



Expertise – Passion – Automation



Challenge the leaks in your machine

Automatic leak detection system

ALDS Series

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ALDS Series



- ▶ **Be aware of machine leakage at all times** – Exact leak location and value
- ▶ **Reduce your maintenance costs** – Quick automatic detection
- ▶ **Integrate it easily in the machine's software** – External supervision system is not required.



Main features

▶ **A solution for locating & measuring static leaks**

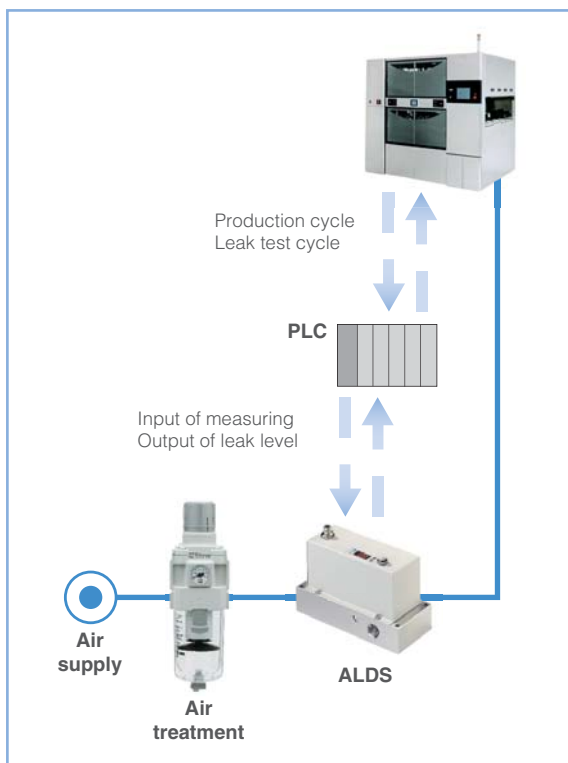
ALDS Series integrates a flow switch and a 3 port solenoid valve. The solution automatically measures the given flow, both in home and working positions, gathers all data, thereby concluding where the leaks are.

▶ **Easy machine integration** with an intuitive “Leak Test Cycle” software. No need for any extra external supervision system.

▶ **Detailed report**

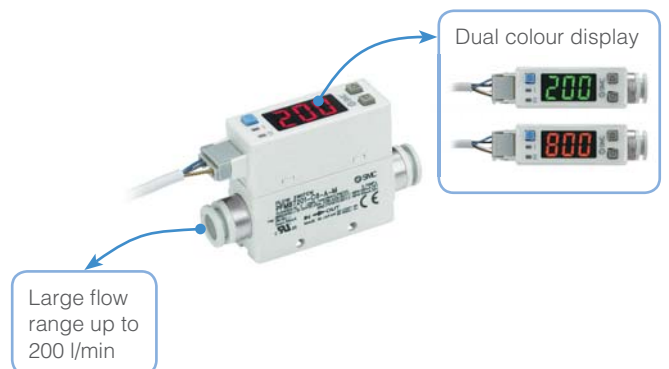
Maintenance staff are provided with:

- Leak value in NI/min
- Exact location - valve, tube or cylinder.



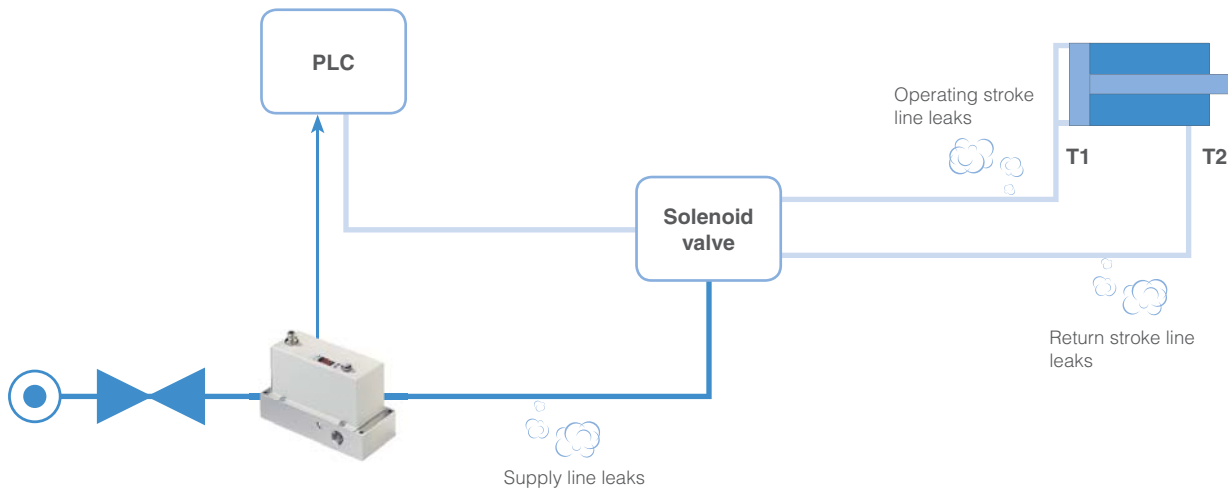
▶ **Flow switch PFMB7**

The PFMB7 Series detects the leaks with high accuracy and fast response time.



How it works

For simplification purposes, the following example shows a model with one valve and one cylinder.



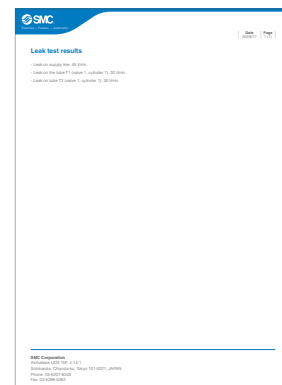
- 1** — ALDS is turned on at home position and records flow value **(A)**.
- 2** — Solenoid valve is energised actuating the cylinder. When its rod is totally extended, the flow value is recorded again **(B)**. There are three possible scenarios:
 - If $B > A$, there is a leak in actuation line **(T1)**
 - If $B < A$, there is a leak in rest line **(T2)**
 - If $B = A$, there are no leaks in any of those lines.

These step will be repeated as many times as cylinders are contained on the air circuit.
- 3** — Leak on supply line: $A - \sum \text{rest line leaks}$.



LEAK TEST RESULTS (example)

- Leak in supply line: **45 l/min.**
- Leak in the tube **T1** (valve 1, cylinder 1): **20 l/min.**
- Leak in tube **T2** (valve 1, cylinder 1): **30 l/min.**



Technical information

How to order

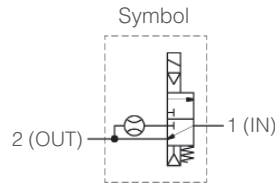
VV3P - X V
 ① ②

① Port size

Symbol	Port size
5	1/2"
7	3/4"

② Output

	Symbol	Port size
512	5	PNP + Analogue output (4 to 20 mA)
513		PNP + Analogue output (1 to 5 V)
503	7	PNP + Analogue output (4 to 20 mA)
504		PNP + Analogue output (1 to 5 V)



Specifications

	VV3P5-X512V	VV3P5-X513V	VV3P7-X503V	VV3P7-X504V
Fluid	Air			
3 port solenoid valve	VP544-5L0S1-A		VP744-5L0S1-A	
Flow switch	PFMB7201-C8L-F	PFMB7201-C8L-E	PFMB7201-C8L-F	PFMB7201-C8L-E
Operating pressure range	0.2 to 0.7 MPa			
Flow rate measurement range	2 to 200 l/min			
Power supply voltage	24 VDC ± 10 %			
Current consumption	<55 mA			
Flow characteristics (Valve)	C [dm³ (s·bar)]	8.8		15.0
	b	0.13		0.17
	Cv	2.0		3.4
	Q [l/min] (ANR)²⁾	2029		3534
Ambient and fluid temperature	0 to 50 °C			
Power consumption (valve)	1.5 W			
Output from flow switch	PNP analogue 4 to 20 mA	PNP analogue 1 to 5 V	PNP analogue 4 to 20 mA	PNP analogue 1 to 5 V

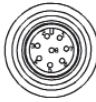
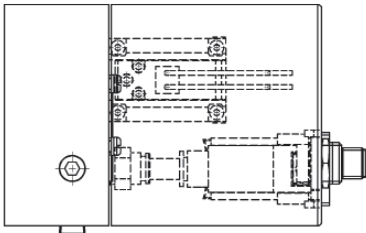
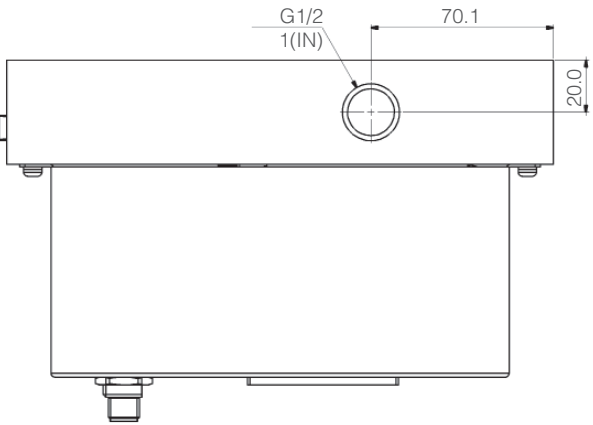
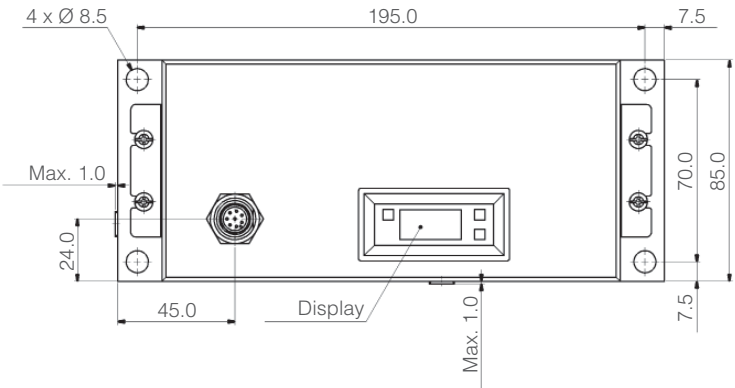
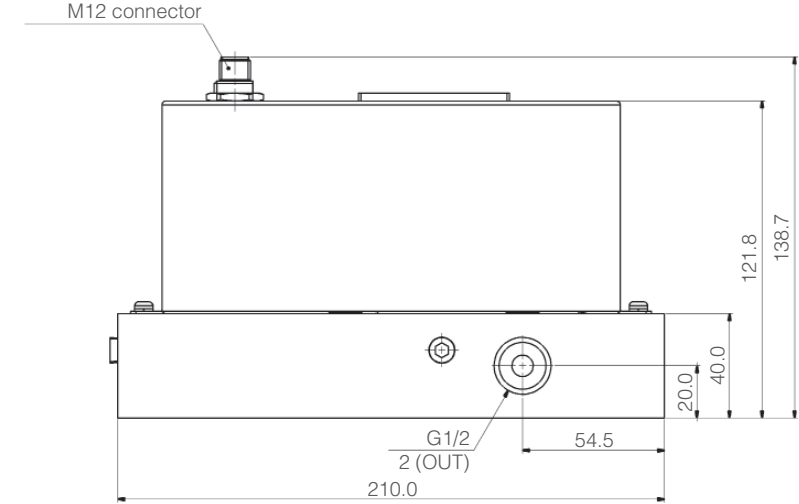
1) For other specifications and function details refer to the valve and flow switch catalogue at www.smc.eu

2) Calculated according to ISO 6358, under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

3) For specific product precautions, refer to the operation manual.

Dimensions

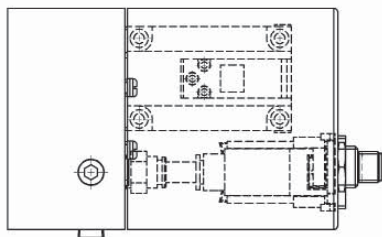
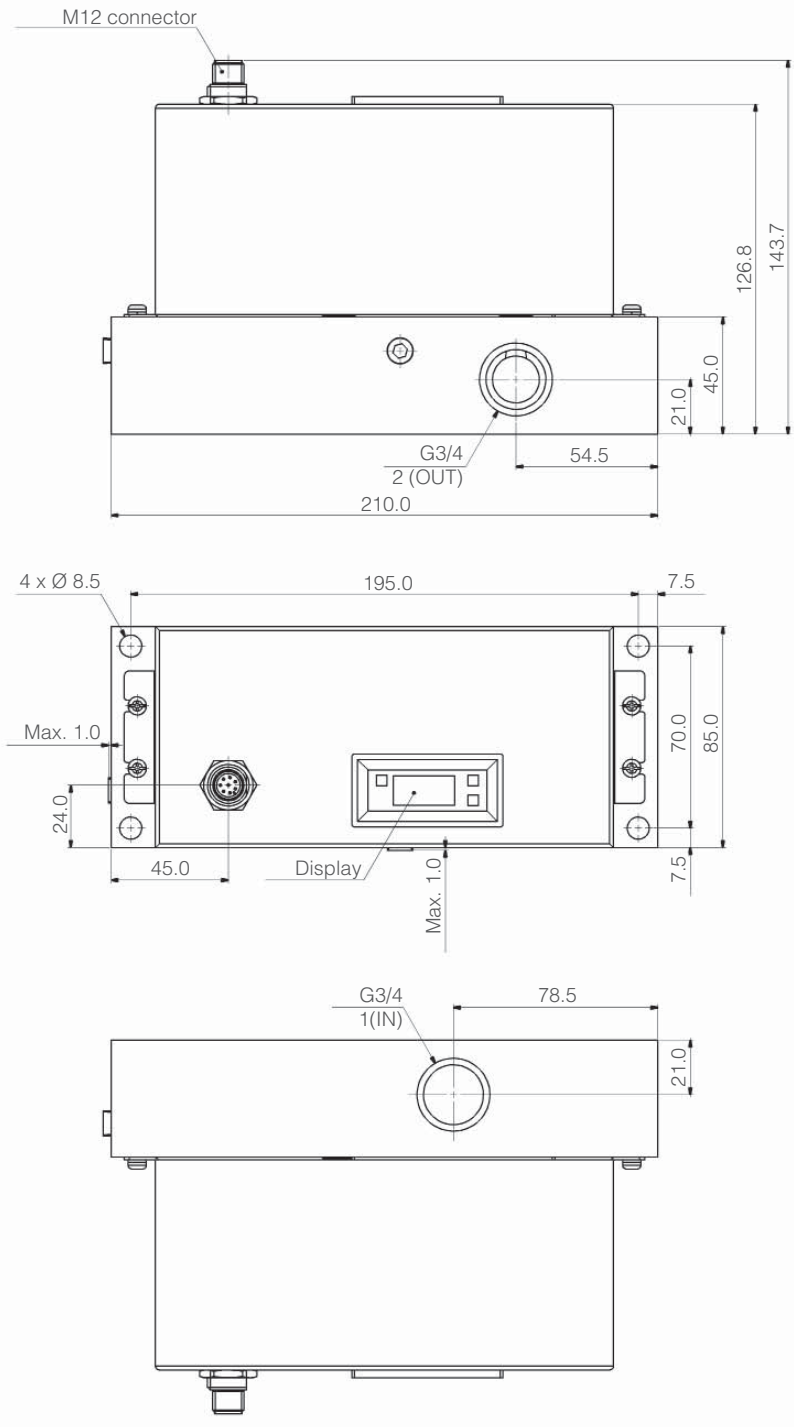
VV3P5-□



Connector pin assignment

Pin No.	Pin assignment	
1	DC (+)	Flow switch
2	OUT (1)	
3	OUT (2)	
4	DC (-)	Valve
5	SOL. (+)	
6	SOL. (-)	
7	Not used	
8	Not used	

VV3P7-□



Connector pin assignment

Pin No.	Pin assignment	
1	DC (+)	Flow switch
2	OUT (1)	
3	OUT (2)	
4	DC (-)	Valve
5	SOL. (+)	
6	SOL. (-)	
7	Not used	
8	Not used	

Other information

Energy saving software and other tools

SMC puts the Energy Saving Software at your disposal, directly downloadable. It allows maximising efficiency through multiple calculations.

Apart from that, there are also several online tools available that show you how much money you'll save when you start using SMC's energy saving solutions. User-friendly, question-based and, more importantly, with clear results:



Factory assessment

By answering a simple set of questions you'll know your factory's saving potential.

Machine assessment

This will provide the savings in euros and their ROI, for each of the different areas (solenoids, air blow, actuators, etc).

Simple saving calculators

Check the savings you achieve with:

- Energy saving valve VXE Series
- Blow gun VMG Series
- Air saving speed controllers ASR, ASQ Series

Energy saving related products



Stand-by valve
VEX-X115 Series

Reduce air consumption during short stops or shut off during long ones.



Digital flow switches
PF3A & PFMC Series

Monitor main line consumption.



Air amplifier
ZH-X185 Series

Multiply the flow.



Air saving speed Controllers
AS-R/AS-Q Series

Reduce the pressure introduced in the actuators at return strokes only.



Booster regulator
VBA Series

Increase pressure only where it is needed.



Vacuum unit
ZK2 Series

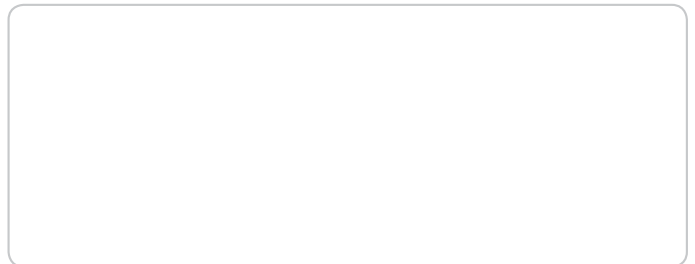
Generate vacuum and maintain it with the minimum supply air.



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