Proteus Industries Inc.

PRODUCT DATA SHEET

FluidVision USB

Coolant flow rate and temperature monitoring for liquid-cooled systems, communicated over USB

- Connects flow sensor directly to a computer via standard USB port
- Electronics and paired flow sensor are powered by USB port—no auxiliary power supply needed!
- Compatible with Proteus V7000 Series and PV6000 Series vortex flow meters with pulse output
- Factory-calibrated for unique flow profile of paired sensor for exceptional accuracy
- Flow ranges from 0.9 to 150 LPM / 0.2 to 40 GPM
- Optional temperature measurement capability from -40 to 125 °C / -40 to 257 °F
- Multiple programmable alarm levels for both flow rate and temperature
- Device driver enables easy integration with monitoring and data-acquisition applications
- Specialized software provides system monitoring and data-logging for up to four connected devices

FluidVision USB™ from Proteus Industries is a convenient and cost-effective way to connect flow meters directly to a computer for accurate and reliable measurement of liquids in closed-loop cooling systems.

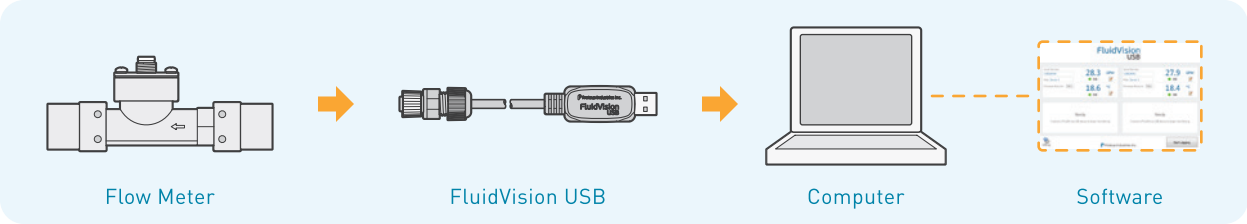
The output signals from compact flow and temperature sensors are monitored, analyzed, and transmitted via standard USB connection for on-screen display in real time. Sensor-specific calibration factors stored in the device memory ensure accuracy of measurement, and programmable alarm values for both flow and temperature enable advanced monitoring capabilities.

Measurement and status data from FluidVision USB devices can be monitored and collected using a specialized software application or easily incorporated into existing monitoring and data-acquisition systems.

How It Works

As liquid flows through the flow meter, vortices are formed and carried downstream at the velocity of the flowing liquid. The sensor element detects each passing vortex and produces a pulse, and the resulting frequency is directly proportional to the volumetric flow rate.

The FluidVision USB device connected to the flow sensor analyzes the pulse frequency and uses calibration data stored in its memory to calculate the precise instantaneous flow rate of the liquid. For meters equipped with integrated temperature sensors, the FluidVision USB device also similarly interprets the resistance output signal to determine the temperature of the liquid.



The flow rate and temperature measurements are continuously monitored and compared against programmed alarm values. The measured values and corresponding status information are transmitted over USB to a computer, where the data stream can be easily integrated into system-monitoring and data-acquisition applications. Leak detection, thermal energy transfer measurement, and other advanced capabilities can be achieved by installing multiple flow and temperature sensors equipped with FluidVision USB.

FluidVision USB Software

A specialized software application available free-of-charge provides system monitoring and data-logging capabilities for up to four connected FluidVision USB devices at one time. The user-friendly program enables the user to select the units of measurement and configure the alarm values for both flow and temperature, and all settings are saved to the FluidVision USB device memory. Collected measurement and status data can be conveniently exported to a CSV file.

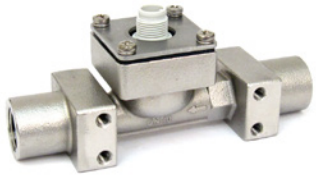
FluidVision USB Specifications

Model Number	 0FVUSB
Flow Sensor Connection	M12 female 5-pin connector
USB Connection	USB type A male plug
Operating Systems	Windows XP • Windows Vista • Windows 7
Sampling Intervals	0.5 s • 1.0 s • 2.5 s • 5.0 s • 10.0 s
Alarm Levels	4 each for flow and temperature (2 low and 2 high)
Accuracy	< ± 1% of flow range
Repeatability	< ± 0.5% of flow range
Input Power Requirement	5 VDC (supplied by USB port)
Operating Environment	Indoor use only
Operating Temperature	5 to 40 °C / 41 to 104 °F
Relative Humidity	10 to 90% (non-condensing)
Material	PVC overmold
Standards and Compliance	CE • RoHS • REACH • WEEE • USB 2.0 compatible*

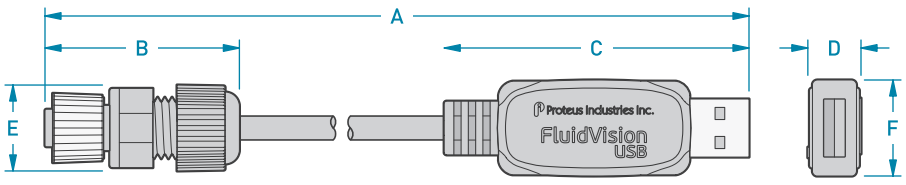
*Note: FluidVision USB is not designed for use with multiple USB hubs.

Flow Meter Performance Characteristics

FluidVision USB can be used with all pulse-output vortex meters in the V7000 Series and PV6000 Series product lines. For more information about Proteus Industries' vortex flow meter products, please visit www.proteusind.com/vortex.

Product Series	 V7000 Series	 PV6000 Series
Flow Sensor	Piezoelectric sensor element	
Temperature Sensor	Integrated Pt1000 RTD sensor (optional)	
Connection Options	FNPT • MNPT • SAE	FNPT
Flow Ranges	1.8 to 150 LPM / 0.48 to 40 GPM	0.9 to 85 LPM / 0.2 to 22 GPM
Liquid Temperatures	-40 to 125 °C / -40 to 257 °F	-40 to 100 °C / -40 to 212 °F
Accuracy – Flow	< ± 1.5% of range at < 50% of flow range • < ± 3% of measured value at > 50% of flow range	
Accuracy – Temperature	± 0.3 K at T = 0 °C • ± 0.3 K ± 0.005 K/°C * T °C at T ≠ 0 °C	
Ambient Temperatures	-15 to 85 °C / 5.0 to 185 °F	
Operating Pressure Limit	240 kPa at 40 °C / 35 psi at 104 °F • 120 kPa at 100 °C / 17 psi at 212 °F	
Burst Pressure (5:1)	1200 kPa at 40 °C / 174 psi at 104 °F • 600 kPa at 100 °C / 87 psi at 212 °F	
Pressure Drop	< 23 kPa / < 3.3 psi at maximum flow rate	
Input Voltage	5 VDC ± 5%	
Current Consumption	< 4 mA	
Liquid Types	Water, water/glycol mixtures, Galden®, Fluorinert™, and other material-compatible liquids	
Flow Sensor Body Material	Cast 304 stainless steel	PPA (PA6T/6I - 40% glass fiber)
Standards and Compliance	CE • RoHS • REACH • Materials of construction: NSF-51 and NSF-61	

Product Dimensions



A	2000.0 mm / 78.74 in
B	40.5 mm / 1.59 in
C	63.0 mm / 2.48 in
D	17.9 mm / 0.70 in
E	20.0 mm / 0.79 in
F	9.0 mm / 0.35 in

Proteus Industries: Flow Experts and Customization Specialists

We have over 35 years of experience in developing and manufacturing hundreds of thousands of rugged and precise fail-safe solutions for flow measurement and control. Our products are used worldwide to monitor and protect mission-critical processes and equipment in semiconductor fabrication, medical therapy systems, automotive welding, and temperature-stabilized optical and mechanical systems. Proteus' world-class calibration capability allows us to deliver instruments with temperature- and fluid-specific calibrations and viscosity characterization. Our assured accuracy is the foundation of your success!

Let us put our knowledge base to work on solving your most demanding flow management challenges! Contact Proteus Applications Support at tech@proteusind.com or (650) 964-4163 to discuss your requirements for a customized solution.

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