

M-Bus



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

**ENERGY
METERING
QUICK & RELIABLE**

Transit Time UltraSonic Flow / Heat Meters



VIR-832 SERIES - Clamp on Type

DESCRIPTION

The VIR-832 transit time ultrasonic flow meter/heat meter measures volumetric flow and cooling energy rates in chilled water applications. VIR-832 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 0.2% accuracy ,0.5% 1% accuracy detectors lab calibrated.
- ◆ Data Logger
- ◆ Modbus RTU or BACnet MS/TP over EIA-485, Modbus TCP/IP BACnet/IP; connectivity options with Kamstrup make Multical 603.

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

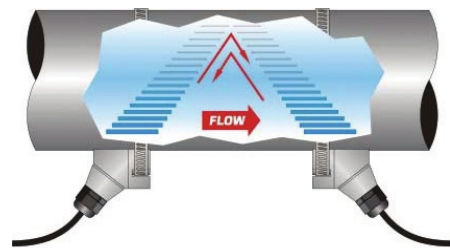
APPLICATIONS

The VIR-832 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-832 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.



Product Data Sheet

VIR 832 Ultrasonic Clamp-On Type: Flow & Heat Meter

Main Unit	Accuracy	$\pm 1\%$, $\pm 0.5\%$ $\pm 0.2\%$ ± 0.025 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 $-40\ldots 200^{\circ}$ 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: $-4\ldots 140^{\circ}$ F ($-20\ldots 60^{\circ}$ 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	AC220V or DC24V		
Power	Less than 1.5W		
Protocols	MODBUS-RTU Protocol Standard. Option of BACnet MS/TP -IP with MC-603 Kamstrup Make Calculator available.		



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