

F&J SPECIALTY PRODUCTS, INC.

The Nucleus of Quality Air Monitoring Programs

ENVIRONMENTAL LOW VOLUME AIR SAMPLER with DIGITAL FLOWMETER MODEL DF-22 Series

Full view illustrating
the exterior gooseneck
sampling system

View inside weather house
illustrating digital flowmeter



GENERAL DESCRIPTION:

The DF-22 environmental air sampling system with digital flowmeter is a low-volume air sampler consisting of an oil-less, carbon vane vacuum pump, with a 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 removable base plate, which can be secured within the GFCI protected aluminum environmental weatherhouse, Model WH-3 having an enclosure rating of IPX3. The digital flowmeter has a large bright LED display.

The DF-22 environmental air sampling system is designed for continuous outdoor 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 by operator selection.

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

REV: 13 June 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
2+ GB Secure Digital Card:	P/N: 372239
FlashCard Reader:	P/N: SDDR-199-A20

DF-22 DIGITAL LOW VOLUME AIR SAMPLER (110-120VAC)

SPECIFICATIONS:

PUMP TYPE:	Oil-less, carbon vane, ¼ HP, 1725 RPM @ 60 Hz
MAXIMUM CAPACITY:	4 CFM (115 LPM) at 0" Hg Pressure drop.
ULTIMATE VACUUM:	25"Hg (635 mm) Hg at sea level.
POWER REQUIREMENTS:	100-120VAC; 50/60 Hz @ 6 amperes; single phase
CIRCUIT BREAKER PROTECTION:	10 Amperes
ELECTRICAL CORD:	All-temperature, 3-wire, 14 gauge
THERMAL OVERLOAD PROTECTION:	Furnished as an integral part of the motor
CONSTANT AIRFLOW REGULATOR:	Aluminum construction with silicone diaphragm; adjustable from 0.5 to 4 CFM (14-115 LPM).
HANDLES:	2-steel, on base plate
DIMENSIONS:	32"L × 26"W × 48 ¼" with Legs (81.3 × 66.0 × 122.6 cm)
WEIGHT:	112 lbs. (51 kg)
OPERATING TEMPERATURE RANGE:	32°-104° F (0°- 40° C)
INSTALLATION CATEGORY:	Pollution Degree 3
ENCLOSURE RATING:	IPX3
VOLUME TOTALIZER:	Volume totalizations corrected to STP. Units are factory set.

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

COMMUNICATIONS INTERFACE: RS-232

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).

OPTIONS:

SAMPLING HEAD: External gooseneck sampling head mounted to weatherhouse

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:

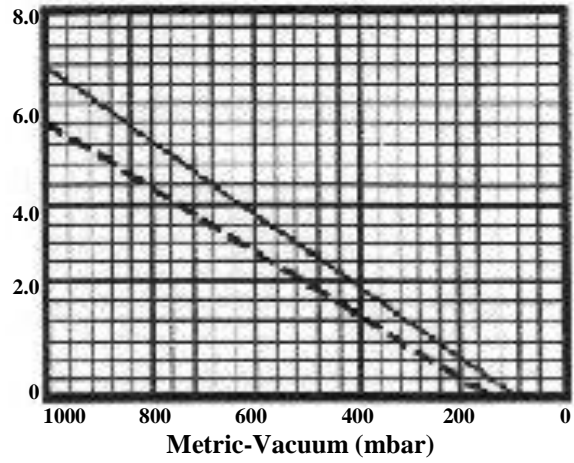
FILTER HOLDER MODEL	CHARCOAL CARTRIDGE DIMENSIONS	PARTICULATE PAPER DIAMETER
FJ-05P	F&J Model B	2" or 50 mm
FJ-21P	F&J Model C	2" or 50 mm
FJ-35P	F&J Model B	47 mm
FJ-46P	F&J Model C	47 mm
FJ-51P	F&J Model M	2" or 50 mm
FJ-53P	F&J Model M	47 mm

PUMP CURVE

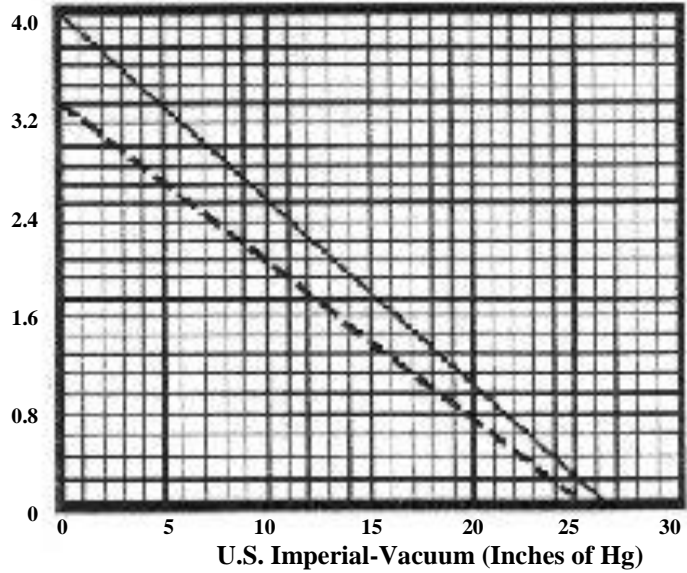
Top line on curve is for 60-cycle performance.

Bottom line on curve is for 50-cycle performance.

Free Air Flow (cubic meters/hour)



Free Air Flow (CFM)



Free Air Flow (LPM)

