



**Ultrasonic & Electro
Magnetic Flow / Heat Meters**

**ENERGY
METERING
QUICK & RELIABLE**

Transit Time UltraSonic Flow / Heat Meters

Clamp on Type



DESCRIPTION

The VIR-DX-900 transit time ultrasonic flow meter/heat meter measures volumetric flow and cooling energy rates in chilled water applications. VIR-875 flow and energy meters clamp onto the outside of pipes and do not contact the internal liquid.

BENEFITS

By clamping onto the outside of pipes, the meters have inherent advantages over other flow meter technologies, including;

- ◆ Reduced installation time and cost
- ◆ Non-Invasive, non-contact measurement
- ◆ Continued operation during installation-no need to shut down the process
- ◆ No pressure head loss
- ◆ No moving parts to maintain or replace

FEATURES

- ◆ Large, bi-directional flow measuring range.
- ◆ Data Logger
- ◆ Modbus RTU

Ultrasonic speed and temperature compensation Large, easy-to-read graphical display Suitable for harsh environments

APPLICATIONS

The meter is available in a variety of configurations that permit the user to select a meter with features suitable to meet particular application requirements.

The VIR-DX-900 meter is available in two versions:
A flow meter for water delivery, sewage, cooling water, water-glycol mixtures, alcohols and chemicals

A heating/cooling energy flow meter used in conjunction with dual insertion or clamp-on RTDs for temperature measurement-ideal for hydronic process and HVAC applications



OPERATION

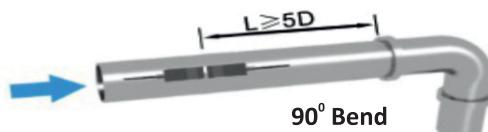
Transit time flow meters measure the time difference between the travel time of an ultrasound wave going with the fluid flow and against the fluid flow. The time difference is used to calculate the velocity of the fluid traveling in a closed-pipe system. The transducers used in transit time measurements operate alternately as transmitters/receivers. Transit time measurements bi-directional and are most effective for fluids that have low concentrations of suspended solids and are sonically conductive.

An ultrasonic meter equipped with heat flow capabilities measures the rate and quantity of heat delivered or removed from devices such as heat exchangers. By measuring the volumetric flow rate of the heat exchanger liquid, the temperature at the inlet pipe and the temperature at the outlet pipe, the energy usage can be calculated.

Straight length of upstream piping



Straight length of downstream piping



Product Data Sheet



Product Data

VIR-DX-900

Main Unit	Accuracy	$\pm 1\%$, $\pm 0.5\%$, $\pm 0.2\%$, $\pm 0.025 \text{ ft/s}$ (0.008 m/s)
	Repeatability	Better than 0.2%
	Principle	Transit-time measuring principle
	Measurement Period	500ms
	Display	LCD with backlight, display accumulated flow/heat, instantaneous flow/heat, velocity, time etc.
	Output	Analog output: 4-20mA or 0-20mA current output. Impedance 0.1kw. Accuracy 0.1%
		OCT output: Frequency signal (1-9999HZ)
		Relay output: Programmable (no signal, reverse flow etc.)
	RS 485 serial port	
	Input	Three analog input
	RTD For Heat Meter only	Two 2-wire, 3-wire Pt100/Pt1000/Pt 500 RTD 12-bit inputs; Range of -40...200° C; Clamp-on resistor kits available
	Other functions	Automatically record the totaliser data up to 5 years and 16 years Option
	Energy total (Heat Meters)	British Thermal Unit (Btu), MWH KWH
	Heat/cooling rate (Heat Meters)	Btu/hour, Kilowatts, Megawatts,
	Temperature (Heat Meters)	Fahrenheit, Celsius
	Power loss mode	The power-on time and corresponding flow rate of the last 64 power on and off events. Allow manual or automatic flow loss compensation
Pipe	Material	Steel, Stainless steel, Cast iron, Cement pipe, Copper, PVC, Aluminium, FRP etc. Liner is allowed
	Size	15-6000mm
	Straight pipe section	In the upstream it must be beyond 10D, in the downstream it must be beyond 5D. In the upstream the length must be beyond 30D from the access of the pump. (D Stands for pipe diameter)
Liquid	Types	Water, sea water, industrial sewage, acid and alkali liquid, alcohol, beer, all kinds of oils which can transmit ultrasonic single uniform liquid
	Temperature	Standard : -10° C - 160° C
	Turbidity	Less than 10000ppm, with a little bubble
	Flow Direction	Bi-directional measuring, net flow/heat measuring
Environment	Ambient Temperature	Main Unit: -4...140° F (-20...60° C)
	Altitude Restriction	Up to 2000 m (6561 ft)
	Humidity	Main Units: 0...85%, non-condensing Transducer : water-immersible, water depth less than 3m
Cable	Twisted pair line, standard length of 20m, can be extended to 500m (not recommended); Contact the manufacturer for longer cable requirement. RS-485 interface, transmission distance up to 1000m	
Power Supply	DC24V	
Power	Less than 1.5W	
Protocols	MODBUS-RTU Protocol Standard	

VIR-850, VIR-832 ,VIR-800 ,LXC series & Virtec logo are registered trademarks of Virtec Instruments, Inc. USA. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Virtec reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2024 Virtec Instruments, Inc. All rights reserved.



Virtec Instruments Inc.

📍 2005 E 2700 S, STE 200 Salt Lake City, UT - 84109, USA

📞 +1 (304) 519-4567 📩 sales@virtec.us 🌐 www.virtec.us