

The SL1 Portable Transit Time heat meter for accurate thermal energy measurement from outside a pipe



The SL1 Portable Transit Time Ultrasonic Heat Meter is a state-of-the-art universal transit-time flow meter designed using MultiPulse™ technology and low-voltage broadband pulse transmission, it features the worlds advanced non-invasive flow measurement technology providing a measuring system with unsurpassed accuracy, versatility, ease of installation and dependability.

Supplied in an IP67 enclosure, the SL1 is the perfect tool for harsh environmental conditions and HVAC and energy measurement surveys and provides sustained operation in a wide range of industrial applications. 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.

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.

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 SL1 clamp on heat meter. With maximum long term reliability built in, the SL1 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.



SL1
Large Display with User-friendly Calibration Menu. Measures, Totalizes and Transmits Flow in both Directions

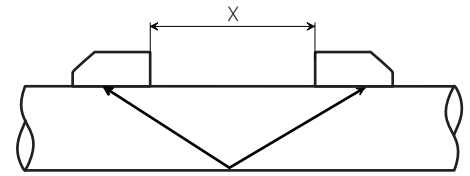
Perfectly suited to the measurement of flows in clean, non-aerated fluids such as water, water/glycol and oils in full pipes from 1/2" to 180" (12 to 4570 mm) diameter can be measured and the ultrasonic signal penetrates all common metal and plastic pipe materials. User friendly and no cumbersome hardware, begin reading flow and gathering useful data as soon as the transducers are mounted. Connect to external displays, recorders, data loggers, controllers and BMS systems via a wide range of industry standard outputs such as RS485.

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

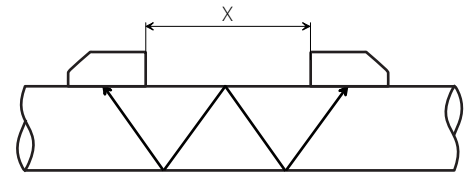
How it Works:

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. By also measuring the difference in the flow and return temperatures of the heating or cooling system it is possible to accurately measure the energy use which can be displayed in your choice of engineering units including kWh.

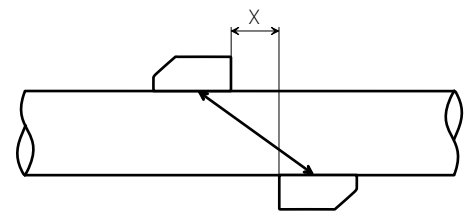
Depending on the application and flow profile, the transducers can be mounted in V-method in which case the ultra sound transverses the pipe twice, the W-method in which case the ultra sound transverses the pipe four times or the Z-method in which case the transducers are mounted on opposite sides of the pipe



V mode, number of sound paths: 2



W mode, number of sound paths: 4

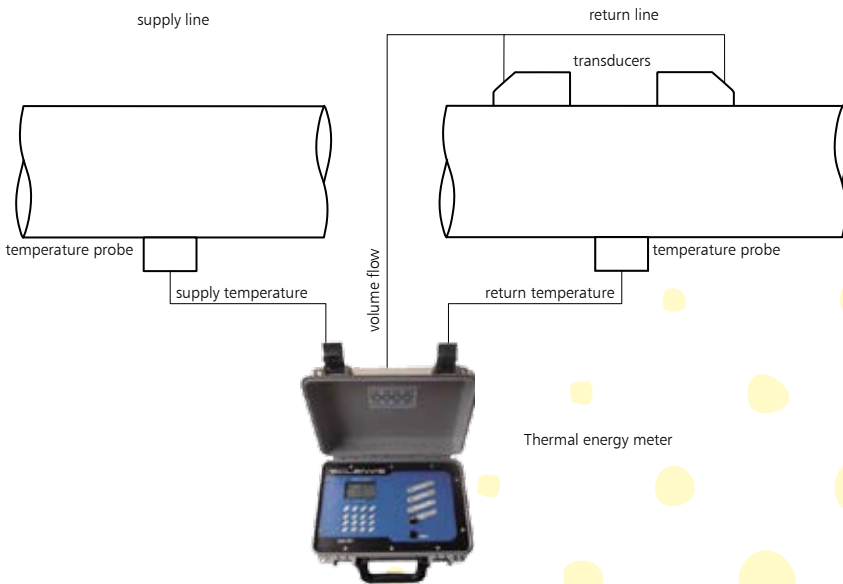


Z mode, number of sound paths: 1

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)

Hardware & Operation

The SL1 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



Example for heat flow measurement

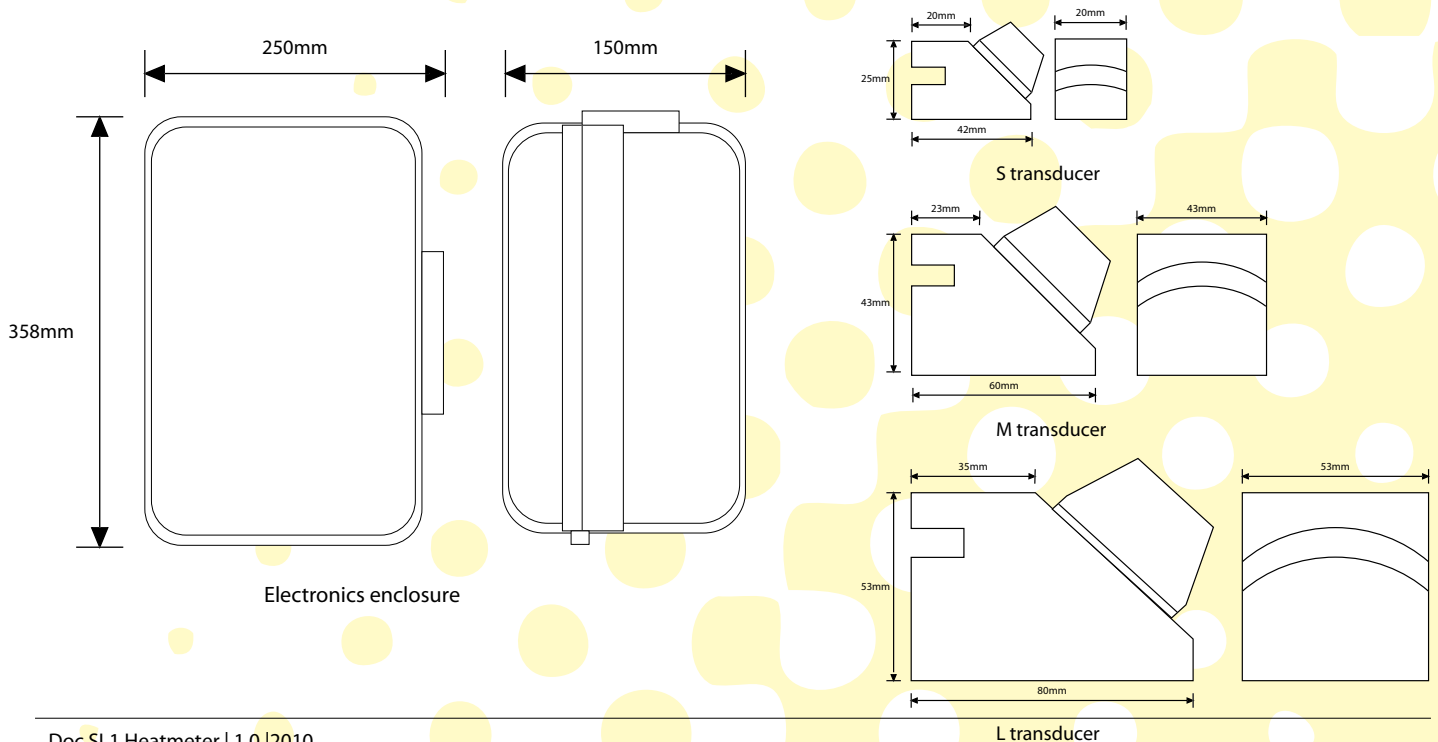
diameter, wall thickness, pipe material, liquid and temperature and the optimum mounting method and separation distance for the sensors is automatically calculated. An acoustic gel (supplied) is used between the transducers and the outside of the pipe to ensure that sound is conducted from the sensors 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 SL1 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. A pair of PT100 probes are supplied with each SL1 electronics to measure the temperature on the flow and return legs of the heating or cooling system. Combining the temperature difference with the flow measurement allows energy consumption to be calculated. Signal strength, time and date, as well as energy use information are all continuously displayed, keeping the user fully aware of the measurement process.

Technical data SL1 Heatmeter

Transmitter	Power Supply	Internal 7.2AH battery, Provides 42 hrs. continuous operation @ 20 °C
	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 ³ , barrels, lbs, liters, m ³ ,kg
	Output	4~20mA, 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	Temp. probes	2x PT100 clamp-on temperature probes with 10m (30ft) cable as standard
	Liquid Types	Virtually any liquid containing less than 2% total suspended solids or aeration
	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: 6m (18ft); option up to maximum 25m (75ft)
	Pipe Size	M transducer: 40-1000mm L transducer: 1000-4570mm S transducer: 12-50mm, K-mode round 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: 350*250*150mm; weight: <3.5kg
Accessories	Couplant	Dow Corning 111 (112 for high temp.)
	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 SL1 Heatmeter



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

