

# HT110 Sensor Specifications

## HXL-Series Clamp-on Flowsensors

### APPLICATIONS

- Artificial Heart & VAD Performance
- Medical Device & Pump Engineering
- Manufacturing & Compliance Flow Testing



Transit-time ultrasound technology measures volume flow in tubing with specifically designed Tubing Flowsensors. Most non-aerated liquids can be measured, including saline and buffer solutions, blood and water. No physical contact is made with the fluid media. H-XL Series Flowsensors can be calibrated and programmed for up to four different fluid/temperature/tubing combinations and will work with most flexible tubing types (see next page). Sensor size is determined by outer tubing diameter.

SENSOR SIZE	TUBING			BIDIRECTIONAL FLOW OUTPUTS		SYSTEM ACCURACY SPECIFICATIONS		ULTRASOUND FREQUENCY	
	ID	WALL THICKNESS	OD	RESOLUTION <sup>1</sup>	MAX FLOW	MAX ZERO OFFSET	ABSOLUTE ACCURACY		
				INCHES	INCHES	INCHES	mL/MIN	5V OUTPUT IN L/MIN	mL/MIN
H2XL	IN SIZES 2XL-5XL RATIO OF TUBING WALL THICKNESS TO OD MUST NOT EXCEED 1.5 FOR PVC; 1:3 FOR SILICONE			1/8	0.5	1	± 5.0	± 10	3.6
H3XL				3/16	1.0	2	± 10.0	± 10	3.6
H4XL				1/4	1.0	2	± 10.0	± 10	2.4
H5XL				5/16	1.0	2	± 10.0	± 10	2.4
H6XL	1/4	1/16	3/8	2.5	5	± 30	± 10	2.4	
H7XL	1/4	3/32	7/16	5	10	± 60	± 10	1.8	
H8XL	3/8	1/16	1/2	5	10	± 60	± 10	1.8	
H9XL	3/8	3/32	9/16	5	10	± 60	± 10	1.8	
H10XL	1/2	1/16	5/8	10	20	± 120	± 10	1.2	
H11XL	1/2	3/32	11/16	10	20	± 120	± 10	1.2	
H12XL	1/2	1/8	3/4	10	20	± 120	± 10	1.2	

Calibration is dependent on tubing material, wall thickness, ultrasound velocity of liquid flowing through the tube & temperature.

1. Resolution represents the smallest detectable flow change at 0.1 Hz filter (average flow output).

2. Absolute accuracy is comprised of zero stability, resolution and zero-offset effects. Stated values apply when flow rate is greater than 5% of maximum range and zero offset is nulled.

## HXL-Series Clamp-on Flowsensor cont.

STOCK TUBING				
Procedure	Cat #	TUBING (inches)		Tygon Stock Tubing If using tubing of different diameter or type, please discuss tubing with a customer service representative.
		Inner Diameter	Wall Thickness	
CAROTID SHUNTS	H2XL	3/32 x 1/32		Tygon ND 100-65; Tygon E-3603
	H3XL	1/8 x 3/32		Tygon E-3603
	H4XL	1/8 x 1/16		Tygon ND 100-65; Tygon E-3603
	H5XL	3/8 x 1/16		Tygon ND 100-65; Tygon E-3603
PED CPB, ECMO	H6XL	1/4 x 1/16		Tygon ND 100-65; Tygon E-3603
	H7XL	1/4 x 3/32		Tygon ND 100-65; Tygon E-3603
	H8XL	3/8 x 1/16		Tygon ND 100-65; Tygon E-3603
ADULT CPB	H9XL	3/8 x 3/32		Tygon ND 100-65; Tygon E-3603
	H10XL	1/2 x 1/16		Tygon ND 100-65; Tygon E-3603
	H11XL	1/2 x 3/32		Tygon ND 100-65; Tygon E-3603



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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