NEXPRIENG

VP INSTRUMENTS

VPFLOWSCOPE IN-LINE

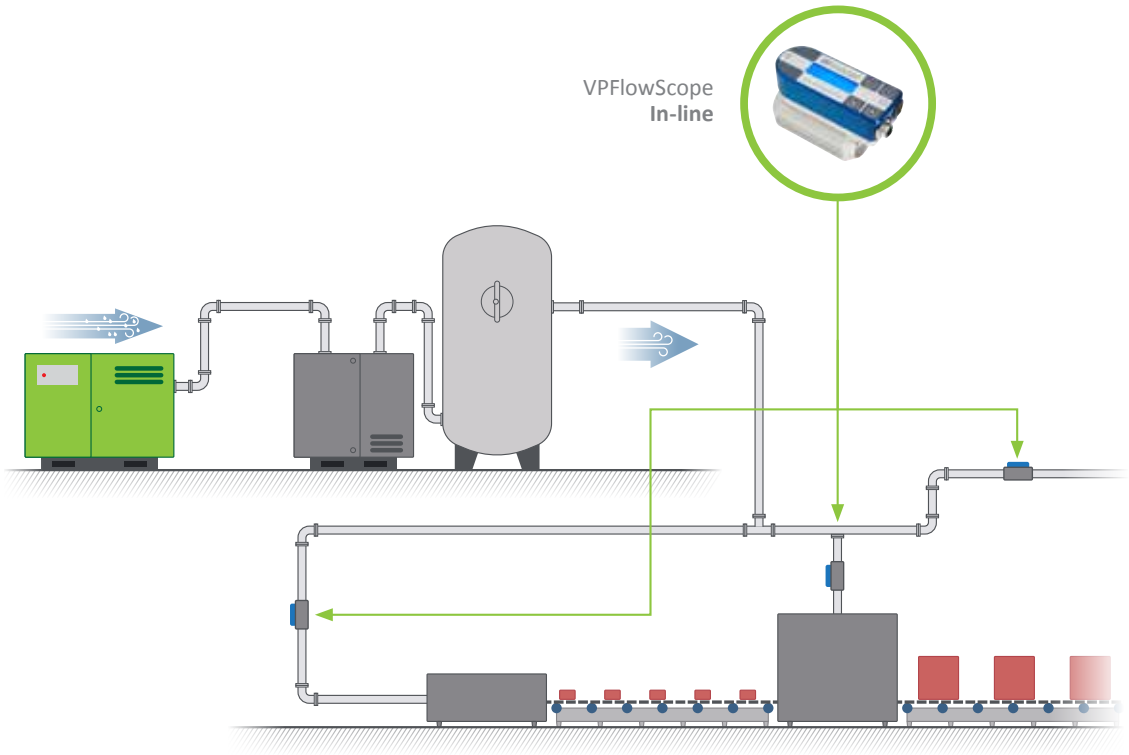
The flow meter for point of use measurements

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

Applications

- Submetering 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)
- Condition monitoring of pneumatic equipment
- 16 bar (250 psi) and 35 bar (500 psi) versions available for compressed air



Power of combined measurement

Get the complete picture by measuring flow, pressure, and temperature simultaneously. Examples are: The pressure drop caused by excessive flow and an investigation to determine if a machine can use less air at a lower pressure.

Bi-directional flow measurement

Bi-directional flow occurs frequently in compressed air systems. Examples are in ring networks, overseen branches or a leaking non-return valve. Discover the actual consumption and avoid mis-readings with VPFlowScope bi-directional flow measurement option.

Display options

The VPFlowScope In-line comes in three sizes; 0.5 inch (VPS.R080.M050), 1 inch (VPS.R250.M100), and 2 inch (VPS.R01K.M200). In these three sizes, you can choose three display options.

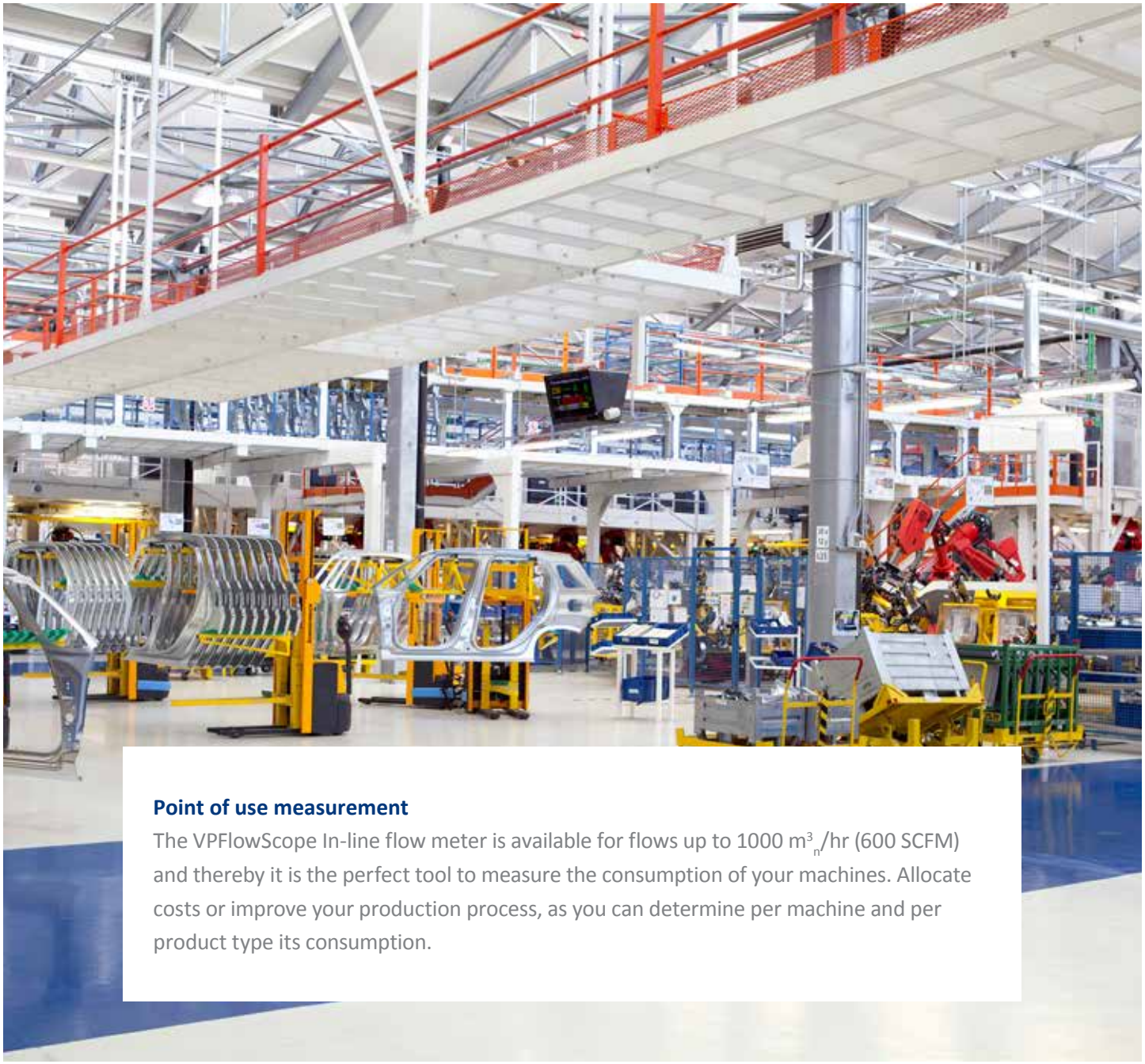
DISPLAY	MODEL	RS485	4 .. 20 MA/ PULSE	3 LINE DISPLAY	2M POINT DATA LOGGER	APPLICATIONS
No display	D0	*	*			BMS, Remote monitoring, OEM. Order C8 model for VPFlowTerminal
Display	D10	*	*	*		BMS, Point of use measurement
Display with data logger	D11	*	*	*	*	Auditing, machine testing, portable use

The display provides real-time information that can be recorded with the optional data logger. The display is reversible and shows all information on three lines, which are fully configurable. You can choose from SI and Imperial display units. The data logger offers 2 million data points, which makes recording as easy as taking pictures. This is enough storage to measure flow, pressure and temperature once per second for more than a week.

- 3-Row display with backlight
- Thermabridge™ flow sensor
  Pressure sensor
  Temperature sensor
- Two million point data logger
- Keypad to configure your flow meter
- RS485 (Modbus RTU)
  4..20 mA
  Pulse
  USB interface

Tubing kits

Tubing kits are offered to integrate VPFlowScope In-line sensors more easily and to assure accuracy. The tubes are made of stainless steel. The tubing kits for the 0.5 inch and 1 inch have respective lengths of 20x diameters before and 5x diameters after the flow sensor. For the 2 inch, due to weight, the tube has 15x diameters before and 5x diameters after the flow sensor. We offer tubing kits in BSP and NPT thread styles.



Point of use measurement

The VPFlowScope In-line flow meter is available for flows up to 1000 m^3_n/hr (600 SCFM) and thereby it is the perfect tool to measure the consumption of your machines. Allocate costs or improve your production process, as you can determine per machine and per product type its consumption.

Software

VPStudio software

Our VPStudio software is available for your VPFlowScope, free of charge. VPStudio is available on our website and can be installed on your PC. It communicates via the JB5 interface kit (for non-display models) or via the USB cable (display models) with your VPFlowScope In-line.

Features of VPStudio:

- View real time measurements
- Viewing and retrieving your (air audit) data log sessions in a structured manner in the Projects module
- Setting your logging intervals
- Setting your Modbus and networking parameters
- Spanning the analogue output to 4..20 mA or Pulse

Download from www.vpinstruments.com.

"Thanks to the VPFlowScope In-line we found nearly 80,000 USD of argon leaks in our system. This was really an eye opener for us. We now implemented a new maintenance program based on permanent monitoring of our Argon consumption."

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	± 1.5% FSS (0 .. 60 °C) ± 1.5% FSS (32 .. 140 °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)

** Decreasing for oxygen use double-bog product sealing available on request*
*** Other sensor body materials available on request*

NEXPRIENG

VP INSTRUMENTS

VPFLOWSCOPE PROBE

The flow meter for all your compressed air and gas measurements

VPINSTRUMENTS.COM

VPFlowScope Probe

The VPFlowScope® 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.

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.

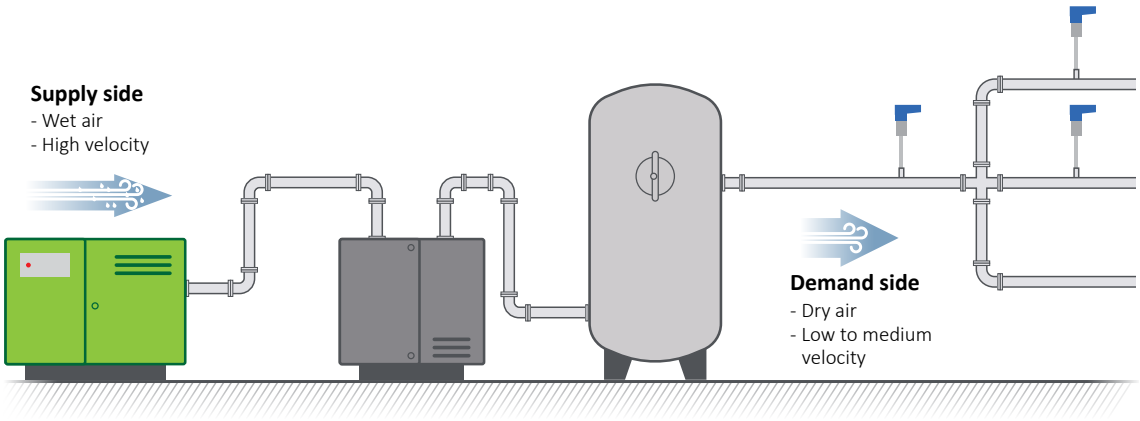
The bright blue LCD display provides real-time information and with the built-in data logger, you can record for certain periods of time. Combine this with our VPStudio software on your PC and you can use this information to process data, print reports and analyze where and how exactly you can save.

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, 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



Measure dry and clean gas only for correct measurements and a long lifetime.

Power of combined measurement

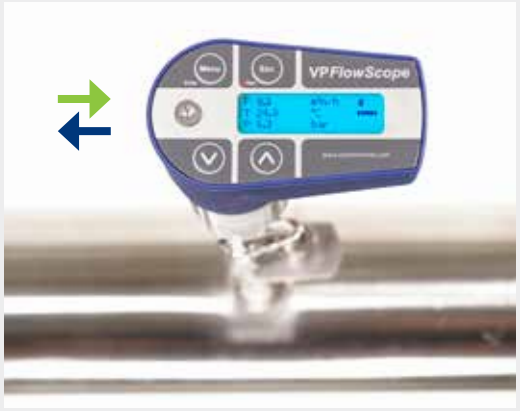
Get the complete picture by measuring flow, pressure and temperature simultaneously. Examples are: pressure drop caused by excessive flow, flow & temperature measurement combination downstream a refrigerant dryer, investigation if a machine can use less air at a lower pressure.

Bi-directional flow measurement

Bi-directional flow occurs frequently in compressed air systems, examples are in ring networks, at receivers in case of multiple compressed rooms, overseen branches or a leaking non-return valve. Discover the actual consumption and avoid mis-readings with VPFlowScope bi-directional flow measurement option.

Proprietary safety cable

We value your safety while you install your flow meter under pressurized conditions. The safety cable prevents unintended launching of the flow meter. As an extra benefit, the flow meter remains better in its position over time.



VPFlowScope Probe measurement range

VPS.R150.Pxxx flow range table

SCHEDULE 40 STANDARD SEAMLESS CARBON STEEL PIPE								SCHEDULE 10 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)	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	2.2	54.8	2.5	749	4.2	1273
3	80	3.1	77.9	5.1	1516	9	2576	3.3	82.8	5.7	1712	10	2908
4	100	4.0	102.3	8.7	2610	15	4435	4.3	108.2	9.7	2923	17	4966
6	150	6.1	154.1	20	5924	34	10065	6.4	161.5	22	6508	37	11057
8	200	8.0	202.7	34	10259	58	17429	8.3	211.6	37	11173	63	18982
10	250	10.2	259.1	56	16756	95	28468	10.4	264.7	58	17487	99	29709
12	300	11.9	303.2	77	22953	130	38995	12.4	314.7	82	24724	140	42004
16	400	15.0	381.0	121	36237	205	61565	15.6	396.8	131	39315	223	66794
20	500	18.8	477.8	190	56996	323	96832	19.6	496.9	205	61643	349	104729

The ranges only apply to compressed air and nitrogen. Contact us for other gases. The field accuracy of an insertion probe is typically +/- 5% due to installation conditions. Insertion probes may not be used for official compressor testing.

Display module

The VPFlowScope Probe is available in several versions: without display (with connector cap) (D2), with display module (D10), and with display module and integrated data logger (D11).
View options in this overview table:

PRODUCT CODE	FLOW	PRESSURE	TEMPERATURE	TOTALIZER	4 ... 20 MA AND PULSE	RS485 / MODBUS RTU	DISPLAY	2 MILLION POINT DATA LOGGER	APPLICATION
VPS.RXXX.PXXX.D0	•	•	•	•	•	•			Spare part
VPS.RXXX.PXXX.D2	•	•	•	•	•	•			BMS/ permanent monitoring
VPS.RXXX.PXXX.D10	•	•	•	•	•	•	•		Local display
VPS.RXXX.PXXX.D11	•	•	•	•	•	•	•	•	Local display, Auditing
VPS.RXXX.PXXX.KIT	•	•	•	•	•	•	•	•	Auditing

The display provides real-time information that can be recorded with the optional data logger. The display is reversible and shows all information on three lines, which are fully configurable. You can choose from SI and Imperial display units. The data logger offers 2 million data points, which makes recording as easy as taking pictures. This is enough storage to measure flow, pressure and temperature once per second for more than a week.

Software

VPStudio software

Correct flow measurements start with entering the correct inner pipe diameter into your flow meter. You program this easily via the display keypad or via the VPStudio software.
For non-display models, the diameter can only be set via the software. VPStudio can be installed on your PC and communicates via the JB5 interface kit with the VPFlowScope via your PC's USB port.

Features of VPStudio:

- Setting your pipe diameter
- View real time measurements
- Viewing and retrieving your (air audit) data log sessions in a structured manner in the Projects module
- Setting your logging intervals
- Setting your Modbus and networking parameters
- Spanning the analogue output to 4 … 20 mA or Pulse

Download from www.vpinstruments.com.

Start kits

Begin measuring energy savings immediately with a VPFlowScope start kit. The start kit features all the accessories needed to start measuring immediately. We offer several start kits, pending on your needs:

	VPFLOWSCOPE START KIT VPS.R150.400.BOX	VPFLOWSCOPE START KIT IN EXPLORER CASE VPS.R150.P400.KIT	VPFLOWSCOPE WITH VPFLOWTERMINAL VPS.R150.P400.VPT.KIT
VPFlowScope Probe sensor	•	•	•
Three row LCD display with built-in datalogger	•	•	
VPFlowTerminal* with: - 4 extra analogue inputs, - Three row LCD display with built-in datalogger. - Pre-wired 10m cable with connector cap			•
VPFlowScope JB5 interface KIT for configuration.	•	•	
Compression fitting with integrated proprietary safety cable	•	•	•
Rugged explorer case with pre-cut foam		•	
Calibration report	•	•	•
VPStudio software	•	•	•

* For the VPFlowTerminal, the power cord to be ordered separately for US/EU adapter selection.
* VPStudio software, free available at www.vpinstruments.com
* Order your VPFlowTerminal with flow meter always together. The standard connector cap has an M12 - 5 pin connector, whereas the VPFlowTerminal requires a connector cap with an M12 - 8 pin connector.

Specifications: VPFlowScope Probe

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	> 10 m_n/sec: +/- 1 °C | 1.8 °F < 10 m_n/sec: + 5 °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 (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)

NEXPRIENG

VP INSTRUMENTS

VPFLOWSCOPE DP

The ultimate tool for saturated
and hot compressed air measurement

VPFlowScope DP

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.

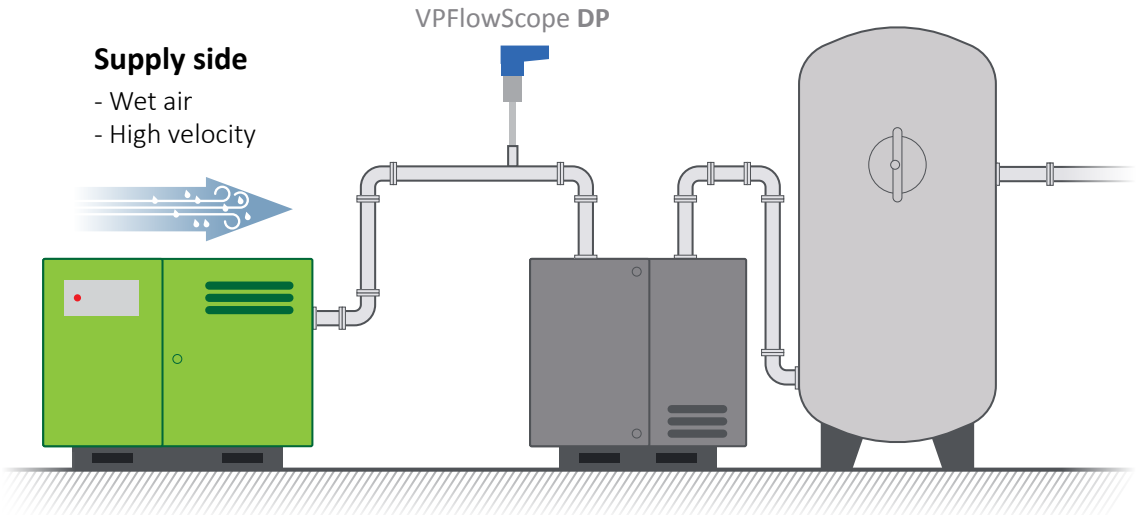
The VPFlowScope DP is an insertion type flow meter, so you can use one device for various pipe diameters. The bright blue LCD display provides real-time information and with the built-in data logger, you can record for certain periods of time. Combine this with our VPStudio software on your PC and you 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 200mn/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



The VPFlowScope DP is preferably installed in the second horizontal piping after the compressor where there is less possibility for excess water. A cyclone separator is recommended upstream of the flow meter, to remove excess water from the system.

Insertion type flow meter can be installed under pressure

Your compressed air supply is often vital for your 24/7 production process. You can install the VPFlowScope DP under pressurized conditions without stopping your compressor.

Bi-directional flow measurement

Bi-directional flow occurs frequently in compressed air systems, examples are in ring networks, at receivers in case of multiple compressed rooms, overseen branches or a leaking non-return valve. Discover the actual consumption and avoid mis-readings with the built-in bi-directional sensitivity.

Power of combined measurement

Get the complete picture by measuring flow, pressure and temperature simultaneously. Examples are: pressure drop caused by excessive flow, flow & temperature measurement combined downstream of a refrigerant dryer, and to get to know the true delivery of your compressors.

Proprietary safety cable

We value your safety while you install your flow meter under pressurized conditions. The safety cable prevents unintended launching of the flow meter. As an extra benefit, the flow meter remains better in its position over time.

Software

VPStudio software

Correct flow measurements start with entering the correct inner pipe diameter into your flow meter. You program this easily via the display keypad or via the VPStudio software.
For non-display models, the diameter can only be set via the software. VPStudio can be installed on your PC and communicates via the JB5 interface kit with the VPFlowScope via your PC's USB port.

Features of VPStudio:

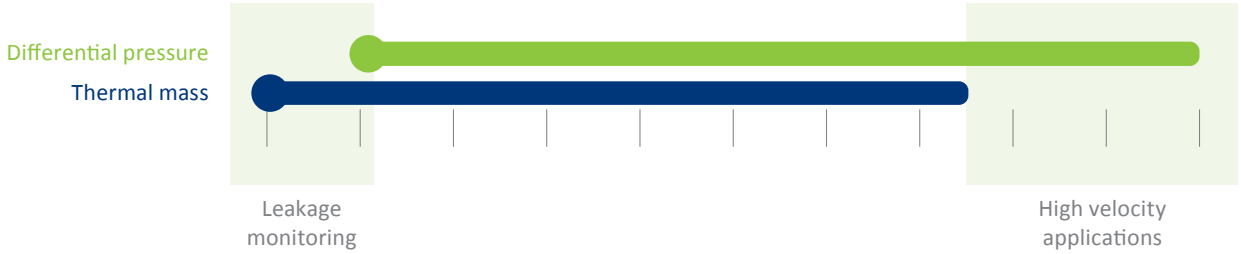
- Setting your pipe diameter
- View real time measurements
- Viewing and retrieving your (air audit) data log sessions in a structured manner in the Projects module
- Setting your logging intervals
- Setting your Modbus and networking parameters
- Spanning the analogue output to 4 … 20 mA or Pulse

Download from www.vpinstruments.com.

VPFlowScope DP measurement range

Differential pressure vs. thermal mass

The range of thermal mass flow technology is superior to differential pressure technology. Therefore, differential pressure meters should not be used for leakage monitoring. They are intended for use in high velocity applications where there is a continuous flow over a minimum value, such as compressor efficiency monitoring.



VPS.R200.P4DP.x flow range table

SCHEDULE 40 STANDARD SEAMLESS CARBON STEEL PIPE								SCHEDULE 10 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)	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	2.2	54.8	100	1000	170	1698
3	80	3.1	77.9	202	2020	343	3432	3.3	82.8	228	2282	388	3877
4	100	4.0	102.3	348	3483	592	5918	4.3	108.2	390	3897	662	6620
6	150	6.1	154.1	790	7904	1343	13429	6.4	161.5	868	8681	1475	14749
8	200	8.0	202.7	1368	13675	2323	23234	8.3	211.6	1490	14902	2532	25319
10	250	10.2	259.1	2234	22344	3796	37963	10.4	264.7	2332	23320	3962	39621
12	300	11.9	303.2	3060	30597	5199	51985	12.4	314.7	3296	32962	5600	56004
16	400	15.0	381.0	4831	48314	8209	82087	15.6	396.8	5240	52405	8904	89036
20	500	18.8	477.8	7598	75983	12910	129097	19.6	496.9	8218	82180	13962	139624

The ranges only apply to compressed air and nitrogen. Contact us for other gases. The field accuracy of an insertion probe is typically +/- 5% due to installation conditions. Insertion probes may not be used for official compressor testing.

"The VPFlowScope DP is super easy to install and allows me to show customers just how important measuring flow really is."

- Frank Moskowitz, Draw Professional Services, USA

Display module

The VPFlowScope DP is available in several versions: without display (with connector cap) (D2), with display module (D10), and with display module and integrated data logger (D11).
All your options in one overview:

PRODUCT CODE	FLOW	PRESSURE	TEMPERATURE	TOTALIZER	4 ... 20 MA AND PULSE	RS485 / MODBUS RTU	DISPLAY	2 MILLION POINT DATA LOGGER	APPLICATION
VPS.RXXX.PXXX.D0	•	•	•	•	•	•			Spare part
VPS.RXXX.PXXX.D2	•	•	•	•	•	•			BMS/ permanent monitoring
VPS.RXXX.PXXX.D10	•	•	•	•	•	•	•		Local display
VPS.RXXX.PXXX.D11	•	•	•	•	•	•	•	•	Local display, Auditing
VPS.RXXX.PXXX.KIT	•	•	•	•	•	•	•	•	Auditing

The display provides real-time information that can be recorded with the optional data logger. The display is reversible and shows all information on three lines, which are fully configurable. You can choose from SI and Imperial display units. The data logger offers 2 million data points, which makes recording as easy as taking pictures. This is enough storage to measure flow, pressure and temperature once per second for more than a week.

Start kits

Begin measuring energy savings immediately with a VPFlowScope start kit. The start kit features all the accessories needed to start measuring now. We offer several start kits, pending on your needs:

	VPFLOWSCOPE DP START KIT VPS.R200.P4DP.BOX	VPFLOWSCOPE DP START KIT IN EXPLORER CASE VPS.R200.P4DP.KIT	VPFLOWSCOPE DP WITH VPFLOWTERMINAL VPS.R200.P4DP.VPT.KIT
VPFlowScope DP Sensor	•	•	•
Three row LCD display with built-in datalogger	•	•	
VPFlowTerminal* with: - 4 extra analogue inputs, - Three row LCD display with built-in datalogger. - Pre-wired 10m cable with connector cap			•
VPFlowScope JB5 interface KIT for configuration.	•	•	
Compression fitting with integrated proprietary safety cable VPFlowScope DP	•	•	•
Rugged explorer case with pre-cut foam		•	
Calibration report	•	•	•
VPStudio software	•	•	•

* For the VPFlowTerminal, the power cord to be ordered separately for US/EU adapter selection.
* Order your VPFlowTerminal with flow meter always together. The standard connector cap has an M12 - 5 pin connector, whereas the VPFlowTerminal requires a connector cap with an M12 - 8 pin.

Specifications: VPFlowScope DP

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	+/- 1.5% FSS (0 … 60 °C) | (32 … 140 °F) Temperature compensated

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 are not allowed.

Other probe lengths

The VPFlowScope DP has a standard length of 386 mm. Custom lengths are not possible.

NEXPRIENG

VP INSTRUMENTS

VPFLOWSCOPE M

Your next step in gas flow measurement

The Internet of things / Industry 4.0 is rapidly transforming our world. Production becomes smart, intelligent and autonomous. Production lines will make their own decisions and human intervention will only be needed when things go wrong. With the VPFlowScope M, you invest in an industry 4.0 ready platform, as it has a built-in Ethernet interface.

VPFLOWSCOPE M

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

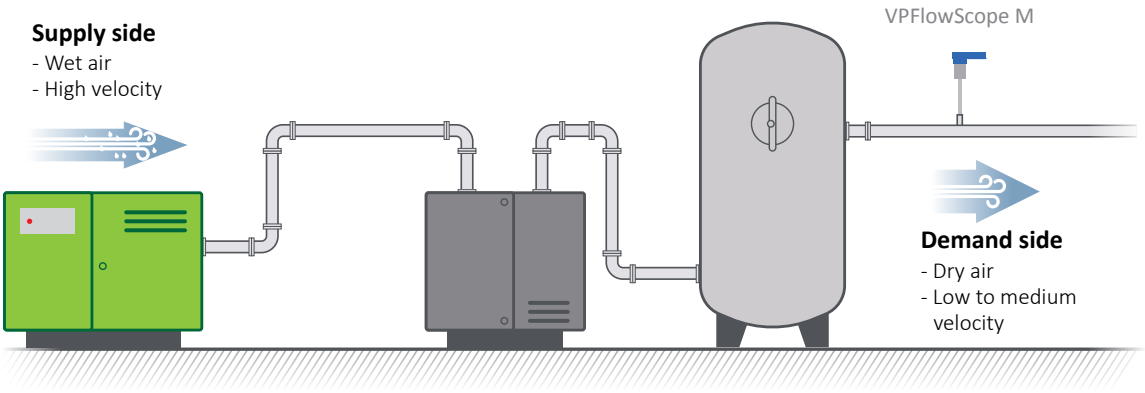
The next step in flow measurement

The VPFlowScope M is a four-in-one insertion flow meter for compressed air and technical gases. It can be installed under pressure and measures 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.

Applications

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

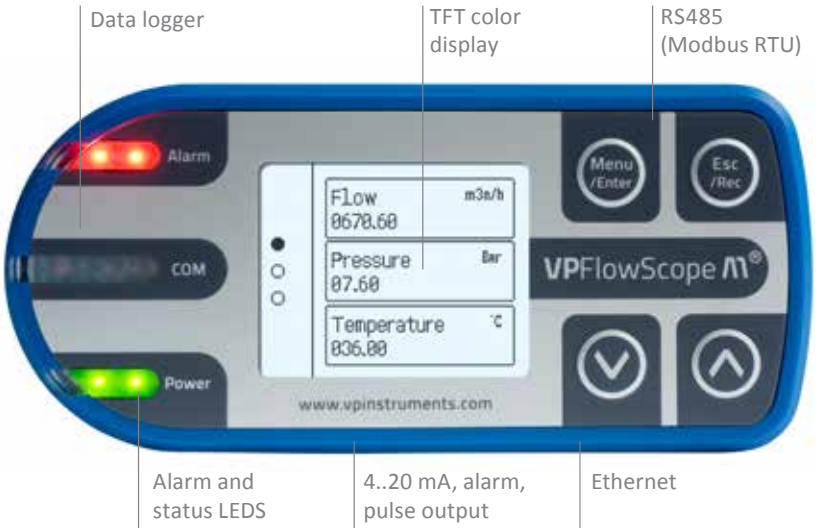


Industry 4.0 ready

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

Features

- Ethernet (Modbus/ TCP)
- RS485 (Modbus RTU)
- 4..20 mA linearized, alarm or pulse output
- USB interface for configuration and downloading of data log files
- Optional display with real-time information with possibility to visualize 1, 2 or 3 parameters simultaneously
- Optional data logger with 1-year automated retention policy



One Transmitter. Many possibilities!

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

TRANSMITTER MODEL	ETHERNET	RS485	4 .. 20 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

No more recalibration

With the patented VPSensorCartridge®, traditional recalibration is something of the past. From now on, you simply exchange the VPSensorCartridge® and continue your measurements. No more waiting, no more downtime.

Your benefits

> Near zero down-time
> Less customs/on-site paperwork
> Less transport costs
> Consistent, reliable measurements

VPSENSORCARTRIDGE® MODEL	DESCRIPTION	APPLICATIONS
VPM.R150.P350.PN10	Thermabridge™ thermal sensor: flow, pressure, temperature and calibration report.	Leakage management, demand and supply side flow measurements and general purpose flow measurements.
VPM.R150.P351.PN10	Thermabridge™ thermal mass sensor: **bi-directional** flow, pressure, temperature and calibration report.	Audits, internal billing and cost allocation, ring networks, multi plant compressor installations and shared compressor facilities.

VPM.R150.P35X flow range table

The VPFlowScope M is extremely flexible to use. The following table shows you the minimum and maximum flow for various pipe diameters between 2 and 16 inch. Please note that flow ranges apply only to compressed air and nitrogen. The ranges may vary when used with other technical gases. Contact us for more details.

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	688	4	1,169
3	80	3.1	77.9	5	1,516	9	2,576
4	100	4.0	102.3	9	2,610	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

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	1,273
3.3	82.8	5.7	1,712	10	2,908
4.3	108.2	9.7	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

Measure more in less time

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

Start Kit

Begin measuring energy savings immediately with a VPFlowScope Start Kit. The Start Kit contains all items needed to perform air audits or permanent measurements.
You can install the unit right out of the box and connect it to your laptop, company network or building management system.

VPFlowScope M Start Kit model - VPM.T001.D011.KIT

- VPSensorCartridge® (VPM.R150.P351) including bi-directional flow sensitivity
- VPFlowScope M Transmitter (VPM.T001.D011) with display and integrated data logger
- Compression fitting for VPFlowScope M with integrated safety cable
- Mini USB cable
- Power supply adapter 12V with 5 pin M12 connector
- Ethernet cable 5m/16.4 ft. with 4 pin M12 on one side and RJ45 connector on the other side
- Rugged explorer case with pre-cut foam
- ISO Calibration report
- VPStudio software, free available at www.vpinstruments.com

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	Model VPM.R150.P351.PN10 only
Accuracy	2% of reading under calibration conditions; Please refer to the user manual for details. Recommended pipe diameter: 25 mm (1") and up.
Reference conditions	0 °C, 1013.25 mbar | 32 °F, 14.65 psi
Gases	Compressed air, nitrogen and inert, non condensing gases
Gas temperature range	0 .. +60 °C | 0 .. +140 °F

PRESSURE SENSOR	
Pressure sensor range	0 .. 10 bar | 0 .. 145 psi gage
Accuracy	+/- 1% FSS (total error band) Temperature compensated

TEMPERATURE SENSOR	
Temperature sensor range	0 .. +60 °C | 32 .. +140 °F
Accuracy	> 10 m/sec: +/- 1 °C | 1.8 °F < 10 m/sec: + 5 °C | 9 °F

MECHANICAL & ENVIRONMENTAL	
Probe lengths	340 mm | 13.4"
Weight	200 grams | 7.05 ounces
Process connection	Compression fitting, 1/2" NPT, Tapered
Pressure rating	PN10
Protection grade	IP65 | NEMA 4 when mated to Transmitter
Ambient temperature range	0 .. +60 °C | 32 .. 140 °F. Avoid direct sunlight or radiant heat
Wetted materials	Anodized Aluminum, Stainless steel 316, Glass, Epoxy
Corrosion resistance	Highly corrosive or acid environments should be avoided

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

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

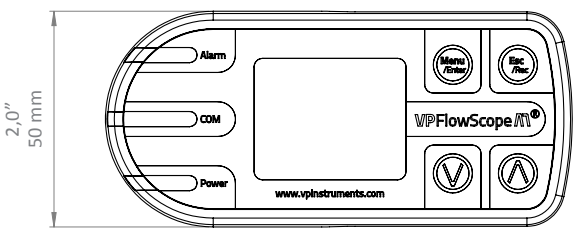
DATA LOGGER (D011 ONLY)	
Memory	One-year circular memory, 1 x per second logging interval for all parameters
Logging mode	Cyclic

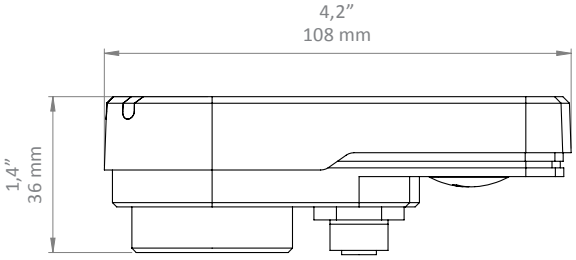
OUPUTS	
RS485	Modbus RTU
Analog / digital	Configurable: 4 .. 20mA, pulse, alarm
USB	Mini USB, behind sealed cap (for configuration)
Ethernet	Modbus / TCP

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.



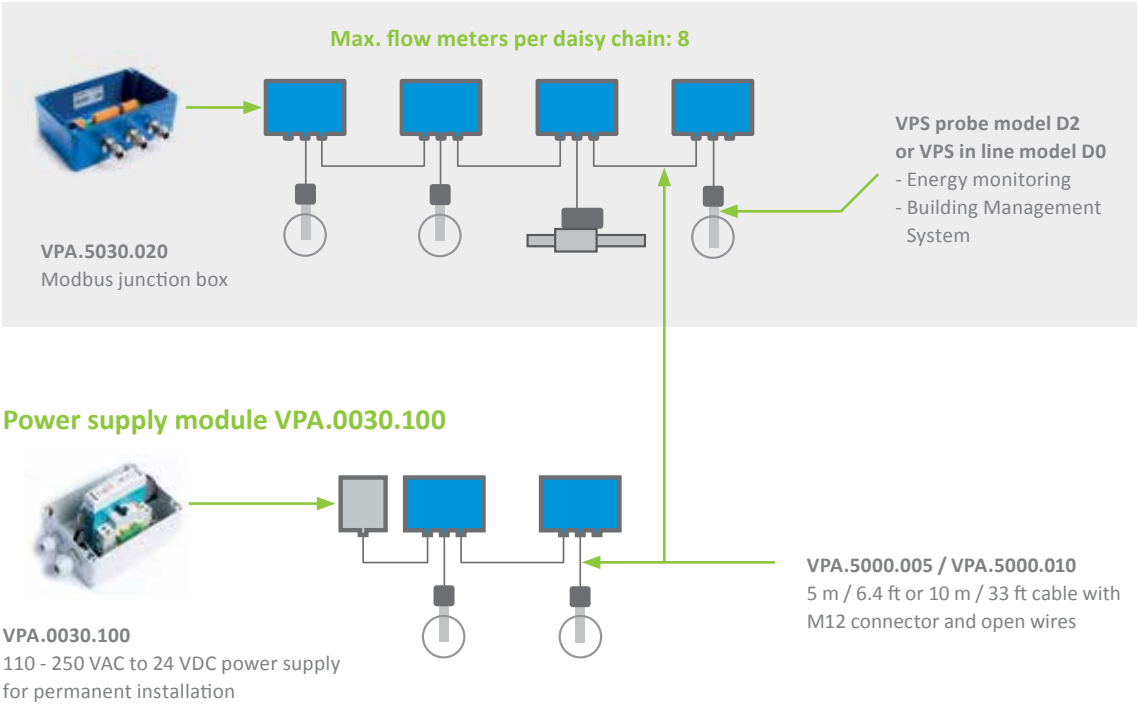


Ease of connection

The VPFlowScope features an RS485 (Modbus RTU) interface, which is especially useful in energy monitoring applications, like VPVision. You can connect up to eight VPFlowScope flow meters in one daisy chain. It is recommended to use a junction box for each flow meter to ease proper connection to the Modbus network. The junction box has biasing, termination resistors and provides feedback by LED on the power supply.

However, if you would like to connect your flow meter to an existing Modbus network or 4..20mA/pulse based data acquisition system, you can use the power supply module to supply DC power to the flow meter. The power supply module can supply power to two flow meters at the same time. You will find screw terminals in the power supply module for both RS485 and the 4..20 mA / pulse output at your convenience. If you require more installation examples, please refer to the user manual.

Modbus network with multiple flow meters (DC power supplied from VPVision)

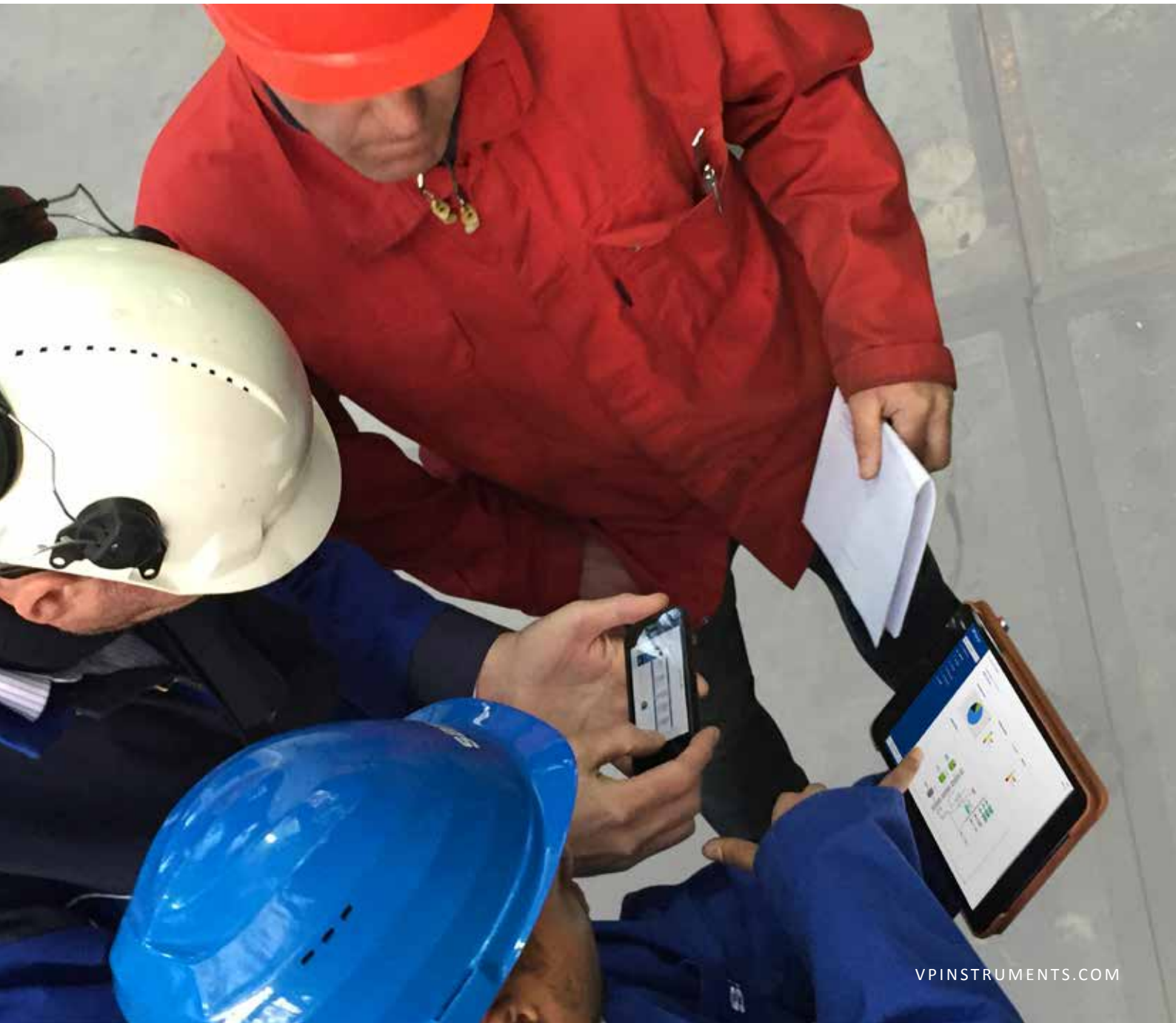


NEXPRIENG

VP INSTRUMENTS

VPVISION

Real time energy monitoring



'The VPVision system is easy to understand and we have been able to customize it to meet our monitoring needs.'

- California Steel Industries

'The VPVision system helps us to keep our compressed air system running at optimum efficiency.'

- Bolletje's Bakery

VPVISION

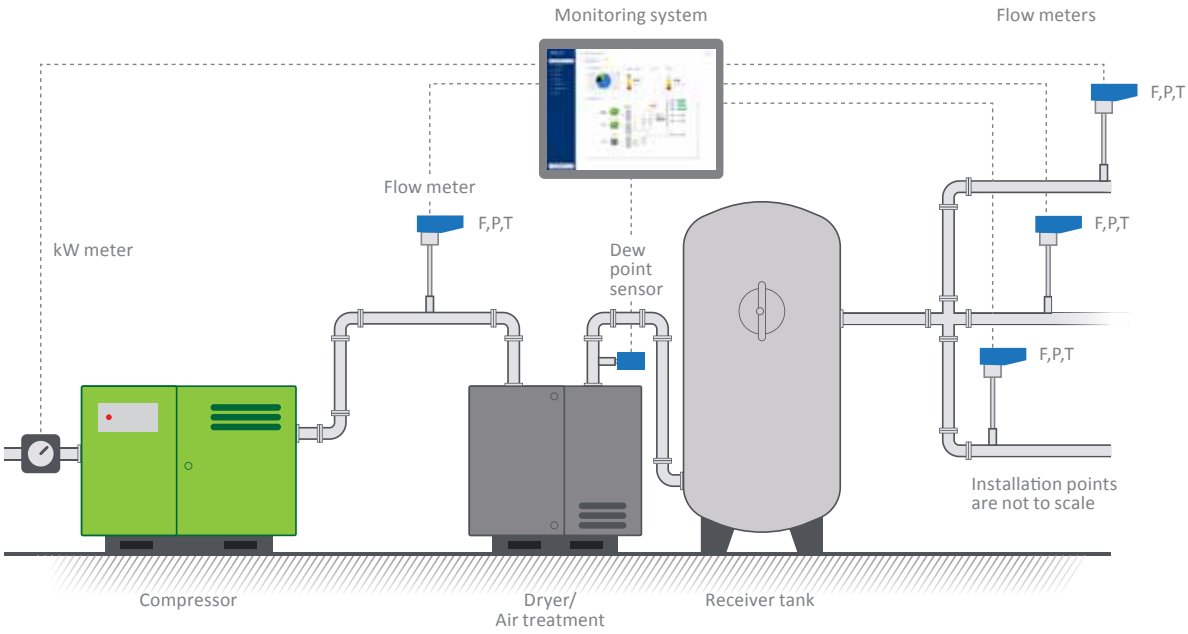
- Complete energy monitoring
- Fast return on investment
- Easy to use
- Web based
- Cloud ready, VPN
- Flexible, Scalable
- Supports your ISO 50001 Energy Management System

Your factory deserves 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.

For energy monitoring and more

VPVision offers you the complete monitoring solution for energy flows and environmental registrations. VPVision is extremely flexible and adaptable, it fits small, large and growing companies. You can customize VPVision yourself: add channels, change dashboards, and create reports yourself.



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

1+2/3

Virtual channels enable you to combine sensor signals and create another virtual sensor. For example, you can combine two flow meters to calculate the sum of or the difference between them, to allocate costs to specific areas inside your plant.

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 (KPI's)
- Quantify energy savings activities
- Monitor and optimize your control systems
- Correct sizing of equipment

Dashboard examples

Define and monitor your own KPI's. With clear color indication the current status is immediately visible.

Understand your main consumers to give direction where to start with your energy savings initiatives.

Combine sensor data in one graph for a more granular analysis to debottleneck problems or to discover savings potentials.

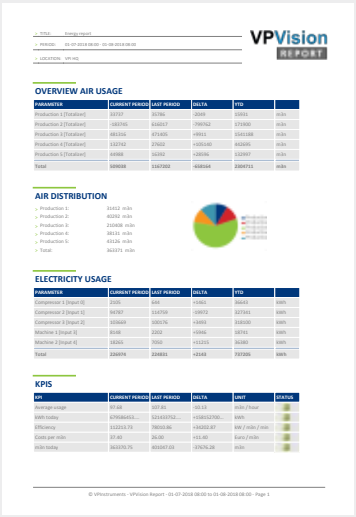
VPVision provides the necessary data to get approval for your improvement projects and/ or for energy rebate programs. And even better, with the data before and after your project, you register the actual changes.

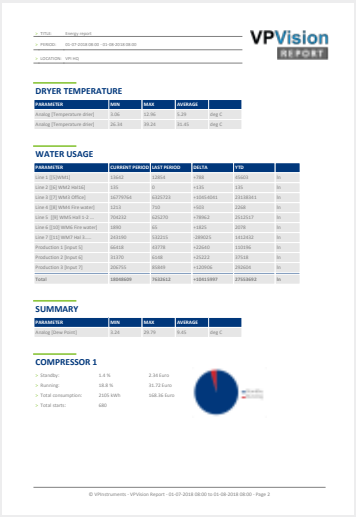
"VPVision is very easy to use. It provides us a real time view via a web interface, without the need to install any software. It provides us a lot of information in a simple way." *Samsung Poland*

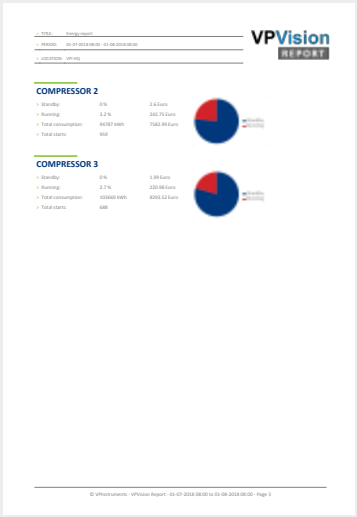
Total peace of mind with automated Reports & Alarms

Create your own reports and have it in your mailbox weekly or monthly. The reports are fully customizable, and different types of reports can be made for different roles. Track your KPI's, consumption overviews, load/onload hours of your compressors, performance trends compared to the last report and much more.

Furthermore, on any measurement channel you can program an alarm and decide how you are notified in case of an event: in the VPVision software, in the reports and/or by email.



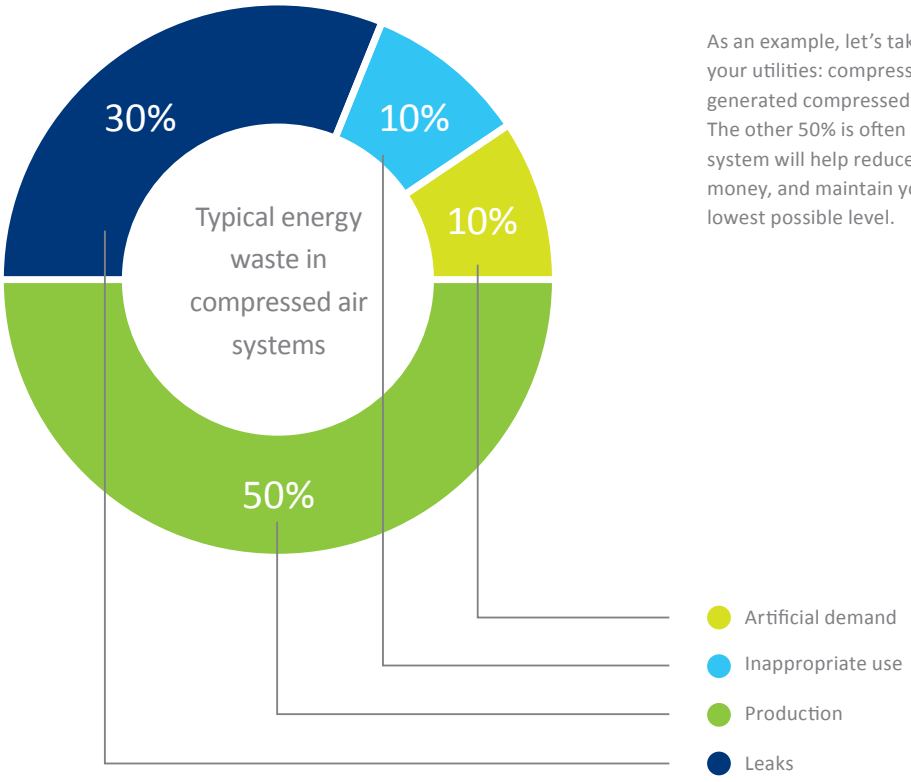




"VPVision is a really powerful tool to keep our compressed air flow consumption at the lowest possible level. It helps us to prevent leakage and to optimize our compressed air supply." *Kikkoman Europe*

Unleash your savings potential

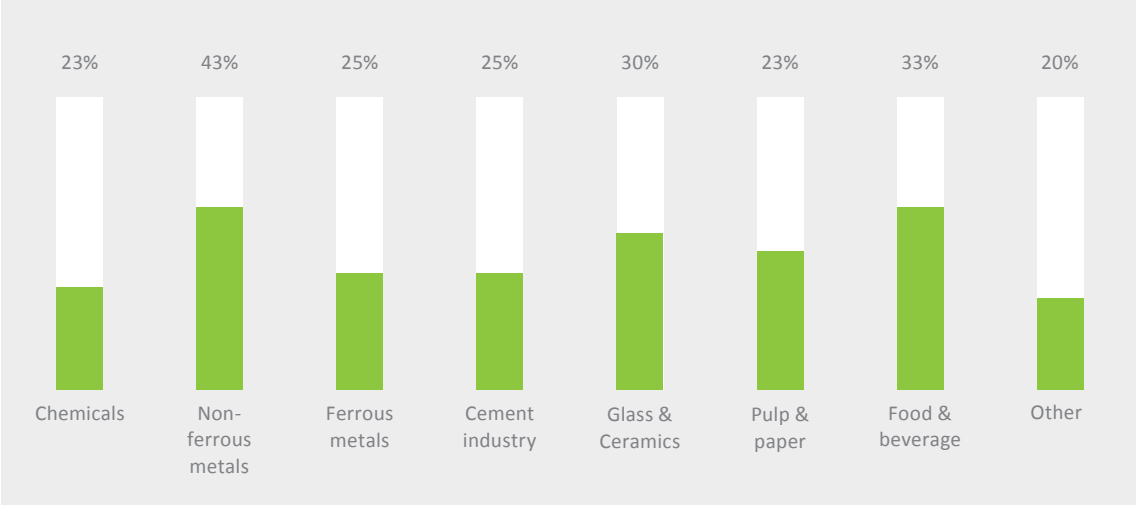
Energy is expensive. Electricity, gas and water are often a company's biggest bills. They are commonly used and often wasted. Compressed air is a notoriously expensive utility, as it is nearly 10 times more expensive than electricity. Peak loads on your electricity consumption can result in high penalties. Other necessities, such as wastewater, are becoming heavily taxed. These are all good reasons to monitor your energy consumption and look for potential savings.



As an example, let's take a closer look at one of your utilities: compressed air. Only 50% of the generated compressed air is effectively used. The other 50% is often wasted. A monitoring system will help reduce this waste of energy and money, and maintain your consumption at the lowest possible level.

Average savings potential per industry

Energy savings potentials are enormous. Most companies have not yet gotten serious about energy savings. Even in industrialized countries the savings potential is between 10% and 40%. In developing countries the potential could be as high as 50%.



Complete the cycle

Energy management is a continuous process

Create awareness through permanent monitoring. VPVision is the perfect tool.

Step 1
Prepare yourself and your team. Involve your management and set the goals you want to achieve.

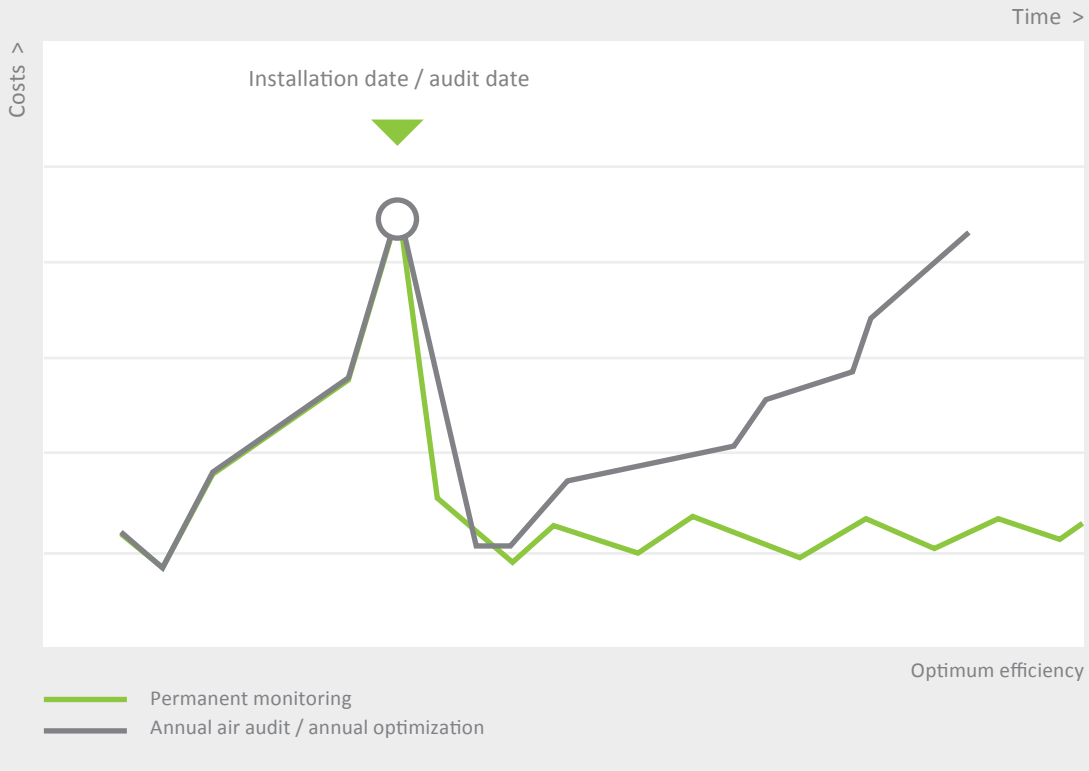
Step 2
Define the current state of energy flows and systems. Gather data and identify opportunities.

Step 3
Analyze the results and plan the actions to improve efficiency.

Step 4
Implement the actions. Execute the plan; drive towards the goal.

Why permanent monitoring?

A one off energy audit will render a one-time only reduction of energy costs. After a certain period of time, your costs will increase. Whereas 24/7 monitoring enables you to track any changes in your system, to take action immediately, and thereby to keep energy costs at a minimum.



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.

Brand Neutral

VPVision is brand neutral and connects with any 4..20 mA sensor and Modbus RTU and TCP devices. It seamlessly integrates with VPInstruments' products as they are pre-configured in VPVision for your convenience; including our VPFlowScope flow meters, dew points sensors and power meters.

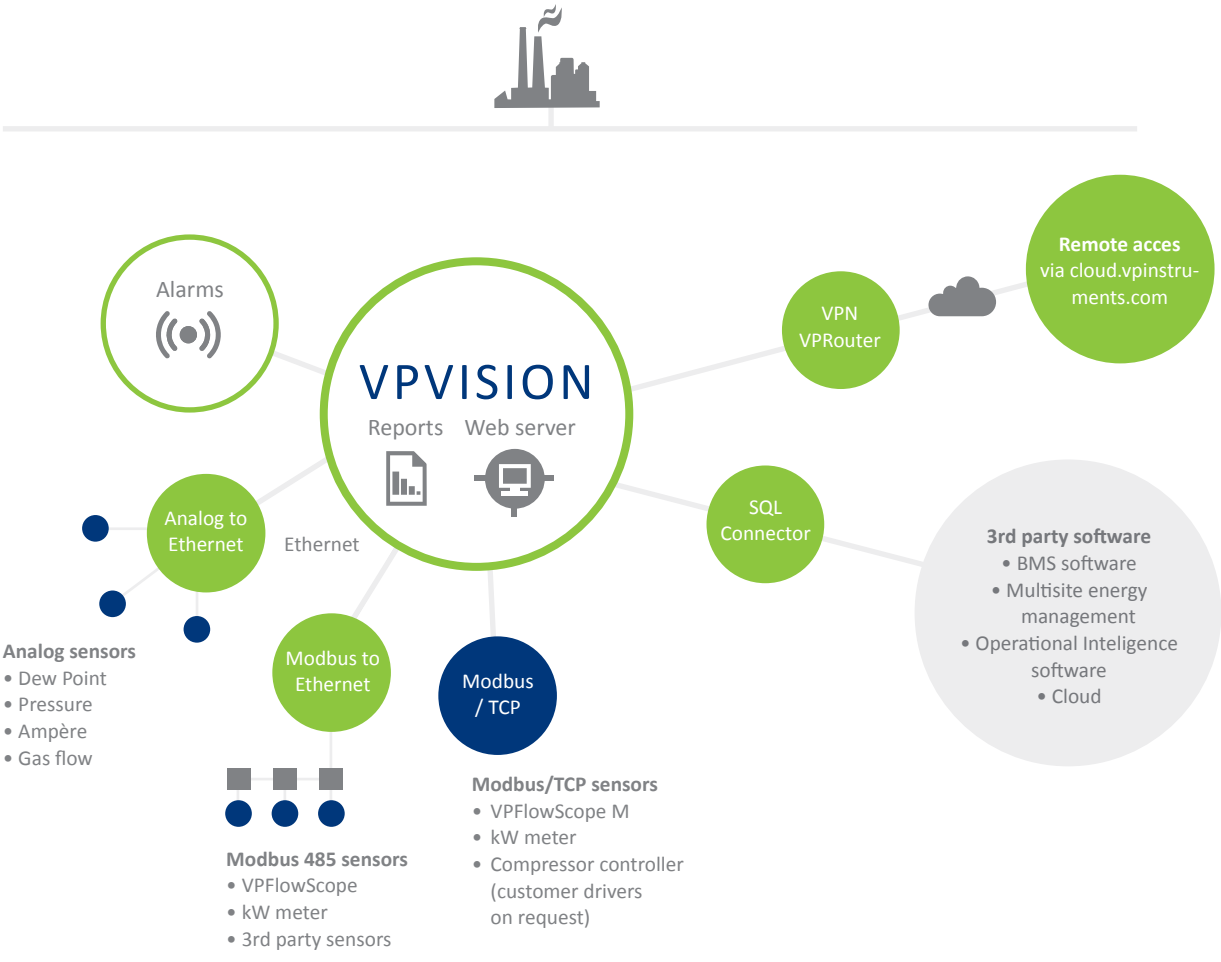
Default hardware connections

The VPVision hardware has 8 analog and 8 Modbus inputs built-in for direct connection and can power 8 sensors. You can extend VPVision with additional I/O modules or just simply connect a multitude of sensors through Ethernet.

Cloud ready

VPVision is cloud enabled, via a built-in VP(n) Router. Prevent costly on-site visits and perform remote audits and system checks. With a valid subscription, the system is updated automatically and you continuously benefit from the latest features.

The SQL connector module can be used to link VPVision data to third party software, for example a building management system.

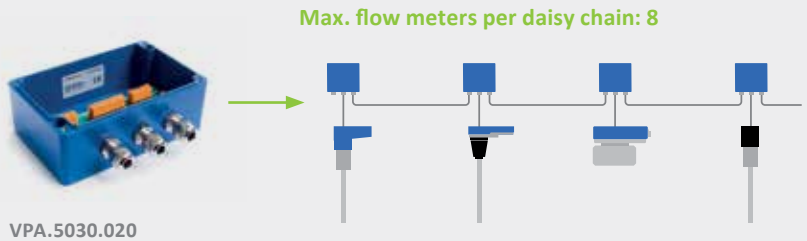


Complete your monitoring project

Start up and commissioning

VPInstruments offers both distributors and end users a start-up and commissioning service. After all electric installation work has been completed, we can send one of our engineers to configure the entire system.

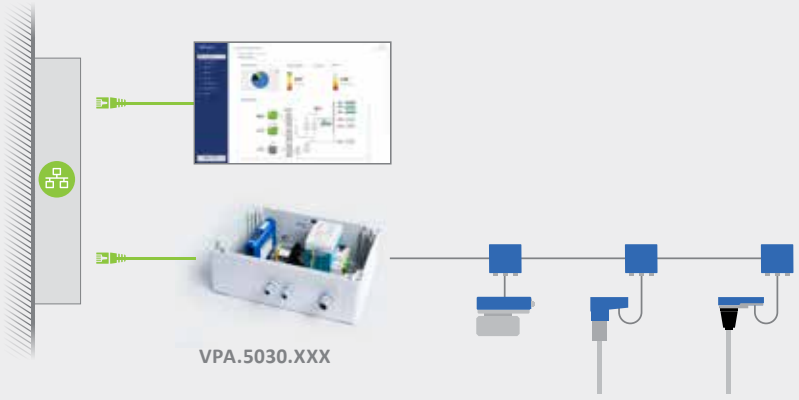
Easy daisy chain connection with the Modbus junction boxes



VPA.5030.020
Modbus junction box

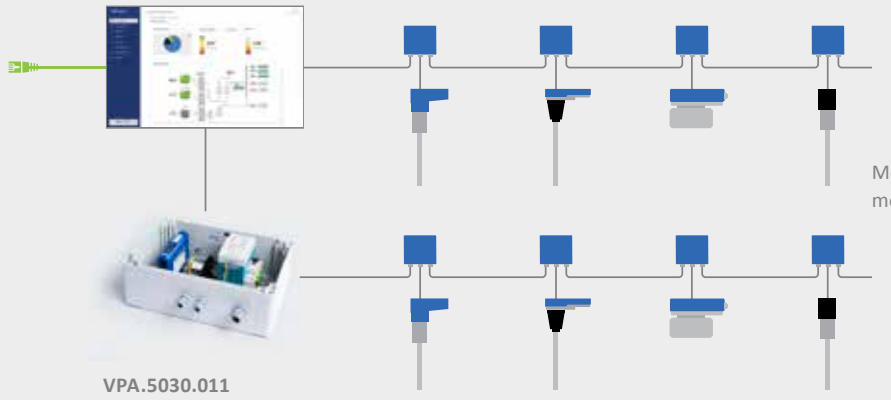
Connect different Modbus RTU instruments in one daisy chain, like the VPFlowScope flow meters, 3 Phase Power Meters and the VP Dew Point Sensors.

Bridge large distances with Ethernet converters (analog and/or Modbus)



Modbus and/or analog to Ethernet converters

Extend direct hardwired connection of up to 8 Modbus devices



Modbus extension module

easy insight into energy flows™

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VP INSTRUMENTS

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VP INSTRUMENTS

DEW POINT SENSORS

Safeguard your system

VPINSTRUMENTS.COM

Guard your equipment and production process

Maintaining the dew point of your air or gas system will prolong the lifetime of your equipment and reduce maintenance costs. For dew points related to production processes, guarding the dew point is critical for the end product and key in preventing costly production losses. Permanent monitoring enables you to detect and prevent problems quickly, and may provide visibility that a change in dew point is capacity or maintenance related.

Measuring dew point with VPInstruments

VPInstruments' dew point sensors are designed for ease of use, incorporating all the features needed to make installation and operation as simple as possible. Our solutions cover all dew point monitoring applications for industrial gases and compressed air dryers (refrigerant and desiccant). The calibrated sensors can be instantly incorporated into VPVision or your own management system.

Application examples:

> 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

VP Dew Point Sensor vs. Dew Point Sensor – Extreme Dry Air

Both VPInstruments dew point sensors have a large measurement range. The VP Dew Point Sensor is the smart dew point sensor with multiple outputs, alarm LED, and built-in autocalibration. The Dew Point Sensor-Extreme Dry Air is recommended for measuring dew points as low as -100 °C | -148 °F.

	VP DEW POINT SENSOR	DEW POINT SENSOR – EXTREME DRY AIR
Measurement range	-70..60 °C | -94..140 °F	-100..20 °C | -148..68 °F
Analog output	x	x
RS485 (Modbus RTU) output	x	
Alarm LED	x	
Autocalibration	x	
Sampling block (optional)	x	x
Remote display (optional)	x	x

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 kit.

Monitoring dew point permanently prevents problems in real-time

VP Dew Point Sensor

The VP Dew Point Sensor is the complete dew point sensor for all your measurement applications. 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.

Built-in alarm function

Prevent dryer failure, water carry over or production losses: set an alarm and make it visible in your management system. With the unique, programmable alarm LED on the VP Dew Point Sensor itself, your alarm is visible directly in the work place.

Failure proof

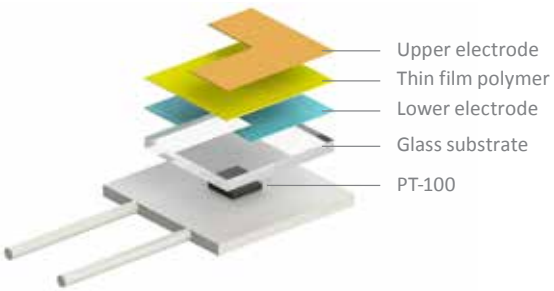
The sensor fully withstands getting wet, so the transmitter performs exceptionally well in applications that occasionally experience process water spikes, such as pipeline condensation during a system failure or start-up. The sensor is also highly resistant to particulate contamination, oil vapor and most chemicals, and is insensitive to the flow rate.

Analog and digital interface

Thanks to the RS485 (Modbus RTU) output, multiple parameters can be read out, such as dew point and alarms. The 4..20 mA output can be connected along with the RS485 (Modbus RTU) output.

Thin film polymer technology

The typical recalibration interval is two years. This long-term high performance is achieved with state-of-the-art polymer technology. Thanks to the built-in offset calibration algorithm, performance at low dew points is optimized.



Specifications: VP Dew Point Sensor

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	0..100% RH
Pressure	0..50 bara | 725 psia

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

Order codes VP Dew Point Sensor

VP DEW POINT SENSOR	
VPA.8000.1018	Dew Point Sensor
VPA.8000.1019	Dew Point Sensor start kit.

VP Dew Point Sensor Start Kit:

- VP Dew Point Sensor
- Sampling block
- Cable 10m / 32.8 ft
- Quick connector
- ¼" mail connector
- Leak screw with sound muffler
- Calibration certificate

VP DEW POINT SENSOR ACCESSORIES	
VPA.8000.1514	Sampling block with 3/8" BSP female connection
VPA.8000.1515	O-ring set (3 pieces): install your dew point sensor without teflon tape The O-rings are reusable
VPA.8000.1511	USB service cable to set up the dew point sensor
VPA.8000.1510	4-pin M8 Cable 10m | 32.81ft
VPA.8000.1516	Replacement filter
VPA.8000.1517	Adapter 1/2" NPT to 3/8 inch BSP
VPA.8000.1512	External Display 420
VPA.8000.1513	External Display 420 with alarm relay

USB Service Cable VPA.8000.1511
Makes configurating your VP Dew Point Sensor easy

Compressed air dew point applications

The requirements for dew point in a compressed air system are completely dependent on your business and your factory circumstances. Here are some application examples.

Transport in paint and pharmaceutical factories

Compressed air is used in the transportation of products like paint powder or, in a pharmaceutical factory, powder for pills. Dew point is very critical, since any water can dampen the powder. This can affect final product quality and can even allow fungal growth, resulting in loss of end-product.

Routing of piping in all seasons

Compressed air piping is often routed outdoors. The best dew point for the prevention of maintenance issues is dependent on the coldest season temperature. If the dew point is not selected correctly, condensation will occur. Or even worse, when outdoor temperatures go below freezing, ice from the condensation will form, resulting in frozen instrumentation and valves.

Spray painting car bodies

The paint for spray painting car bodies is very sensitive. Any water mist can result in rejection of the paintwork and in costs for re-work.

Food industry

Food quality is of course very critical. So, to avoid water droplets on cookies or bread from the packing machine or during transport, the dew point has to be very low and monitored constantly.

Dew Point Sensor – Extreme Dry Air

For extreme dry air applications, we recommend the Dew Point Sensor – Extreme Dry Air with its measurement range as low as -100 °C / -148 °F.

Product highlights:

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

Specifications: Dew Point Sensor – Extreme Dry Air

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

ORDER CODES DEW POINT SENSOR – EXTREME DRY AIR	
VPA.8000.1003	Dew Point Sensor – Extreme Dry Air
VPA.8000.XXXX	Bleeding valve
VPA.8000.1512	External Display 420
VPA.8000.1513	External Display 420 with alarm relay

Filter for sampling block

The sampling block with filter (VPA.8000.1550) comes with integrated particulate filter. The 99.5% 0.3-micron particulate filter provides further protection against solid contamination.

Sampling block without filter

Sampling block with filter

VPVision

Monitor the dew point, together with flow and pressure and more with the VPVision monitoring system. VPVision is the complete real time energy monitoring solution for all utilities within your company. Get insight into your usage and see the patterns on your supply and demand side. Have the data needed to take factual and well-founded decisions on your costs and investments.

Reveal the consumption of all utilities, including compressed air, technical gases, steam, vacuum, natural gas, electricity, waste water, heating fuels etc. VPVision enables you to view data on any platform from a PC to a smartphone enabling your organization to raise the energy awareness among staff and management. It will be your guiding hand for individuals, teams or at company-wide level to target energy savings.

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.

ORDER CODES EXTERNAL DISPLAY 420	
VPA.8000.1512	External Display 420
VPA.8000.1513	External Display 420 with alarm relay

easy insight into energy flows™

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VP INSTRUMENTS

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Order today!

Please contact your local distributor for the various options and possibilities or contact us at www.vpinstruments.com