2500

VP INSTRUMENTS

PRODUCT GUIDE

energy insights trusted by professionals™

VPINSTRUMENTS.COM

Index

ICONS EXPLAINED

DRY AIR

SATURATED AND HOT AIR

PIPE DIAMETER ≤ 2”

PIPE DIAMETER > 2”

PIPE DIAMETER ≈ 3/8”

4..20 MA

PULSE

ETHERNET

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DIRT RESISTANT

GAS CORRECTION

PRESSURE UPGRADE 35 BAR

About VPInstruments

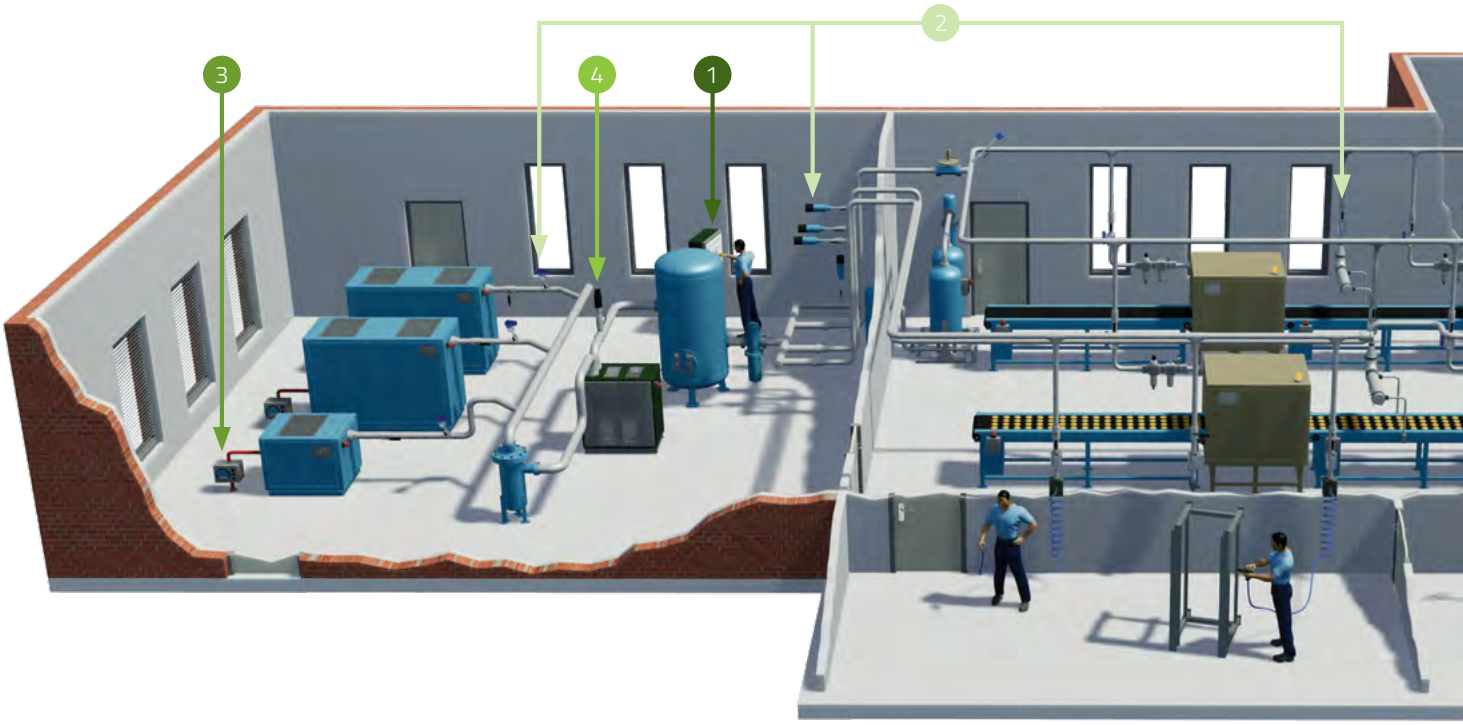
energy insights trusted by professionals™

VPInstruments delivers Energy Management Solutions for compressed air and industrial gases, including oxygen, nitrogen, CO_2, helium, and argon. Developed by experienced, involved experts, based in Delft, the Netherlands.

We believe that industrial energy monitoring should be easy and effortless to enable insight, savings and optimization. We show you where, when and how much you can save using our innovative and reliable products. Our solutions cover both the supply and demand side. We promise fast, reliable and easy to use products. How? We determine the entire process from design to realization and we control the entire production and calibration process.

ENERGY MANAGEMENT

For compressed air, oxygen, nitrogen, CO_2, helium, argon, and other industrial gases



Applications

- Compressed air audits
- Energy monitoring
- Leakage management
- Efficiency monitoring
- Cost allocation
- Maintenance management

Benefits

- From supply to demand side
- Easy-to-use
- Innovative and reliable
- Versatile interfacing

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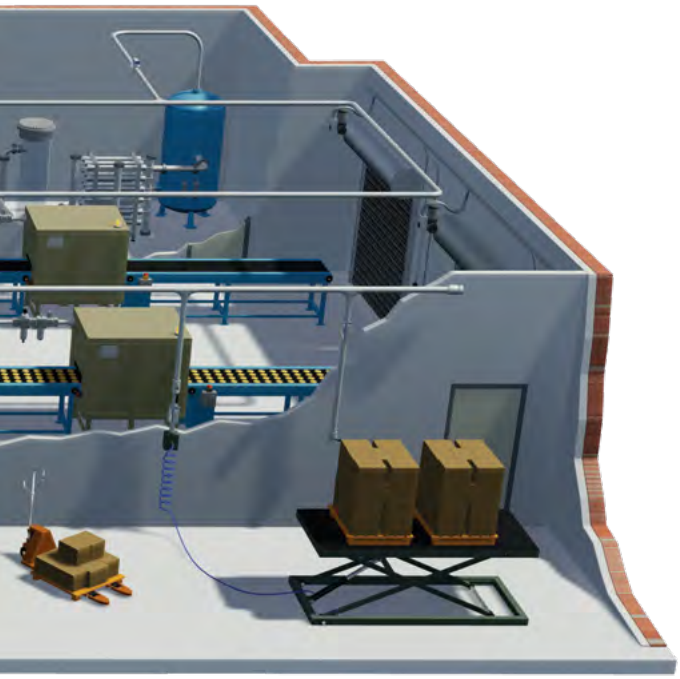
SOLUTIONS



1 Monitoring

Easy and effortless to enable insight, savings and optimization. Real-time energy monitoring for all your utilities. On-premise data storage with a web-based interface, automated reports with e-mail function and alarm messages. Flexible and scalable.

2 VPFlowScope 4-in-1 flow meters

For dry and saturated air, from supply side to demand side. 4-in-1 sensors: bi-directional flow, pressure, temperature, totalizer. Solutions for air audits and for permanent installation. Measure compressed air and industrial gases.

3 Power and current sensors

Reveal your true energy consumption. Monitor the performance of compressors, dryers, vacuum pumps, and more. We offer both easy-to-use current sensors as 3 phase power meters for high accuracy measurements.

Leak detectors

Stop losing money to invisible air leaks. The VP Leak Detector is a cost-effective ultrasonic inspection tool designed to make leak detection easy and accessible. Detects compressed air, industrial gases and vacuum.

4 Dew point sensors

Avoid costly maintenance and production downtime by monitoring your dew point. And ensure compliance with tightening air quality regulations. Our sensors cover a wide dew point range: -100°C to +60°C.

Hot tap drill

Drill installation points for your insertion flow meters under pressurized conditions with VPInstruments hot tap drill.

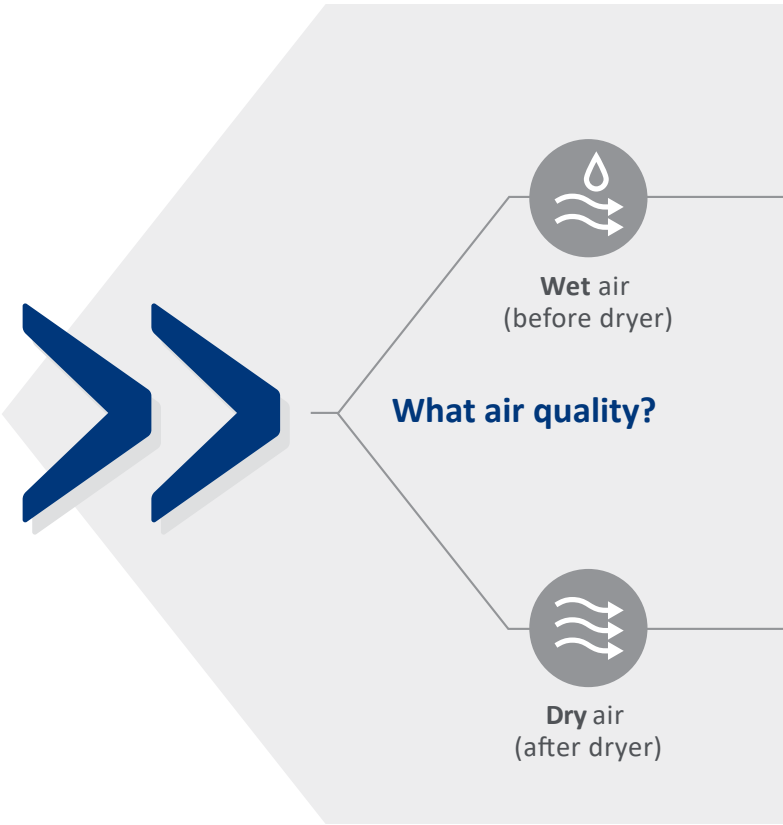
VPFlowScope flow meters for compressed air and industrial gases

We designed our flow meters to be easy to use, affordable and complete. You can use our flow meters for measurement of compressed air, nitrogen, oxygen, helium, argon and other industrial gases.
The VPFlowScopes incorporate the 4-in-1 measurement principle: flow, pressure, temperature and total flow. Moreover, these flow meters can measure bi-directional flow, which is optional on our thermal mass flow meters with our proprietary Thermabridge sensors, and standard on our differential pressure flow meters.
The VPFlowScope In-line 3/8" is a simpler device, which measures flow, temperature and total flow of compressed air and oxygen.

Let's start

by selecting a flow meter!

For the complete VPFlowScope selection tool, please go to www.vpinstruments.com



VPFlowScope DP

The patented VPFlowScope® DP enables you to take measurements in the discharge pipe of a compressor under 100% saturated conditions. Combine the VPFlowScope DP with a power meter and measure compressor efficiency.

VPFlowScope M Thermal Probe

The VPFlowScope® M Thermal Probe is the next step in gas measurement. Unlike traditional flow meters, the VPFlowScope M consists of a Transmitter and the patented VPSensorCartridge® which reduces recalibration to a simple exchange.

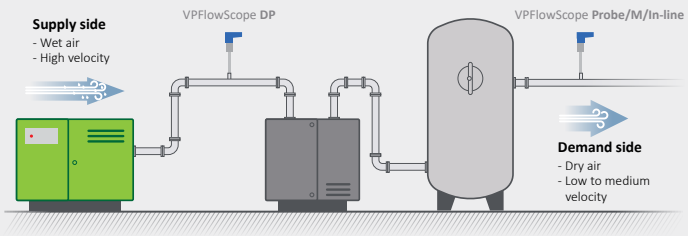
VPFlowScope Probe

The VPFlowScope® Probe is the measurement tool for dry compressed air and other technical gases like nitrogen, carbon dioxide and argon.
The VPFlowScope Probe measures thermal mass flow, pressure, temperature and total flow simultaneously.

VPFlowScope (M) In-line

VPFlowScope® (M) In-line is the ideal flow meter for point of use consumption measurement. It is perfect for smaller diameters where it produces all the data you need to optimize your compressed air consumption.

VPFlowScope



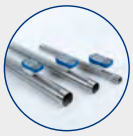
What pipe diameter?

Ø ≤2″


DP


In-line


M Thermal Probe P220


M Thermal In-line

Ø >2″


Probe


M Thermal Probe P350

VPFlowScope DP

The ultimate tool for saturated and hot compressed air measurement

OPTIONAL

The patented VPFlowScope® DP is the ultimate measurement tool for saturated compressed air flow measurements. This differential pressure flow sensor measures bi-directional flow, pressure, temperature and total flow simultaneously. Its unique design enables you to take measurements in the discharge pipe of any compressor under 100% saturated conditions. With the VPFlowScope DP you can measure the performance or efficiency of your compressor. Furthermore, you can measure compressor contribution of the total compressed air supply.

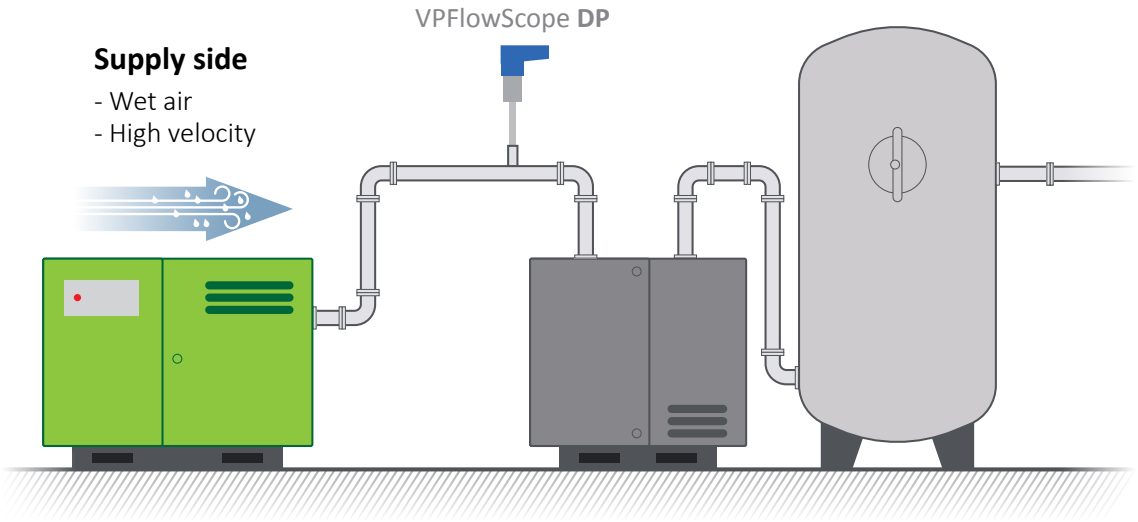
The VPFlowScope DP is an insertion type flow meter, so you can use one device for various pipe diameters. The bright blue LCD display provides real-time information and with the built-in data logger, you can record for certain periods of time. Combine this with our VPStudio software on your PC and you can use this information to process data, print reports and analyze where and how exactly you can save.

Highlights

- For saturated compressed air measurements, can handle droplets of condensate
- 4-in-1 sensor: Bi-directional flow, pressure, temperature and total flow
- Differential pressure flow measurement
- Standard RS485 (Modbus RTU), 4..20mA and pulse output
- 3-line display (optional) with real-time information and configuration keys
- Built-in data logger with 2 million points (optional)

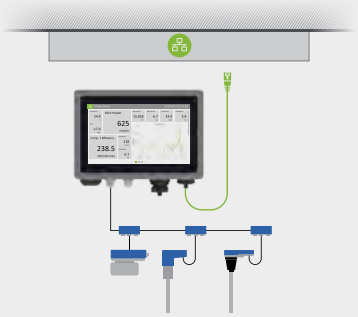
Applications

- Supply side audits
- Compressor performance measurement
- Compressor efficiency monitoring (in combination with power measurement)
- High velocities (up to 200 m_n/sec | 650 sfps)
- High temperatures (up to 150°C | 302°F)
- Demand side flow measurement when dryers are not in use
- Input/ output monitoring of desiccant dryers/air treatment equipment



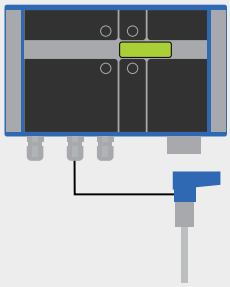
Installation examples

1. RS485 (Modbus RTU) connection to Energy Management System or PLC

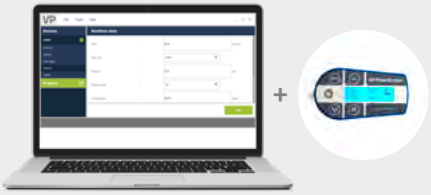


VPVision or other Energy Management System/Modbus TCP converter

2. Connected to local wall mount display



3. Mobile use with build-in datalogger



Connection with VPStudio

RS485 (Modbus RTU)
JB5 interface set

VPS.R200.P4DP.x flow range table

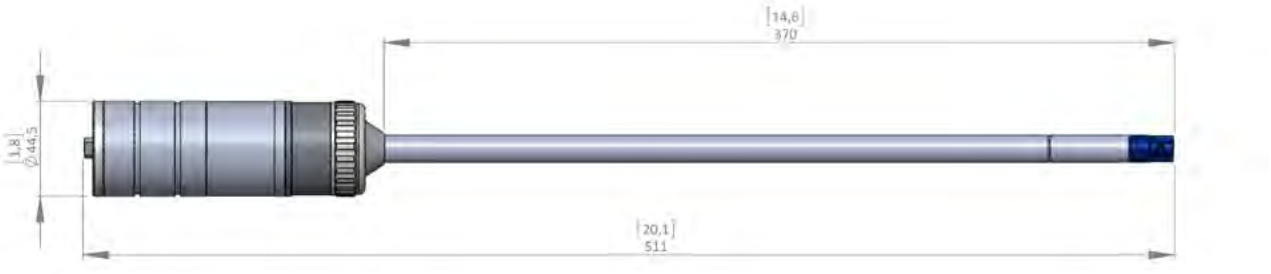
SCHEDULE 40 STANDARD SEAMLESS CARBON STEEL PIPE							
Size (inch)	DN	ID (inch)	ID (mm)	Min flow (scfm)	Max flow (scfm)	Min flow (m^3_n/hr)	Max flow (m^3_n/hr)
2	50	2.1	52.5	92	917	156	1559
3	80	3.1	77.9	202	2020	343	3432
4	100	4.0	102.3	348	3483	592	5918
6	150	6.1	154.1	790	7904	1343	13429
8	200	8.0	202.7	1368	13675	2323	23234
10	250	10.2	259.1	2234	22344	3796	37963
12	300	11.9	303.2	3060	30597	5199	51985
16	400	15.0	381.0	4831	48314	8209	82087
20	500	18.8	477.8	7598	75983	12910	129097

The ranges only apply to compressed air, oxygen and nitrogen. Contact us for other gases. The field accuracy of an insertion probe is typically +/- 5% due to installation conditions.

Specifications

FLOW SENSOR	
Measuring principle	Differential pressure
Flow range	20 .. 200 m_n/sec | 65 .. 650 sfps Bi-directional measurement (standard)
Accuracy	2% of reading over 1:10 range, under calibration conditions: please refer to the user manual for details. Recommended pipe diameter: 50 mm (2 inch) and up.
Reference conditions	0 °C, 1013.25 mbar 32 °F, 14.65 psi - DIN 1343
Gases	Wet* and dry compressed air, nitrogen and inert gases
PRESSURE SENSOR	
Pressure sensor range, standard	0 .. 16 bar | 0 .. 250 psi gage
Accuracy	+/- 3% full scale (-45 .. 125 °C | -49 .. 257 °F)
TEMPERATURE SENSOR	
Temperature sensor range	-40 .. 150 °C | -40 .. 302 °F. Icing should be avoided
Accuracy	+/- 1 °C | 1.8 °F
DATA OUTPUTS	
Digital	RS485, MODBUS RTU protocol
Analog	4 .. 20 mA single analog / pulse output, selectable via VPStudio software
DISPLAY/DATA LOGGER	
Technology	Liquid Crystal (LCD)
Back light	Blue, with auto power save
Data logger	2 million points memory
MECHANICAL & ENVIRONMENTAL	
Probe lengths	386 mm | 15”
Process connection	Compression fitting, 0.5” NPT thread
Pressure rating	PN16
Protection grade	IP52 | NEMA 12 when mated to display module, avoid upside down installation IP63 | NEMA 4 when mated to connector cap, avoid upside down installation
Ambient temperature range	0 .. 60 °C | 32 .. 140 °F. Avoid direct sunlight or radiant heat
Wetted materials	Anodized aluminum, stainless steel 316, glass and epoxy
Corrosion resistance	Highly corrosive or acid environments should be avoided
ELECTRICAL	
Connection type	M12, 5-pin connector, female
Power supply	12 .. 24 VDC +/- 10 % Class 2 (UL)
Power consumption	3.6 Watt +/- 10% 150 mA +/- 10% @24VDC, constant over the entire flow range
UL/ CUL	14 AZ, Industrial Control Equipment
CE	EN 61325-1 (2006), Class AEN 61000-6-1 (2007)

*Note: The VPFlowScope DP is a flow meter for compressed air measurements, NOT for water measurements. Water drops are allowed. Excessive oil & water carryover conditions should be avoided.



Order codes

VPFlowScope DP

Our VPFlowScope DP products will be supplied with bi-directional measurement, ISO calibration report, DP service set of 10 filters and 10 o-rings, and compression fitting with integrated safety cable.

DESCRIPTION	ORDER CODE	
 **VPFlowScope DP probe 400mm/15.4" with display no datalogger**	VPS.R200.P4DP	.D10
VPFlowScope DP probe 400mm/15.4" with display and datalogger	VPS.R200.P4DP	.D11
 **VPFlowScope DP probe 400mm/15.4"**	VPS.R200.P4DP	.D0
 **VPFlowScope DP probe 400mm/15.4" with connector cap** For Modbus networks.	VPS.R200.P4DP	.D2

Start sets

Includes VPFlowScope DP probe 400mm/15.4", display with datalogger (2m datapoints), JB5 interface set, RS485 to USB cable, 24V power supply, compression fitting with integrated safety cable, DP service set of 10 filters and 10 o-rings, documentation and ISO calibration report.

DESCRIPTION	ORDER CODE	
 **VPFlowScope DP set in a carry case** Including rugged explorer case with pre-cut foam.	VPS.R200.P4DP	.SET
VPFlowScope DP set in a box Items only, no carry case	VPS.R200.P4DP	.BOX
 **VPFlowTerminal with DP probe 400mm/15.4" combination set** Including 10m cable, 8 pin M12 connector cap and mini USB cable.	VPS.R200.P4DP	.VPT.SET

Accessories

When you are installing multiple products, please see the additional accessories on page 53.

DESCRIPTION	ORDER CODE
 **VPFlowScope display with datalogger**	VPS.D110.000
VPFlowScope display without datalogger	VPS.D100.000
 **VPFlowScope connector cap with 5 pin M12 connector**	VPA.5001.900
 **Cable 5m/16.4 ft. with 5 pin M12 on one side** The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output. For permanent connection.	VPA.5000.005
Cable 10m/32.8 ft. with 5 pin M12 on one side The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output. For permanent connection.	VPA.5000.010
 **5-pin M12 MALE connector (connector with screw terminal)** Without cable. (No IP/NEMA rating). Used for flow meter connection or to female connector of extension cable.	VPA.5000.000
5-pin M12 FEMALE connector (connector with screw terminal) Without cable. (No IP/NEMA rating). To create extension cable and connect to male connector.	VPA.5000.001
 **VPFlowScope JB5 interface SET incl. USB to RS485 converter and power supply for JB5** For connecting your VPFlowScope to VPStudio.	VPA.5001.205
 **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
 **Power supply module in IP65 enclosure (230-110VAC to 24VDC)** For permanent installation. This power supply module can power max 2 VPFlowScopes.	VPA.0030.100
 **Modbus junction box (IP65)** For easy connection of multiple flow meters in a daisy chain.	VPA.5030.020
 **Explorer case for 2x VPFlowScope probe 400mm/15.4"** With pre-cut foam inside.	VPA.5014.000
 **VPFlowScope DP service set** Set of 10 membrane filters and 10 o-rings. Replacement part including tweezers (for VPFlowScope DP probes starting from Serial no. 5103651).	VPA.5100.004
 **VPFlowScope DP set of 24 membrane filters and 24 o-rings** Replacement part including tweezers *(for VPFlowScope DP probes up to Serial no. 5103650).*	VPA.5100.003
 **Adjustable safety cable with integrated compression fitting for VPFlowScope DP probe**	VPA.0003.006
 **Compression fitting 0,5" NPT for old style safety cable**	VPA.0001.000
 **Set of 5 Teflon ferrules for compression fitting** Spare part for VPA.0001.000 & VPA.0001.004.	VPA.0001.001

VPFlowScope M Thermal Probe

Your next step in gas flow measurement

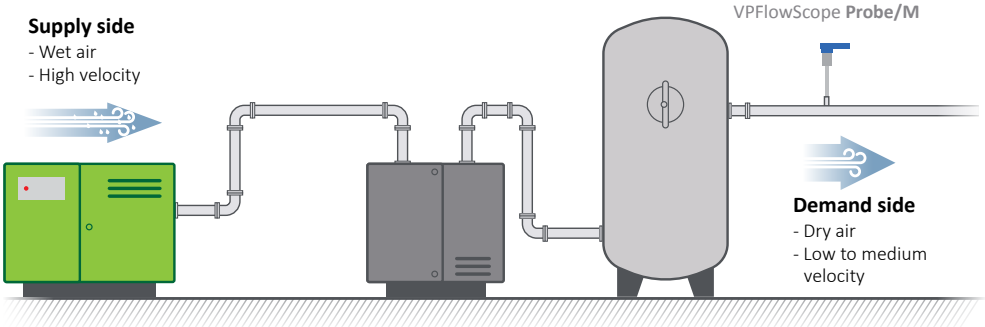
The VPFlowScope M Thermal Probe is a four-in-one insertion flow meter for compressed air and technical gases. It can be installed under pressure and measures thermal mass flow, pressure, temperature and total flow simultaneously. With the introduction of the VPFlowScope M, recalibration becomes history. Unlike traditional flow meters, the VPFlowScope M does not require traditional recalibration, where you have to ship the unit back. Instead, the VPFlowScope M consists of a Transmitter and the patented VPSensorCartridge® which reduces recalibration to a simple exchange.

Highlights

- 4-in-1 sensor: flow, pressure, temperature and totalized flow
- Patented Thermabridge™ technology
- Standard Ethernet (Modbus/TCP), RS485 (Modbus RTU), 4..20mA and pulse output
- Optional display with real-time information and configuration keys
- Optional data logger with 1-year automated retention policy
- Bi-directional flow measurements (optional)
- For dry, clean gas measurements
- Patented VPSensorCartridge®: no more recalibration required

Applications

- Demand side compressed air monitoring
- Air audits
- Submetering of compressed air
- Ring networks (bi-directional)
- Industrial gas monitoring (air, nitrogen, carbon dioxide, argon and other dry, noncorrosive industrial gases)
- Cost allocation
- Leak detection



VPM.R150.P35X flow range table

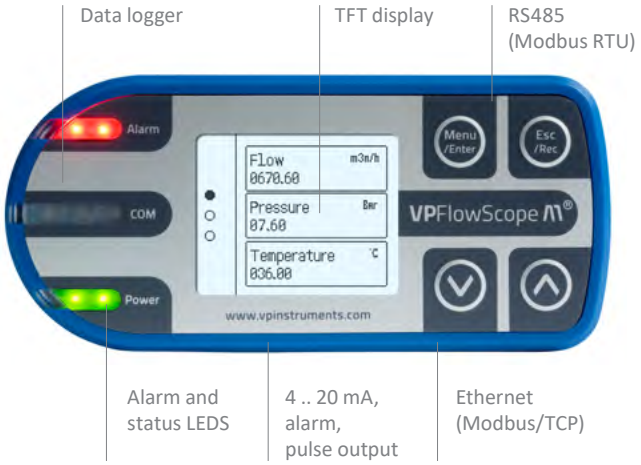
SCHEDULE 40 STANDARD SEAMLESS CARBON STEEL PIPE									
Size (inch)	DN	P220	P350	ID (inch)	ID (mm)	Min flow (scfm)	Max flow (scfm)	Min flow (m^3_n/hr)	Max flow (m^3_n/hr)
1	25			1.0	26.6	1	177	1	301
1.25	32			1.4	34.5	1	298	2	506
1.5	40			1.6	40.9	1	417	2	709
2	50			2.1	52.5	2	688	4	1,169
2.5	65			2.5	62.7	3	982	6	1,668
3	80			3.1	77.9	5	1,516	9	2,576
4	100			4.0	102.3	9	2,61	15	4,435
6	150			6.1	154.1	20	5,924	34	10,065
8	200			8.0	202.7	34	10,259	58	17,429
10	250			10.2	259.1	56	16,756	95	28,468
12	300			11.9	303.2	77	22,953	130	38,995
16	400			15.0	381.0	121	36,237	205	61,565
20	500			18.8	477.8	190	56,996	323	96,832
24	600			22.6	574.6	275	82,435	467	140,052

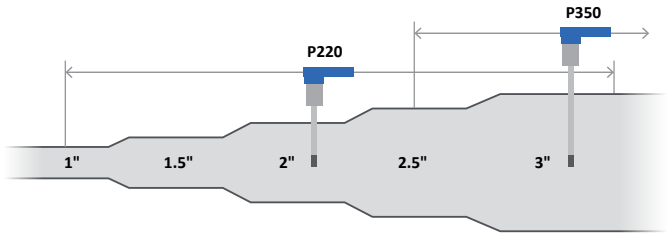
SCHEDULE 10 STANDARD SEAMLESS CARBON STEEL PIPE					
ID (inch)	ID (mm)	Min flow (scfm)	Max flow (scfm)	Min flow (m^3_n/hr)	Max flow (m^3_n/hr)
1.1	27.9	1	194	1	329
1.4	36.4	1	330	2	561
1.7	42.7	2	456	3	774
2.2	54.8	2	749	4	1,273
2.6	66.9	4	1,118	6	1,9
3.3	82.8	6	1,712	10	2,908
4.3	108.2	10	2,923	17	4,966
6.4	161.5	22	6,508	37	11,057
8.3	211.6	37	11,173	63	18,982
10.4	264.7	58	17,487	99	29,709
12.4	314.7	82	24,724	140	42,004
15.6	396.8	131	39,315	223	66,794
19.6	496.9	205	61,643	349	104,729
23.5	596.9	296	88,942	504	151,108

The ranges only apply to compressed air, oxygen and nitrogen. Contact us for other gases. The field accuracy of an insertion probe is typically +/- 5% due to installation conditions.

Transmitter models

TRANSMITTER MODEL	ETHERNET	RS485	4 .. 20 ALARM PULSE	DISPLAY	DATA LOGGER	APPLICATION
VPM.T001.D000	•	•	•			VPVision, BMS, remote monitoring
VPM.T001.D010	•	•	•	•		Remote monitoring and local read-out
VPM.T001.D011	•	•	•	•	•	Audits





Available in two sizes

The VPFlowScope M is available in two sizes, the P350 and P220, designed to accommodate different pipe diameters. The P220 is ideal for pipes ranging from 1” to 3” in diameter, while the P350 supports a broader range, up to 18”*. Both sizes maintain high accuracy and reliability, making the VPFlowScope M a versatile solution for compressed air and technical gas flow measurements.

* The P350 is suited for larger diameters, though this may impact accuracy.

Specifications – Transmitter

SENSOR INTERFACE	
VPSensorCartridge®	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	
RS485	Modbus RTU
Analog / digital	Configurable: 4 .. 20mA, pulse, alarm
USB	Mini USB, behind sealed cap (for configuration)
Ethernet	Modbus / TCP

MECHANICAL & ENVIRONMENTAL	
Dimensions	50 x 108 x 36 mm | 1.97 x 4.25 x 1.42 inch
Weight	220 grams | 7.76 ounces including locking ring
Material	Aluminum, anodized body with polycarbonate cover
O-ring seals	NBR
Protection grade	IP65 | NEMA 4 when mated to VPSensorCartridge® and USB cap tightened

ELECTRICAL	
Power supply	14 .. 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 Volt. For startup, a minimum voltage of 11.9 volt is required. For maximum power reliability under all circumstances, we recommend to use 24 VDC.

Specifications – VPSensorCartridge®

FLOW SENSOR	
Measuring principle	Thermabridge™ Thermal Mass Flow sensor
Flow range	0 (0.5) .. 150 m_n/sec | 0 .. 500 sfps
Bi-directional flow	Optional, see product order codes
Accuracy	2% of reading under calibration conditions; Please refer to the user manual for details. Recommended pipe diameter: 1 .. 2.5” (VPSensorCartridge P220) and 1 .. 20” (VPSensorCartridge P350)
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 (VPSensorCartridge P350), 0 .. 16 bar | 0 .. 250 psi gage (VPSensorCartridge P220)
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 | 9 °F

MECHANICAL & ENVIRONMENTAL	
Probe lengths	340 mm | 13.4", 220 mm | 8.7”
Weight	200 grams | 7.05 ounces (VPSensorCartridge P350), 246 grams | 8.68 ounces (VPSensor Cartridge P220 including safety system)
Process connection	Compression fitting, 1/2" NPT, Tapered (VPSensorCartridge P350), O-ring sealed fitting, NBR (VPSensorCartridge P220)
Pressure rating	PN10 (VPSensorCartridge P350), PN16 (VPSensorCartridge P220)
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
ball valve	For installation of the VPSensorCartridge P220 a full bore DN15 ball valve is required. Prior to installation, please verify that the inner diameter of the ball valve is at least 15.0 mm | 0.60”. Larger ball valves can be used with a reducer.

ELECTRICAL	
Connection type	VPSensorCartridge® proprietary
Power consumption	See Transmitter specifications for combined power consumption
CE	See Transmitter
UL	See Transmitter

Order codes

Models and start set

Our VPFlowScope M products will be supplied including 5 m. cable for power, Modbus (RS485), Ethernet (Modbus/TCP), 4..20mA/Pulse/Alarm output, and mini USB cable.

		DESCRIPTION	ORDER CODE
		**VPFlowScope M auditor start set (350mm)** Includes Transmitter with display and datalogger, VPSensorCartridge bi-directional, 10-points calibration certificate, adjustable safety cable with integrated compression fitting, Ethernet cable and Explorer Case.	VPM.T001.D011.SET
		**VPFlowScope M auditor start set (220mm)** Includes Transmitter with display and datalogger, VPSensorCartridge bi-directional, 10-points calibration certificate, compression fitting with safety lock, Ethernet cable and Explorer Case.	VPM.R150.P221.D011.SET
350 length, bi-directional			
	Display + data logger	**VPFlowScope M D011 with bi-directional 350mm cartridge + cable** Display + data logger transmitter	VPM.R150.P351.D011
	Display	**VPFlowScope M D010 with bi-directional 350mm cartridge + cable** Display transmitter	VPM.R150.P351.D010
	No Display	**VPFlowScope M D000 with bi-directional 350mm cartridge + cable** No Display transmitter	VPM.R150.P351.D000
350 length, uni-directional			
	Display + data logger	**VPFlowScope M D011 with uni-directional 350mm cartridge + cable** Display + data logger transmitter	VPM.R150.P350.D011
	Display	**VPFlowScope M D010 with uni-directional 350mm cartridge + cable** Display transmitter	VPM.R150.P350.D010
	No Display	**VPFlowScope M D000 with uni-directional 350mm cartridge + cable** No display transmitter	VPM.R150.P350.D000
220 length, bi-directional			
	Display + data logger	**VPFlowScope M D011 with bi-directional 220mm cartridge + cable** Display + data logger transmitter	VPM.R150.P221.D011
	Display	**VPFlowScope M D010 with bi-directional 220mm cartridge + cable** Display transmitter	VPM.R150.P221.D010
	No Display	**VPFlowScope M D000 with bi-directional 220mm cartridge + cable** No display transmitter	VPM.R150.P221.D000
220 length, uni-directional			
	Display + data logger	**VPFlowScope M D011 with uni-directional 220mm cartridge + cable** Display + data logger transmitter	VPM.R150.P220.D011
	Display	**VPFlowScope M D010 with uni-directional 220mm cartridge + cable** Display transmitter	VPM.R150.P220.D010
	No Display	**VPFlowScope M D000 with uni-directional 220mm cartridge + cable** No display transmitter.	VPM.R150.P220.D000

Accessories and spare parts

When you are installing multiple products, please see the additional accessories on page 62.

DESCRIPTION	ORDER CODE
 **VPFlowScope M Transmitter with display and datalogger** Incl. USB, Ethernet (Modbus/TCP), RS485 (Modbus RTU), 4...20mA/pulse/alarm output, mini USB cable.	VPM.T001.D011
VPFlowScope M Transmitter with display Incl. USB, Ethernet (Modbus/TCP), RS485 (Modbus RTU), 4...20mA/pulse/alarm output, mini USB cable.	VPM.T001.D010
 **VPFlowScope M Transmitter without display** Incl. USB, Ethernet (Modbus/TCP), RS485 (Modbus RTU), 4...20mA/pulse/alarm output, mini USB cable.	VPM.T001.D000
Cartridge bi-directional for flow, pressure, temperature and total flow Length 350mm / 13.7 inch, pressure range 0..10 Bar(g). Incl. 10-point calibration certificate.	VPM.R150.P351.PN10
Cartridge uni-directional for flow, pressure, temperature and total flow Length 350mm / 13.7 inch, pressure range 0..10 Bar(g). Incl. 10-point calibration certificate.	VPM.R150.P350.PN10
 **Cartridge bi-directional for flow, pressure, temperature and total flow** Length 220mm / 13.7 inch, pressure range -1..16 Bar(g). Incl. compression fitting with safety lock and 10-point calibration certificate.	VPM.R150.P221.PN16
Cartridge uni-directional for flow, pressure, temperature and total flow Length 220mm / 13.7 inch, pressure range -1..16 Bar(g). Incl. compression fitting with safety lock and 10-point calibration certificate.	VPM.R150.P220.PN16
Cable, 5m / 16.4 ft. with M12 5pin connector on one side The other side is open wires (0V, 24V, Modbus A, Modbus B and Analog out). For permanent connection.	VPA.5000.005
 **Cable, 10m / 32.9 ft. with M12 5pin connector on one side** The other side is open wires (0V, 24V, Modbus A, Modbus B and Analog out). For permanent connection.	VPA.5000.010
 **Ethernet cable 5m/16.4 ft.** With 4 pin M12 on one side and RJ45 connector on other side.	VPA.5004.0005
 **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
5-pin M12 MALE connector (connector with screw terminal) Without cable. (No IP/NEMA rating). Used for flow meter connection or to female connector of extension cable.	VPA.5000.000
 **5-pin M12 FEMALE connector (connector with screw terminal)** Without cable. (No IP/NEMA rating). To create extension cable and connect to male connector.	VPA.5000.001
 **Extension cable 5m/16.4 ft. for ethernet with RJ45 connectors**	VPA.5004.0006
 **Power supply module in IP65 enclosure (230-110VAC to 24VDC)** For permanent installation. This power supply module can power max 2 VPFlowScopes.	VPA.0030.100
 **Modbus junction box (IP65)** For easy connection of multiple flow meters in a daisy chain.	VPA.5030.020
 **Explorer® Case for VPFlowScope M** Transport case for the VPFlowScope M with pre-cut foam inside. For a full assembled VPFlowScope M probe, one additional VPFlowScope M Transmitter, two additional VPFlowScope M VPSensorCartridges and accessories.	VPA.5014.003
Compression fitting + cable for adjustable safety system VPM	VPA.5004.0001
 **VPSensorCartridge® locking ring** Spare part for the VPFlowScope M Transmitter.	VPA.5004.1001
Special gas calibration thermal mass insertion flow meters Other gases then HE calibration (including calibration certificate).	VPA.0001.951
 **Helium gas calibration thermal mass insertion flow meters** (including calibration certificate).	VPA.0001.921
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

VPFlowScope Probe

The flow meter for all your compressed air and gas measurements

OPTIONAL

The VPFlowScope® Probe is the measurement tool for dry compressed air and other industrial gases, including oxygen, nitrogen, CO_2, helium, and argon. The VPFlowScope Probe measures thermal mass flow, pressure, temperature and total flow simultaneously.

The VPFlowScope Probe can be used in various pipe diameters, which makes it the perfect solution for measuring of both the supply side and demand side of compressed air systems. The flow meter shows you where, when and how much air is used in order to allocate cost and subsequently to save money and energy.

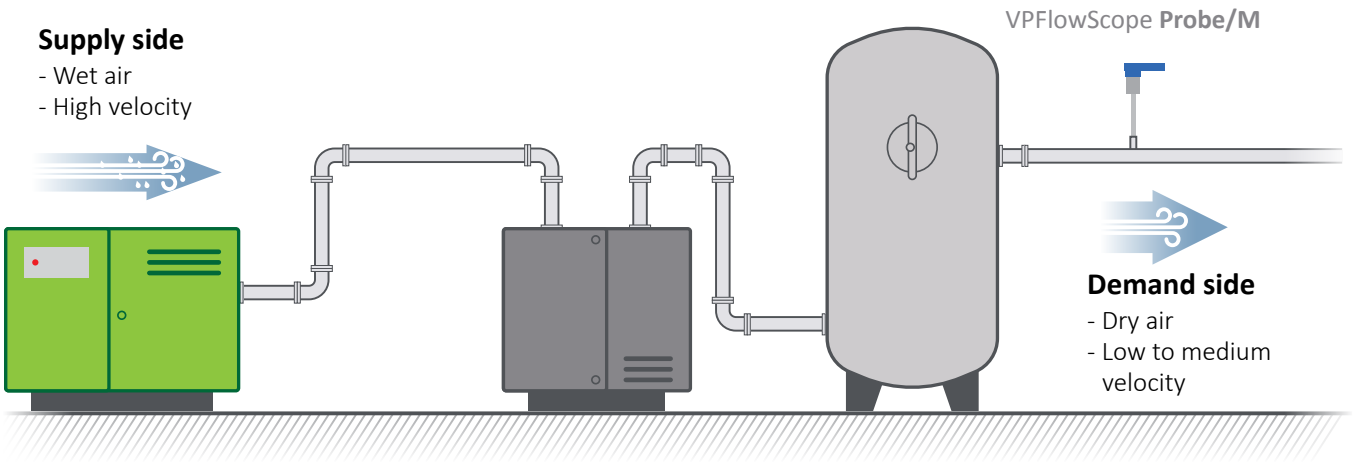
The bright blue LCD display provides real-time information and with the built-in data logger, you can record for certain periods of time. Combine this with our VPStudio software on your PC and you can use this information to process data, print reports and analyze where and how exactly you can save.

Highlights

- 4-in-1 sensor: flow, pressure, temperature and total flow
- Bi-directional flow measurement (optional)
- Patented Thermabridge™ technology for dry, clean gas measurements
- Standard RS485 (Modbus RTU), 4..20mA and pulse output
- 3-line LCD display (optional) with real-time information and configuration keys
- Built-in data logger with 2 million points (optional)

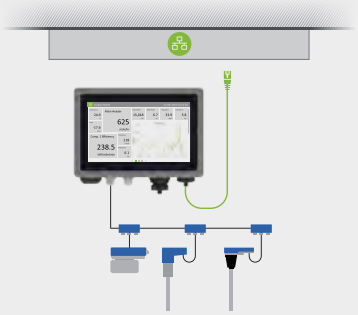
Applications

- Demand side compressed air monitoring
- Air audits
- Submetering of compressed air
- Ring networks (bi-directional)
- Industrial gas monitoring (air, nitrogen, carbon dioxide, argon and other dry, non-corrosive industrial gases)
- Cost allocation
- Leak detection
- 16 bar (250 psi) and 35 bar (500 psi) versions available for compressed air



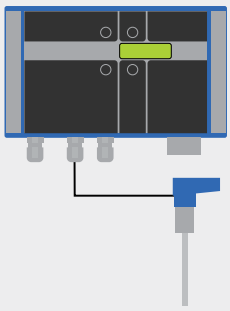
Installation examples

1. RS485 (Modbus RTU) connection to Energy Management System or PLC



VPVision or other Energy Management System/Modbus TCP converter

2. Connected to local wall mount display



3. Stand-alone use with build-in datalogger

Connection with VPStudio

RS485 (Modbus RTU)
JB5 interface set

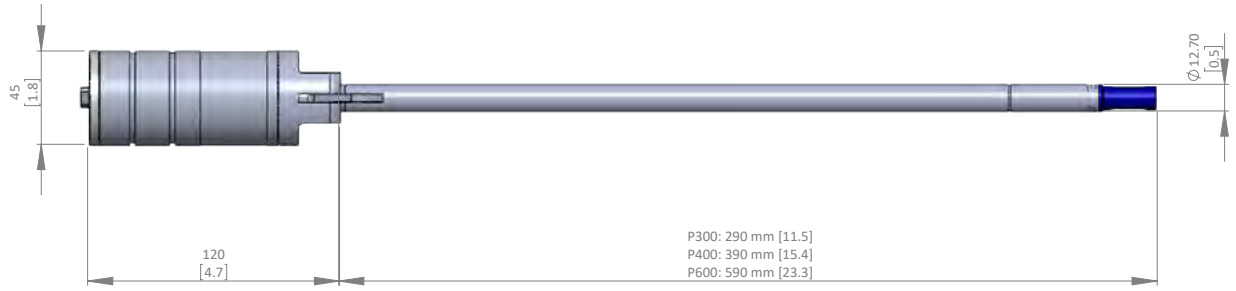
VPS.R150.Pxxx flow range table

SCHEDULE 40 STANDARD SEAMLESS CARBON STEEL PIPE							
Size (inch)	DN	ID (inch)	ID (mm)	Min flow (scfm)	Max flow (scfm)	Min flow (m^3_n/hr)	Max flow (m^3_n/hr)
2	50	2.1	52.5	2.3	688	3.9	1169
3	80	3.1	77.9	5.1	1516	9	2576
4	100	4.0	102.3	8.7	2610	15	4435
6	150	6.1	154.1	20	5924	34	10065
8	200	8.0	202.7	34	10259	58	17429
10	250	10.2	259.1	56	16756	95	28468
12	300	11.9	303.2	77	22953	130	38995
16	400	15.0	381.0	121	36237	205	61565
20	500	18.8	477.8	190	56996	323	96832

SCHEDULE 10 STANDARD SEAMLESS CARBON STEEL PIPE					
ID (inch)	ID (mm)	Min flow (scfm)	Max flow (scfm)	Min flow (m^3_n/hr)	Max flow (m^3_n/hr)
2.2	54.8	2.5	749	4.2	1273
3.3	82.8	5.7	1712	10	2908
4.3	108.2	9.7	2923	17	4966
6.4	161.5	22	6508	37	11057
8.3	211.6	37	11173	63	18982
10.4	264.7	58	17487	99	29709
12.4	314.7	82	24724	140	42004
15.6	396.8	131	39315	223	66794
19.6	496.9	205	61643	349	104729

Specifications

FLOW SENSOR	
Measuring principle	Thermabridge™ Thermal Mass flow sensor
Flow range	0.5 .. 150 m_n/sec | 1.7 .. 490 sfps Bi-directional measurement (option)
Accuracy	2% of reading under calibration conditions. Recommended pipe diameter: 40 mm (1.5”) and up
Reference conditions	0 °C, 1013.25 mbar 32 °F, 14.65 psi - DIN 1343
Gases	Compressed air, nitrogen and inert, non-condensing gases, 95% non-condensing gases
Gas temperature range	0 .. 60 °C | 0 .. 140 °F
PRESSURE SENSOR	
Pressure sensor range, standard	0 .. 16 bar | 0 .. 250 psi gage
Accuracy	+/- 1.5% FSS (0 .. 60 °C) | (32 .. 140 °F) Temperature compensated
TEMPERATURE SENSOR	
Temperature sensor range	0 .. 60 °C | 32 .. 140 °F
Accuracy	+/- 2% full scale (-18 .. 63 °C | -0.4 .. 145.4 °F)
DATA OUTPUTS	
Digital	RS485, MODBUS RTU protocol
Analog	4 .. 20 mA single analog / pulse output, selectable via VPStudio software
DISPLAY/DATA LOGGER	
Technology	Liquid Crystal (LCD)
Back light	Blue, with auto power save
Data logger (option)	2 million points memory
MECHANICAL & ENVIRONMENTAL	
Probe lengths	400 mm | 15” (300 mm or 600 mm on request)
Process connection	Compression fitting, 0.5” NPT thread
Pressure rating	PN16 (PN35 on request)
Ingress Protection (IP) grade	IP52 | NEMA 12 when mated to display module, avoid upside down installation IP63 | NEMA 4 when mated to connector cap, avoid upside down installation
Ambient temperature range	0 .. 60 °C | 32 .. 140 °F. Avoid direct sunlight or radiant heat
Wetted materials	Anodized aluminum, stainless steel 316, glass and epoxy
Corrosion resistance	Highly corrosive or acid environments should be avoided
ELECTRICAL	
Connection type	M12, 5-pin connector, female
Power supply	12 .. 24 VDC +/- 10 % Class 2 (UL)
Power consumption	3.6 Watt (no flow) 4.8 Watt (full flow) +/- 10% 150 mA (no flow) 200 mA (full flow) +/- 10% @24VDC
UL/ CUL	14 AZ, Industrial Control Equipment
CE	EN 61325-1 (2006), Class AEN 61000-6-1 (2007)



Order codes

VPFlowScope Probe

Our VPFlowScope products will be supplied including ISO calibration certificate and adjustable safety cable with integrated compression fitting.

	DESCRIPTION	ORDER CODE	
	**VPFlowScope Probe 400mm/15.4"**	VPS.R150.P400	.D0
	**VPFlowScope Probe 400mm/15.4" with connector cap** For Modbus networks.	VPS.R150.P400	.D2
	**VPFlowScope Probe 400mm/15.4" with display no datalogger**	VPS.R150.P400	.D10
	VPFlowScope Probe 400mm/15.4" with display and datalogger	VPS.R150.P400	.D11
	**VPFlowScope Probe 600mm/23.3"**	VPS.R150.P600	.D0
	**VPFlowScope Probe 600mm/23.3" with connector cap** For Modbus networks.	VPS.R150.P600	.D2
	**VPFlowScope Probe 600mm/23.3" with display no datalogger**	VPS.R150.P600	.D10
	VPFlowScope Probe 600mm/23.3" with display and datalogger	VPS.R150.P600	.D11

Start sets

Includes VPFlowScope Probe 400mm/15.4” (thermal mass), display with datalogger (2m datapoints), JB5 interface set, RS485 to USB cable, 24V power supply, adjustable safety cable with integrated compression fitting and calibration certificate.

	DESCRIPTION	ORDER CODE	
	**VPFlowScope Probe 400mm/15.4” set in an explorer case with pre-cut foam inside**	VPS.R150.P400	.SET
	VPFlowScope Probe 400mm/15.4" set in a box Items only, no carry case	VPS.R150.P400	.BOX
	**VPFlowTerminal with 400mm/15.4” VPFlowScope Probe** Including 10m cable, 8 pin M12 connector cap and mini USB cable.	VPS.R150.P400	.VPT.SET

Accessories

When you are installing multiple products, please see the additional accessories on page 53.

	DESCRIPTION	ORDER CODE
	**VPFlowScope display with datalogger**	VPS.D110.000
	VPFlowScope display without datalogger	VPS.D100.000
	**VPFlowScope connector cap with 5 pin M12 connector**	VPA.5001.900
	**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
	**Cable 5m/16.4 ft. with 5 pin M12 on one side** The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output. For permanent connection.	VPA.5000.005
	Cable 10m/32.8 ft. with 5 pin M12 on one side The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output. For permanent connection.	VPA.5000.010
	**5-pin M12 MALE connector (connector with screw terminal)** Without cable. (No IP/NEMA rating). Used for flow meter connection or to female connector of extension cable.	VPA.5000.000
	5-pin M12 FEMALE connector (connector with screw terminal) Without cable. (No IP/NEMA rating). To create extension cable and connect to male connector.	VPA.5000.001
	**VPFlowScope JB5 interface SET incl. USB to RS485 converter and power supply for JB5** For connecting your VPFlowScope to VPStudio. Only for D0 models - without display.	VPA.5001.205
	**Bi-directional option for VPFlowScope Probe**	VPA.5000.911
	**VPFlowScope Probe pressure upgrade to 35 bar | 500 psi** Including double set of safety cables.	VPA.0001.092
	Special gas calibration thermal mass insertion flow meters Other gases then HE calibration (including calibration certificate).	VPA.0001.951
	**Helium gas calibration thermal mass insertion flow meters** (including calibration certificate).	VPA.0001.921
	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
	**Compression fitting 0,5" NPT for VPFlowScope Probe - SS** With stainless steel ferrule. Recommended for VPFlowScope Probe with pressure upgrade to 35 bar.	VPA.0001.003
	**Power supply module in IP65 enclosure (230-110VAC to 24VDC)** For permanent installation. This power supply module can power max 2 VPFlowScopes.	VPA.0030.100
	**Modbus junction box (IP65)** For easy connection of multiple flow meters in a daisy chain.	VPA.5030.020
	**Explorer case for 2x VPFlowScope probe 400mm/15.4"** With pre-cut foam inside.	VPA.5014.000
	**Adjustable safety cable with integrated compression fitting for VPFlowScope Probe**	VPA.0003.005
	**Compression fitting 0,5" NPT for old style safety cable**	VPA.0001.000
	**Set of 5 Teflon ferrules for compression fitting** Spare part for VPA.0001.000 & VPA.0001.004.	VPA.0001.001

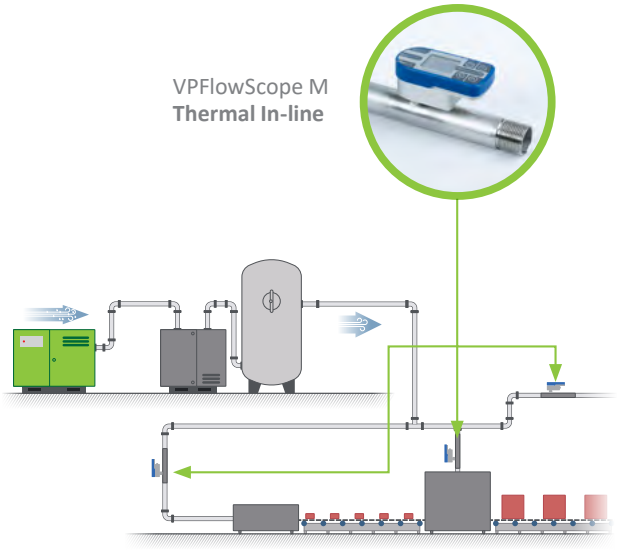
VPFlowScope M Thermal In-line

With proprietary VPSensorCartridge for low TCO and easy field service

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.

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



Support sustainability

Be green with VPCartridgeSwap+ by returning your used VPSensorCartridges. Each returned Cartridge is refurbished for reuse, reducing waste and conserving resources. You'll receive a voucher —and as a bonus, VPInstruments will plant a tree on your behalf for every Cartridge returned.

Highlights

1 Transmitter: 3-line display, built-in data logger, LED communication. Available in two models.

2 VPSensorCartridge. Less SKU's: one size fits all from 1" to 2". 4-in-1 Sensor: bi-directional flow, pressure, temperature, and total flow. Proprietary bayonet fitting: sensor is precisely aligned.

3 Tubing options: available in 1", 1.5", and 2" sizes, with NPT and BSP thread variants.

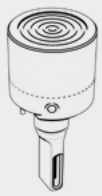
> VPStudio Software: for configuration, read-out and processing of your data log sessions.

VPFlowScope M Thermal In-line Transmitter models

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

4 Steps to assemble your VPFlowScope M Thermal In-line

1 Select your Cartridge.



+

2 Select your tubing size.

+

3 Select your Transmitter type.

+

4 Select the right cable with your Transmitter.

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.

Order codes and accessories

Cartridge

	DESCRIPTION	ORDER CODE
	**Cartridge 1 to 2" for flow, pressure, temperature, total flow** VPFlowScope M Thermal In-line Cartridge. 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

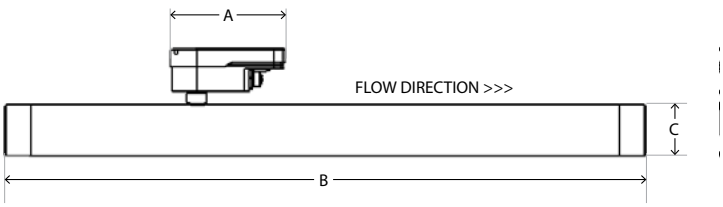
The Transmitter VPFlowScope Thermal In-line can only be used in combination with the Cartridge VPFlowScope M Thermal In-line.

	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
	**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.



	1"	1.5"	2"
A	107,6 mm | 4.2"	107,6 mm | 4.2"	107,6 mm | 4.2"
B	500 mm | 19.7"	600 mm | 23.6"	750 mm | 29.5"
C	1" BSPP	1.5" BSPP	2" BSPP

VPFlowScope In-line

The flow meter for point of use measurements

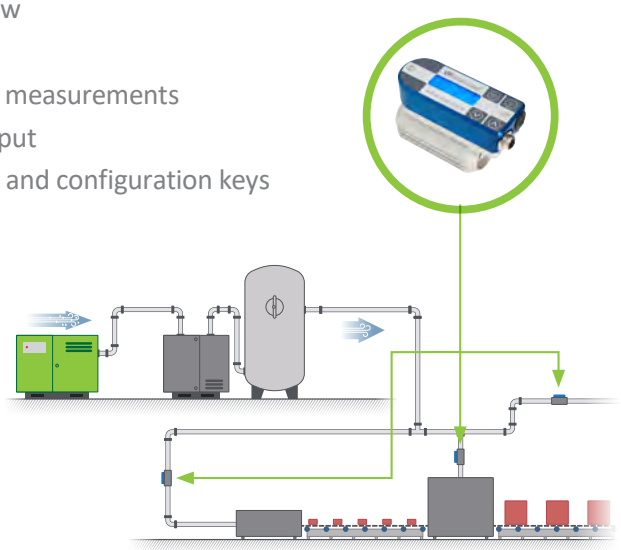
OPTIONAL

The VPFlowScope® In-line is the ideal flow meter for point-of-use consumption measurement of compressed air and other industrial gases, including oxygen, nitrogen, CO_2, helium, and argon. This thermal mass flow sensor measures bi-directional flow, pressure, temperature and totalized flow simultaneously. The VPFlowScope In-line is perfect for smaller diameters where it provides all the data you need to optimize your compressed air consumption. Because of the modular design, the VPFlowScope In-line can be fitted for all your applications; from mobile to permanent measurements, from stand alone to integration into an energy management system like VPVision.

Highlights

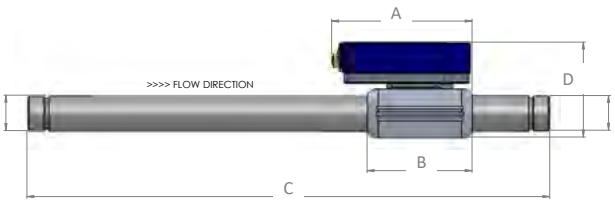
- 4-in-1 sensor: flow, pressure, temperature and total flow
- Bi-directional flow measurement (optional)
- Patented Thermabridge™ technology for dry, clean gas measurements
- Standard RS485 (Modbus RTU), 4..20mA and pulse output
- 3-line LCD display (optional) with real-time information and configuration keys
- Built-in data logger with 2 million points (optional)
- Reversible display text

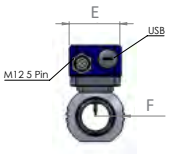
VPFlowScope
In-line



Applications

- Sub-metering of compressed air
- Leakage management
- Energy monitoring
- Cost allocation
- Industrial gas flow monitoring and submetering (N_2, O_2, He, Ar, $C0_2$, and other dry, non-corrosive industrial gases)
- 16 bar (250 psi) and 35 bar (500 psi) versions available for compressed air



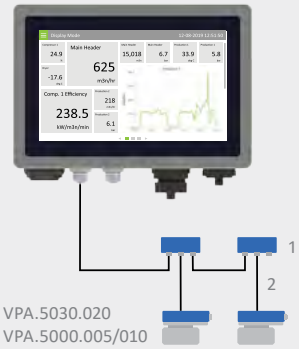


	0.5"	1"	2"
A	133.7 mm | 5.3"	134 mm | 5.3"	148.7 mm| 5.9"
B	100 mm | 3.9"	100 mm | 3.9"	130 mm | 5.1"
C	300 mm | 11.8"	498 mm | 19.6"	750 mm | 29.5"
D	84.4 mm | 3.3"	90 mm | 3.6"	123.4 mm | 4.9"
E	48 mm | 1.9"	48 mm | 1.9"	48 mm | 1.9"
F	24.75 mm | 1.0"	27.25 mm | 1.1"	44.5 mm | 1.8"

weight	0.5"	1"	2"
kg	0.7	0.7	1.6
lbs	1.54	1.54	3.58

Installation examples

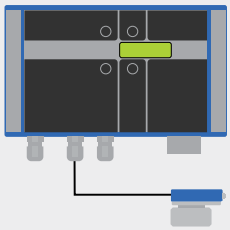
1. RS485 (Modbus RTU) connection to Energy Management System or PLC



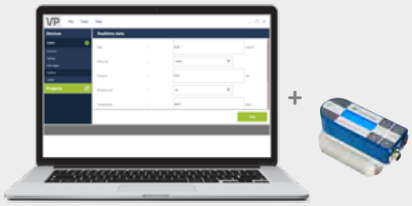
1. VPA.5030.020
2. VPA.5000.005/010

VPVision or other Energy Management System/Modbus TCP converter

2. Connected to local wall mount display



3. Stand-alone use with build-in datalogger



Connection with VPStudio

For D0: RS485 (Modbus RTU) JB5 interface set

For D10, D11: USB + 24VDC power supply

Configuration and readout

DESCRIPTION	D0	D10		D11	
	VPStudio (via VPFlowScope JB5 interface set)	Display	VPStudio (via USB cable + power via power supply adapter with 5 pin connector)	Display	VPStudio (via USB cable + power via power supply adapter with 5 pin connector)
Modbus settings	*	*	*	*	*
Analog settings (4 .. 20mA and pulse)	*		*		*
Real-time data	*	*	*	*	*
DAQ settings and readout					*

Display options

DISPLAY	MODEL	RS485	4 .. 20 MA/ PULSE	3 LINE DISPLAY	2M POINT DATA LOGGER	APPLICATIONS
No display	D0	*	*			BMS, Remote monitoring, OEM Order D8 model for VPFlowTerminal
Display	D10	*	*	*		BMS, Point of use measurement
Display with data logger	D11	*	*	*	*	Auditing, machine testing, portable use

Specifications

FLOW SENSOR		
Measuring principle	Thermabridge™ Thermal Mass flow sensor	
Flow range 0.5 inch	0.23 .. 80 m^3_n/hr | 0.13 .. 50 SCFM	
Flow range 1 inch	0.91 .. 250 m^3_n/hr | 0.54 .. 150 SCFM	
Flow range 2 inch	3.55 .. 1000 m^3_n/hr | 2.15 .. 600 SCFM	
Accuracy	0.5% FSS with calibration report under calibration conditions with air	
Reference conditions	0 °C, 1013.25 mbar | 32 °F, 14.695 psi	
Gases	Compressed air, nitrogen, oxygen and inert, non-condensing gases, 95% non-condensing gases	
Gas temperature range	0 .. 60 °C | 32 .. 140 °F	
PRESSURE SENSOR		
Pressure sensor range	0 .. 16 bar | 0 .. 250 psi gauge (35 bar | 500 psi on request)	
Accuracy	+/- 2% full scale (-18 .. 63 °C | -0.4 .. 145.4 °F)	
TEMPERATURE SENSOR		
Temperature sensor range	0 .. 60 °C | 32 .. 140 °F	
Accuracy	> 10 m_n/sec: +/- 1 °C | 1.8 °F < 10 m_n/sec: + 5 °C | 9 °F due to self-heating of the flow sensor	
DATA OUTPUTS		
Analog	4 .. 20 mA or pulse, selectable via installation software	
Serial IO	RS485 (Modbus RTU)	
USB	Mini USB interface for configuration (display version only)	
DISPLAY/DATA LOGGER		
Technology	Liquid Crystal (LCD)	
Back light	Blue, with auto power save	
Data logger (option)	2 million points memory	
DIMENSIONS & WEIGHT		
0.5 inch	135 mm x 50 mm x 85 mm | 5.31" x 1.97" x 3.35"	0.7 Kg | 1.54 lbs
1 inch	135 mm x 55 mm x 91 mm | 5.31" x 1.97" x 3.58"	0.7 Kg | 1.54 lbs
2 inch	155 mm x 90 mm x 125 mm | 6.10" x 3.54" x 4.92"	1.6 Kg | 3.58 lbs
MECHANICAL & ENVIRONMENTAL		
Ingress Protection (IP) grade	IP65 when mated to connector, at room temperature; direct rain and sunlight should be avoided. Extreme temperature fluctuations may affect the IP grade over time.	
Ambient temperature range	0 .. 60 °C | 32 .. 140 °F	
Wetted materials	Body: Anodized aluminum | Sensor: Silicon, epoxy, glass | Sealing: FTM 60, Polyurethane	
ELECTRICAL		
Connection type	M12, 5-pin connector, female and optional USB mini connector	
Power supply	12 .. 24 VDC +/- 10 % Class 2 (UL)	
Power consumption	2.4 Watt (no flow) 4.8 Watt (full flow) +/- 10% 100 mA (no flow) 200 mA (full flow) +/- 10% @24VDC	
UL/ CUL	14 AZ, Industrial Control Equipment	
CE	EN 61326-1(2006) Class A, EN61000-6-1 (2007)	

Order codes

VPFlowScope In-line

Our VPFlowScope In-line products will be supplied including ISO calibration certificate (all models) and mini USB cable (display models).

DESCRIPTION	ORDER CODE	
 0,5” without display, without datalogger	VPS.R080.M050	.D0
 0.5” with display, without datalogger	VPS.R080.M050	.D10
0.5” with display and datalogger	VPS.R080.M050	.D11
 1” without display, without datalogger	VPS.R250.M100	.D0
 1” with display, without datalogger	VPS.R250.M100	.D10
1” with display and datalogger	VPS.R250.M100	.D11
 2” without display, without datalogger	VPS.R01K.M200	.D0
 2” with display, without datalogger	VPS.R01K.M200	.D10
2” with display and datalogger	VPS.R01K.M200	.D11

VPFlowTerminal sets

Includes 1 x VPFlowScope In-line D0 with the VPFlowTerminal remote display, ISO calibration certificate, mini USB cable, in- and outlet tubes and 10m/32.8 ft. cable with 8 pin M12 on one side.

DESCRIPTION	ORDER CODE
With 0.5” In-line and BSP tubes	VPS.R080.M050.VPT.SET.BSP
With 1” In-line and BSP tubes	VPS.R250.M100.VPT.SET.BSP
With 2” In-line and BSP tubes	VPS.R01K.M200.VPT.SET.BSP
With 0.5” In-line and NPT tubes	VPS.R080.M050.VPT.SET.NPT
With 1” In-line and NPT tubes	VPS.R250.M100.VPT.SET.NPT
With 2” In-line and NPT tubes	VPS.R01K.M200.VPT.SET.NPT

VPFlowScope In-line tubing sets

In- and outlet tubes in one set. Integrate VPFlowScope In-line easier and more accurate.
0.5” and 1” tubing set features:
20 x D length before and 5 x D length after the flow sensor. For 2” tubing set this is 15 x D before and 5 x D after.

DESCRIPTION	ORDER CODE	
0.5” in- and outlet tube BSP	VPA.1200	.005
1” in- and outlet tube BSP	VPA.1200	.010
2” in- and outlet tube BSP	VPA.1200	.020
0.5” in- and outlet tube NPT	VPA.1200	.105
1” in- and outlet tube NPT	VPA.1200	.110
2” in- and outlet tube NPT	VPA.1200	.120

Accessories

When you are installing multiple products, please see the additional accessories on page 53.

DESCRIPTION	ORDER CODE
 **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. For permanent connection.	VPA.5000.005
Cable, 10m / 32.9 ft. with M12 5pin connector on one side The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output. For permanent connection.	VPA.5000.010
 **5-pin M12 MALE connector (connector with screw terminal)** Without cable. (No IP/NEMA rating). Used for flow meter connection or to female connector of extension cable.	VPA.5000.000
5-pin M12 FEMALE connector (connector with screw terminal) Without cable. (No IP/NEMA rating). To create extension cable and connect to male connector.	VPA.5000.001
 **VPFlowScope JB5 interface set** For connecting your VPFlowScope In-line to VPStudio. Incl. USB to RS485 converter and power supply for JB5. Only for D0 models - without display.	VPA.5001.205
 **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
 **VPFlowScope bi-directional option for In-line**	VPA.5000.912
Helium gas calibration for In-line flow meters Including calibration certificate.	VPA.0001.912
 **Special gas calibration for In-line flow meters** Other gases then Helium calibration. Including calibration certificate.	VPA.0001.915
Extra costs for additional units special gas calibration Additional units, when processed in the same order for the same gas. Including calibration certificate.	VPA.0001.913
 **VPFlowScope In-line pressure upgrade to 35 bar | 500 psi**	VPA.0001.093
Oil and grease-free product cleaning Labeled and packed in double-sealed bags. Only available for VPFlowScope In-lines	VPX.070.000
 **Power supply module in IP65 enclosure (230-110VAC to 24VDC)** For permanent installation. This power supply module can power max 2 VPFlowScopes.	VPA.0030.100
 **Modbus junction box (IP65)** For easy connection of multiple flow meters in a daisy chain.	VPA.5030.020

VPFlowScope In-line 3/8"

The perfect solution for low flows of compressed air or oxygen

The VPFlowScope In-line 3/8” is the perfect solution to measure low flows of compressed air and oxygen. Getting insight results in: reduction of consumption, allocation of costs and optimization of your air/oxygen system.

The VPFlowScope In-line 3/8” measures flow, total flow and temperature. Thanks to the patented Thermabridge™ technology, the VPFlowScope In-line can perform bi-directional flow measurements. The built-in display will show the actual and total flow, and the Modbus and analog 4..20 mA outputs enable you to interface with VPVision or other monitoring systems.

Highlights

- Measures flow, total flow and temperature simultaneously
- Patented Thermabridge™ technology for dry, clean gas measurements
- RS485 (Modbus RTU) + 4..20 mA output
- TFT display with real-time information and configuration keys
- Power and communication LEDs
- Easy to install and compact size

Applications

- Point of use in compressed air systems
- Output of oxygen generators
- Consumption measurement
- Leakage measurement
- Cost allocation and measuring your distribution network

Specifications

Measuring principle	Thermabridge™ thermal mass flow sensor
Flow range	2.15..50 l/min | 0.09..1.77 CFM
Accuracy	5% of full scale under calibration conditions
Temperature sensitivity	< 1% of measured value per °C
Reference conditions	20 °C, 1000 mbar | 68 °F, 14.50 psi
Gases	Oxygen and compressed air
Gas temperature range	20 .. 32 °C | 68 .. 89.6 °F
Display type	1.8" TFT color with auto power save
LED status	LED indicators on all models for power and communication
Outputs	RS485 (Modbus RTU), 4 .. 20mA
Material	Brass, polycarbonate
Wetted materials	Brass, Ceramic, Polyurethane, Viton
Protection grade	IP54 | NEMA 3
Ambient temperature	0 .. 50 °C | 32 .. 122 °F
Ambient humidity	0 .. 95 %. Avoid condensation at all times
Pressure rating	10 bar | 150 psi gage
Electrical supply	14 VDC .. 24 VDC +10% CLASS 2 (UL)
Power consumption	1 Watt (no flow) 3.5 Watt (full flow) +/- 10%
Certification CE	EN 60950-1, EN 61326-1, EN 61000-3-2, EN 61000-3-3, EN 61326-1
Electrical connection	M8 5-pin female connector
Mounting connection	Mount between pipe ends using Hylok SICMC-6-6G

- Avoid direct sunlight or radiant heat.
- Highly corrosive or acid environments should be avoided.

Order codes

VPFlowScope In-line 3-8"

DESCRIPTION	ORDER CODE
 **VPFlowScope In-line 3-8" with display without datalogger** Measures flow, total flow and temperature. Outputs: Modbus RS485 and 4..20mA Does not include calibration certificate, cable or tubing set.	VPS.R003.M038.D10

Accessories

DESCRIPTION	ORDER CODE
Oil and grease-free product cleaning Labeled and packed in double-sealed bags. Only available for VPFlowScope In-lines.	VPX.070.000

VP Dew Point Sensor

The wide range dew point sensor for all your measurement applications

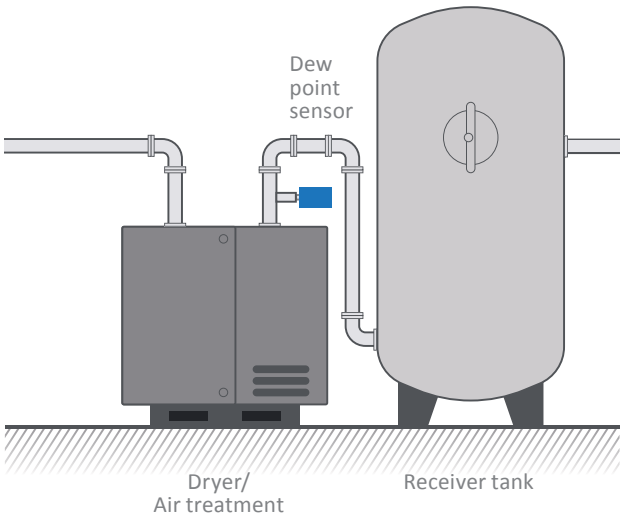
The VP Dew Point Sensor is the complete dew point sensor for all your measurement applications. It is designed for ease of use, incorporating all the features needed to make installation and operation as simple as possible. The sensor is robust and smart with its autocalibration functionality. With both 4..20 mA and RS485 (Modbus RTU) outputs, you can connect the sensor to VPVision or other management systems.

Highlights

- Large measurement range: -70..60°C | -94..140°F
- Built-in alarm function and LED
- Sensor highly resistant to condensation and particulate contamination
- Long-term high performance due to state-of-the art polymer technology
- RS485 (Modbus RTU) and 4..20 mA output
- Auto-calibration
- Optional external display
- Optional sampling block with bleed valve

Applications

- Monitoring compressed air quality of refrigerant and desiccant type air dryers
- Point-of-use dew point measurement
- Permanent measurement
- Guard critical processes e.g. in the semi-conductor, paint, pharmaceutical, food & beverage, and automotive industries
- Monitor demand air at machine/process level



Specifications

MEASUREMENT PERFORMANCE	
Sensor	Thin film polymer
Sensor protection	Stainless steel sintered filter
Calibration interval	Recommended calibration interval to confirm the specified accuracy of 2 years
Sample flow rate	No effect on measurement accuracy, only on response time

RESPONSE TIME 63% [90%] AT 20 °C | 68 °F GASTEMPERATURE AND 1 BAR (14.5 PSI) PRESSURE	
-60 → -20 °C Td (-76 → -4 °F Td)	5 s [15 s]
-20 → -60 °C Td (-4 → -76 °F Td)	45 s [10 min]

DEW POINT TEMPERATURE	
Measurement range (typical)	-70 .. 60 °C | -94 .. 140 °F
Accuracy in air or N_2	±2 °C | ±3.6 °F | ±68 °F of reading
Temperature (°C) > 12 bar	Accuracy ±4 °C | ±7.2 °F of reading

WATER CONCENTRATION BY VOLUME (PPM)	
Accuracy at 20°C | 68 °F, 1 bar pressure	1 ppm + 20% of reading

INPUTS AND OUTPUTS	
Analog output (scalable)	4 .. 20 mA
Resolution for current output	±0.002 mA
Accuracy for current output at 20 °C (68 °F)	±0.05 mA
Typical temperature dependence	0.005% of span / °C
LED	For dew point level alarm and transmitter diagnostics
Digital output	RS485 2 wire, non-isolated, RS485 (Modbus RTU)

ELECTRICAL	
Supply voltage with current output	18 .. 28 VDC
Supply voltage with RS485	12 .. 28 VDC
Supply voltage, in pressures over 20 bara (290 psia) or temperatures below 0 °C (32 °F)	24 .. 28 VDC
Supply current during normal measurement	Max. 10 mA + load current
Supply current during self-diagnostics	Max. 220 mA pulsed
Load for current output	Max. 500 kΩ
Load for voltage output	Min. 10 kΩ

MECHANICAL	
Mechanical connection	ISO G1/2”
Housing material	Stainless steel (AISI316L)
Weight	G-thread version 90 g | 3.2 oz
Ingress Protection	IP66 | NEMA4

OPERATING ENVIRONMENT	
Target gases	Non-corrosive gases
Temperature	-40 .. 60 °C | -40 .. 140 °F
Relative humidity Pressure	0 .. 100% RH 0 .. 50 bara | 725 psia

0 .. 50 BARA | 725 PSIA	
CE	EN 61326-1, EN 550022

External Display 420

Monitor your dew point locally with the External Display 420. The display is available with 2 optional built-in alarm relays, which can be used to trigger an external alarm, for example via your BMS/ SCADA system.

The display has one port to read out one dew point sensor at the time. The External Display 420 is compatible with all VPInstruments dew point sensors.

Sampling blocks

Protect your dew point sensor from fouling and failure by using a sampling block, e.g. for protection against a high process temperature, against water spikes, and for ease of servicing. Moreover, sampling blocks are manufactured from a single, machined stainless steel block, reducing the number of pipe joints, internal volume and surface area. As a result, the sampling system has a faster response and higher integrity.

VPInstruments sampling blocks can be fitted with a needle valve or silencer, depending on the model, to regulate the optimum gas flow for the sensor. We offer all the accessories in a complete set.

Order codes

VP Dew Point Sensor

	DESCRIPTION	ORDER CODE
	**VP Dew Point Sensor** BSP (-70 to +60 °C | -94..140 °F). Dew point sensor only.	VPA.8000.1018
	**VP Dew Point Sensor set (-70..+60 °C | -94..140 °F) + M12** Includes VP Dew Point Sensor BSP (VPA.8000.1018), 10m/33ft cable with M12 connector for Modbus connection, sample block, bleeding valve and accessories. Includes Calibration certificate.	VPA.8000.1019

Accessories

	DESCRIPTION	ORDER COD
	**Sampling block for VP Dew Point Sensor VPA.8000.1018** Including sample block, bleeding valve and accessories (dew point sensor not included)	VPA.8000.1514
	Special o-rings (3 pieces) Install your dew point sensor without teflon tape, the O-rings are reusable.	VPA.8000.151
	**USB service cable** To configure the VP Dew Point Sensor , for instance changing Modbus settings.	VPA.8000.1511
	**Cable 10m / 33ft for VP Dew Point Sensor** M8 4-pin connector on one side and 4 open wires on the other side.	VPA.8000.1510
	Replacement filter for VP Dew Point Sensor Only for VP Dew Point Sensor type VPA.8000.1018	VPA.8000.1516
	**Adapter 1/2" NPT to 3/8 inch BSP** Only for VP Dew Point Sensor type VPA.8000.1018 and sampling block VPA.8000.1514	VPA.8000.1517
	**External Display 420** Monitor your dew point locally. The display has one port to read out one dew point sensor at the time.	VPA.8000.1512
	External Display 420 with alarm relay With 2 optional built-in alarm relays, which can be used to trigger an external alarm, for example via your BMS/ SCADA system.	VPA.8000.1513
	**Handheld Indicator for VP Dew Point Sensor VPA.8000.1018/.1019** Incl. magnetic hanger to stick Indicator to metal surfaces. 1.5 mtr / 6ft M12-M8 Cable for Indicator to dew point sensor connection and USB-C charging and PC cable.	VPA.8000.1021
	Carry case for Handheld Indicator for VPDewpoint sensor Weatherproof Carrying Case for Handheld Indicator / dew point spot checker.	VPA.8000.1521

Dew Point Sensor – Extreme Dry Air

For extreme dry applications

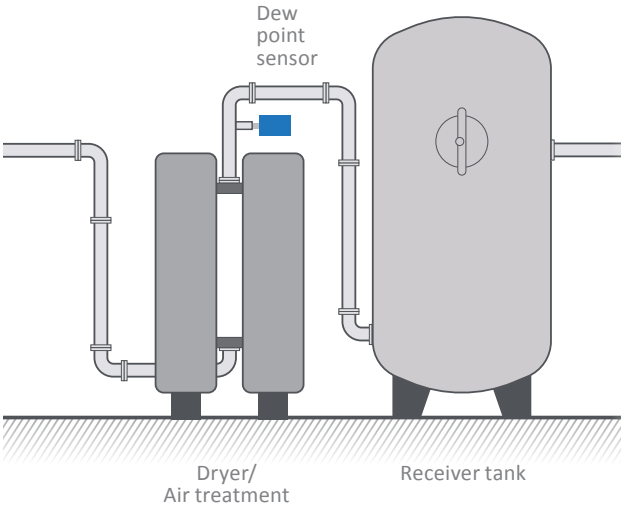
The Dew Point Sensor - Extreme Dry Air has a measurement range up to as low as -100°C / -148 °F. Therefore it is recommended for extreme dry applications.

Highlights

- 2-wire loop powered connection
- Dew point or ppm moisture content
- IP65 (NEMA 4)
- Fast response time

Applications

- Monitoring compressed air quality of desiccant type air dryers
- Point-of-use dew point measurement
- Permanent measurement
- Guard critical processes e.g. in the semi-conductor, paint, pharmaceutical, food & beverage, and automotive industries
- Monitor demand air at machine/process level



Specifications

PERFORMANCE	
Measurement range	-100 .. 20°C | -148 .. 68 °F dew point
Accuracy (dew point):	±2 °C | ±3.6 °F dew point
Response time	5 mins to T95 (dry to wet)
ELECTRICAL OUTPUT/INPUT	
Output signal	4 .. 20 mA (2-wire) current source, configurable over the entire range
Supply voltage	12-28VDC
Current consumption	20 mA max
Supply voltage influence	±0.005% RH/V
OPERATING CONDITIONS)	
Operating humidity	0 .. 100% RH
Operating temperature	-40 .. 60°C | -40 .. 140 °F
Operating pressure	450 barg max.
Temperature coefficient	Temperature compensated across operating temperature range
MECHANICAL SPECIFICATIONS	
Ingress protection	IP65 | NEMA 4
Housing material	Stainless steel
Dimensions	L=132mm x ø27mm | 5,2 x 1,1"
Filter	HDPE Guard <10 µm
Process connection	5/8" - 18 UNF
Connection	DIN connector

Order codes

Dew Point Sensor - Extreme Dry Air

DESCRIPTION		ORDER CODE
	**Dew Point Sensor – Extreme Dry Air** -100/+20˚C / -148/+68˚F	VPA.8000.1003

Accessories

DESCRIPTION		ORDER CODE
	**Stainless steel sample block 5/8 UNF - NO FILTER**	VPA.8000.1500
	Stainless steel sample block 5/8 UNF - WITH FILTER The 99.5% 0.3-micron particulate filter provides further protection against solid contamination.	VPA.8000.1550
	Set of 10 filters for stainless steel sample block Only for stainless steel sample block type VPA.8000.1500 and VPA.8000.1550	VPA.8000.1590
	**External Display 420** Monitor your dew point locally. The display has one port to read out one dew point sensor at the time.	VPA.8000.1512
	External Display 420 with alarm relay With 2 optional built-in alarm relays, which can be used to trigger an external alarm, for example via your BMS/ SCADA system.	VPA.8000.1513
	Cable 2 m with connector for dew point sensor VPA.8000.1003	VPA.8000.1505

3 Phase Power Meter

True power measurement

POWER METERS

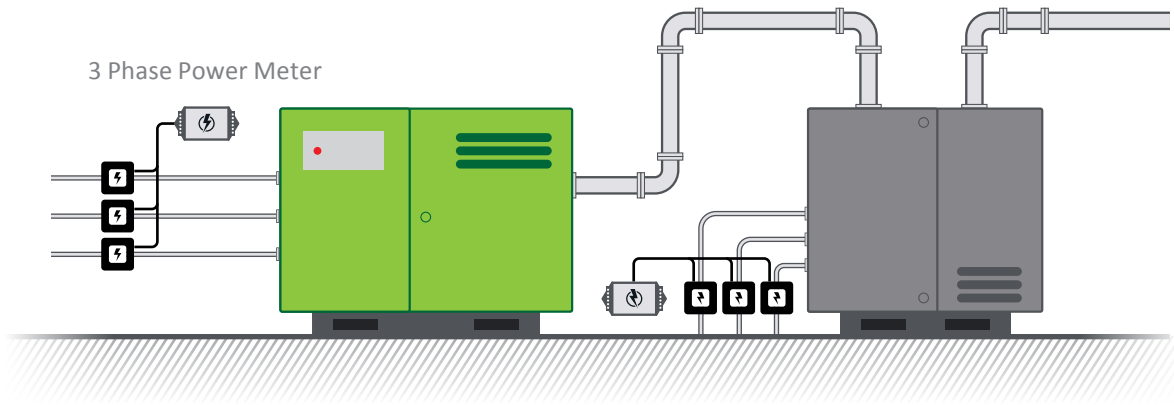
With the VPInstruments 3 Phase Power Meter, combined with Current Transformers, you can measure the voltage and current of all three phases. Thereby, it provides a high accuracy measurement of the real power consumption. It provides power, voltage, current, cos(phi) and many more electrical parameters via the RS485 (Modbus RTU) interface. The Modbus interface allows the meter to be easily connected to a monitoring system. And when combined with one or more flow meters, you can monitor compressor efficiency in real-time.

Highlights

- True RMS power measurement of single-phase or three-phase systems
- One size fits all: one model for 100 to 600 Vac, 50 / 60Hz
- RS485 (Modbus RTU) output
- Wye or delta in one model
- For permanent installation
- 0.3333 VAC input for current transformers (CT)
- LED indicator for CT status and serial communication
- Configurable using Modbus

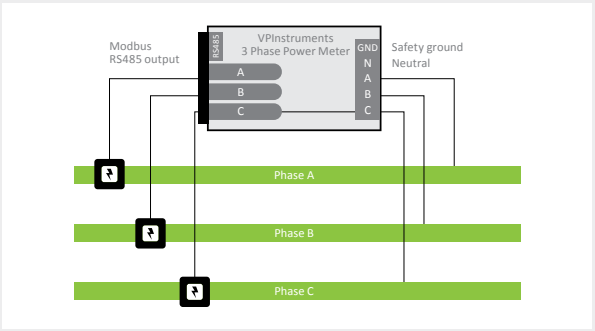
Applications

- Power consumption of large consumers (i.e. compressors, dryers, pumps, water chillers)
- Submetering
- Cost allocation
- Baseline condition monitoring
- Energy management
- Efficiency calculations (i.e. compressor electrical usage vs output)



Specifications

POWER METER	
Accuracy	± 0.5% reading
Power supply	Power from measured voltage < 2 W
Voltage input	100 .. 600 (L to N), 100 .. 600 (L to L)
Current input	5 .. 1500 Amps per phase
Output	RS485 (Modbus RTU), 2 wire
Size	143 × 85 × 38 mm | 5.63 × 3.34 × 1.5"
Weight	233 g | 8.2 oz
Environment	Indoor use
Operational temperature	-30 .. 55 °C | -22 .. 131 °F
Operational humidity	Non-condensing, 5 to 90% relative humidity
Operating frequencies	50 / 60 Hz



Selection is easy due to the wide voltage range of the 3 Phase Power Meter. The same meter can be used for all nominal voltages between 100 Vac and 600 Vac, for delta and wye configurations at 50 Hz or 60 Hz. In addition, you will need to specify a current transformer (CT) for each phase. For delta systems you may only need two CTs. To determine your size of current transformer, check the maximum amperage and be sure to account for the input power factor (cos(phi)), minimum input voltage and other factors. The 3 Phase Power Meter is compatible with VPInstruments' current transformers or any other, that has a 0.3333 Vac output.

Order codes

3 Phase Power Meter

DESCRIPTION		DETAILS	ORDER CODE
	3 Phase Power Meter - Wide Range Modbus	100-600 V, Delta, Wye, 50/60Hz	VPA.8000.WRMB

Current Transformers (CT)

DESCRIPTION		AMPERAGE	SIZE	ORDER CODE
	Current Transformer 100A, 0.333V output	100A	19.1 mm | 0.75"	VPA.8075.0100
	Current Transformer 200A, 0.3333V output	200A	31.8 mm | 1.25"	VPA.8125.0200
	Current Transformer 400A, 0.333V output	400A	31.8 mm | 1.25"	VPA.8125.0400
	Current Transformer 600A, 0.3333V output	600A	50.8 mm | 2"	VPA.8200.0600
	Current Transformer 1000A, 0.333V output	1000A	50.8 mm | 2.00"	VPA.8200.1000
	Current Transformer 1500A, 0.333V output	1500A	50.8 mm | 2.00"	VPA.8200.1500

VPLog-i

Quick and easy power measurements

The VPLog-i is a Rogowski type meter that measures AC currents up to 1500A-rms (true-RMS on a single-phase power cable). The VPLog-i is very easy to use; just wrap around one of the three-phase power cables and close the snap fitting. The LED provides feedback. The VPLog-i offers the best solution for power measurements in audits. The sensor can also be used for permanent installation. In this case, cos(phi) has to be estimated, and voltage needs to be measured once. These parameters are used to calculate the estimated power consumption. In VPVision, you simply enter these numbers in the power meter configuration wizard.

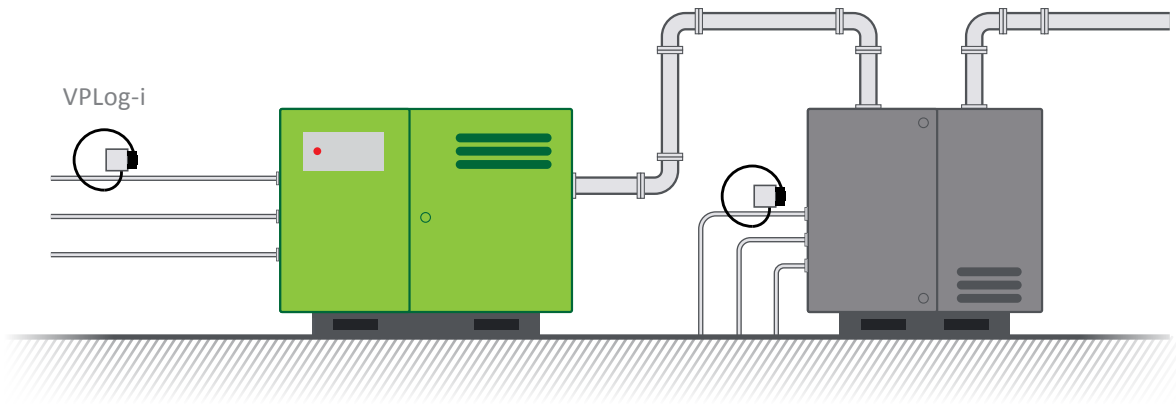
The VPLog-i is available in two models, where the main difference is the output signal. The VPLog-i offers a 4..20mA and pulse output. The VPLog-i-R features an RS485 (Modbus RTU) output.

Highlights

- Very easy and quick installation
- Plug and play
- For short-term and permanent measurements
- One size fits all VPLog-i-R model with RS485 interface

Applications

- Power consumption of large consumers (i.e. compressors, dryers, pumps, water chillers)
- Submetering
- Cost allocation
- Baseline condition monitoring
- Energy management
- Efficiency calculations (i.e. compressor electrical usage vs output)



Specifications

	VPLOG-I	VPLOG-I-R
Accuracy	± 1% full scale	
Power supply	6 .. 30 Vdc	7 .. 28 Vdc
Power consumption	4 .. 20 mA	11 mA
Current input	5 models available from 100 to 1500 Amps	100 .. 1600 A-rms. Insulated cables only
Outputs	4 .. 20 mA: proportional to the measured input. Pulse: pulse frequency is proportional to the current measured.	RS485 (Modbus RTU). Output of true RMS current, frequency and current at base frequency.
LED	Feedback on power connection	Feedback on Modbus communication
Pulse rate	0 .. 2.66 Hz	N.A.
Coil diameter	7 mm | 0.28"	6 mm | 0.24"
Coil bend radius	35 mm | 1.38"	30 mm | 1.18"
Housing W x H x D	26.7 x 41.4 x 13.6 mm | 1.1 x 1.6 x 0.6"	
Operation temperature range	-20 .. 70 °C | -4 .. 158 °F	
Operational relative humidity	Max 95%, non-condensing	
Coil length	170 mm | 6.7", 250 mm | 9.8"	250 mm | 9.8"
Operating frequencies	50 / 60 Hz	50 Hz

The VPLog-i and VPLog-i-R cannot be combined with the 3 Phase Power Meter.

Order codes

Order codes VPLog-i

MODEL	CURRENT RMS	OUTPUT	COIL LENGTH	ORDER CODE
VPLog-i	Max 100 A-rms	4 .. 20mA and pulse	170 mm | 6.69"	VPA.8000.2100
	Max 200 A-rms	4 .. 20mA and pulse	170 mm | 6.69"	VPA.8000.2200
	Max 400 A-rms	4 .. 20mA and pulse	170 mm | 6.69"	VPA.8000.2400
	Max 800 A-rms	4 .. 20mA and pulse	250 mm | 9.84"	VPA.8000.2800
	Max 1500 A-rms	4 .. 20mA and pulse	250 mm | 9.84"	VPA.8000.21K5
VPLog-i-R	100 .. 1600 A-rms	RS485 (Modbus RTU)	250 mm | 9.84"	VPA.8000.21K6

Accessories VPLog-i-R

DESCRIPTION		ORDER CODE
	5-Pin M12 femail connector (connector with screw terminal) for connecting your VPLog-i-R to the JB5 Interface SET.	VPA.5000.001
	JB5 interface SET for programming your VPLog-i-R. Interface set JB5 + 5m/16,4 ft cable (M12 connector) + 12V power supply + RS485 to USB cable.	VPA.5001.205

VP Leak Detector

The practical and cost-effective ultrasonic inspection tool

The VP Leak Detector is a practical and cost-effective ultrasonic inspection tool. It helps you find compressed air, gas, and vacuum leaks and troubleshoot mechanical systems with ease. Whether you're new to ultrasonic inspection or expanding an existing maintenance program, this intuitive instrument is an ideal way to begin proactive leak detection and energy-saving practices.

With its straightforward design and minimal training requirements, the VP Leak Detector makes it easy for any technician to identify leaks quickly and accurately. It helps reduce energy waste, prevent equipment failure, and support a more sustainable facility. It's the perfect first step for organizations building a reliable, data-driven maintenance and energy management strategy.

Highlights

- Integrated LED bar graph meter
- 8 Position sensitivity selection
- Scanning module
- Rubber focusing probe
- Deluxe headphones
- 9 Volt Alkaline battery (replaceable)
- Nylon cordura soft carrying case

Applications

- Compressed air, gas, and vacuum leak detection
- Mechanical troubleshooting
- Preventive maintenance programs
- Energy audits and assessments

Specifications

Construction	Hand-held ABS pistol type ultrasonic processor, stainless steel sensor enclosures
Frequency Response	Peak response: 36-44 kHz
Display	10 segment LED Bar Graph (red)
Sensitivity Selection	8 position precision attenuation
Power Supply	9V alkaline battery (replaceable)
Respons time	300 msec
Ambient Operating Temp. Range	0..50 °C | 32..120 °F
Dimensions	13.3 x 5 x 20.3 cm | 5.25” x 2” x 8”
Weight	0.3 kg | 11 oz
Carrying Caset	Nylon Cordura soft carrying case

Order codes

DESCRIPTION	ORDER CODE
 **VP Leak Detector** For easy leak detection. Includes a handy carry case and a deluxe noise-isolating headset compatible with hard hats.	VPA.8000.3100

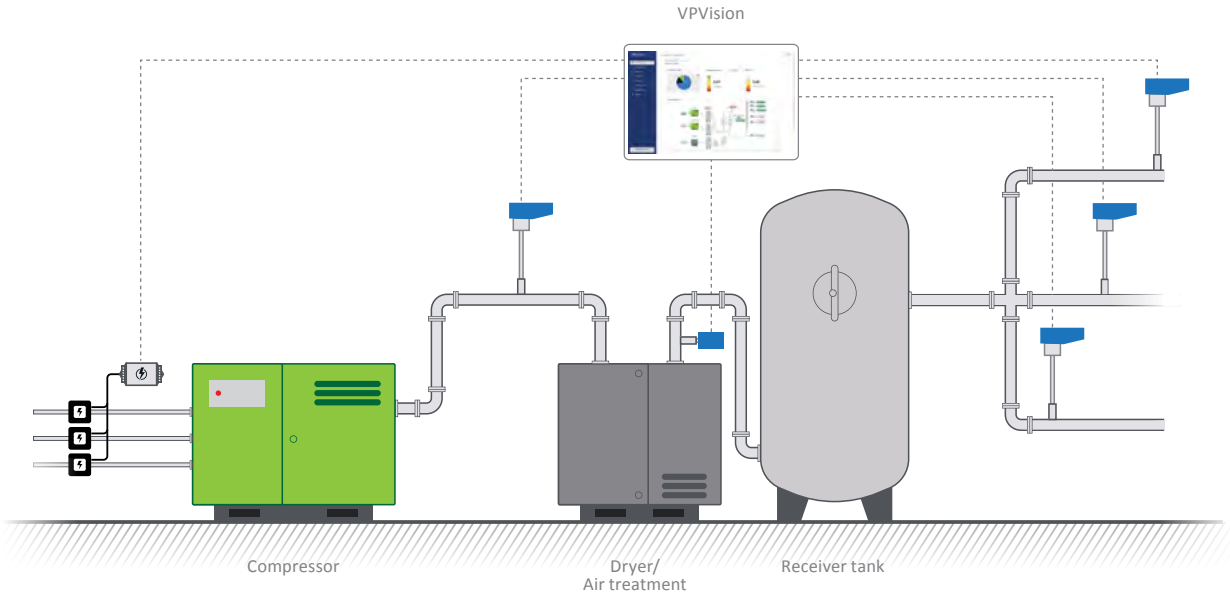
VPVision

Real time energy monitoring

VPVision is the complete real time energy monitoring solution for all utilities within your company. By monitoring your consumption, you can manage your supply and demand side. Take factual and well-founded decisions on your costs and investments. Reveal the true costs of all your utilities, including compressed air, technical gases, steam, vacuum, natural gas, electricity, wastewater, heating fuels etc.

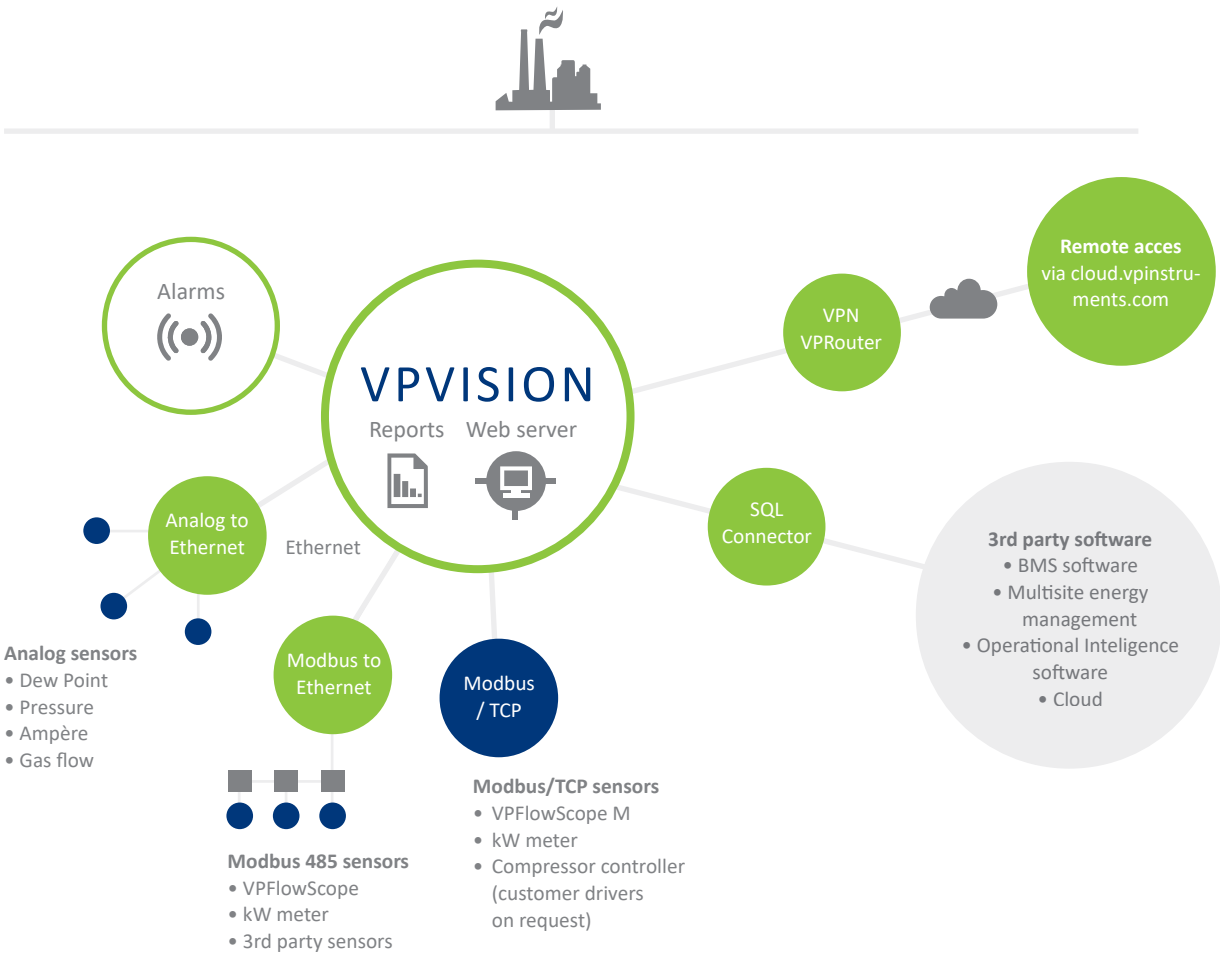
Highlights

- Complete energy monitoring for all your utilities
- On-premise data storage, safe and secure on the industrial rugged VPVision Edge device
- Complete web-based Energy Management software with customizable screens
- Accessible via Ethernet and/or 3G/4G via the built-in VPN router
- Visualize your measurement data in easy dashboards, including KPI's, charts, graphs, consumption overviews, P&IDs, and more
- Automated PDF reports with e-mail function and alarm messages: no need to look at the system itself anymore
- Easy to use interface
- Flexible & Scalable: Start small and extend over time, limitless in sensors
- Supports your ISO 50001 Energy Management System
- Extensive support included



Technology

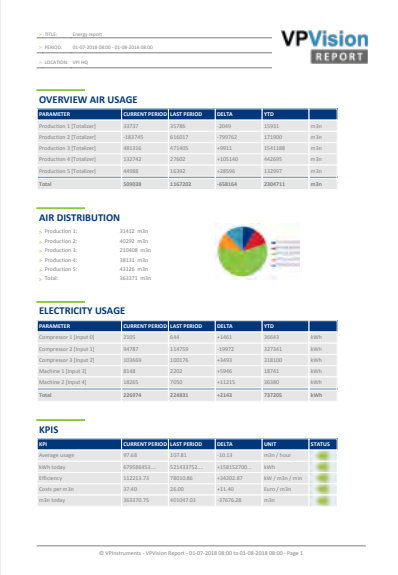
VPVision is a subscription based energy monitoring solution, which is pre-installed on a dedicated industrial hardware platform. VPVision collects all data, once per second, and stores it securely in an SQL database. The data is made available real-time via a built-in web server, which can be accessed from any pc, tablet or smartphone.

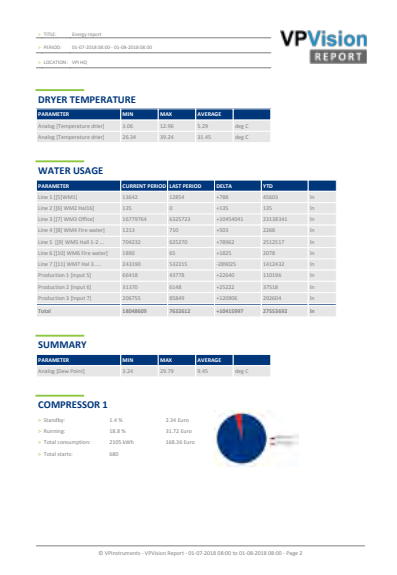


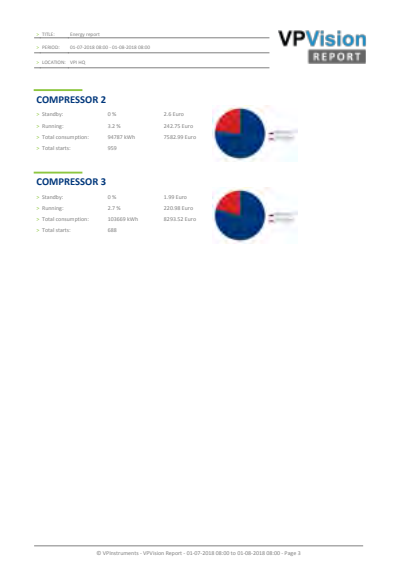
Applications

- Performance and efficiency measurements of utilities and capital machinery
- Optimize maintenance schedules by immediately detecting issues or misuse
- Costs allocation towards machines/production lines/departments
- Benchmark between machines/production lines/departments
- Establish your energy base line and set critical energy performance indicators (KPIs)
- Quantify energy savings activities
- Monitor and optimize your control systems
- Correct sizing of equipment

Example report







Measurement channels and VPInstruments products

Each measurement channel which you would like to visualize and trend in VPVision, is valued as one channel. You can select per device how many channels you want to log in VPVision. VPInstruments products are pre-programmed for your convenience. Here is the list per device of how many channels VPVision logs for you default from factory.

DEVICE	# CHANNELS ENABLED BY DEFAULT	PARAMETERS
VPFlowScope (all types)	4	Flow, pressure, temperature, total flow
VP Dew Point Sensor	1	Dew point temperature
VPLog-i	1	Current
VPLog-i-R	1	Current
3 Phase Power Meter	4	Power, voltage, current, cos (phi)
3rd party device	32	Up to 32 measurement channels per device (as Modbus standard)

Including

- Pre-configuration of your VPVision
- End user set up training & 4 hours consultancy per year
- Warranty remains valid as long as your license is active
- Configuring sensors and instrumentations (supplied by VPInstruments) and their connection to VPVision
- Creating standard widgets & pages for smooth ignition
- Set-up Cloud connection
- Documentation of the provided configuration

Order codes

VPVision exists of VPVision Hardware (start up package) and a yearly software subscription of which the first year is included.

The VPVision packages all contain:

- Automatic software updates
- Pre-configuration
- Page & widget builder
- Virtual channels
- 3rd party sensor connection
- Cloud access (w/ data plan)
- Reports
- Alarms (via email & text)
- SQL connector
- End user set up training
- 4 hours consultancy per year
- Warranty during license period

VPVISION **SMALL**	VPVISION **MEDIUM**	VPVISION **LARGE**	VPVISION **EXTRA LARGE**
Up to **20** measurement channels	Up to **40** measurement channels	Up to **80** measurement channels	Up to **200** measurement channels
Order number VPV.B001.S01	Order number VPV.B001.S02	Order number VPV.B001.S03	Order number VPV.B001.S04

VPVision Software Subscription Renewals

VPVISION-S **SMALL**	VPVISION-S **MEDIUM**	VPVISION-S **LARGE**	VPVISION-S **EXTRA LARGE**
Up to **20** measurement channels	Up to **40** measurement channels	Up to **80** measurement channels	Up to **200** measurement channels
Order number VPV.6100.S01	Order number VPV.6100.S02	Order number VPV.6100.S03	Order number VPV.6100.S04

VPVision Mobile

The professional’s choice for industrial audits

VPVision is the proven energy monitoring system for plant utilities. VPVision Mobile gives you all the options from VPVision, but in a sturdy explorer case. Making it withstand the most challenging industrial conditions. It enables you to offer your customers a complete audit of plant utilities. But you can also show them the benefits of permanent monitoring.
You can use VPVision Mobile for on-site data logging, with remote access, thanks to built-in cellular connectivity. This gives you the option to check the system remotely, saving you time and money.

The software offers all known functions of VPVision. In addition, it also gives you the option to record data once per second for a detailed analysis. In this way you can provide your customers with factual system and performance data. Detailing their current usage of compressed air and other utilities and potential energy savings.

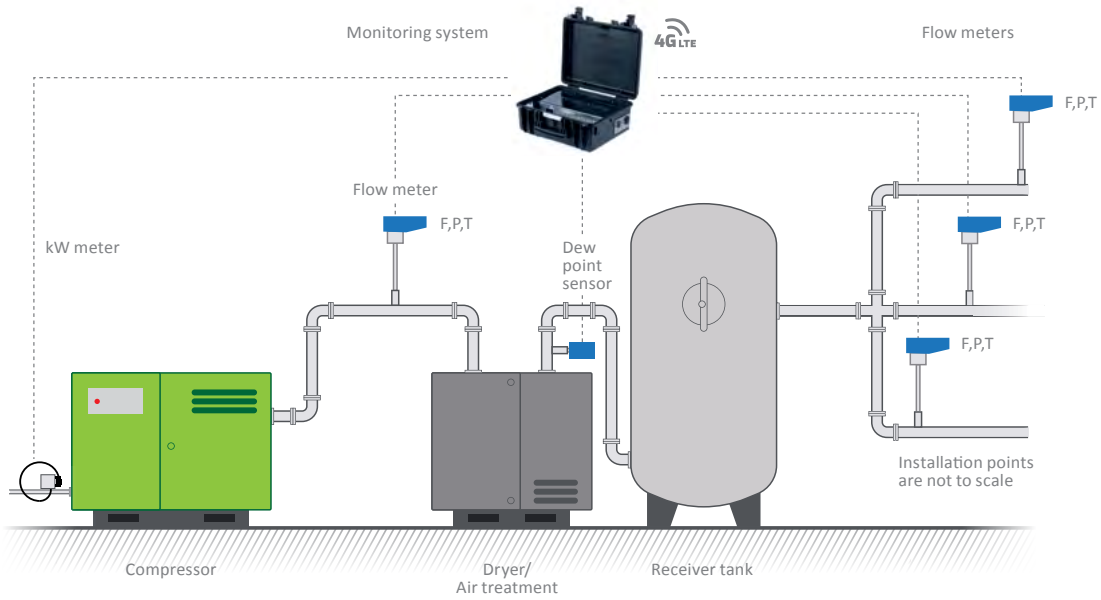
Data is stored locally on your VPVision Mobile. This ensures maximum privacy and security without compromises. Local data storage is also of utmost importance when working in remote areas with poor cellular coverage.

Highlights

- On-site data logging, combined with cellular connectivity for remote access
- Industrial quality hardware in sturdy Explorer Case
- Plug-and-play cable connections
- 8 analog (4..20 mA) inputs for third party analog sensors, all fully protected
- Once a second logging mode enables high resolution analysis
- Seamless integration with VPInstruments products and generic Modbus devices
- Continuous over the air updates

Applications

- Supply & demand audits for compressed air, nitrogen, oxygen, CO_2, helium, argon, and other technical gases
- Leak detection
- Vacuum/blower audits
- General energy management audits (electricity, steam, natural gas)
- Control system analysis
- Troubleshooting production equipment
- Compressor room performance measurements
- Quality control



Order codes

VPVision Mobile

DESCRIPTION	ORDER CODE
 **VPVision Mobile in Explorer Case** VPVision with 8 analog input connectors and 1 RS485 (Modbus RTU) connector (for a daisy chain of max. 8 sensors) in Explorer Case for audits. 1 second log intervals.	VPV.6100.H10
 **VPVision auditor subscription** VPVision subscription for up to 40 measurement channels. The software is a subscripted annual license, paid in advance per year. The periods can be renewed with 1, 3 or 5 years. The price is locked in for the duration of your subscription.	VPV.6100.S12
 **VPVision Mobile: Amp and demand side set** Includes VPVision Mobile with 1 year VPVision auditor subscription, 1 pc VPFlowScope M with display, 3 pcs RS485 wide range Amp meter, RS485 dew point sensor -70..+60°C, 5 pcs RS485 network cable set.	VPV.6100.KT1
VPVision Mobile: Amp and supply side set Includes VPVision Mobile with 1 year VPVision auditor subscription, 1pc VPFlowScope DP with display, 3 pcs RS485 wide range Amp meter, 4 pcs RS485 network cable set.	VPV.6100.KT2

Accessories

DESCRIPTION	ORDER CODE
 **RS485 network cable set** Add one per RS485 sensor. For creating a multidrop RS485 network of sensors. Consist of 1mtr/3ft and 10mtr/33ft cable with M12 male on both ends and T-splitter.	VPA.5000.160
Cable 10m/32.8ft. with M12 5-pin male connector both sides For easy connection between VPVision Mobile and a T-splitter or between T-splitters.	VPA.5000.062
Cable 1m/3.2ft. with M12 5-pin male connector both sides For easy connection between a T-splitter and a sensor.	VPA.5000.063
 **5-pin M12 MALE connector (connector with screw terminal)** Without cable. (No IP/NEMA rating). Used for flow meter connection or to female connector of extension cable.	VPA.5000.000
 **Modbus RS485 T-splitter** M12 5-pin 3x female connector. To create the daisy chain between your Modbus RS485 sensors or extend your 10m cable.	VPA.5000.060
 **Modbus RS485 bus termination connector** Add one per daisy chain. To be connected to the termination of the T-Splitter.	VPA.5000.061
 **VP Dew Point Sensor set (-70..+60 °C | -94..140 °F) + M12** Includes VP Dew Point Sensor BSP (VPA.8000.1018), 10m/33ft cable with M12 connector for Modbus connection, sample block, bleeding valve and accessories. Includes Calibration certificate.	VPA.8100.1019
 **VPLog-i-R AC current sensor 1600A-rms + M12** Output: Modbus RS485.	VPA.8100.21K6
VPLog-i AC current sensor 800A-rms + M12 800 Amp Amperage meter with 5 meter cable with M12 connector, 4..20 mA output.	VPA.8100.2800
VPLog-i AC current sensor 400A-rms + M12 400 Amp Amperage meter with 5 meter cable with M12 connector, 4..20 mA output.	VPA.8100.2400
VPLog-i AC current sensor 100A-rms + M12 100 Amp Amperage meter with 5 meter cable with M12 connector, 4..20 mA output.	VPA.8100.2100
VPLog-i AC current sensor 200A-rms + M12 200 Amp Amperage meter with 5 meter cable with M12 connector, 4..20 mA output.	VPA.8100.2200
VPLog-i AC current sensor 1500A-rms + M12 1500 Amp Amperage meter with 5 meter cable with M12 connector, 4..20 mA output.	VPA.8100.21k5

* For other complimentary sensors, please check the different products in this guide.

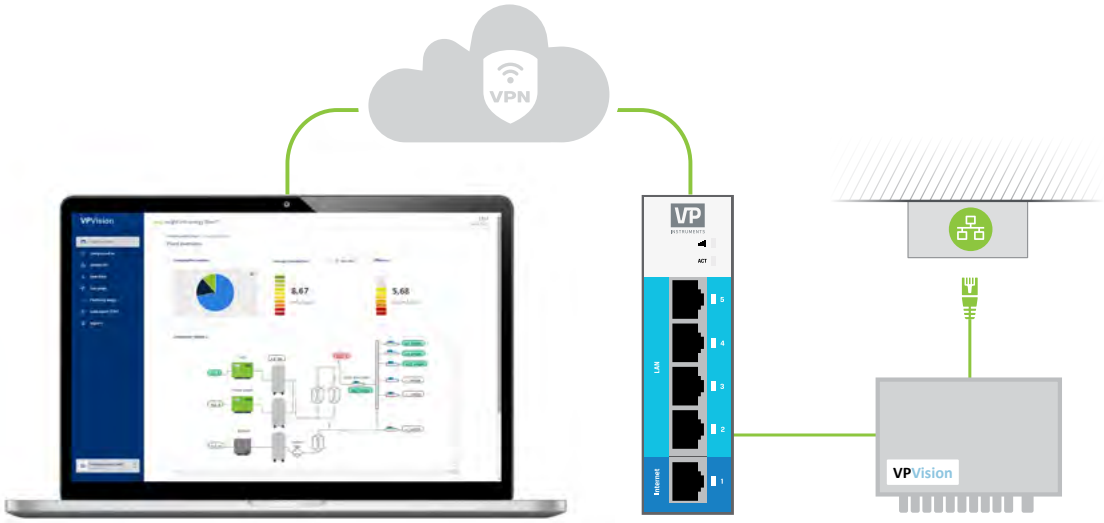
VP(n)Router

Easy and safe remote access

Read out, service and monitor VPVision and connected Ethernet-based sensors/modules, from anywhere. The VPRouter makes it convenient to connect to your VPVision via a cellular network, independent of the customer's own LAN. Especially in applications where an internet connection is not available or where a dedicated VPN connection outside of the existing network, is preferred, the VPRouter is the secure solution. With the VPRouter your VPVision is just a few clicks away. Just login on your Cloud account, select the system you would like to see, and view VPVision directly in your web browser. Are you responsible for multiple sites and compressed air systems? No problem! One Cloud account can host numerous VPN modules.

Benefits

- No costly on-site visits for data readout
- Allows for remote support and updates
- Can be used as local switch with 4 ports
- Multiple sites in just 1 Cloud account
- Easy installation on a standard DIN rail
- Save & Secure connection: the VPRouter is designed with an advanced firewall and the highest IT security standards
- Lifetime VPN Portal included at no extra cost (cloud.vpinstruments.com)



Specifications

VPROUTER VPA.2405.R01	
Ethernet ports	5 x 1 Gbps (4x LAN, 1x WAN)
USB	USB 2.0
Power supply	12-24 VDC +/- 20% LPS 2A
Temperature range	-20 .. 65°C | - 4 .. 149°F
Dimensions	111 x 95 x 28mm | 4.37" x 3.74" x 1.1"
SIM size	Standard SIM card (size 2FF), SIM card not standard included
Physical specs	Metal case, IP20, DIN rail mountable
Protocols and frequencies	FDD-LTE - B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 TDD-LTE - B38, B39, B40, B41WCDMA - B1, B2, B4, B5, B6, B8, B19 GSM/GPRS/EDGE - 850, 900, 1800, 1900 MHz
Certifications	CE, UL, FCC
Warranty	2 years
Cloud.VPInstruments.com VPN portal	Lifetime access included

Order codes

VPRouter

DESCRIPTION		ORDER CODE
	**VPRouter** Industrial router and switch with life time VPN portal connection.	VPA.2405.R01
	**VPRouter Antenna with high strength magnetic fixation** When using 3G/4G of the built-in VPRouter.	VPA.2206.M01
	**VPRouter Antenna with mounting screw fixations** When using 3G/4G of the built-in VPRouter.	VPA.2205.S01

VPFlowTerminal

Plug & play wall mount display

The VPFlowTerminal is a plug & play wall mount display with built-in power supply and 2 million point data logger. The VPFlowTerminal has 5 sensor inputs: 1 input for a VPFlowScope In-line, Probe or DP, and 4 generic analog inputs. It can record up to 8 channels. This makes the collection and analysis of your compressed air data easier and quicker!

Highlights

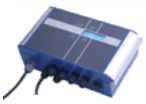
- Wall mount display
- Built-in data logger with 2 million point data logger
- 1 x VPFlowScope input (Probe, DP, In-line)
- 4 Analog input channels
- 3-line display with real-time information and configuration keys
- Built-in power supply
- Easy data retrieval via USB and VPStudio software to .CSV file

Specifications

VPFLOWTERMINAL	
Input voltage	100 .. 240 Vac mains (pre-wired)
Housing type	Painted Aluminum IP65 | NEMA 4
Display	LCD, 3 lines
Back light	Blue with auto power save
Data logger	Two million point data logger
Signal inputs	VPFlowScope + 4 optional 4 .. 20 mA sensors (non - isolated, loop powered)
Sensor power supply	24 VDC
Maximum sensor current	4 x 25 mA for analog sensors, 1 x 150 mA for VPFlowScope
Data outputs	USB for configuration and data retrieval
Ethernet interface	Modbus / TCP port
Basic configuration	Via key pad
Flow meter connection	M12, 8 pin
Additional connections	Cable glands for analog inputs, Ethernet connection
Dimensions	l x b x h = 230 x 130 x 75 mm, 9.1 x 5.1 x 2.95"
Weight	1.6 kG | 3.53 Lbs

Order codes

VPFlowTerminal*

DESCRIPTION		ORDER CODE
	**VPFlowTerminal with connector cap 8 pin M12**	VPT.5110.000

Start sets*

DESCRIPTION		ORDER CODE
	**VPFlowTerminal with VPFlowScope Probe 400mm/15.4”**	VPS.R150.P400.VPT.SET
	**VPFlowTerminal with VPFlowScope Probe 600mm/23.3”**	VPS.R150.P600.VPT.SET
	**VPFlowTerminal with VPFlowScope DP probe 400mm/15.4"**	VPS.R200.P4DP.VPT.SET
	**VPFlowTerminal with In-line 0.5" combination set** With in- and outlet BSP tubes	VPS.R080.M050.VPT.SET.BSP
	VPFlowTerminal with In-line 0.5" combination set With in- and outlet NPT tubes	VPS.R080.M050.VPT.SET.NPT
	VPFlowTerminal with In-line 1" combination set With in- and outlet BSP tubes	VPS.R250.M100.VPT.SET.BSP
	VPFlowTerminal with In-line 1" combination set With in- and outlet NPT tubes	VPS.R250.M100.VPT.SET.NPT
	VPFlowTerminal with In-line 2" combination set With in- and outlet BSP tubes	VPS.R01K.M200.VPT.SET.BSP
	VPFlowTerminal with In-line 2" combination set With in- and outlet NPT tubes	VPS.R01K.M200.VPT.SET.NPT

Accessories

DESCRIPTION		ORDER CODE
	**VPFlowScope connector cap with 8 pin M12** For the use in combination with the VPFlowTerminal only	VPA.5001.901
	**110 .. 240 VAC EU style Power cable, 1,9m/6.3 ft.** Can be used for VPFlowTerminal	VPA.2000.000
	**110 .. 240 VAC US style Power cable, 1,9m/6.3 ft.** Can be used for VPFlowTerminal	VPA.2000.001

* Including 10m cable, 8 pin M12 connector cap and mini USB cable.
The VPFlowTerminal will be supplied without power cable, due to different styles.
Please select the correct style power cable for your use.

Hot tap drill

The safe and easy way to drill your installation point under pressure

The hot tap drill is the universal tool to install your insertion flow meter in any compressed air system. In only 30 minutes you can drill a hole and install your flow meter. Using a hot tap saddle and a hot tap drill, you can create a new installation point without depressurizing your installation. The VPInstruments hot tap drill can be used for drilling through a hot tap saddle with a 1” fitting.

Highlights

- Make an installation point without depressurizing your system
- Hand operated: no power tool needed on-site
- Safe and easy operation
- Versatile
- For applications up to 10 bar
- 1” Hot tap drill size
- All accessories included
- Explorer® transport case included

Hot tap drill - Exclusive model

Hot tap drill - Economy model

VPInstruments hot tap drill models

With VPInstruments hot tap drill sets you have all you need to drill your installation point. We offer the economy model and the exclusive model.

CASE CONTENTS	EXCLUSIVE MODEL	ECONOMY MODEL
Rugged yellow carry and storage case	•	
Grey toolbox for the hot tap tool		•
Unidrill hot tap drill	•	•
PU-handcap	•	•
Standard drill 21mm | 0.83". L = 70mm		•
Standard drill 21mm | 0.83". L = 70mm. HHS CO material	•	
Wrench 14/17	•	•
Hook wrench 52/55	•	•
Ratchet wrench	•	•
Center point	•	
High flow air relief adapter AC 1/2"	•	

Specifications

VPA.8001.1002	
Max pressure	20 bar | 290 psi
Higher pressure ratings on request	
Drill shaft diameter	16 mm | 0.6 inch
Drill shaft length	345 mm | 14 inch
Drill diameter	17 mm x M10 | 0.7 inch x M10
Pipe materials	steel, stainless steel

Order codes

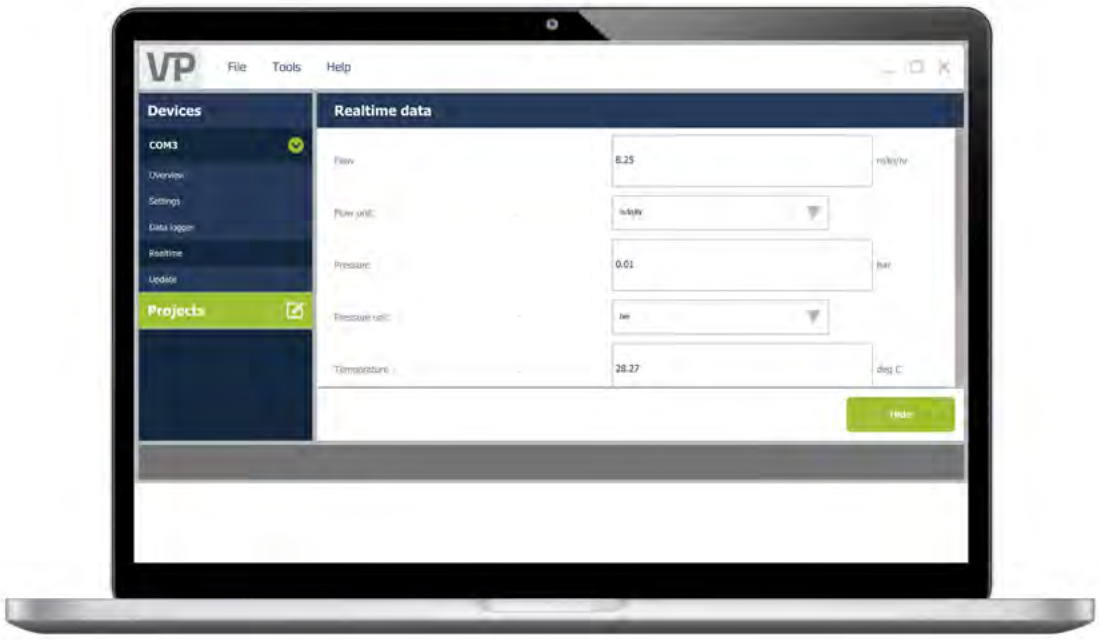
Hot tap drill

DESCRIPTION	ORDER CODE
 **Hot tap drill economy model, BSP pipe thread in grey tool box and with standard 22mm | 7/8" drill**	VPA.8000.1012
 **Hot tap drill exclusive model, BSP pipe thread in rugged yellow carry case with extra hardened 22mm | 7/8" drill**	VPA.8001.1002

Accessories

DESCRIPTION	ORDER CODE
 **Spare drill bit 21mm, length 70mm**	VPA.8001.1003
Adapter 1" from BSP (female) to NPT (male) For use in combination with the hot tap drill and NPT saddles.	VPA.0004.100
Adapter 1" from NPT (female) to BSP (male) For use in combination with the Hot tap drill and NPT saddles	VPA.0004.101
Reducer 1" M BSPT - 0,5" F BSPP	VPA.0002.002

VPStudio



SOFTWARE

VPStudio 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 for configuration, read-out (real-time) and processing of data log sessions.

Features and benefits

- Fully intuitive interface
- Auto device detection
- For VPFlowScope M
- Processing of data sessions
- CSV and XLSX data export
- Live graph of flow, pressure, and temperature

Download from **www.vpinstruments.com.**

VPCartridgeSwap+

Swap. Return. Earn.

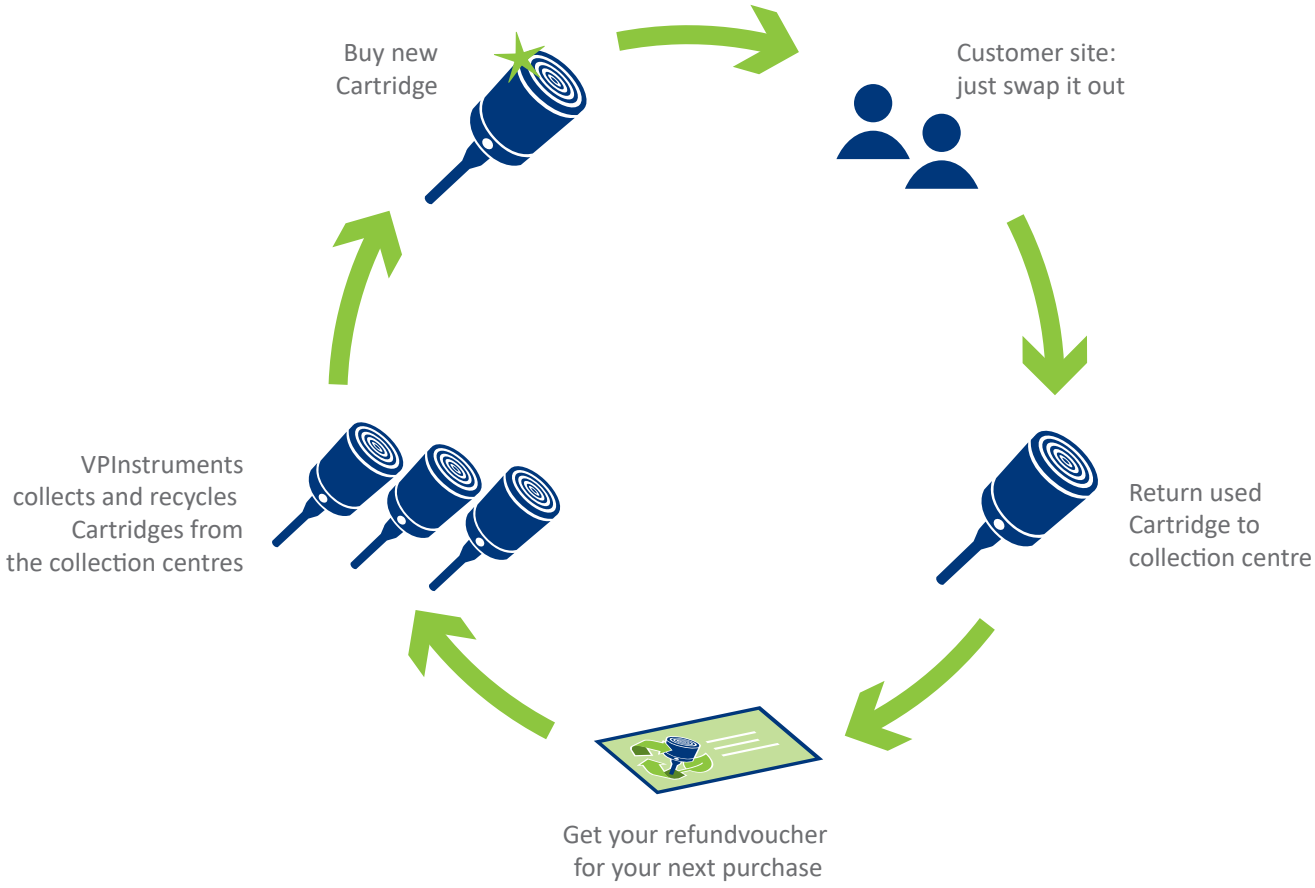
Keep your VPFlowScope M in top condition with fast, cost-effective, and sustainable maintenance. Unlike traditional flow meters that require off-site recalibration, resulting in removal, shipping delays, and measurement downtime. The VPFlowScope M enables on-site recalibration in just minutes with a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

Be green with VPCartridgeSwap+

Support sustainability by returning your used VPSensorCartridges. Each returned Cartridge is refurbished for reuse, reducing waste and conserving resources. You'll receive a voucher reward. And for every Cartridge returned, VPInstruments will plant a tree on your behalf.

How it Works:

1. **Swap**
   Easily replace your VPSensorCartridge on-site. No downtime, no hassle, your production keeps on running, and your data flowing.
2. **Return**
   Send the used Cartridge back to VPInstruments through our network of authorized distributors.
3. **Earn**
   Receive a €100 voucher for every returned Cartridge, redeemable on your next purchase.



Key Benefits:

- Fast on-site servicing: Cartridge swap takes only minutes, minimizing downtime and service disruption.
- Reliable measurement data: regular swapping ensures data accuracy for critical decision-making.
- Lowest total cost of ownership: avoid costly repairs and unnecessary downtime with easy Cartridge swap, while earning rewards.
- Sustainability commitment: by returning your used VPSensorCartridge, you actively contribute to a greener planet.

Terms & Conditions:

- Valid for VPFlowScope M Cartridges purchased after January 1, 2025 (starting from S/N 6103518).
- Cartridges must be less than 3 years old to receive the voucher. A tree is always planted.
- Submit your return via the RMA form at vpinstruments.com.
- Distributors issue vouchers when you return the Cartridge to them.
- VPInstruments will issue the voucher upon receipt if returned directly.
- OEM & private label customers are subject to special terms.

VPFlowScope service & exchange

Key to reliable, accurate results

SERVICE & EXCHANGE

Maintain the high-quality standard of your instruments and have confidence in their measurement accuracy with the VPInstruments service programs. Make sure that the cornerstone of your daily decisions is in excellent shape. VPInstruments offers flow meter calibration services at a state of the art calibration facility. Our calibration equipment is maintained under our ISO 9001 Quality Management System and is traceable to National Standards.

VPInstruments offers the following service options:

> Exchange service
> All-in service

	EXCHANGE SERVICE	ALL-IN SERVICE
Procedure	Exchange VPFlowScope will be shipped to customer first.	VPFlowScope will be sent to VPInstruments. After recalibration, it will be shipped back.
Downtime	Negligible	2-3 weeks
Re-calibration	-	Included
Cleaning	-	Included
Repairs included (normal wear and tear)	-	Included
Your benefits	Guaranteed reliable results	

Order codes

All-in service

DESCRIPTION		ORDER CODE
Inspection only Inspection of your returned equipment only. After inspection you decide if VPInstruments has to repair or return the equipment to you. In case of a repair the cost for the inspection will NOT be refunded.		VPA.0001.0900
All-in service This includes inspection, all necessary repairs and recalibration. After this service your equipment comes with calibration report and an additional 12 months of full warranty.	For VPFlowScope In-line	VPA.0001.0901
	For VPFlowScope Probe	VPA.0001.0902
	For VPFlowScope DP	VPA.0001.0903
	For VPFlowTerminal	VPA.0001.0904
	For the display of a VPFlowScope	VPA.0001.0905
	For a VPFlowScope M Transmitter	VPA.0001.0906

Options

DESCRIPTION		ORDER CODE
International daily rate for commissioning and supervision For details see VP Instruments international on-site support agreement.		VPA.0001.908
Helium gas calibration (Including calibration certificate).	For VPFlowScope In-line	VPA.0001.912
	For VPFlowScope Probe	VPA.0001.921
Special gas calibration **Other gases then helium calibration** (Including calibration certificate).	For VPFlowScope In-line	VPA.0001.915
	For VPFlowScope Probe	VPA.0001.951
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

Exchange

Prior to sending back your flow meter we will send you a flow meter of the same model with a full year warranty. The Exchange Service only pertains to the D0 versions. Displays and other accessories are not included in the Exchange Service, as they do not need recalibration.

DESCRIPTION		ORDER CODE
Exchange service	For VPFlowScope In-line	VPA.0001.1901
	For VPFlowScope Probe	VPA.0001.1902
	For VPFlowScope DP	VPA.0001.1903

Rental

For temporary application or project needs

For temporary application or project needs, we offer various rental flow meters. These flow meters can be rented per week and come calibrated and ready to use.

Order codes

	DESCRIPTION		ORDER CODE
	Rental VPFlowScope Probe set	1st week	VPA.0001.801
35bar	Rental VPFlowScope Probe set (high pressure)	1st week	VPA.0001.801.PN35
	Rental VPFlowScope Probe set	after 1st week	VPA.0001.802
	Rental VPFlowScope DP set	1st week	VPA.0001.804
	Rental VPFlowScope DP set	after 1st week	VPA.0001.805
	Rental VPFlowScope Probe & VPFlowTerminal set	1st week	VPA.0001.810
	Rental VPFlowScope Probe & VPFlowTerminal set	After 1st week	VPA.0001.820
	Rental VPFlowScope In-line 0.5"	1st week	VPA.0001.813
	Rental VPFlowScope In-line 1"	1st week	VPA.0001.814
	Rental VPFlowScope In-line 2"	1st week	VPA.0001.815
	Rental VPFlowScope In-line (all models)	after 1st week	VPA.0001.809
	Rental VPFlowScope M Audit Set	1st week	VPA.0001.830
	Rental VPFlowScope M Audit Set	after 1st week	VPA.0001.831
	Rental VPVision Mobile in carry case		VPA.0001.900

SERVICE & EXCHANGE

General accessories

JB5 interface set

The interface set, which is included in the VPFlowScope start set, can also be ordered as a separate item. The JB5 interface set is needed to connect your VPFlowScope insertion flow meter to the PC with VPStudio (not needed for VPFlowScope M models). In the interface set, you will find a splitter box with pre-mounted M12 cable, a DC power supply and an RS485 to USB converter.

Specifications

Mechanical & Environmental

Temperature: -20 ~ 50°C | -4 ~ 122°F

Weight: 0.9 kg | 1.98 lbs

Electrical

Supply input (mains): 100 - 240 VAC

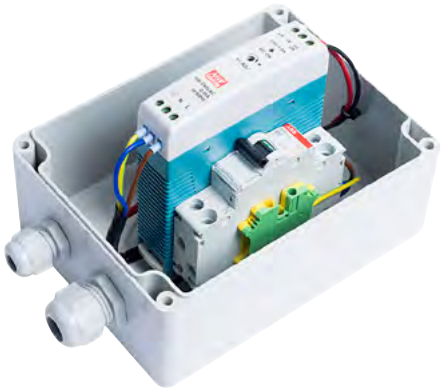
Output: 12 - 24 VDC

Cable: 5 meter | 16.4 foot cable with M12 5-pin connector

RS485 output: via RS485 to USB converter

Power supply module

The VPInstruments power supply module has been developed for the permanent installation of maximum two VPFlowScopes. However, the power supply module can be used to power up any device at 24 VDC up to 1 ampere. The field enclosure of the power supply module is rated IP65, which means it is well protected from dust and splashing water. The module can be wall mounted.



Specifications

Mechanical & Environmental

Construction: IP65 ABS enclosure

Temperature: -20 ~ 40°C | -4 ~ 104°F

Weight: 0.9 kg | 1.98 lbs

Outer dimensions: 160 x 120 x 140 mm | 6.30” x 4.72” x 5.51”

Electrical

Supply input (mains): 110 - 250 VAC, 50 - 60Hz

Supply output: 24 VDC 24 Watt

Modbus junction box

VPInstruments offers a convenient junction box for quick and easy connection between VPFlowScope sensor modules and your Modbus RS485 network. This junction box contains a special PCB, with screw terminals for the Modbus trunk cable and the derivation cable. The built-in LED indicates when the sensor has sufficient power. This feature is very handy to check voltage drops over longer distances.

Specifications

Aluminum IP65 enclosure

3 high quality cable glands included

Built-in PCB with termination resistor and bias resistors

LED indicator for power

Constructions

Aluminum enclosure, painted

Dimensions

125 x 80 x 57 mm | 4.92 x 3.15 x 2.24 inch

Remote IO Modules

Modbus extension module with power supply

Modbus extension module with power supply. DIN rail mounted converter and power supply built into an IP65 plastic enclosure. With this module you can power up another 8 VPFlowScopes in a daisy chain.

Applications

- For permanent installations
- To extend and power up another 8 VPFlowScopes
- To power up sensors that are too far away in the daisy chain to be powered by the VPVision M main unit or a converter box

Modbus to Ethernet converter with power supply

With this module you can transfer Modbus signals over Ethernet to the VPVision M unit or an existing building management system. It is an extension module for VPFlowScopes (max 8 per converter box). A power module is added to power these 8 sensors.

Applications

- For permanent installations
- To overcome great distances for sensor communication between master and slave
- When cables are too expensive
- To extend and power up another 8 VPFlowScopes

Analogue to Ethernet converter with power supply

Analogue input module with power supply. DIN rail mounted power supply module with analogue converter. Built in IP65 plastic enclosure. With this converter you can transfer 4..20 mA analogue signals over Ethernet to the VPVision M unit or an existing building management system. It is an extension module to add more analogue sensors (max 8 per converter box). A power module is added to power these 8 sensors.

Applications

- For permanent installations
- When you need to implement extra analogue input channels
- When cables are too expensive
- When analog signals need to be carried over Ethernet
- To power up another 8 analogue sensors

Analogue and Modbus to Ethernet converter with power supply

Analogue and Modbus converter with power supply, mounted on a DIN rail. Built in IP65 plastic enclosure. With this converter you can transfer 4..20 mA analogue and Modbus signals over Ethernet to the VPVision M unit or an existing building management system. It is an extension module for more analogue sensors (max 8 per converter box) and more VPFlowScopes (also max. 8 per converter box). A power module is added to power these 16 sensors.

Applications

- For permanent installations
- When you need to implement extra analogue input channels
- When cables are too expensive
- When analog signals need to be carried over Ethernet
- To extend and power up another 8 analogue sensors
- To extend and power up another 8 VPFlowScopes

Order codes

Accessories

	DESCRIPTION	ORDER CODE
	**Cable 5m/16.4 ft. with 5 pin M12 on one side** The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output. For permanent connection.	VPA.5000.005
	Cable 10m/32.8 ft. with 5 pin M12 on one side The other side has open wires for 0V, 24V, RS485 A, RS485 B and Analog output. For permanent connection.	VPA.5000.010
	**5-pin M12 MALE connector (connector with screw terminal)** Without cable. (No IP/NEMA rating). Used for flow meter connection or to female connector of extension cable.	VPA.5000.000
	5-pin M12 FEMALE connector (connector with screw terminal) Without cable. (No IP/NEMA rating). To create extension cable and connect to male connector.	VPA.5000.001
	Cable for RS485 / Modbus network	VPA.0000.150
	**VPFlowScope JB5 interface SET incl. USB to RS485 converter and power supply for JB5** For connecting your VPFlowScope to VPStudio. Only for D0 models - without display. Not for VPFlowScope M models.	VPA.5001.205
	**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
	**Modbus junction box (IP65)** For easy connection of multiple flow meters in a daisy chain.	VPA.5030.020
	**Power supply module in IP65 enclosure (230-110VAC to 24VDC)** For permanent installation. This power supply module can power max 2 VPFlowScopes.	VPA.0030.100
	**Explorer case for 2x VPFlowScope Probe 400mm/15.4”**	VPA.5014.000
	Explorer case for VPFlowScope Probe 400mm/15.4” & VPFlowScope In-line 1"	VPA.5014.001
	Explorer case for VPFlowScope M	VPA.5014.002

Remote IO modules

	DESCRIPTION	ORDER CODE
	**Modbus extension module with power supply** To set up another daisy chain of max 8 devices and connect to another COM port on VPVision.	VPA.5030.011
	**Modbus to Ethernet converter with power supply** Din rail mounted Modbus RS485 terminal with Modbus to Ethernet converter and power supply, built in IP65 enclosure. To power and convert maximum 8 Modbus RS485 devices over Ethernet.	VPA.5030.111
	**Analogue to Ethernet converter with power supply** Din rail mounted Analogue to Ethernet converter with power supply, built in IP65 plastic enclosure. To power and convert maximum 8 channels of 4..20 mA signals over Ethernet.	VPA.5030.211
	**Analogue and Modbus to Ethernet converter with power supply** Din rail mounted Modbus RS485 terminal and Analogue to Ethernet converter with power supply, built in IP65 enclosure. To power and convert maximum 8 Modbus RS485 devices and 8 channels of 4..20 mA signals over Ethernet.	VPA.5030.311
	Modbus RTU to HART converter For VPFlowScope Probe, DP, M and In-line flow meters.	VPA.5030.500

Notes

Notes

energy insights
trusted by professionals™

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