

Technical Note TN052

Air Purge Guide for PCME DynamicOpacity[®] Sensors

Providing a supply of purge air to both the transmitter and receiver is recommended during installation and use in the stack. If good quality, clean, oil-free instrument air is available, then this should be used to provide purge air. If this is not available on site, then an ENVEA supplied Blower Unit should be used instead.

Instrument Air

It is recommended to use the Air Filter Regulator (ACCAIR-FFR) or Air Filter Regulator with Flow Control (ACCAIR-FFRC)supplied by PCME to provide filtered instrument air to the transmitter and receiver. Purge air must be supplied to both the transmitter and receiver. This may be achieved by using a Y-piece after the Air Filter Regulator to split the flow evenly to the transmitter and receiver.

Key Requirements

- Ensure air is filtered for water, oil and particulate
- Where appropriate, provide air heating so purge air >0°C (32°F)
- Provide purge air to both the transmitter and receiver

Filtration Requirements

- Filter for primary filtration (5 μm)
- Filter for secondary particle filtration (0.01 μm)
 + oil vapour removal (max. 0.1 mg/m³ (ANR),
 before saturated with oil: 0.01 mg/m³ (ANR) or
 less, approx. 0.008 ppm)

Operation

- Set the delivery pressure regulator to supply sufficient pressure for the flow controller to operate (a sensible level is 1 barg = 15 psig)
- Set the output flow control to the recommended flow rate (50 Litres/min) if using the ACCAIR-FFRC
- Connect the output from the Air Filter Regulator (via a Y-piece splitter) to the Air Purge Connector on the transmitter/receiver enclosure (the transmitter and receiver both have a male 1/4" BSP fitting)



Figure 1: Front view of the Air Filter Regulator (ACCAIR-FFR) and Air Filter Regulator with Flow Control (ACCAIR-FFRC)

Small Blower Unit - Components

This section describes the installation of the optional Small Blower Unit for use with PCME *DynamicOpacity*[®] sensors. This may be used as an alternative to instrument air. The blower is designed to supply sufficient purge air (100 Litres/min) under normal stack conditions (typically ±10 mbarg) to both the transmitter/Tx and the receiver/Rx.

- 1. Flexible Blower Hose (the Y-piece splitter provides two 10m lengths, supplied)
- 2. Lock nut tube fitting to Tx/Rx (female 1/4" BSP)
- 3. Gland for mains power cable (M16)
- 4. Mains power connector (100-240V AC 50/60 Hz, 3.15A)
- 5. Filter (SPABLW-S-FLT) replaceable every 6–12 months (minimum, depending on application)
- 6. Filter bracket



side view with lid on

Figure 2: Wall-mounted Blower Unit used to provide purge air to both the transmitter and receiver.

Installing the Blower Unit

Two 10m lengths of Flexible Blower Hose are supplied using the Y-piece splitter with 1/4" BSP connections that attach directly to both the transmitter/receiver. Ensure the distance from the Blower Unit to the transmitter/ receiver is less than 10m to allow connection using the supplied Flexible Blower Hose. You need to be able to remove the transmitter/receiver easily from the stack without removing the Flexible Blower Hose from the transmitter/receiver. Also, it should be possible to place the sensor heads on the ground without disconnecting the Blower Unit.

The Blower Unit is designed to be wall mounted with the air and power connections pointing downwards. a set of 4 feet is supplied to aid mounting.

The Blower Unit requires its own mains power supply (100-240V AC 50/60 Hz, 3.15A).

Mounting Dimensions

The Purge Blower Unit should be mounted in the orientation shown above. Feet located at each corner of the unit to mount to the wall are supplied.

- Box (enclosure) dimensions:
- Mounting holes* (with feet extended horizontally):
- Mounting holes* (with feet extended vertically)

W 320 x H 272 mm (12.6 x 10.7 in.) W 272 x H 320 mm (10.7 x 12.6 in.)

W 300 x H 300 x D 185 mm (11.8 x 11.8 x 7.3 in)

*requires M6 clearance for mounting holes









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