TRIDO ENERGY SERVICES
A CENTURION COMPANY

VP INSTRUMENTS

VPFLOWSCOPE M THERMAL IN-LINE

With proprietary VPSensorCartridge for low TCO and easy field service

VPINSTRUMENTS.COM

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, CO_2, 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. 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 (N_2, O_2, He, Ar, CO_2, and other dry, non-corrosive industrial gases)
- Submetering
- Leakage management
- Energy monitoring
- Cost allocation
- Pneumatic equipment condition monitoring

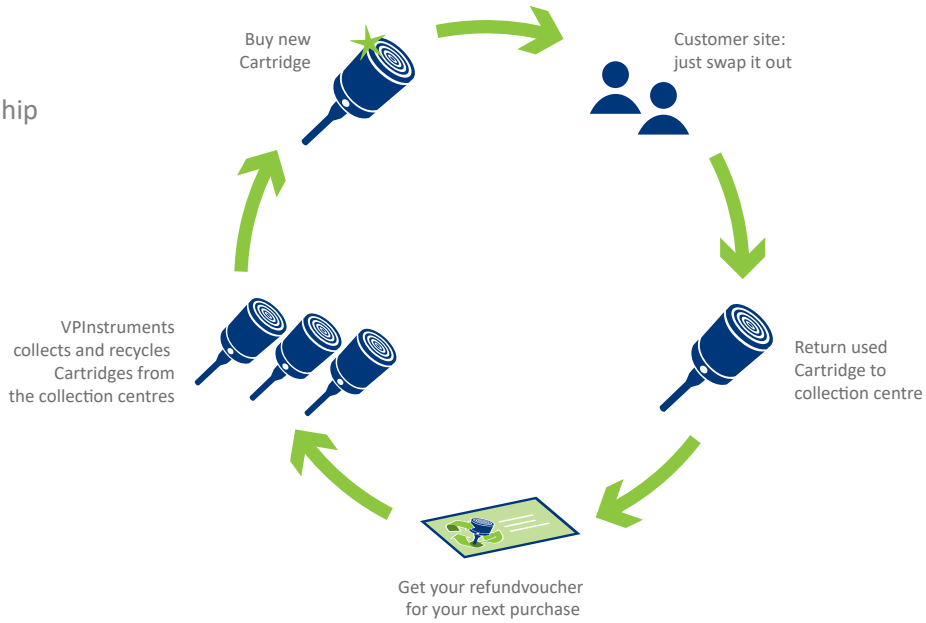
VPCartridgeSwap+

Swap. Return. Earn.

Keep your VPFlowScope M in top condition with fast, cost-effective, and sustainable maintenance. Unlike traditional flow meters that require off-site recalibration, resulting in removal, shipping delays, and measurement downtime. The VPFlowScope M enables on-site recalibration in just minutes with a simple VPSensorCartridge swap. No downtime. No disruption. Just accurate data.

Your Benefits:

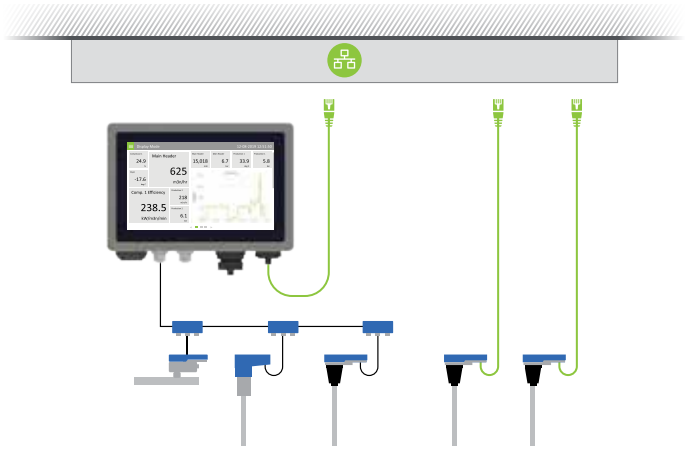
- Fast on-site servicing
- Reliable measurement data
- Lowest total cost of ownership
- Sustainability commitment



Modular Transmitter. Many possibilities!

The versatile Transmitter connects seamlessly to traditional 4..20mA 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 .. 156 SCFM (cutoff at 1.0 m³n/hr | 0.59 SCFM)
Flow range 1.5 inch	0 .. 600 m³n/hr | 0 .. 374 SCFM (cutoff at 2.5 m³n/hr | 1.47 SCFM)
Flow range 2 inch	0 .. 1000 m³n/hr | 0 .. 623 SCFM (cutoff at 4.0 m³n/hr | 2.35 CFM)
Bi-directional flow	Included
Accuracy	2% of reading + 0.3% full scale Forward flow 5% of reading + 0.3% full scale Reverse flow
Reference conditions	0°C, 1013.25 mbar | 32°F, 14.65 psi DIN1343 (Default) 20°C, 1000 mbar | 68°F, 14.5 psi ISO1217 (FAD) 15°C, 1013.25 mbar | 59°F, 14.65 psi ISO 2533 (Sea level) Selectable in Transmitter display
Gases	Compressed air, nitrogen and inert, non condensing gases
Gas temperature range	0°C .. +50°C | 32°F .. 122°F
Custom factor	Custom gas factor available for your Cartridge calibrated for compressed air

PRESSURE SENSOR	
Pressure sensor range	0 .. 16 barg | 0 .. 234 psi
Accuracy	100 mbar | 1.5 psi

TEMPERATURE SENSOR	
Temperature sensor range	0°C .. +50°C | 32°F .. 122°F
Accuracy	> 10 m/sec: +/- 1°C | 1.8°F < 10 m/sec: + 5°C | 9°F

MECHANICAL & ENVIRONMENTAL	
Weight	48 gram | 1.7 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 316L, NBR rubber, Glass, Epoxy, Silicon
Corrosion resistance	Highly corrosive or acid environments should be avoided
Connection type	VPSensorCartridge@

Transmitter for VPFlowScope M Thermal In-line

SENSOR INTERFACE	
VPSensorCartridge®	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

OUPUTS	
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	50 x 108 x 36 mm | 1.97 x 4.25 x 1.42 inch
Weight	Model S01: 179 gram | 6.3 ounces Model S03: 194 gram | 6.8 ounces
Material	Aluminum, anodized body with polycarbonate cover, O-ring seals NBR
Protection grade	IP53 | NEMA 5 when installed with screen facing upwards

ELECTRICAL	
Model S01 with RS485	Power supply: 14* .. 24 VDC + 10% CLASS 2 (UL) Power consumption: 1 Watt (no flow) 3.5 Watt (full flow) +/- 10%
Model S03 with PoE	Power supply: PoE in accordance with IEEE P802.3af Power consumption: 1.5 watt (no flow), 4 watt (full flow)
CE	EN 60950-1, EN 61326-1, EN 61000-3-2, EN 61000-3-3, EN 61326-1
UL	UL 508

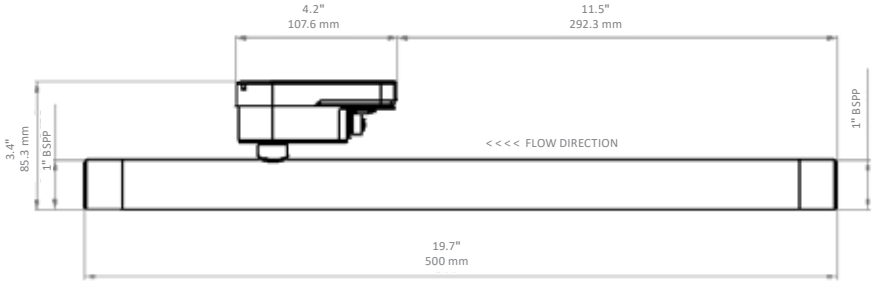
* 14 Volt should be available at the input terminal under all flow conditions and all environmental conditions. Cable resistance and power supply impedance, which are temperature dependent, will cause permanent and transient voltage drops. These voltage drops have to be taken into account when designing and implementing the electrical installation. The VPFlowScope M continuously monitors available input voltage and will automatically turn into power save mode when the supply voltage drops below 11.8 Volt. For maximum power reliability under all circumstances, we recommend to use 24 VDC.

Specifications Tubing

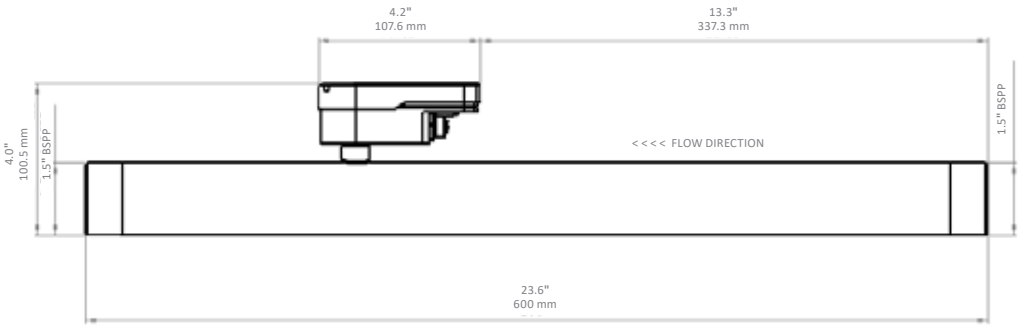
DIMENSIONS & WEIGHT TUBING		
1 inch	500 mm x 1" BSPP | 19.7" x 2" BSPP	1.24 Kg | 43.74 ounces
1.5 inch	600 mm x 1.5" BSPP | 23.6" x 2" BSPP	2.17 Kg | 76.54 ounces
2 inch	750 mm x 2" BSPP | 29.6" x 2" BSPP	3.71 Kg | 130.87 ounces

Technical drawings

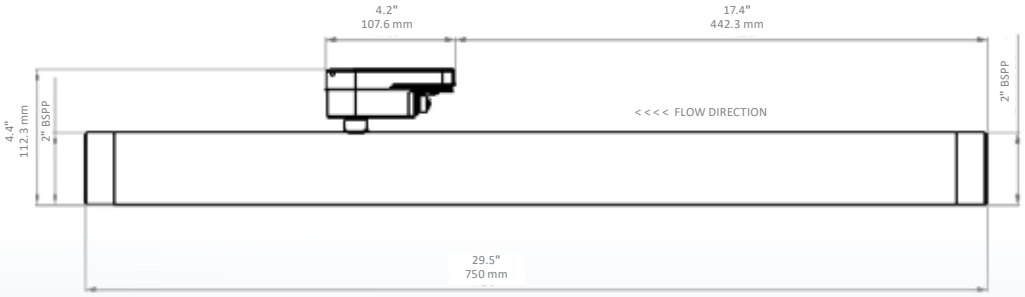
Size 1"



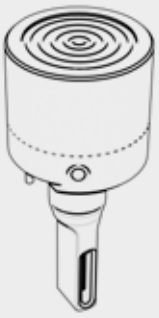
Size 1,5"



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
	**Cartridge 1 to 2" for flow, pressure, temperature, 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.	VPM.R120.PC01.PN16

Tubing

With Quick Connect

DESCRIPTION		ORDER CODE
	VPFlowScope M Thermal In-line tubing 1" BSP	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		
	**Transmitter VPM Thermal In-line without display, with Modbus** No display Transmitter with Modbus (RS485), 4..20mA/Pulse/ Alarm output.	VPM.T012.D000.S01
	**Transmitter VPM Thermal In-line with display and Modbus** Display Transmitter with Modbus (RS485), 4..20mA/Pulse/Alarm output.	VPM.T012.D010.S01
	**Transmitter VPM Thermal In-line with display, datalogger, Modbus** Display+Datalogger Transmitter with Modbus (RS485), 4..20mA/Pulse/ Alarm output.	VPM.T012.D011.S01
	**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.	VPA.5000.005
	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.	VPA.5000.010
	**Power supply adapter with 5 pin connector** Universal AC/DC adapter, 110..240 VAC to 24 VDC power supply with M12 5 pin connector	VPA.0000.200

DESCRIPTION		ORDER CODE
Transmitter (S03) with output PoE (Modbus TCP), and cable options		
	**Transmitter VPM Thermal In-line without display, with PoE** No display Transmitter with Power over Ethernet (Modbus TCP).	VPM.T012.D000.S03
	**Transmitter VPM Thermal In-line with display and PoE** Display Transmitter with Power over Ethernet (Modbus TCP).	VPM.T012.D010.S03

DESCRIPTION		ORDER CODE
Transmitter (S03) with output PoE (Modbus TCP), and cable options		
	**Transmitter VPM Thermal In-line with display, datalogger, PoE** Display+Datalogger Transmitter with Power over Ethernet (Modbus TCP).	VPM.T012.D011.S03
	**Ethernet Cable 5m/16.4ft. for Modbus TCP communication** M12 4-pins on one side, RJ45 connector on other side	VPA.5004.0005
	**PoE injector powers a flow meter and provides a non-PoE output** For Ethernet connections with RJ45 connectors. It provides power to one flow meter and a separate non-PoE Ethernet output for the network. Includes an integrated power supply with 100–240 V input, 1 A, 30 W.	VPA.0000.160

OTHER		ORDER CODE
	**Explorer case for VPFlowScope M Thermal In-line & Probe** Can include: VPM In-line Cartridge, Transmitter & 1'' tube; Thermal P220 and/or P350 Cartridge + Transmitter	VPA.5014.004
	Special gas calibration for In-line flow meters Other gases then HE calibration (Including calibration certificate).	VPA.0001.915
	Helium gas calibration for In-line flow meters (including calibration certificate)	VPA.0001.912
	**Extra costs for additional special gas calibration additional units,** when processed in the same order for the same gas (including calibration certificate).	VPA.0001.913
	Gas correction factor for VPFlowScope M flow meters Up to 3 gas types can be pre-set in the flowmeter during production. Specify your gas type(s) when ordering.	VPA.0001.087*

* Options are argon, CO_2, corgon/protegon 18%. Other options please consult our sales team.
Option is not available in combination with a gas calibration.

About VPInstruments

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.

VPInstruments 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 VPVision 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™

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Order today!

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