

# The SL2 Handheld Transit Time flow meter for accurate flow measurement from outside a pipe

Carefully designed for compactness and ease of use, the SL2 benefits from an easy to follow menu and simple set up for trouble free operation and accurate measurements while the unique clamp-on sensor design makes for a fast fit meaning results can be achieved within minutes!

With its low weight, long battery life and high performance the SL2 is the perfect tool for HVAC and energy measurement surveys while its affordability ensures a rapid return on investment. Compact, rugged and reliable, the SL2 provides sustained operation in a wide range of industrial applications and due to the non-intrusive nature of the clamp-on technique, no mechanical parts need to be inserted through the pipe wall or to protrude into the flow system so there is no pressure drop (save energy), no moving parts (low maintenance), no leaks and no contamination.

Employing state-of-the-art technology in ultrasonic flow measurement and digital processing, the self-adapting proprietary signal quality tracking allows the system to optimally adapt to the pipe material and flow profile automatically. The unique clamp-on fixture design makes the installation very straightforward and requires no special tools or skills and due to the non-invasive nature of clamp-on transducers, there is no pressure drop, no moving parts, no leaks, and no risk of contamination or corrosion.

The SL2 is perfectly suited to HVAC applications where its affordability ensures a rapid return on investment. Well managed systems are measured systems and this easy to implement flow data provider allows for access and control over your systems with fast results and the potential for immediate energy savings and application fine tuning.

Don't leave it to your best estimates, get accurate data fast with the SL2 clamp on flow meter. With maximum long term reliability built in, the SL2 provides sustained operation in a wide range of industrial applications and environments and due to the non-intrusive nature of the clamp-on technique, no mechanical parts need to be inserted through the pipe wall or to protrude into the flow system so there is no pressure drop (save energy), no moving parts (low maintenance), no leaks and no contamination.



Ideal for the measurement of flows in clean, non-aerated fluids such as water, water/glycol and oils in full pipes from 1/2" to 180" (12 to 4570 mm) diameter can be measured and the ultrasonic signal penetrates all common metal and plastic pipe materials. User friendly and no cumbersome hardware, begin reading flow and gathering useful data as soon as the transducers are mounted. Connect the SL2 to external displays, recorders, data and loggers.

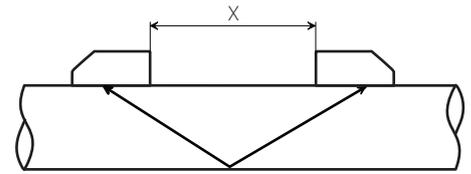
**SL2**  
Large Display with User-friendly  
Calibration Menu. Measures,  
Totalizes and Transmits Flow  
in both Directions

# Accurate Flow measurement of Clean Fluids from Outside Plastic or Metal Pipes

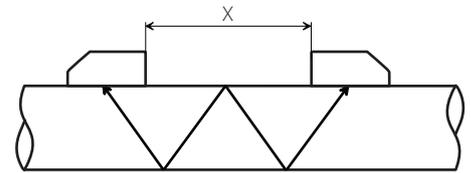
## How it Works:

Transit Time flow meters utilize two transducers that function as both ultrasonic transmitters and receivers. The transducers are clamped on the outside of a vertical or horizontal pipe at a specific distance calculated by the instrument. The elapsed time between transmitted and received signals varies very slightly depending on whether the signal is traveling upstream or downstream and by comparing these time differences an accurate calculation of the flow rate is possible and is displayed in your choice of engineering units. As the ultrasonic beam crosses the pipe, compensation for laminar or turbulent flow is automatic.

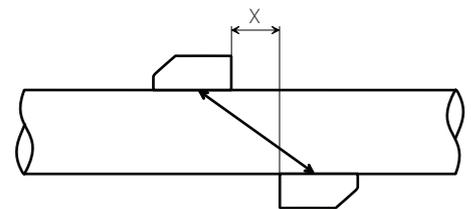
Depending on the application and flow profile, the transducers can be mounted in V-method in which case the ultra sound transverses the pipe twice, the W-method in which case the ultra sound transverses the pipe four times or the Z-method in which case the transducers are mounted on opposite sides of the pipe and the ultra sound transverses the pipe only once. These modes are automatically selected by the instrument and are also user selectable. (X denotes the distance between the transducers, this is automatically calculated by the instrument at setup depending on the inputted application data)



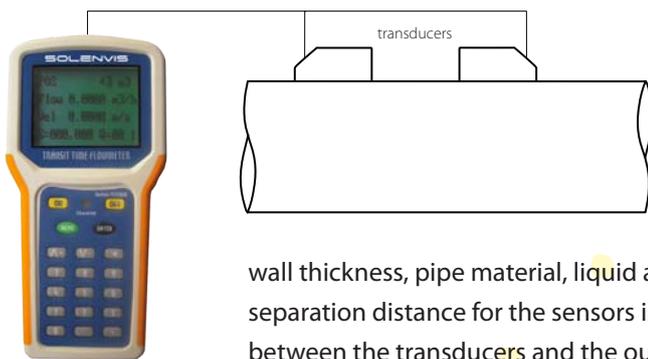
V mode, number of sound paths: 2



W mode, number of sound paths: 4



Z mode, number of sound paths: 1



## Hardware & Operation

The SL2 electronics are housed in a rugged enclosure incorporating the graphic display, keypad, sensor and output facility connections. Programming the unit is carried out by selecting the options displayed in the main menu and by following the simple instructions. Enter the pipe diameter,

wall thickness, pipe material, liquid and temperature and the optimum mounting method and separation distance for the sensors is automatically calculated. An acoustic gel (supplied) is used between the transducers and the outside of the pipe to ensure that sound is conducted from the sensors through the pipe wall.

Powered by an internal, rechargeable NiMH battery or can be operated continuously with AC power input. Use it for spot checks or for extended operation as a 4-20mA flow transmitter. Each SL2 includes a carrying case, transducer set, mounting hardware, cables and accessories. Battery status, signal strength, time and date, as well as flow information are all continuously displayed, keeping the user fully aware of the measurement process.. An acoustic gel (supplied) is used between the transducers and the outside of the pipe to ensure that sound is conducted from the sensors through the pipe wall. Signal strength, time and date, as well as flow information are all continuously displayed, keeping the user fully aware of the measurement process.

## Flow Transducers

Only 3 types are needed to cover the pipe ranges 12mm (1/2") up to 4750mm (190") so selection is straightforward and the flow electronics is able to work with different transducer sets depending on the unit supplied and the application. Optional high temperature sensors are also available for use up to 250C.



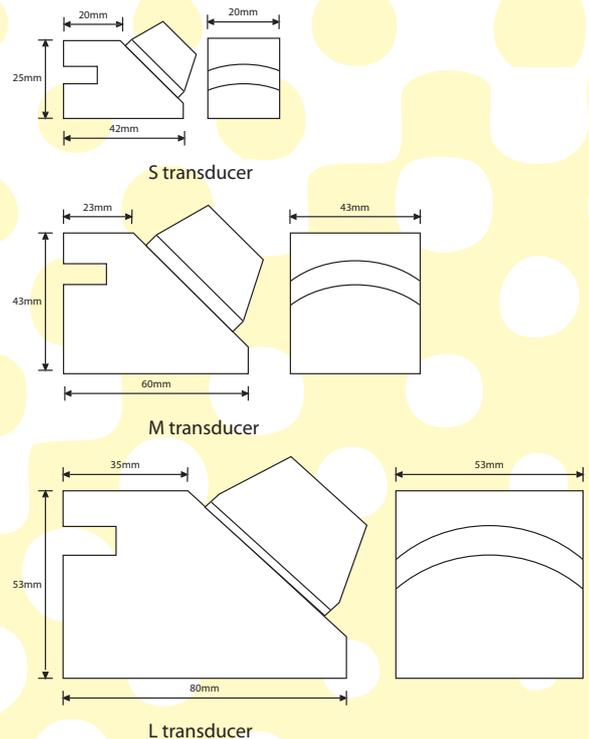
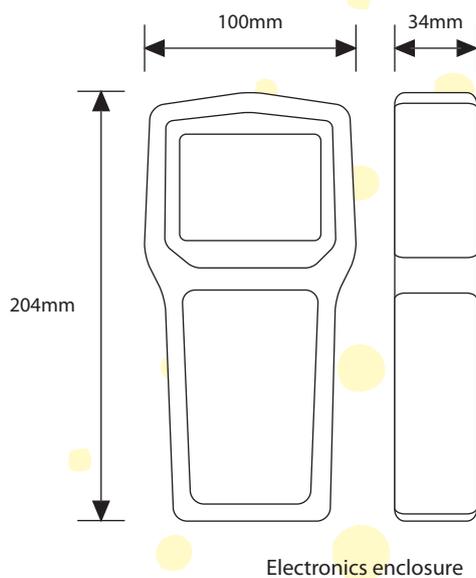
### Transducers

Easy to install, IP67 rated and supplied with cable up to 25m/75ft

## Technical data SL2

Transmitter	Power Supply	3 AAA Ni-H built-in batteries. Full charge allows over 12 hours of operation. Charger 100V-240VAC
	Velocity	0 ~ ±40 ft/s (0 ~ ±12m/s), bi-directional
	Display	Backlit LCD 4 line×16 character English menu total flow, flow rate, velocity and meter running status etc. displayed
	Units	User Configured (Imperial and Metric)
	Rate	Rate and Velocity Display
	Totalized	(FWD, NET, REV or BATCH) gallons, ft <sup>3</sup> , barrels, lbs, liters, m <sup>3</sup> ,kg
	Output	OCT Pulse, Relay, RS232C or RS485, Hart +(4~20mA), Modbus
	Accuracy	±1.0%-2.0% of reading at rates >0.5 m/s ±0.003 m/s of reading at rates <0.5 m/s
	Sensitivity	Flow Rate: 0.001ft/s (0.0003m/s)
	Repeatability	0.2% of reading
	Security	Keypad lockout, password enabled
Dimensions and Weight	Enclosure: Weight: 0.6kg, 100*204*34mm	
Transducer	Liquid Types	Virtually any liquid containing less than 2% total suspended solids or aeration
	Liquid Temperature	Std. Temp. Transducer: -40°C~121°C (-40°F~250°F) High Temp. Transducer : -40°C~250°C (-40°F~482°F)
	Cable Length	Std: 4m (12ft); option up to maximum 25m (75ft)
	Pipe Size	M transducer: 40-1000mm L transducer: 1000-4570mm S transducer: 12-50mm
	Dimensions and Weight	S: Size: 42*25*25mm; weight:<0.2kg M: Size: 60*43*43mm ; weight:< 0.2kg L: Size: 80*53*53mm; weight: <0.2kg
	Portable Case	Size: 445*290*130mm; weight: <3.5kg
	Couplant	Dow Corning 111 (112 for high temp.)
Accessories	Transducer Hardware	2 mounting straps supplied as standard according to transducer type selected
	Battery Charger	1 pcs
	Data Logger & Software	Optional 512M to 8GB SD card Windows-based Software Utility, data logging, data report, data curve and analysis

## Dimensions SL2



# Non-Contacting - Measures Flow from Outside the Pipe - Simple, User-Friendly Calibration System

## Applications Support

Take advantage of our applications experience. Contact one of our sales engineers, describe your requirements and receive our prompt quotation.

## Our Guarantee

Warranted against defects in materials and workmanship for a period of one year from date of purchase. Refer to our limited warranty included with each product.

## How to Order

A simple to use order sheet is available with all the available options, if you prefer, call us now and we can go through the options with you to ensure that your requirements are fully met.

## No Risk Appraisal

We are committed to providing the highest levels of service, in some cases it may be necessary to test the application in question to ensure total satisfaction. Please contact us to arrange a performance test.

## Industries:

Water  
Building Services  
Energy Management  
Power Generation  
Chemical  
Pharmaceutical  
Petrochemical  
Food

## Recommended For:

Potable water  
River water  
Cooling water  
Demineralised water  
Water/glycol solutions  
Hydraulic oil  
Diesel and fuel oils  
Chemicals  
Petroleum products

## Application/use:

HVAC and energy measurement  
Check system meters  
Pump verification  
Boiler testing  
Leak detection  
Filter sizing  
Ultrapure water measurement  
Heavy fuel oil metering  
Condensate measurement  
Balancing systems  
Clean in place evaluation  
Fire system testing  
Hydraulic system testing  
Marine operation and maintenance

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