F&J SPECIALTY PRODUCTS, INC.

The Nucleus of Quality Air Monitoring Programs

LOW VOLUME AIR SAMPLER with DIGITAL FLOW METER MODEL DF-28B Series

GENERAL DESCRIPTION:

The Model DF-28B environmental air sampling system with digital flowmeter is a low volume air sampler consisting of a 1/4 H.P. 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 base plate within a weather resistant aluminum environmental enclosure having four rubber feet. Handles are provided on the enclosure to facilitate transportation. The digital flowmeter has a large bright LED display.

The DF-28B is designed for continuous indoor or outdoor use. This unit can be adapted for tripod mounting if desired. Please consult the product specifications for the design temperature range and the installation category.

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

REV: 24 Nov. 2015

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 0ºC, 1 Atm
  2. Normal T and P 20ºC, 1 Atm
  3. Modified Normal T and P 21.1ºC (70ºF), 1 Atm or
  4. Standard Ambient T and P 25ºC, 1 Atm
- Reference or ambient flow conditions are operator selectable
- Elapsed time meter
- RS232 Data export in ASCII format in comma delimeted 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)

FLOW	VOLUME
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: 232FCDSD
  2+ GB Secure Digital Card: P/N: 372239
  FlashCard Reader: P/N: SDDR-199-A20

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

DF-28B Digital Low Volume Air Sampler (110 – 120VAC)

SPECIFICATIONS:

PUMP TYPE: Oil-less, carbon vane 1/4 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: 110 – 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)

HANDLE: Steel

DIMENSIONS: 19"L × 12 ½"W × 13 ¼"H
(48,3L × 31,75W × 33,7 cm H)

AVERAGE dB: 64.3

WEIGHT: 59 lbs. (26,8 kg)

OPERATING TEMPERATURES: 0º-122ºF (-18º- 50ºC)

INSTALLATION CATEGORY: Pollution Degree 3

ENCLOSURE RATING: IPX3

ELECTRONIC SPECIFICATIONS:

MEASUREMENT ACCURACY

Air flow:	± 4% of full scale	
Temperature:	± 2.0ºF	(1.1ºC)
Barometric Pressure:	2% over measured range	

CALIBRATION: Factory calibration once per year

COMMUNICATIONS INTERFACE: RS-232

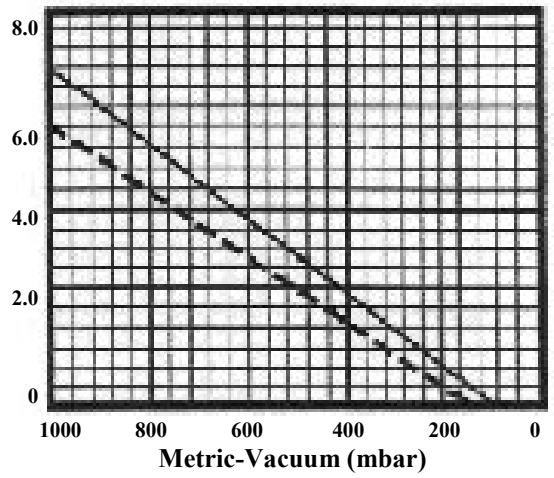
ON-BOARD CALCULATIONS

- 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)

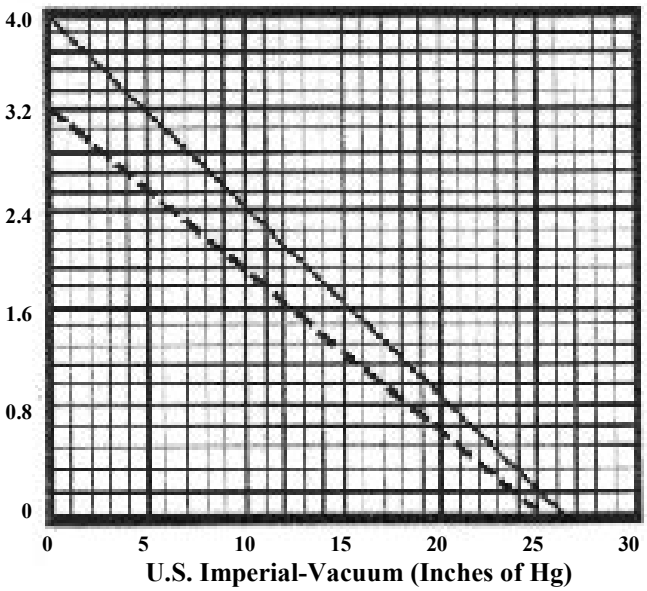
PUMP CURVE

Top line on curve is for 60-cycle performance
Bottom line of curve is for 50-cycle performance

Free Air Flow (cubic meters/hour)



Free Air Flow (CFM)



CONSTANT AIR FLOW REGULATOR CURVE
TYPICAL PUMP OPERATING FLOW RANGE

Free Air Flow (LPM)