VP INSTRUMENTS

VPFLOWSCOPE M

| Your next step in gas flow measurement

The internet of Things / industry 4.0 is rapidly transforming our world. Production becomes smart, intelligent and autonomous. Production lines will make their own decisions and human intervention will only be needed when things go wrong.

VPFLOWSCOPE M

- √ Three in one flow meter
- √ For compressed air and technical gases
- √ Patented VPSensorCartridge®: no more recalibration required
- √ Ethernet interface: Industry 4.0/ IOT ready
- √ Ultra compact size and low weight

The next step in flow measurement

The VPFlowScope M is a three in one flow meter for compressed air and technical gases. It measures flow, pressure and temperature simultaneously. With the introduction of the VPFlowScope M, re-calibration becomes history.

Unlike traditional flow meters, the VPFlowScope M does not require traditional re-calibration, where you have to ship the unit back. Instead, the VPFlowScope M consists of a transmitter and the patented VPSensorCartridge® which reduces re-calibration to a simple exchange.

Features and benefits:

- › Three in one: flow, pressure and temperature simultaneously
- › Wide measurement range (1:300)
- › 2% reading accuracy on flow
- › Optional direction measurement
- › Ultra compact size and low weight

Industry 4.0 ready

With its standard internal Ethernet interface, the VPFlowScope M will connect directly to your network and forms seamlessly one of the cornerstones of any real-time energy management platform. But it is also compatible to the traditional world, thanks to the standard 4 … 20mA signals and RS485 interface.

Features:

- Ethernet (Modbus/ TCP)
- RS485 (Modbus RTU)
- 4 … 20 mA linearized, pulse mode or alarm output
- USB interface for configuration and downloading of data log files
- Optional TFT color display
- Optional Data logger with more than 6 months @ 1 second interval + cyclic recording

One transmitter. Many possibilities

Thanks to the versatile IO, the VPFlowScope M transmitter can be connected to both the traditional 4 … 20 mA, RS485 Modbus RTU, and modern Ethernet based systems. The transmitter is available in three versions.

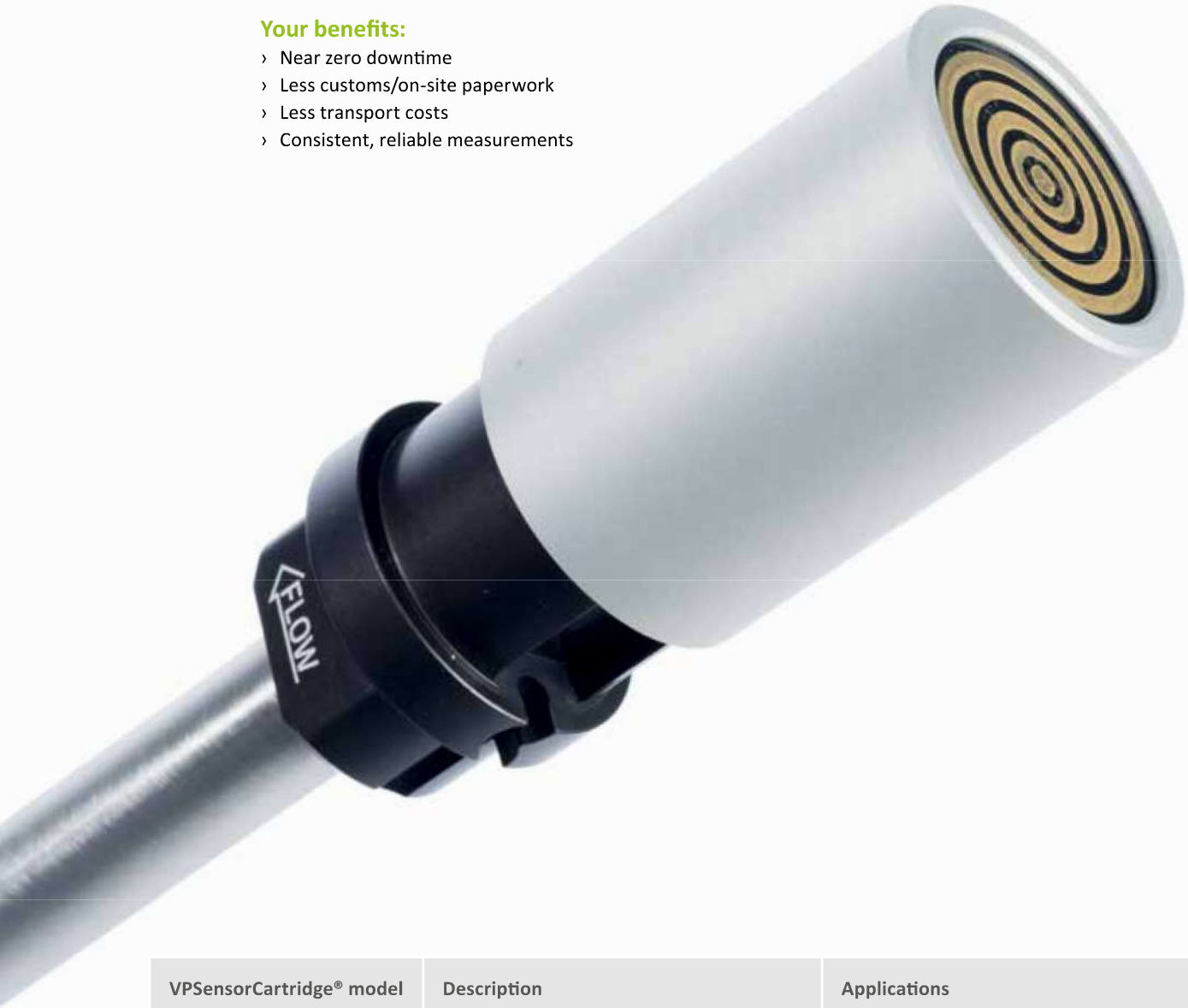
Transmitter model	Ethernet	RS485	4 … 20 Pulse Alarm	Color Display	Data logger	Application
VPM.T001.D000	●	●	●			VPVision, BMS, remote monitoring
VPM.T001.D010	●	●	●	●		Remote monitoring and local readout
VPM.T001.D011	●	●	●	●	●	Audits

No more recalibration

With the patented VPSensorCartridge® concept, traditional re-calibration is something of the past. From now on, you simply exchange the VPSensorCartridge®, and continue your measurements with nearly zero downtime.

Your benefits:

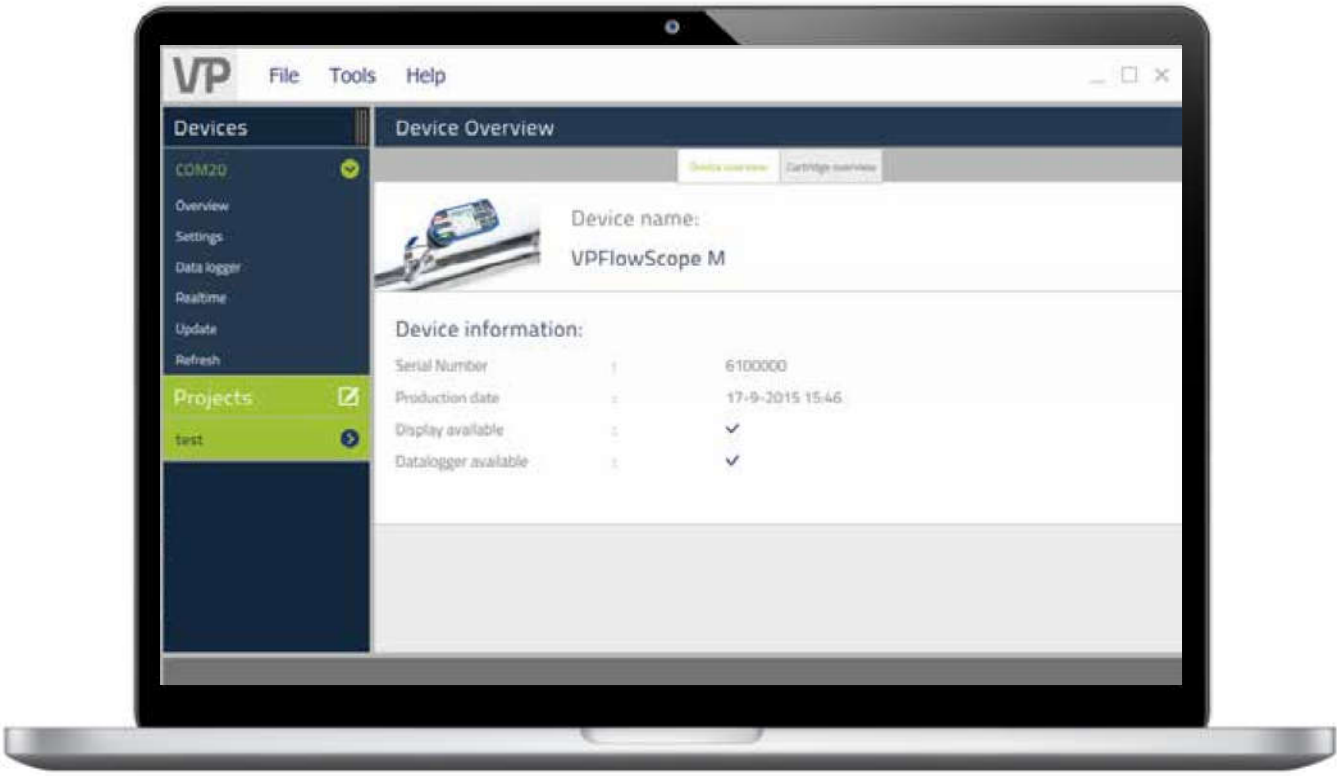
- Near zero downtime
- Less customs/on-site paperwork
- Less transport costs
- Consistent, reliable measurements



VPSensorCartridge® model	Description	Applications
VPM.R150.P350.PN10	Thermabridge™ thermal sensor: Flow, Pressure, Temperature, calibration report.	Leakage management, demand and supply side flow measurement, general purpose flow measurement.
VPM.B150.P351.PN10	Thermabridge™ thermal mass sensor: **bi-directional** flow, Pressure, Temperature, calibration report.	Audits, internal billing and cost allocation, ring networks, multi plant compressor installations, shared compressor facilities.

Measure more in less time

VPStudio 2.0 takes flow measurement to the next level. Install and configure your flow meter in less time, thanks to the intuitive interface and the advanced data processing. Simply connect your flow meter and get the job done. You can use VPStudio 2.0 for configuration, readout (real time) and processing of data log sessions.



Features and benefits

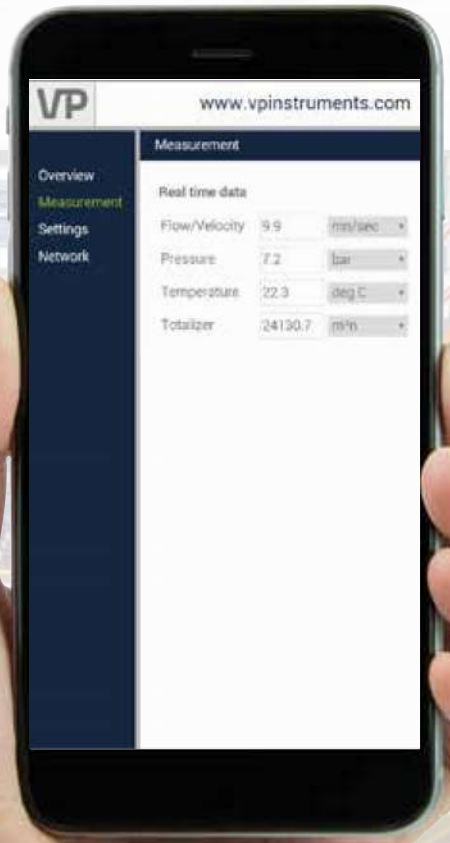
- Fully intuitive interface
- Auto device detection
- For VPFlowScope M® and VPFlowScope®
- Project module
- CSV and XLSX data export

Built in webserver

When the VPFlowScope M is connected to your Ethernet network, you can use your tablet or smartphone to access the built-in Webserver. Features of the webserver are:

Features and benefits

- Real time data view
- Diameter configuration
- Modbus RTU and Ethernet configuration
- Analog, pulse, alarm configuration



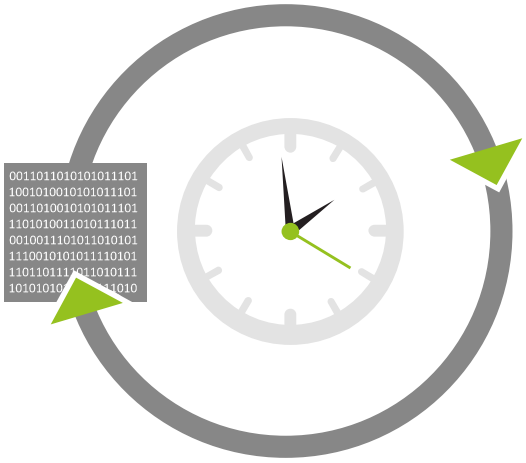
Limitless data logging

The optional data logger is the biggest and most flexible integrated data logger you will find on the market today. It can store multiple log sessions, in total over 6 months of flow, pressure, temperature and totalizer data at a resolution of 1 x per second. But that's not all. The new cyclic logging mode makes your data logger a limitless 'black box'. It will run forever. Just enable cyclic logging mode, and you are done!

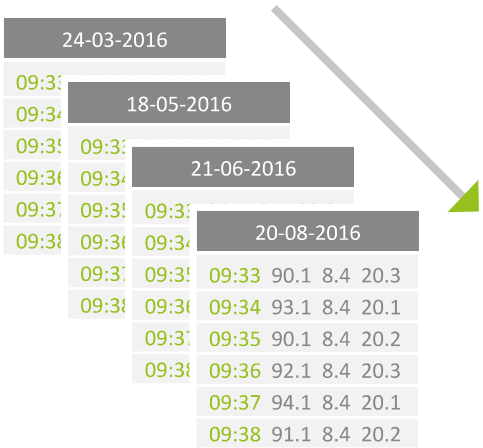
Features and benefits

- More than 6 months @ 1x per second memory capacity
- Optimized data structure enables fast downloading
- Multi-session logging
- Cyclic mode for permanent logging of data
- Project based data filing in VPStudio 2.0

Cyclic logging mode



Multi session mode

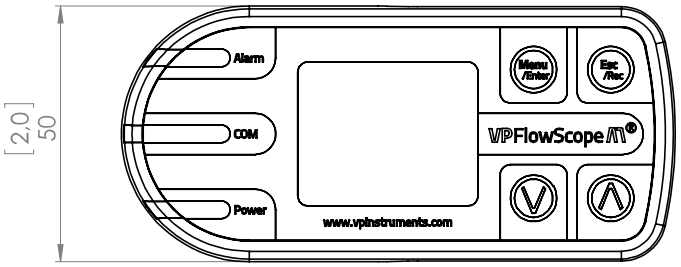


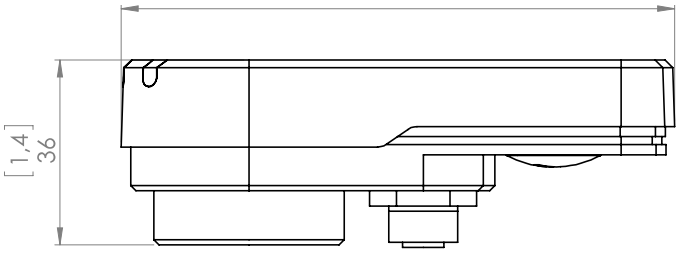
Specifications – Transmitter

VPM.T001.D000 VPM.T001.D010 VPM.T001.D011

Sensor interface	
VPSensorCartridge®	Proprietary interface, rotational 360 degrees
Display	
Display type (D010 and D011)	1,8" TFT color with auto power save
LED status (All models)	LED indicators on all models for power, fault and communication
Data logger (D011 only)	
Memory	6 months @ 1 x per second logging interval for all parameters
Logging mode	Cyclic and traditional start/stop
Ouputs	
RS485	Modbus RTU
Analog / digital output	4 ... 20 mA output or pulse or alarm. Software selectable.
USB	Mini USB, behind sealed cap (for configuration)
Ethernet	Modbus / TCP and built in webserver
Mechanical & Environmental	
Dimensions	50 x 108 x 36 mm | 1.97 x 4.25 x 1.42 inch
Weight	220 grams | 7.76 ounces
Material	Aluminum, anodized body with polycarbonate cover
O-ring seals	NBR
Protection grade	IP65 | NEMA 4 when mated to VPSensorCartridge®
Electrical	
Power supply	12 VDC(1) ... 24 VDC +10% CLASS 2 (UL) .
Power / RS485 / 4 ... 20 mA	M12, 5 pin
Ethernet	M12, 4 pin d-coded
Power consumption	1 Watt (no flow) 3.5 Watt (full flow) +/- 10% Varies per VPSensorCartridge® type and transmitter type
CE	EN 60950-1, EN 61326-1, EN 61000-3-2, EN 61000-3-3, EN 61326-1
UL	UL 508

(1) 12 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.

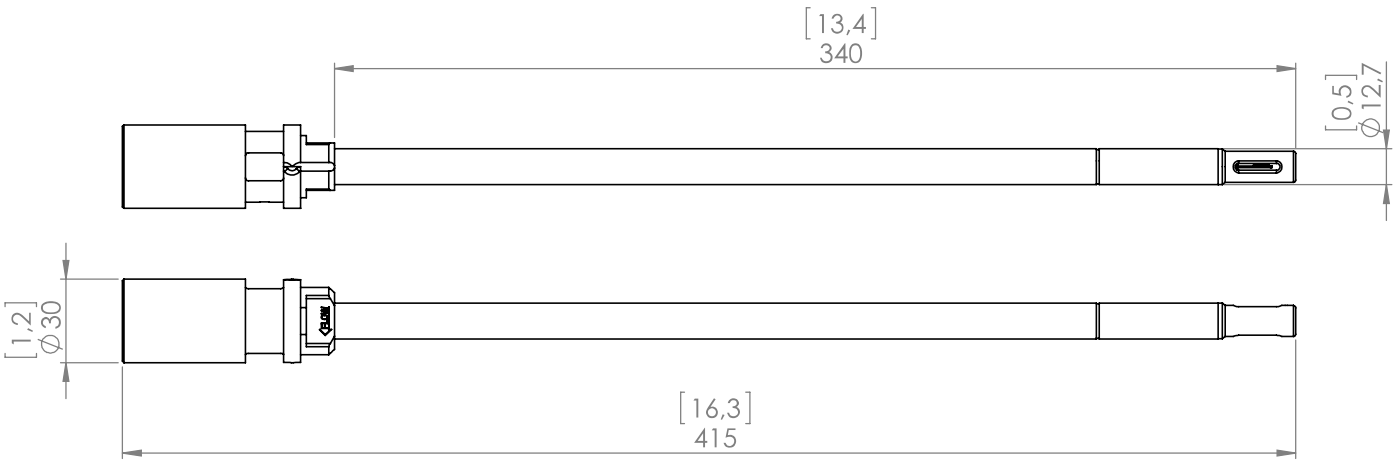




Specifications – VPSensorCartridge®

VPM.R150.350.PN10 VPM.R150.351.PN10

Flow sensor	
Measuring principle	Thermabridge™ Thermal Mass Flow sensor
Flow range	0 (0.5) … 150 mn/sec | 0 … 500 sfps
Bi-directional flow	Model VPM.R150.351.PN10 only
Accuracy	2% of reading under calibration conditions; Please refer to the user manual for details. Recommended pipe diameter: 25 mm (1") and up.
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 … +60 °C | 0 … +140 °F
Pressure sensor	
Pressure sensor range	0 ... 10 bar | 0 … 145 psi gage
Accuracy	+/- 1% FSS (total error band)
	Temperature compensated
Temperature sensor	
Temperature sensor range	0 ...+60 °C | 32 ... +140 °F
Accuracy	> 10 m/sec: +/- 1 °C | 1.8 °F < 10 m/sec: + 5 °C | 1.8 °F
Mechanical & environmental	
Probe lengths	340 mm | 13.4"
Weight	200 grams | 7.05 ounces
Process connection	Compression fitting, 1/2" NPT, Tapered
Pressure rating	PN10
Protection grade	IP65 | NEMA 4 when mated to transmitter
Ambient temperature range	0 … +60 °C | 32 … 140 °F. Avoid direct sunlight or radiant heat
Wetted materials	Anodized Aluminum, Stainless steel 316, Glass, Epoxy
Corrosion resistance	Highly corrosive or acid environments should be avoided
Electrical	
Connection type	VPSensorCartridge® proprietary
Power consumption	See transmitter specifications for combined power consumption
CE	See transmitter
UL	See transmitter



Accessories

Complete your VPFlowScope M with the following accessories and spare parts.

› VPA.0000.200	Power supply adapter 12V	90 ... 240 VAC to 12 Volt DC, with 5 pin M12 connector
› VPA.5003.010	Mini USB cable	For use with VPStudio software
› VPA.5000.005	Cable 5m/16.4ft. with 5 pin M12 on one side	Shielded cable, unstripped wires at the other side
› VPA.5000.010	Cable 10m/32.8ft. with 5 pin M12 on one side	Shielded cable, unstripped wires at the other side
› VPA.5030.020	Modbus junction box (IP65)	For connecting multiple sensors in a Modbus RS485 network
› VPA.5004.0005	Ethernet cable 5m/16.4ft.	With 4 pin M12 on one side and RJ45 connector on other side
› VPA.5004.0001	Compression fitting for VPFlowScope M	Compression fitting with integrated safety cable for 340 mm VPSensorCartridge®
› VPA.0001.001	Set of 5 Teflon ferrules for compression fitting	Spare part for the compression fitting
› VPA.5004.1001	VPSensorCartridge® locking ring	Spare part for the VPFlowScope M transmitter
› SFT.5003.500	VPStudio 2.0 software, free edition	For configuration and downloading data log sessions
› VPA.5014.003	Explorer® Case for VPFlowScope M	Ruggedized transport case for the VPFlowScope M
› VPM.0002.1003	VPFlowScope M Auditor Start Kit	IItems included: • Transmitter with Ethernet (Modbus/TCP), RS485 (Modbus RTU), 4 ... 20 mA | pulse | alarm output + Display + Data logger (6 months @ 1 second interval) • VPSensorCartridge®, 0 ... 150 mn/sec, 0 ... 10 bar, 0 ... 60 °C • Mini USB cable • Installation kit: Compression fitting for VPFlowScope M + integrated safety cable (separate box) • VPStudio software, • Ethernet cable 5m/16.4ft., with 4 pin M12 on one side and RJ45 connector on other side • Explorer® transport case

EASY INSIGHT IN ENERGY FLOWS®

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