

Advanced Coal Flow Measurement ACFM V3

The ACFM V3 is an automated PLC-based isokinetic particle sampling device for measuring coal flows to individual burners at a power plant. The fully-portable system allows measurement of primary air flows (clean or dirty air) and coal flows using standard test ports. The PLC-controlled sample train features automated control of the vacuum, allowing for a highly accurate isokinetic sampling rate. For added accuracy and ease of testing, automated control of the vacuum and automatic rotation of the ISO 9931 sampling probe is available as an option.

The ACFM V3 can accept the ASME or SwivelSampler™ (ISO 9931) sampling probes, and comes standard with a Dirty Air Probe and our Mobile Seal Air Fitting. The entire system, including particulate sample train, collection cyclone, PLC, weigh scale, and valves is packaged in a rugged case for maximum maneuverability.

The operator uses a touch-screen PLC interface to perform the test and a hand-held remote control is provided to simplify testing. The vacuum extraction rate is automatically calculated based on the velocity measurement from a Dirty Air Pitot (DAP). A particulate collection system separates the sample, which is weighed after each test on the integrated weigh scale.



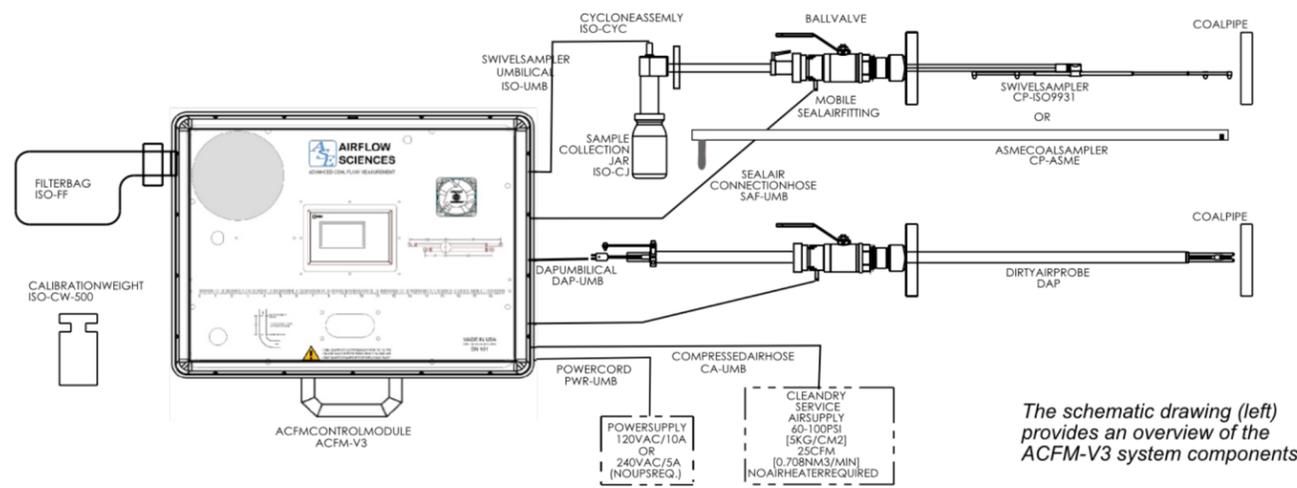
ACFM V3 System Details

The System Includes:

- Dirty Air Probe for velocity measurement
- Control module with color touch screen PLC interface and automatic logging of data
- Remote control unit for rapid data collection
- Cyclone separator and particulate capture sample jar
- Integrated weigh scale with direct data transfer to control module
- Immediate export of test data to a spreadsheet format test report
- Ability to obtain velocity traverse data using the DAP
- Automated vacuum adjustment
- Secondary filter that captures 99.99% of coal dust for safer, cleaner testing
- Either ISO 9931 or ASME PTC 4.2 style coal sampling probe
- ASE's mobile Seal Air Fitting

Optional Features:

- Motorized ISO 9931 probe with Fast-Lock*
- *Fast-Lock Seal Air Fittings Required



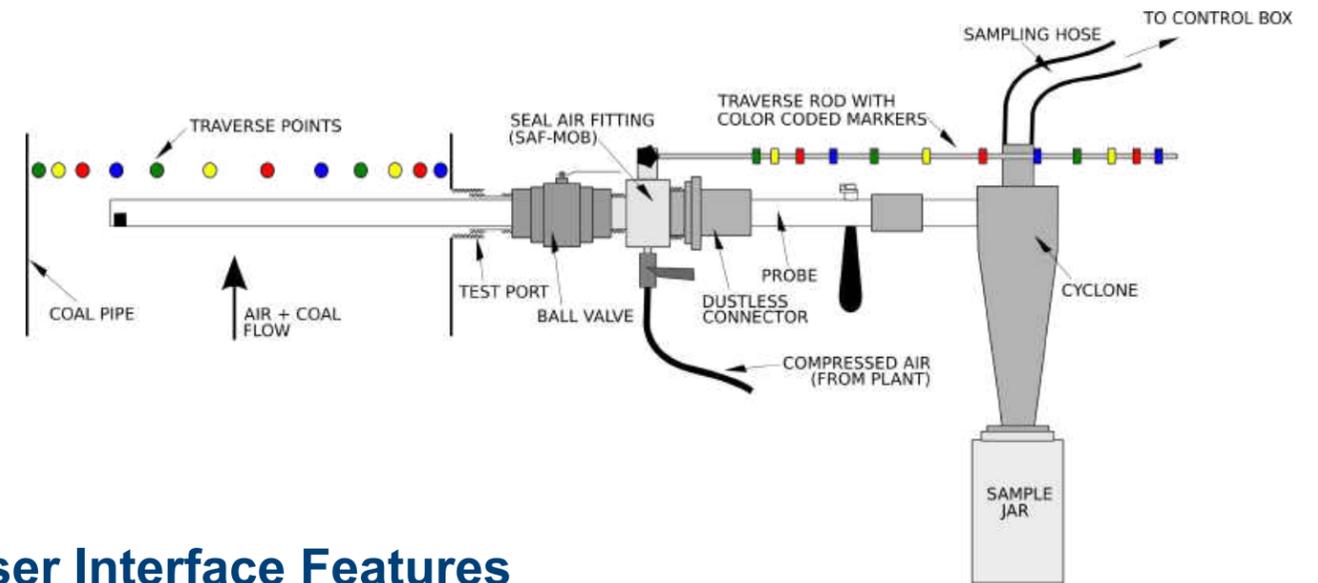
The schematic drawing (left) provides an overview of the ACFM-V3 system components.

ACFM V3 System Details

Seal Air Fitting with Traverse Rod

ASE's Mobile Seal Air Fitting (part no. SAF-MOB) greatly improves the accuracy, speed, and safety of a test. When testing flows with high positive static pressure, the SAF-MOB keeps the air and particulate from leaking out of the pipe when the test port is open to insert the probe. The SAF-MOB blows plant compressed air into the test port, allowing safe access and making for a much cleaner test.

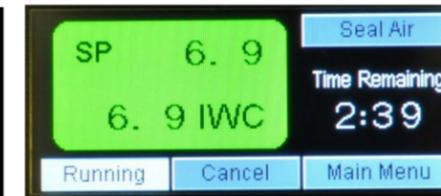
The SAF-MOB has an integrated traverse rod with color-coded markings corresponding to the probe insertion depths for the DAP and ASME probe traverse. This makes it easy for the operator to accurately and quickly position the probe at each test point for the coal flow sampling. The traverse rod eliminates the need to manually mark the probe.



User Interface Features



Simple and intuitive menus allow for fast training and virtually eliminate any influence of the operator.



Color coded menus during sampling correspond to the ISO 9931 position wheel and the color coded markers on the traverse rod to eliminate mistakes associated with holding the probe in the wrong position.



Data is available immediately after testing for review by the operator. Results are also saved and easily exported via USB.

ACFM V3 System Specifications

Interface

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|----------------|---|
| User Interface | touchscreen, three button RF remote control |
| Documentation | ACFM V3 users manual |

Hardware

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|------------------------------|---|
| Dimensions | 26" W x 18" D x 11" H (660mm W x 460mm D x 280mm H) |
| Weight | 40 lbs (18 kg) |
| Environment | 25 to 135 F (-4 to 57 C) |
| Electrical Supply | 120VAC or 240VAC 50/60 Hz |
| Enclosure | hard plastic, IP67 |
| Sample Collection Filter Bag | 99% efficient @ 1 micron |

Instrumentation

| | |
|-----------------------------------|--|
| Primary Air Temperature | type K thermocouple, 32 F to 225 F, accuracy +/- 2 F |
| Primary Air Static Pressure | +/- 25 IWC, accuracy +/- 1.0% FS |
| Primary Air Differential Pressure | +/- 5 IWC, accuracy +/- 1.0% FS |
| Primary Air Velocity | 20 to 160 ft/s |
| Sample Train Flow Meter | ISO 9931 |
| Load Cell | 0-3,000 g, accuracy +/- 2 g |

Information

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|---------------------|--|
| Support | 10 hours telephone technical support |
| Warranty | one (1) year parts and labor on ACFM V3 hardware and software. |
| Standard Delivery | 2-6 weeks, depending on options |
| Compressed Air | 90 PSI (410-690 kPa), 25 CFM (0.708 Nm ³ /min) |
| Pipe Diameter | 12" to 31" standard, extended range available |
| Test Ports Required | 2 at 90 degrees typical, 1.5" NPT or 2" NPT nipple and full port ball valve |
| Coal Sample Size | 100 g to 500 g typical |

