

Low-/ medium-volume sampler for collecting particulate matter PM₁₀ / PM_{2,5} / PM₁ Types: LVS 3.1 / MVS 6.1

This low-/ medium-volume sampler unit is used to collect particulates from ambient air in compliance with EN 12341:2014 (PM₁₀ and PM_{2,5})

- Simple operation; menu-based control using function keys and jog dial
- Large, illuminated graphic display
- Operating modes: TIME, PERIOD and QUANTITY
- Displays for pressure, temperature, moisture / humidity
- RS-232C interface
- Flow control (EN 12341:2014 and IDEAL / relative humidity)
- Simple software updates thanks to Flash RAM
- Automatic recognition of the sampling systems

These low-volume sampler units were engineered for the collection of particulates in outdoor air in 1976/77 and have been continuously refined since that time. A large number and variety of units has been in service for years now. These devices use a vacuum pump to draw the particulate-laden air into a sampling head. The particulates are then sorted by size in an upstream impactor. The particulates are then deposited on filter paper with a diameter of 47mm. The air throughput is monitored with a measuring orifice inserted between the filter and the vacuum pump and is regulated to accuracy of better than 2 %.

Type LVS 3.1 is classified as per the EN 12341:2014 European guideline. The air throughput volume when collecting PM₁₀ or PM_{2,5} fractions amounts to 2.3 m³/h. The device is equipped with a 4 m³ rotary vane vacuum pump. Maximum vacuum at the filter is 300 mbar. When operating at maximum throughput the device, in its functional aspects, is identical with the predecessor model, GS 050/3-N, which is described on Page 7 of VDI Guideline 2463. It also replaces models GS 050/3-C, GS 050/3-G, GS 050-3D, LVS 3 and LVS 3D. Maximum air throughput when using a glass fiber filter is 3.5 m³/h.



Type MVS 6.1 is fitted with a 6 m³ rotary vane vacuum pump and is otherwise identical to the LVS 3.1 version. The unit can be run at maximum throughput of approx. 5.5 m³/h and is thus suited particularly for the measurement of dioxins and other low-volatility organic compounds. It, too, is a reference unit as per European standard EN 12341:2014 and should be used whenever special filter material is to be employed (e.g. cellulose nitrate or Teflon filters). The maximum vacuum at the filter is 500 mbar.

Low-volume sampler LVS 3.1

VDI 2463 pages 7 und 8
EN 12341:2014 (Reference device PM_{2,5} / PM₁₀)
VDI 2267 (heavy metal)

VDI 2465 pages 1 und 2
VDI 3498 (Dioxin and Furan)
VDI 3492 (Total dust and Asbestos)

Low-volume sampler MVS 6.1

VDI 3875 (PAK)
VDI 4301 (PCP/Lindan)

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Environmental Monitoring Systems



Their superior operational reliability and, no less significant, the low amount of noise developed by these filter units make it possible to collect particulate samples in densely populated areas at all times of the day and night and inside buildings, as well. Thanks to their small footprints, the units can also be mounted on poles or lamp-posts, for instance, using suitable auxiliary equipment (consoles).

Since the sampling head can also be used at a distance from the unit proper, it can be located close to emission points when making measurements along roadways, for instance. Thanks to the ease of relocation, emission impact profiles for carbonaceous particulate matter (EC) and other particulates can be determined between fixed measurement stations.

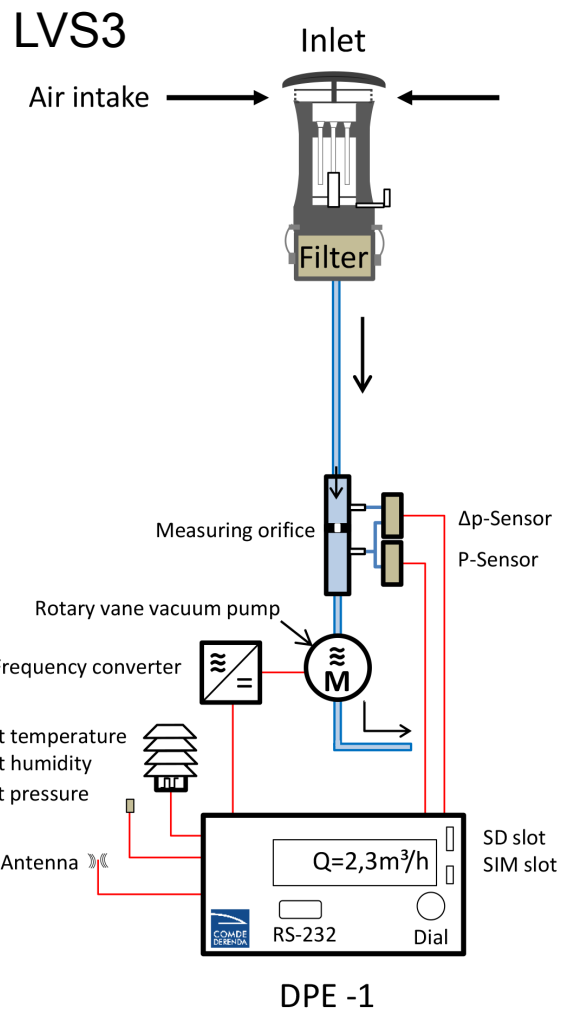
The unit is installed in a stainless steel housing featuring lockable doors.

The Type LVS 3.1 and Type MVS 6.1 low-volume samplers are normally set up for use as a control unit in combination with the Type PNS16 or Type PNS16T filter changer. In such configurations the sampling systems are identified with Type numbers PNS16-3.1 and PNS16-6.1, respectively.

Additional technical data will be found in the specification sheets for the Type PNS16 ... sampling systems.

Technical Data Type LVS 3.1 / MVS 6.1	
Flow rate	
LVS 3.1 (controlled):	1.0 ... 3.5 m ³ /h (Nm ³ /h)*
MVS 6.1 (controlled):	1.0 ... 5.5 m ³ /h (Nm ³ /h)*
*optional other flowrates programmable	
Sampling time:	1 h ... 1000 h
Power supply:	230 V, 50/60 Hz
Power consumption	
LVS 3.1:	app. 240 VA
MVS 6.1:	app. 300 VA
Filter diameter:	47 mm
Diameter of loaded filter surface:	41 mm
Dimensions	
Width:	300 mm
Height:	450 mm
Depth:	250 mm
Weight	
LVS 3.1:	Approx. 17 kg
MVS 6.1:	Approx. 19 kg
Noise level according to EN 3744:2010 (distance 8 m):	
	< 31 dB(A)
Operating temperature range:	-30 ... +50°C
Operating humidity range:	0 ... 100% rH
IP classification:	IP 55

Scope of delivery:
Basic device sampler LVS 3.1 or MVS 6.1, suction tube diameter 12 mm, 2xSD-card for data storage, 1 x transmission cable, 1xUSB SD card reader, calibration protocol, key and instruction manual



Ordering Information:	
D120001	Low-Volume Sampler LVS 3.1
D120001	Low-Volume Sampler MVS 6.1
Accessories:	
D10031	Inlet PM ₁₀ according EN 12341:2014, flowrate 2.3 m ³ /h with filter holder
D110033	Inlet PM _{2,5} according EN 12341:2014, flowrate 2.3 m ³ /h with filter holder
D110034	Inlet PM ₁ , flowrate 2.3 m ³ /h with filter holder
D100929	Cassette opener
D100930	Calibration adapter

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