

# Lx

## Turbine Flowmeters



**HISPACONTROL<sup>HC</sup>**  
INSTRUMENTACION INDUSTRIAL

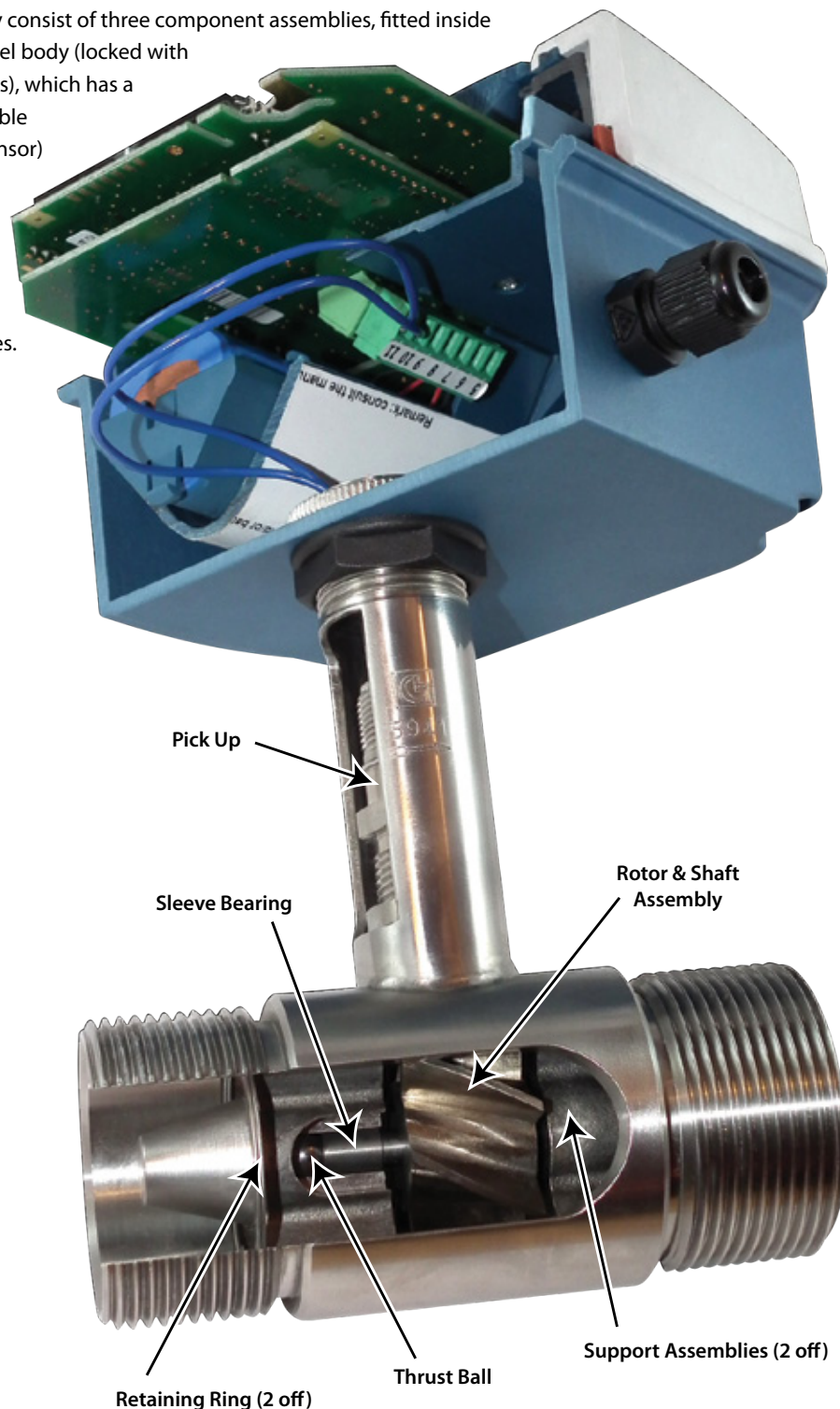
**HISPACONTROL S.L.**  
Paseo Delicias 65 Bis, 1D  
28045 Madrid  
Tel. 915 308 552  
[hc@hispacontrol.com](mailto:hc@hispacontrol.com)  
[www.hispacontrol.com](http://www.hispacontrol.com)



# Principle of Operation

## The Lx range of Turbine Flowmeters meet the demand of most liquid measurement applications.

They basically consist of three component assemblies, fitted inside a stainless steel body (locked with retaining rings), which has a Pick Up (variable reluctance sensor) fitted and come in a range of threaded, flanged and tri clamp styles.



The Rotor and shaft assembly (1 off) which is mounted in sleeve bearings, fitted inside Support assemblies (2 off) is turned by the kinetic energy of the flowing fluid at an angular velocity, which in the linear range of the Flowmeter is proportional to the mean axial velocity of the fluid.

The Rotor blades sweep out the full bore of the Flowmeter except for a small tip clearance space. As the blade tips pass the magnetic Pick Up (through the housing wall) they initiate pulses. Flow rate is determined by the frequency of the pulses and Totalised Flow is obtained by summation of the pulsing electrical signal.

# Specifications

<b>Model</b>	Lx 13	Lx 16	Lx 19	Lx 25	Lx 40	Lx 50	Lx 80	Lx 100	
<b>Bi directional Flow Indication Model</b>			Lxb 19	Lxb 25	Lxb 40	Lxb 50	Lxb 80	Lxb 100	
<b>Flow Range</b>	<b>litres / min</b>	2 - 20	5 - 50	14 - 140	27 - 270	55 - 550	114 - 1140	227 - 2270	454 - 4540

## Connections

### Threaded

BSP Male	<b>T1</b>	1/2"	3/4"	3/4"	1"	1 1/2"	2"
NPT Male	<b>T2</b>	1/2"	3/4"	3/4"	1"	1 1/2"	2"
Overall Length		70mm	76mm	76mm	76mm	114mm	133mm
Maximum Pressure		250 bar					

### Hygienic

TRI Clamp	<b>H1</b>	3/4"	1"	1 1/2"	2"
Overall Length		64mm	64mm	88mm	100mm
Maximum Pressure		50 bar			

### Flanged

ANSI 150	<b>F1</b>	3/4"	3/4"	3/4"	1"	1 1/2"	2"	3"	4"
ANSI 300	<b>F2</b>	3/4"	3/4"	3/4"	1"	1 1/2"	2"	3"	4"
DIN PN 16	<b>F3</b>	20mm	20mm	20mm	25mm	40mm	50mm	80mm	100mm
DIN PN 40	<b>F4</b>	20mm	20mm	20mm	25mm	40mm	50mm	80mm	100mm
Overall Length		140mm	140mm	140mm	152mm	165mm	165mm	165mm	210mm
Maximum Pressure		F1 = 20 bar F2 = 50 bar F3 = 16 bar F4 = 40 bar							

Working Temperature

- 50°C to + 282°C

Accuracy

+ / - 0.5 % of reading over Flow Range

Repeatability

+ / - 0.15 % of reading

Pressure Drop

Less than 0.5 bar at Maximum Flow

Materials

All 316 Stainless Steel with ANC1A Rotor

Bearings

Wear Resistant Tungsten Carbide Sleeve

## Pick Up

<b>S</b>	Standard Variable Reluctance Coil
<b>I</b>	Intrinsically Safe Variable Reluctance Coil ATEX Ex ia IIC T6 to T3

## Electronics

<b>101 a</b>	Totaliser / Flowrate indicator with pulse output and 4 - 20 mA output
<b>101 ai</b>	Intrinsically safe version ATEX Ex ia IIC T4
<b>101 b</b>	Batch Controller
<b>101 bi</b>	Intrinsically safe version ATEX Ex ia IIC T4
<b>101 c</b>	Totaliser / Flowrate Indicator with high and low Alarms
<b>101 ci</b>	Intrinsically safe version ATEX Ex ia IIC T4
<b>101 d</b>	Bi Directional Flow Indication ( Lxb Model only )
<b>101 di</b>	Intrinsically safe version ATEX Ex ia IIC T4
<b>AMP</b>	Amplifier Board
<b>SCALER</b>	Scaler Board
<b>4 - 20 mA</b>	4 - 20 mA Board

## Ordering Code:

<b>Model</b>	-	<b>Connections</b>	-	<b>Pick Up</b>	-	<b>Electronics</b>
				or		
				<b>Pick Up</b>	-	<b>Electronics</b>

e.g. Lx 25 - T1 - S - 101 a  
 Lx 25 - T1 - I - 101 ai



## Lxb Models

The Lxb (bi-directional) Flowmeter enables flow to be monitored in both the forward and reverse flow direction.

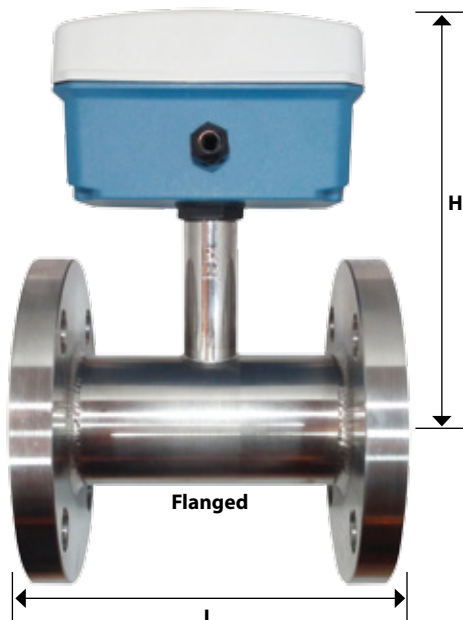
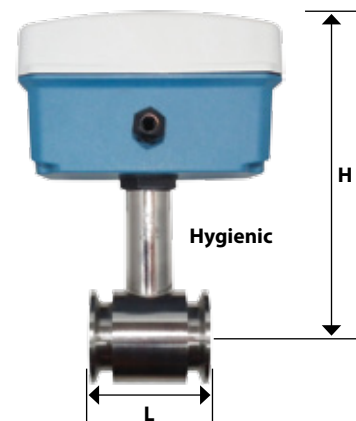
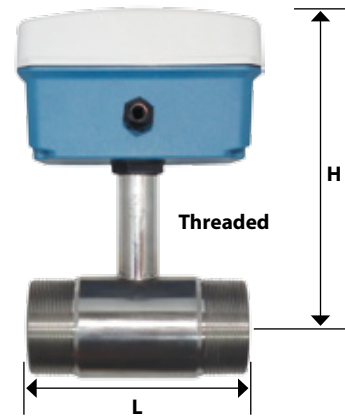
It utilises two variable reluctance sensors which are electrically out of phase from each other.

The addition of a second sensor makes it possible to monitor the forward (counting up) flow and reverse (counting down) flow with the addition of the 101 d Electronics.

## Installation Dimensions

Threaded Model	L	H (max)
Lx 13	70mm	160mm
Lx 16	76mm	160mm
Lx 19 & Lxb 19	76mm	160mm
Lx 25 & Lxb 25	76mm	160mm
Lx 40 & Lxb 40	114mm	170mm
Lx 50 & Lxb 50	133mm	180mm

Hygienic Model	L	H (max)
Lx 19 & Lxb 19	64mm	160mm
Lx 25 & Lxb 25	64mm	160mm
Lx 40 & Lxb 40	88mm	170mm
Lx 50 & Lxb 50	100mm	180mm



Flanged Model	L	H (max)
Lx 13	140mm	160mm
Lx 16	140mm	160mm
Lx 19 & Lxb 19	140mm	160mm
Lx 25 & Lxb 25	152mm	160mm
Lx 40 & Lxb 40	165mm	170mm
Lx 50 & Lxb 50	165mm	180mm
Lx 80 & Lxb 80	165mm	190mm
Lx 100 & Lxb 100	210mm	220mm

# Electronics

## 101a and 101ai (Intrinsically safe version)

Features: Totaliser and Flowrate indication with Linearisation  
Pulse output in relation to Total  
4 - 20 mA output in relation to Flowrate

Power: 3.6 V Lithium Battery  
8 - 30 V D.C. or 4 - 20 mA loop

## 101b and 101bi (Intrinsically safe version)

Features: Preset Batch value indication  
Over run Correction  
Pulse output mirroring count on display  
One or Two Stage Batch Control

Power: 115 - 230 V A.C.

## 101c and 101ci (Intrinsically safe version)

Features: Totaliser and Flowrate indication  
High and Low Alarm Flowrate monitoring  
Two Alarm Outputs  
4 - 20 mA output in relation to Flowrate

Power: 3.6 V Lithium Battery  
8 - 30 V D.C. or 4 - 20 mA loop



## 101d and 101di (Intrinsically safe version)

Features: Quadrature input for bi-directional measurement  
4 - 20 mA output in relation to Flowrate  
Pulse output in relation to Total  
Flow Direction Output

Power: 3.6 V Lithium Battery  
8 - 30 V D.C. or 4 - 20 mA loop



## Amplifier Board

Features: 5 V square wave pulse output with same frequency as the input signal

Power: 8 - 30 V D.C.

## Scaler Board

Features: Scaled pulse output

Power: 8 - 30 V D.C.

## 4 - 20 mA Board

Features: 4 - 20 mA output

Power: 8 - 30 V D.C.