

## F&J SPECIALTY PRODUCTS, INC.

*The Nucleus of Quality Air Monitoring Programs*

# PORTABLE LOW VOLUME AIR SAMPLER with DIGITAL FLOW METER MODEL DF-1E



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### GENERAL DESCRIPTION:

The Model DF-1E portable air sampling system with a digital flow meter is a low-volume air sampler consisting of an oil-less, carbon vane vacuum pump, with a mechanical constant air flow regulator for use where a nearly constant air flow is desirable. The regulator holds a constant pressure drop across an in-line orifice by varying the flow through a bypass valve into the pump. This system allows the pump to work at a minimum pressure drop at all times, permitting it to run cooler, thus extending its service life. The oil-less pump requires no lubrication to maintain optimal efficiency during its service life. The pump is mounted on a base with four rubber feet. A handle is provided on the chassis to facilitate transportation.

The DF-1E Portable Air Sampling System is designed for continuous indoor use. Please consult the product specifications for the design temperature range and the installation category. Standard product displays flow rate, elapsed time and totalized volume.

The typical operating flow range is 0.5 to 4 CFM (14 – 115 LPM).

Rev: 31 May 2018

## Standard Features:

- Bright LED Display
- Flowrate and volume totalizations displayed are corrected to a factory settable reference Temperature and Pressure (4 options available)
  1. Classical STP 0°C, 1 Atm
  2. Normal T and P 20°C, 1 Atm
  3. Modified Normal T and P 21.1°C (70°F), 1 Atm or
  4. Standard Ambient T and P 25°C, 1 Atm
- Reference or ambient flow conditions are operator selectable
- Elapsed time meter
- RS232 Data export in ASCII format in comma delimited text string at various operator selectable download frequencies
- Storage of elapsed time and volume in the event of power outage
- Detection of zero flow condition after return of power to pause elapsed time until flow returns
- Auto shut-off on time or volume
- Selectable engineering units for flow and volume (to be set at factory)

<u>FLOW</u>	<u>VOLUME</u>
sccm	scc
SLPM	SL
SCMH	SCM
SCFM	SCF

## Optional Features:

- Detection of zero flow condition to actuate a relay that provides an audible or visual alarm locally
- FlashCard Datalogger system to capture and store real-time data from the RS232 port.

Data Storage Device:	P/N: 232FCDS
Secure Digital Card:	P/N: 372239
FlashCard Reader:	P/N: SDDR-199-A20

# DF-1E DIGITAL LOW VOLUME AIR SAMPLER (220 – 240 VAC)

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## SPECIFICATIONS:

<b>PUMP TYPE:</b>	Oil-less, carbon vane 1/4 HP, 50/60 Hz, 1PH
<b>MAXIMUM CAPACITY:</b>	4 CFM (115 LPM) at 0" Hg Pressure drop
<b>ULTIMATE VACUUM:</b>	25" (635 mm) Hg at sea level
<b>POWER REQUIREMENTS:</b>	220 – 240VAC; 50/60 Hz; 6 amperes, single phase
<b>CIRCUIT BREAKER PROTECTION:</b>	6 amperes
<b>ELECTRICAL CORD:</b>	All-temperature, 3-wire, 14 gauge
<b>THERMAL OVERLOAD PROTECTION:</b>	Furnished as an integral part of the motor
<b>CONSTANT AIRFLOW REGULATOR:</b>	Aluminum construction with silicone diaphragm; adjustable from 0.5 to 4 CFM (14-115 LPM)
<b>HANDLE:</b>	Black Painted Steel
<b>DIMENSIONS:</b>	40,6L × 19W × 33,6 cm H (16"L × 7 ½"W × 13 ¼"H)
<b>NOISE LEVEL:</b>	Average dB 64.5 @ 1 meter
<b>WEIGHT:</b>	16,36 kg (36 lbs.)
<b>OPERATING TEMPERATURE RANGE:</b>	32°- 104°F (0° - 40°C)
<b>INSTALLATION CATEGORY:</b>	Pollution Degree 2

## ELECTRONIC SPECIFICATIONS:

### MEASUREMENT ACCURACY:

Air flow	± 4.0% of full scale
Temperature	± 2°F (1,1°C)
Barometric Pressure	2% over measured range

**CALIBRATION:** Factory calibration 1 per year

### ON-BOARD CALCULATIONS:

- Flow calculation from differential pressure value using best fit curve method
- Flow correction for standard temperature and pressure
- Auto-zero correction utilizing electro-pneumatic method to compensate for offset and drift (automatic, once every minute)

### COMBINATION FILTER HOLDER:

Durable plastic combination filter holders for F&J Model B, C or M charcoal cartridges and 47 mm, 2" or 50 mm diameter particulate filter paper are available. All models have quick-disconnect function.

### STANDARD COMBINATION FILTER HOLDERS:

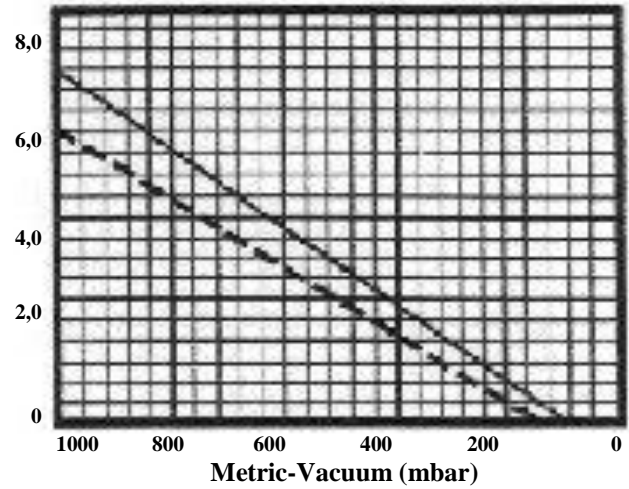
<b>FILTER HOLDER MODEL</b>	<b>CHARCOAL CARTRIDGE DIMENSIONS</b>	<b>PARTICULATE PAPER DIAMETER</b>
FJ-05P	F&J Model B	2" or 50 mm
FJ-21P	F&J Model C	2" or 50 mm
FJ-35P	F&J Model B	47 mm
FJ-46P	F&J Model C	47 mm
FJ-51P	F&J Model M	2" or 50 mm
FJ-53P	F&J Model M	47 mm

## PUMP CURVE

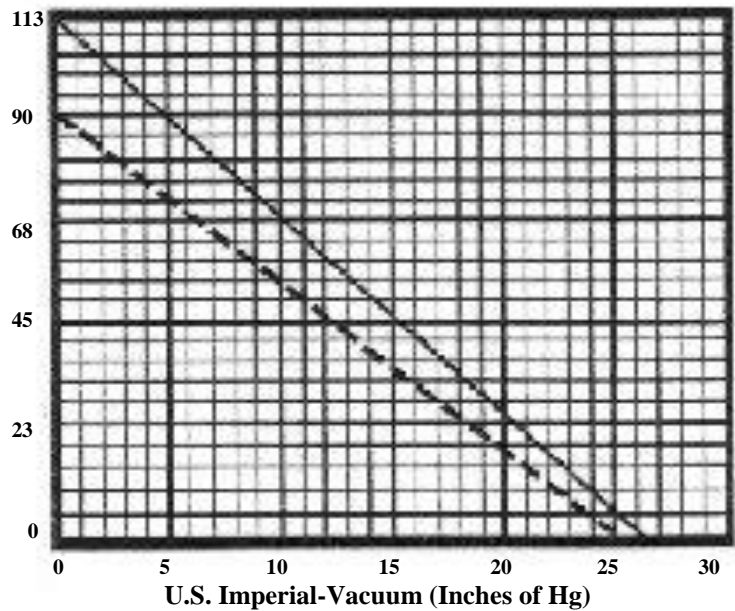
Top line on curve is for 60-cycle performance

Bottom line on curve is for 50-cycle performance

**Free Air Flow (cubic meters/hour)**



**Free Air Flow (LPM)**



**Free Air Flow (LPM)**

