
VPFLOWSCOPE M THERMAL IN-LINE

With proprietary VPSensorCartridge for low TCO and easy field service





The ideal flow meter

The VPFlowScope® M Thermal In-line is the ideal flow meter for point-of-use consumption measurements of compressed air and other industrial gases, including nitrogen, oxygen, CO₂, helium, argon and more.

Thanks to our proprietary Thermabridge™ technology, you can measure bi-directional flow, pressure, temperature, and total flow simultaneously. The VPFlowScope M Thermal In-line is perfect for smaller diameters, as can be found in the demand side of your air/gas network, at the point of use, as well as in small to medium sized compressed air systems. It provides all the data you need to optimize your consumption. Whether standalone or integrated into an energy management system like VPVision, there is a version to fit your needs.

Highlights

- 1** Transmitter: 3-line display, built-in data logger, LED communication. Available in two models: S01 with Modbus and analog outputs or S03 with Power over Ethernet.
 - 2** VPSensorCartridge.
Less SKU's: one size fits all from 1" to 2".
Proprietary bayonet fitting: sensor is precisely aligned. With hidden safety pin to prevent accidental removal. Servicing is just an easy cartridge exchange in the field.
 - 3** Patented Thermabridge™ technology:
for dry, clean gas measurements.
4-in-1 sensor: bi-directional flow, pressure, temperature, and total flow.
 - 4** Tubing options: available in 1", 1.5", and 2" sizes, with NPT and BSP thread variants.
- > VPStudio Software: for configuration, read-out and processing of your data log sessions.



The power of a complete solution

Measure bi-directional flow, pressure, and temperature simultaneously for a comprehensive overview. For example, identify if pressure drops result from excessive flow or explore ways to reduce air consumption while maintaining the required pressure level. Avoid mis-readings in e.g. overseen branches or a leaking non-return valve with the powerful bi-directional flow measurements. Always with high accuracy backed by an inclusive calibration report. There are no hidden costs.

Applications

- > Compressed air measurement
- > Industrial gas monitoring (N₂, O₂, He, Ar, CO₂, and other dry, non-corrosive industrial gases)
- > Submetering
- > Leakage management
- > Energy monitoring
- > Cost allocation
- > Pneumatic equipment condition monitoring

VPSensorCartridge: No more re-calibration!

With the patented VPSensorCartridge®, traditional recalibration is something of the past. From now on, you simply exchange the VPSensorCartridge® and continue your measurements.

Your benefits

- > Low TCO thanks to patented VPSensorCartridge® technology
- > Near-zero downtime
- > Reduced customs / paperwork
- > Lower transport costs
- > Consistent, reliable measurements

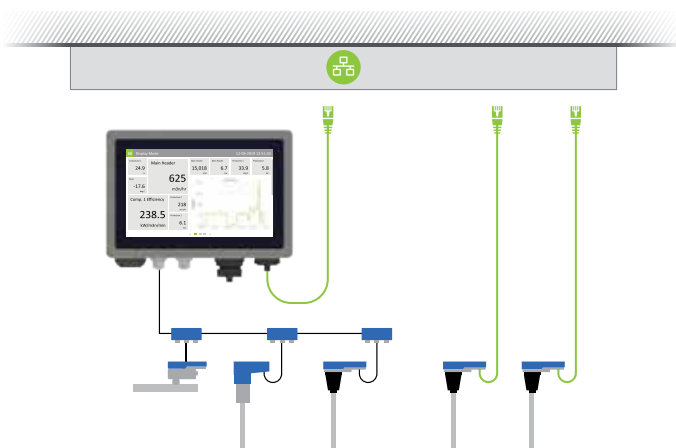


Modular Transmitter. Many possibilities!

The versatile Transmitter connects seamlessly to traditional 4–20 mA networks, RS485, or modern Power over Ethernet. Multiple versions are available for tailored applications.



Transmitter model	Display	Data logger	4..20 mA	RS485 (Modbus RTU)	PoE Modbus TCP)	Application
VPM.T012.D000.S01			•	•		VPVision, BMS, Permanent monitoring
VPM.T012.D010.S01	•		•	•		Remote monitoring and local read-out
VPM.T012.D011.S01	•	•	•	•		Audits
VPM.T012.D000.S03					•	VPVision, BMS, Permanent monitoring
VPM.T012.D010.S03	•				•	Remote monitoring and local read-out
VPM.T012.D011.S03	•	•			•	Audits



Ease of Connection

Reduce installation costs by using Modbus daisy chains or the Power over Ethernet output to connect you VPFlowScope flow meters to VPInstruments' VPVision energy monitoring system or to your BMS. For robust connection possibilities, VPInstruments offers several plug and play junction and I/O boxes.

Specifications

VPSensorCartridge®

VPFlowScope M Thermal In-line Cartridge for pipe 1" to 2".

FLOW SENSOR

Measuring principle	Thermabridge™ Thermal Mass Flow sensor
Flow range 1 inch	0 .. 250 m³n/hr 0 ..150 SCFM (cut of at 1.0 m³n/hr 0.59 SCFM)
Flow range 1.5 inch	0 .. 600 m³n/hr 0 .. 353 SCFM (cut of at 2.5 m³n/hr 1.47 SCFM)
Flow range 2 inch	0 .. 1000 m³n/hr 0 .. 600 SCFM (cut of at 4.0 m³n/hr 2.35 CFM)
Bi-directional flow	Included
Accuracy	2% of reading + 0.3% of full scale Reverse flow: 5% of reading
Reference conditions	0°C, 1013.25 mbar 32°F, 14.65 psi
Gases	Compressed air, nitrogen and inert, non condensing gases
Gas temperature range	0°C .. +50°C 0°C .. 122°F

PRESSURE SENSOR

Pressure sensor range	0 .. 16 barg 0 .. 234 psi
Accuracy	+/- 1% FSS (total error band) Temperature compensated

TEMPERATURE SENSOR

Temperature sensor range	0°C .. +50°C 0°C .. 122°F
Accuracy	> 10 m/sec: +/- 1°C 1.8°F < 10 m/sec: + 5°C 9°F

MECHANICAL & ENVIRONMENTAL

Weight	48 gram 1.69 ounces
Process connection	Quick Connect, Bayonet fitting with Tubing
Pressure rating	PN16
Protection rating	IP65 NEMA 4 when mated to Transmitter
Ambient temperature range	-20°C .. +60°C -4°F .. +140°F Avoid direct sunlight or radiant heat
Wetted materials	Chromated aluminum, Stainless steel 316, NBR rubber, Glass, Epoxy
Corrosion resistance	Highly corrosive or acid environments should be avoided
Connection type	VPSensorCartridge@

Transmitter for VPFlowScope M Thermal In-line

SENSOR INTERFACE

VP Sensor Cartridge® VPFlowScope M Thermal In-line Cartridge, proprietary interface, rotational 360 degrees

DISPLAY

Display type (D010 and D011) 1.8" TFT with auto power save (option)

LED status (All models) LED indicators on all models for power, communication and alarm

DATA LOGGER (D011 ONLY)

Memory One-year circular memory, 1 x per second logging interval for all parameters

Logging mode Cyclic

OUTPUTS

Model S01 with RS485 RS485 (Modbus RTU)
Analog / digital: configurable for 4 .. 20mA, pulse, alarm
USB Mini USB, behind sealed cap (for configuration)

Model S03 with PoE Ethernet Modbus / TCP
USB Mini USB, behind sealed cap (for configuration)

MECHANICAL & ENVIRONMENTAL

Dimensions 41 x 50 x 108 mm | 1.61 x 1.97 x 4.25 inch

Weight Model S01: 179 gram | 6.13 ounces
Model S03: 194 gram | 8.74 ounces

Material Aluminum, anodized body with polycarbonate cover, O-ring seals NBR

Protection grade tbd

ELECTRICAL - MODEL S01 WITH RS485 OUTPUT

Power supply 14 .. 24 VDC + 10% CLASS 2 (UL)

Connector Ethernet M12, 4 pin d-coded

Power consumption Tbd

ELECTRICAL

CE EN 60950-1, EN 61326-1, EN 61000-3-2, EN 61000-3-3, EN 61326-1

UL UL 508

Specifications Tubing

DIMENSIONS & WEIGHT TUBING

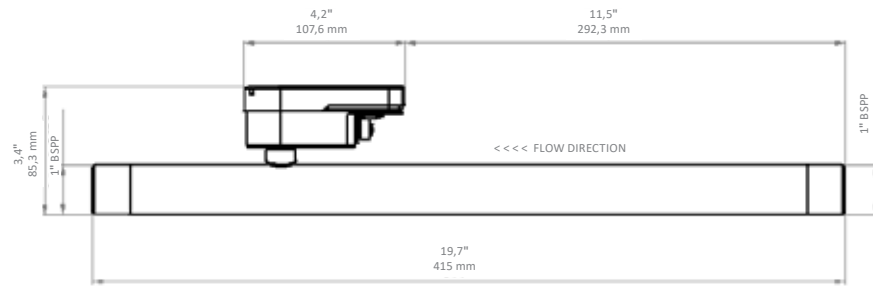
1 inch 500 mm x 1" BSPP | 19.7" x 2" BSPP 1.24 Kg | 43.74 ounces

1.5 inch 600 mm x 1.5" BSPP | 23.6" x 2" BSPP 2.17 Kg | 76.54 ounces

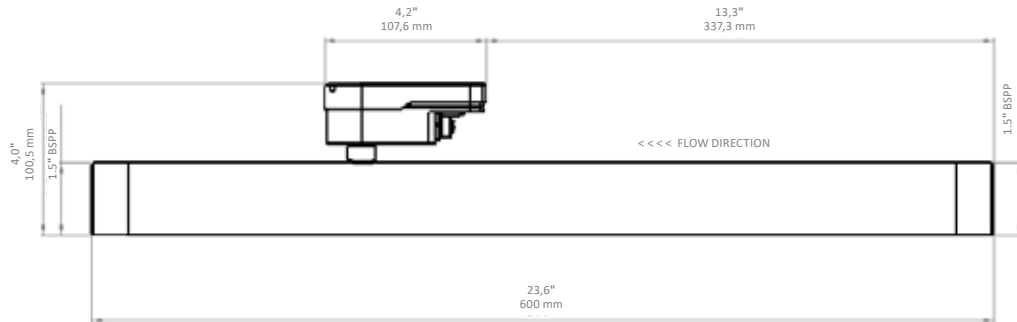
2 inch 750 mm x 2" BSPP | 29.6" x 2" BSPP 3.71 Kg | 130.87 ounces

Technical drawings

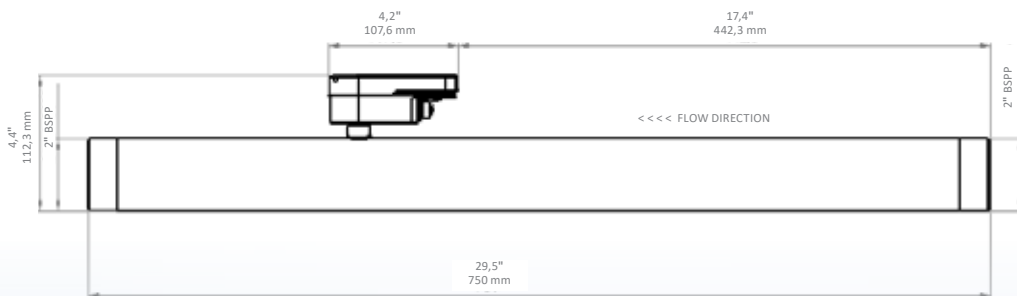
Size 1"



Size 1,5"

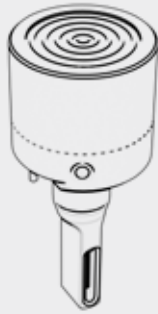


Size 2"



4 Steps to assemble your VPFlowScope M Thermal In-line

1



Select your Cartridge.



2



Select your tubing size.



3

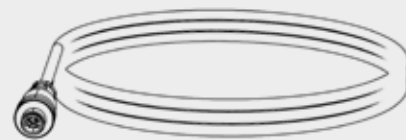


Select your Transmitter type.
Start with the outputs first:
do you require 4..20mA/Modbus (S01)
or Power over Ethernet (S03)? Then go
for the options for non-display, display,
data logger.




4

Select the right cable
with your Transmitter.




Order codes and accessories

Cartridge

DESCRIPTION	ORDER CODE
 <p>Cartridge for flow, pressure, temperature and total flow VPFlowScope M Thermal In-line Cartridge for pipe 1" to 2". Bayonet fitting for correct positioning in tubing. Incl. 10-point calibration certificate.</p>	VPM.R150.PC01.PN16







Tubing





With Quick Connect

DESCRIPTION	ORDER CODE
 <p>VPFlowScope M Thermal In-line tubing 1" BSP</p>	VPA.1201.010
VPFlowScope M Thermal In-line tubing 1.5" BSP	VPA.1201.015
VPFlowScope M Thermal In-line tubing 2" BSP	VPA.1201.020
VPFlowScope M Thermal In-line tubing 1" NPT	VPA.1201.110
VPFlowScope M Thermal In-line tubing 1.5" NPT	VPA.1201.115
VPFlowScope M Thermal In-line tubing 2" NPT	VPA.1201.120

Transmitter with cable options

The Transmitter VPFlowScope Thermal In-line can only be used in combination with the Cartridge VPFlowScope M Thermal In-line.

DESCRIPTION	ORDER CODE
Transmitters (S01) with outputs 4..20mA and Modbus RTU, and cable options	
 <p>Transmitter VPM Thermal In-line without display, with Modbus No display Transmitter with Modbus (RS485), 4..20mA/Pulse/Alarm output.</p>	VPM.T012.D000.S01
 <p>Transmitter VPM Thermal In-line with display and Modbus Display Transmitter with Modbus (RS485), 4..20mA/Pulse/Alarm output.</p>	VPM.T012.D010.S01
 <p>Transmitter VPM Thermal In-line with display, datalogger, Modbus Display+Datalogger Transmitter with Modbus (RS485), 4..20mA/Pulse/Alarm output.</p>	VPM.T012.D011.S01
 <p>Cable, 5m / 16.4 ft. with M12 5pin connector on one side The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output.</p>	VPA.5000.005
 <p>Cable, 10m / 32.8 ft. with M12 5pin connector on one side The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output.</p>	VPA.5000.010
 <p>Power supply adapter with 5 pin connector Universal AC/DC adapter, 110..240 VAC to 24 VDC power supply with M12 5 pin connector</p>	VPA.0000.200

DESCRIPTION	ORDER CODE
Transmitter (S03) with output PoE (Modbus TCP), and cable options	
 <p>Transmitter VPM Thermal In-line without display, with PoE No display Transmitter with Power over Ethernet (Modbus TCP).</p>	VPM.T012.D000.S03
 <p>Transmitter VPM Thermal In-line with display and PoE Display Transmitter with Power over Ethernet (Modbus TCP).</p>	VPM.T012.D010.S03
 <p>Transmitter VPM Thermal In-line with display, datalogger, PoE Display+Datalogger Transmitter with Power over Ethernet (Modbus TCP).</p>	VPM.T012.D011.S03
 <p>Ethernet Cable 5m/16.4ft. for Modbus TCP communication M12 4-pins on one side, RJ45 connector on other side</p>	VPA.5004.0005

About VPIstruments

We empower the industry worldwide to save energy, optimize predictive maintenance, and boost performance of production, through our innovative flow meters, instrumentation, and monitoring solutions. We believe that industrial energy monitoring should be easy and effortless to enable insight, savings and optimization.

VPIstruments products are recommended by leading energy professionals worldwide and offer the most complete measurement solution for compressed air flow, gas flow and electric energy consumption. Our monitoring software VPIvision can be used for all utilities and enables you to see where, when and how much you can save.

Our products can be found all over the world. We serve all industrial markets, for example automotive, glass manufacturing, metal processing, food and beverage, and consumer goods. We can help your industry too. Let us help you to open your eyes and start saving energy.



energy insights trusted by professionals™

Corporate Headquarters

VPInstruments

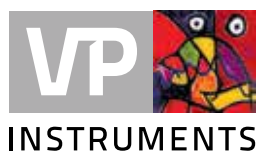
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