

DIGITEL DPA16

Low Volume Aerosol Sampler (LVS)

Digital DPA16 LVS:

- Filter diameter 47 mm
- Constant and precise flow
- For PM2.5 and PM10 measurements according to EN12341
- TSP, PM10, PM2.5 and PM1 inlets
- weather proof and light weight

Wide range of options and accessories:

- Different housings
- Meteo sensors
- SMS communication

Introduction

DIGITEL Low Volume Samplers DPA16 are fully automatic systems to sample dust and aerosol particles for later assessment and analysis (gravimetric and analytical determination) in accordance with EN12341. The sampler operation range in standard execution is 5 to 50 litres per minute (0.3 to 3m³/h). The DPA16 is a single filter sampler with the filter holders integrated in the inlet. The blower starts sampling at pre-set time for a pre-set period. The field housing of the DIGITEL LVS DPA16 is suited for outdoor installation. It is easy to transport and because of a good sound insulation very quiet. Superior workmanship in sampler mechanics backed by the latest technical and electronic control guarantee a long lifetime and absolutely reliable operation.

Advantages

An integrated microprocessor unit controls the sampling at the pre-set time and collects all relevant data and events. The status "work" and "pause" can be programmed with a resolution of one minute. The constant flow of sampled air through the filter is dynamically controlled, so that this value is kept at good reproducibility and at long-term stability which keeps to a minimum of electrical power consumption. The mechanical components which are in contact with measuring air are coated with a highly corrosion-resistant and extremely smooth surface. The DPA16 has different interfaces for data transmission and remote control. The filters can be changed without additional tools.

Design and Operation

The air is sampled through a TSP/PM10 / PM2,5 / PM1 inlet, using a sampling tube. The air flows

vertically from the top to the bottom through the filter placed in the inlet. The upper part of the flow chamber works like a diffusor and ensures uniform loading of the exposed circular filter. The pressure drop across the filter is limited, so that a rupture of damp or extremely loaded filters is prevented. The transported air quantity is measured by a Venturi type orifice flow meter. The blower is speed controlled, so that the air quantity keeps the set-point value with minimal power consumption. Air pressure and temperature are measured upstream of the flow meter and continuously averaged by the electronic control unit. A real-time protocol states sampling volumes yielding from the sampling time and controlled volume flow as the core information. The sampling protocol lists the effective and the standardized averaged values of pressure and temperature, volume and the operating status as well as the failure status.

We are building high-precision samplers for dust, gas and rain since 1970.

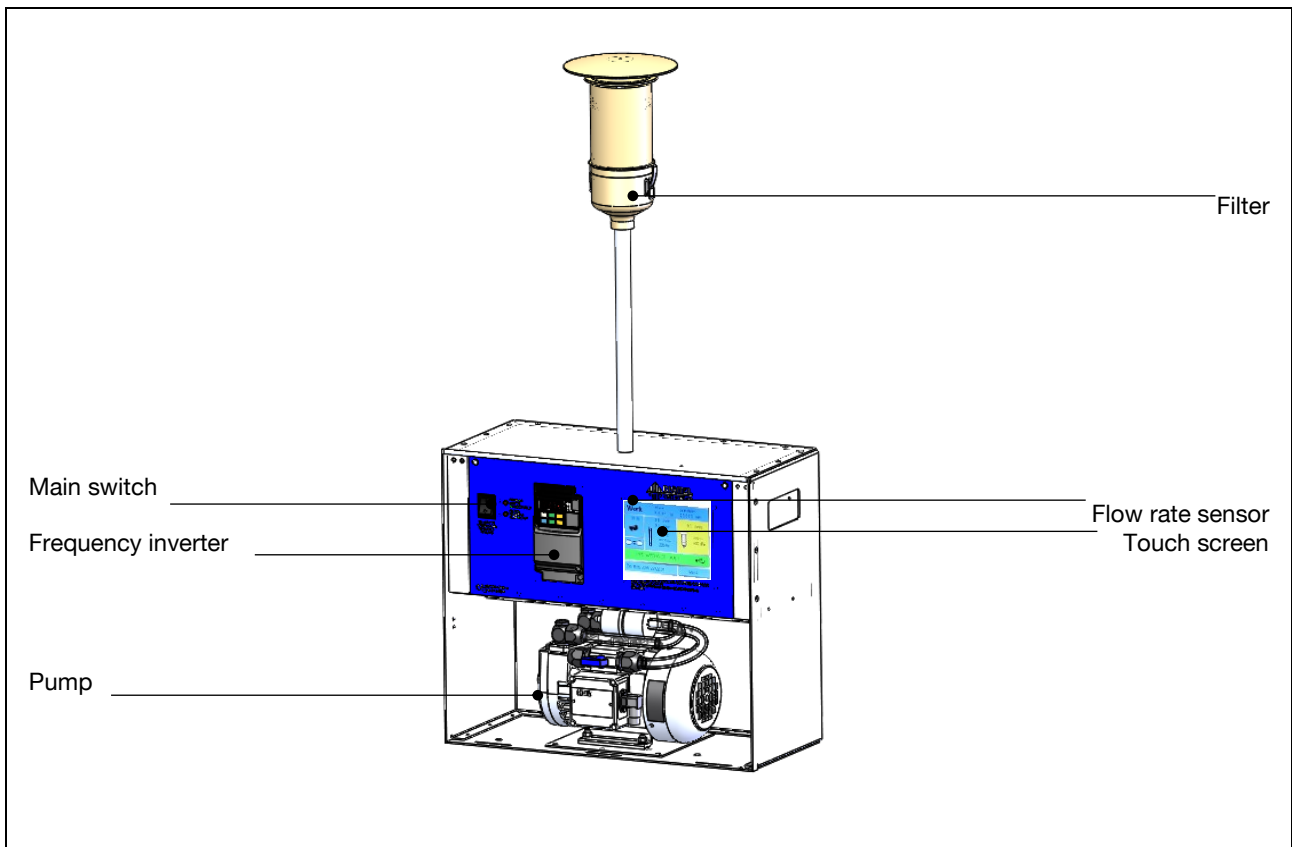


Figure 1: Components

Easy programming

The touch screen allows simple and user friendly programming. The current state of the sampling course (e.g. program status, status periods, failure indication messages) is shown on the display. In case of power failure, all settings are kept stored. Therefore, programmed filter change times are not postponed in case of meantime power interruptions.

State of the art electronics

The Digitel LVS DPA16 has a RS-232C interface which is used for data transmission with different protocols (DIGITEL-, Bayern-Hessen-Protocol, AKProtocol...) and for remote control. The internal memory has the ability to store data during two months of daily sampling. Additionally, the measuring data can be saved on a USB drive. The USB

port can also be used for software updates, which allows a simple in field update of the instrument. The DPA16 also has an Ethernet interface, which enables connections to any TCP/IP network. This allows data collection via FTP and remote control of the DPA16 (integrated HTTP-Server) as well as software updates over ethernet. An optional text message module sends alert error messages.

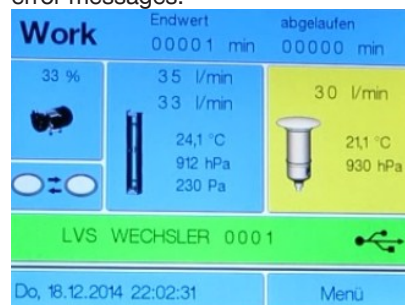


Figure 2: Touch screen

Superior coating

All parts that come into contact with measuring air, including filter holders, are made of aluminium and coated with a very corrosion-resistant and extremely smooth anodized surface.

Compact aluminium housing

The extraordinary compact type of construction, especially the low depth, allows that even the field equipment can be space-savily installed in a container. Together with a DIGITEL PM10 or PM2.5 inlet, the system is in accordance with the EN12341:2014 standard.

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Technical Data		
Flow rate	5 – 50 l/min	
Filters	d = 47 mm, flowing area d = 40 mm	
Time programs	Work, Pause (0 to 59'999 minutes each), start time adjustable, using date and time	
Volume flow control accuracy	< 2 %	
Mean life cycle suction unit	> 16'000 h	
Negative pressure	Max. 800 mbar	
Interfaces	RS232C, USB, Ethernet, RS485	
Interface protocols	DIGITEL, Bayern-Hessen, AK	
Power supply	230V AC / 50-60 Hz; max. 2A/400 W	
Heating	Inlet heating / indoor heating / reserve heating	
Application range	-10° to 50° C; 0 % to 95 % RH with interior heating, maximum operation altitude of 2'000 m above sea level	
Material	Coated aluminium, stainless steel, Teflon, NBR sealings	
Dimensions		
Field housing (without inlet)	526 x 472 x 235 [b x h x t] protection class IP54, 20kg	
Cabinet housing (without inlet)	448 x 394 x 204 [b x h x t], 15kg	
Features	Options	Accessories
Overload cut-off Ambient p/T measurement Internal data memory Valve and software for easy tightness test according to EN:12341:2014 Venturi type orifice	Protocol printer Customer specific interface protocols External meteorological data collection (e.g.: wind direction and wind speed) SMS module for status and messages Customer specific functions Delivery of single components (e.g. to build into an existing container)	TSP inlet PM10, PM2.5, PM1 inlets Inlet heating (regulated, ambient temperature controlled)

Table 1: DPA-16 Summary