is no longer available, there are two distinct Flowmeter measurement options to continue to measure actual Delivered Blood Flows during these procedures.

1. The HT350-Series Optima Flowmeter with complementary HQD_XL Clamp-on Tubing Sensors can be used to measure actual Delivered Blood Flow during CP Bypass and ECMO.
2. Transonic's ELSA (Extracorporeal Life Support Assurance) Monitor measures Delivered Blood Flow during CP Bypass and VV and VA ECMO. It also offers exciting new measurements of Recirculation, Effective Cardiac Flow (ECF) and Oxygenator Clotting Volume.

Optima HT350-Series Flowmeters & Clinical HQD_XL Tubing Sensors



HT350-Series single-channel Optima Flowmeter

Transonic's Optima HT350-Series Flowmeters takes transit-time ultrasound flow measurement resolution to its highest level. To measure actual Delivered Blood Flow during CP Bypass and ECMO procedures, the Optima uses HQD_XL Clamp-on Tubing Flowsensors to measure the actual delivered volume flow through the circuit. The Sensors clamp around the tubing to measure flow within without breaking the sterility of the circuit.

Sensor size is determined by outer tubing diameter. Clinical Tubing Flowsensors are calibrated for blood at 37 degrees Celsius. A 30 - 60 cm sample of the tubing to be used is required in order to calibrate a Sensor precisely.

Transonic® XL-Series Flowsensors are re-usable; factory-calibrated for specific tubing size, material, fluid and temperature, and available for 1/8" to 1 1/4" OD Tubing (3.2 mm OD to 31.8 mm OD).

HQD_XL CLAMP-ON TUBING SENSORS				
PROCEDURE	CLAMP-ON SENSOR #	TUBING (inches)		
		ID (Inner Diameter)	OD (Outer Diameter)	WALL THICKNESS
PED CPB, ECMO	H6XL	1/4	3/8	1 1/16
	H7XL	1/4	7/16	3/32
	H8XL	3/8	1/2	1/16
ADULT CPB,	H9XL	3/8	9/16	3/32
	H10XL	1/2	5/8	1/16
	H11XL	1/2	11/16	3/32

See next page for information on the ELSA Monitor

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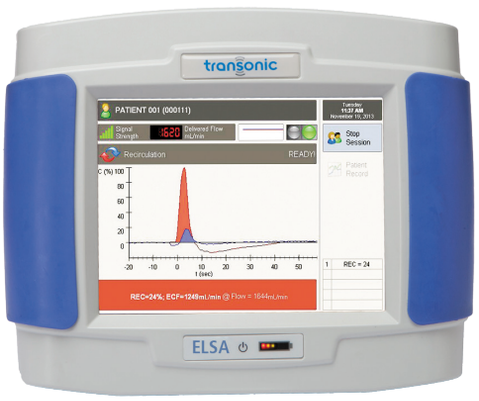
The HCE101 ELSA® Monitor

Optimize ECMO Therapy with the ELSA® Monitor

The Transonic® ELSA (Extracorporeal Life Support Assurance) Monitor is used to optimize ECMO therapy in pediatric through adult patients. It uses transit-time ultrasound technology to measure blood flow in ECMO circuits, as well as indicator dilution technology to quantify recirculation, determine effective cardiac flow (ECF) and detect oxygenator clotting via a single bolus of room temperature saline.

The ELSA Monitor helps clinicians to optimize their patient's ECMO treatment by:

- Establishing the ideal flow setting with minimal recirculation;
- Identifying cannula positioning issues through elevated rates of recirculation;
- Identifying recirculation that may be related to hypovolemia or low cardiac output;
- Quantifying oxygenator clotting to allow planned change-outs.



HC101 ELSA Monitor

Sensor Size

Three sizes of Flow/dilution sensor pairs are available. Sensors are scaled in 1/16" increments to clamp around standard tubing diameters. Sensor size is determined by outside diameter of the tubing.

Tubing

Flexible medical grade tubings (PVC, silicon, polyurethane) are generally compatible for use with -Fx Sensors. A 30 - 60 cm tubing sample is required to calibrate the Sensor pair to the exact tubing that it will be used on. Sensor size is determined by outside diameter of the tubing.

H7FX Flowsensors

ELSA HFX FLOW/DILUTION SENSORS			
FLOW/ DILUTION SENSOR #	TUBING		Flow Range (L/min)
	ID (inches)	OD (inches)	
H6FX	1/4	3/8	0.3 - 2
H7FX	1/4	7/16	0.3 - 2
H9FX	3/8	9/16	1 - 7

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Transonic Systems Inc. is a global manufacturer of innovative biomedical measurement equipment. Founded in 1983, Transonic sells "gold standard" transit-time ultrasound flowmeters and monitors for surgical, hemodialysis, pediatric critical care, perfusion, interventional radiology and research applications. In addition, Transonic provides pressure and pressure volume systems, laser Doppler flowmeters and telemetry systems.

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