

F&J SPECIALTY PRODUCTS, INC.

The Nucleus of Quality Air Monitoring Programs

DIGITAL FLOW METER 2ND GENERATION LOW VOLUME AIR SAMPLERS



DF-1-2G



DF-14M-2G



DF-22-2G



DF-28B-2G

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DFM Main Screen Display

PORTABLE LOW VOLUME AIR SAMPLER WITH DIGITAL FLOW METER MODEL DF-1-2G SERIES

STANDARD FEATURES:

- Bright OLED display
- Flowrate and volume totalizations displayed are corrected to a factory settable Reference Temperature and Pressure (4 options available)

Classical STP	0°C, 760 mmHg
Normal T and P	20°C, 760 mmHg
Modified Normal T and P	21°C, 760mmHg
Standard Ambient T and P	25°C, 760 mmHg
- Reference and ambient flow conditions are displayed
- Elapsed time meter
- Storage of elapsed time and volume in the event of power outage
- Auto Shut-off on time or volume
- Choices of flow/volume units:

SLPM	SL
SCMH	SCM
SCFM	SCF
- Display in English or metric units set at factory
- 2nd Generation State of the Art microprocessor electronics
- Auto zero calibration feature of flow sensor
- Flow rate accuracy within $\pm 4\%$ F.S.
- 100 – 120 VAC, 50/60Hz; single phase
- Internal Data Storage Downloadable as (.csv) file
- Data download via Type A USB port wired connection or through Bluetooth with optional Bluetooth Dongle for PC Device



GENERAL DESCRIPTION:

The Model DF-1-2G portable air sampling system with a digital flowmeter is a low-volume air sampler consisting of oilless, 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 oilless 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-1-2G 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 by operator selection.

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



DFM Main Screen Display

DF-1-2G Digital Flow Meter 2nd Generation (100—120VAC)

SPECIFICATIONS:

PUMP TYPE: Oilless, carbon vane 1/4 HP, 50/60 Hz, 1 PH

MAXIMUM CAPACITY: 4 CFM (115 LPM) at 0" Hg
Pressure drop

ULTIMATE VACUUM: 25" (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)

HANDLE: Black Painted Steel

DIMENSIONS: 16"L×7 1/2"W×13 1/4"H (40,6×19×33,6 cm)

NOISE LEVEL: Average dB 67.0 @ 1 meter

WEIGHT: 36 lbs. (16,36 kg)

INSTALLATION CATEGORY: Pollution Degree 2

OPERATING TEMPERATURE RANGE:

32- 104°F (0 - 40°C)

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 compen-
sate for offset and drift (automatic, once every minute)

OPTIONS:

Bluetooth Dongle for PC Device (P/N: BTDG)

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:

<u>FILTER HOLDER MODEL</u>	<u>CHARCOAL CARTRIDGE DIMENSIONS</u>	<u>PARTICULATE PAPER DIAMETER</u>
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

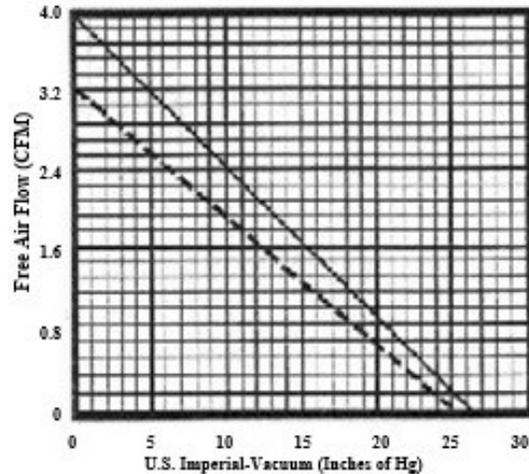
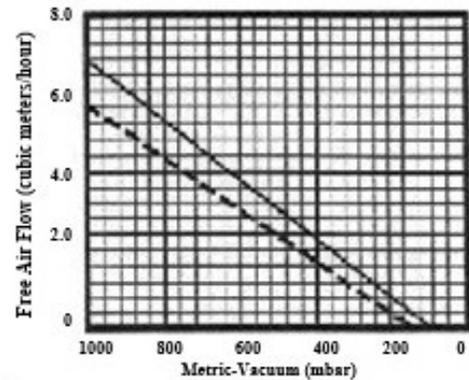
PUMP CURVE

Top line on curve is for 60-cycle performance

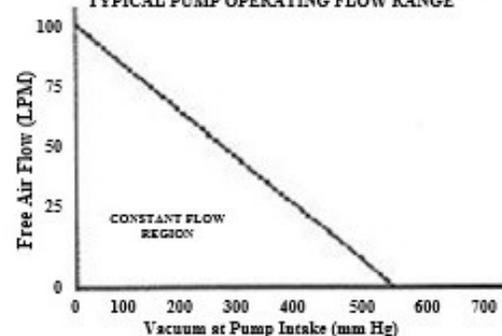
Bottom line on curve is for 50-cycle performance

1425 RPM @ 50Hz

1725 RPM @ 60Hz



CONSTANT AIR FLOW REGULATOR CURVE
TYPICAL PUMP OPERATING FLOW RANGE



MOBILE LOW VOLUME AIR SAMPLER WITH DIGITAL FLOW METER F&J MODEL DF-14M-2G

STANDARD FEATURES:

- Bright OLED display
- Flowrate and volume totalizations displayed are corrected to a factory settable Reference Temperature and Pressure (4 options available)

Classical STP	0°C, 760 mmHg
Normal T and P	20°C, 760 mmHg
Modified Normal T and P	21°C, 760mmHg
Standard Ambient T and P	25°C, 760 mmHg
- Reference and ambient flow conditions are displayed
- Elapsed time meter
- Storage of elapsed time and volume in the event of power outage
- Auto Shut-off on time or volume
- Choices of flow/volume units:

SLPM	SL
SCMH	SCM
SCFM	SCF
- Display in English or metric units set at factory
- State of the Art microprocessor electronics
- Auto zero calibration feature of flow sensor
- Flow rate accuracy within $\pm 4\%$ F.S.
- 100 – 120 VAC, 50/60Hz; single phase
- Internal Data Storage Downloadable as (.csv) file
- Data download via Type A USB port wired connection or through Bluetooth with optional Bluetooth Dongle for PC Device



GENERAL DESCRIPTION:

The Model DF-14M-2G cart mounted mobile low volume air sampler with digital flow meter has an adjustable, aluminum sampling gooseneck. The adjustable gooseneck permits sampling at heights varying from 4' to 7' above floor level. Model DF-14M-2G contains state of the art microprocessor electronics, which provides for corrected flow rate measurements, volume totalizations, and a USB communications port. It has a large bright OLED display.

The DF-14M-2G Air Sampler includes an oilless, carbon vane vacuum pump with a constant airflow regulator for use where a nearly constant airflow 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 lifetime. The oil-less pump requires no lubrication to maintain optimal efficiency during its service life. The pump is mounted on a mobile cart with two rubber wheels to permit mobile transportation of the unit.

The DF-14M-2G Air Sampler is designed for indoor use.

The typical operating flow range is 1 to 4 CFM (10 to 114 LPM).



DFM Main Screen Display

DF-14M-2G Digital Flow Meter 2nd Generation (100—120VAC)

PUMP TYPE:	Oiless, carbon vane ¼ HP, 50/60 Hz, 1 PH
MAXIMUM CAPACITY:	4 CFM (114 LPM) @ 0” Hg Pressure drop
ULTIMATE VACUUM:	25” (635 mm) Hg @ sea level
POWER REQUIREMENTS:	100-120VAC; 50/60Hz; 6 amperes, single phase
CIRCUIT BREAKER PROTECTION:	10 amps
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)
DIMENSIONS:	18”L×15”W×4’ – 7”H (46×38×122 - 213 cm)
NOISE LEVEL:	Average dB 70.0 @ 1 meter
WEIGHT:	67 lbs. (30,4 kg)
INSTALLATION CATEGORY:	Pollution Degree 2
OPERATING TEMP. RANGE:	32° to 104°F (0° to 40°C)
SAMPLING GOOSENECK:	Adjustable 4’ to 7’ (122 cm – 213 cm) sturdy aluminum
WHEELS:	8”, hard rubber
ELECTRONIC SPECIFICATIONS:	
MEASUREMENT ACCURACY:	
Air flow	± 4% of full scale
Temperature	± 2°F (1,1°C)
Barometric Pressure	2% over measured range
CALIBRATION:	Factory calibration 1 per year
COMMUNICATIONS INTERFACE:	Type A USB port

ON-BOARD CALCULATIONS:

Flow calculation from differential pressure value suing 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: Bluetooth Dongle for PC Device (P/N: BTDG)

COMBINATION FILTER HOLDERS AVAILABLE:

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

ENVIRONMENTAL LOW VOLUME AIR SAMPLER WITH DIGITAL FLOW METER F&J MODEL DF-22-2G

NOTABLE FEATURES:

- Bright OLED Display
- Flowrate and volume totalizations displayed are corrected to a factory settable reference Temperature and Pressure (4 options available)
- Reference and ambient flow conditions are displayed
- Elapsed time meter (electronic)
- 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

- Internal Data Storage Downloadable as (.csv) file
- Data download via Type A USB port wired connection or through Bluetooth with optional Bluetooth Dongle for PC Device

GENERAL DESCRIPTION:

The DF-22-2G environmental air sampling system with digital flowmeter is a low-volume air sampler consisting of an oilless, 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 oilless 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 powder coat painted aluminum environmental weatherhouse, Model WH-3 having an enclosure rating of IPX3. The digital flowmeter has a large bright OLED display.

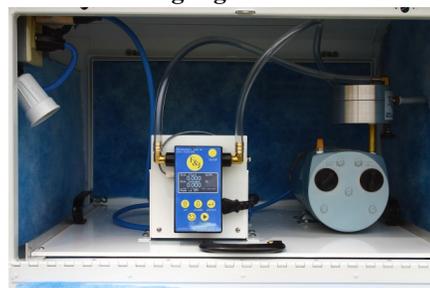
The DF-22-2G environmental air sampling system is designed for continuous outdoor use. Please consult the product specifications for the design temperature range and the installation category. Standard product displays flow rate, elapsed time and totalized volume by operator selection.

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

Full view illustrating the exterior gooseneck sampling system



View inside weather house illustrating digital flowmeter



DFM Main Screen Display



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: Type A USB port

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:

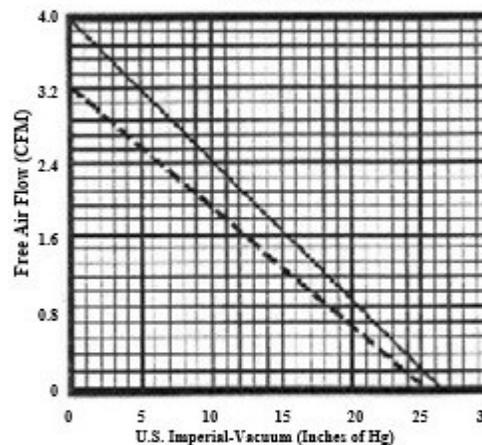
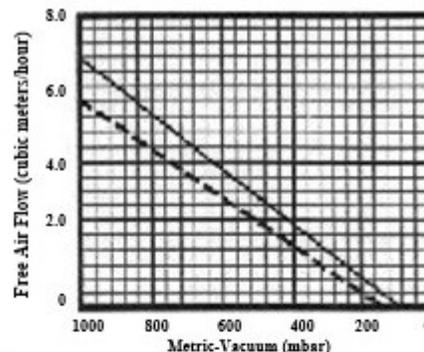
Durable plastic combination filter holders for F&J Model B, C or M charcoal cartridges and 47 mm, 2" or 50 mm diameter particulate filter paper are available. All models have quick disconnect function

STANDARD COMBINATION FILTER HOLDERS:

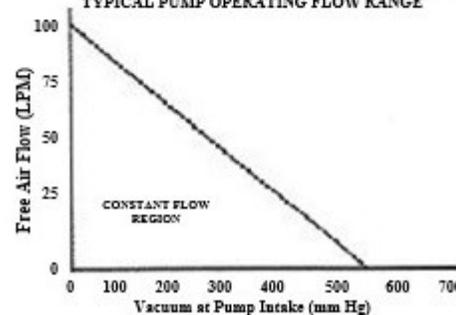
FILTER HOLDER MODEL	CHARCOAL CARTRIDGE DIMENSIONS	PARTICULATE PAPER DIAMETER
FJ-05P	F&J MODEL B	2" or 50 mm
FJ-21P	F&J MODEL C	2" or 50 mm
FJ-35P	F&J MODEL B	47 mm
FJ-46P	F&J MODEL C	47 mm
FJ-51P	F&J MODEL M	2" or 50 mm
FJ-53P	F&J MODEL M	47 mm

PUMP CURVE

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



CONSTANT AIR FLOW REGULATOR CURVE
 TYPICAL PUMP OPERATING FLOW RANGE

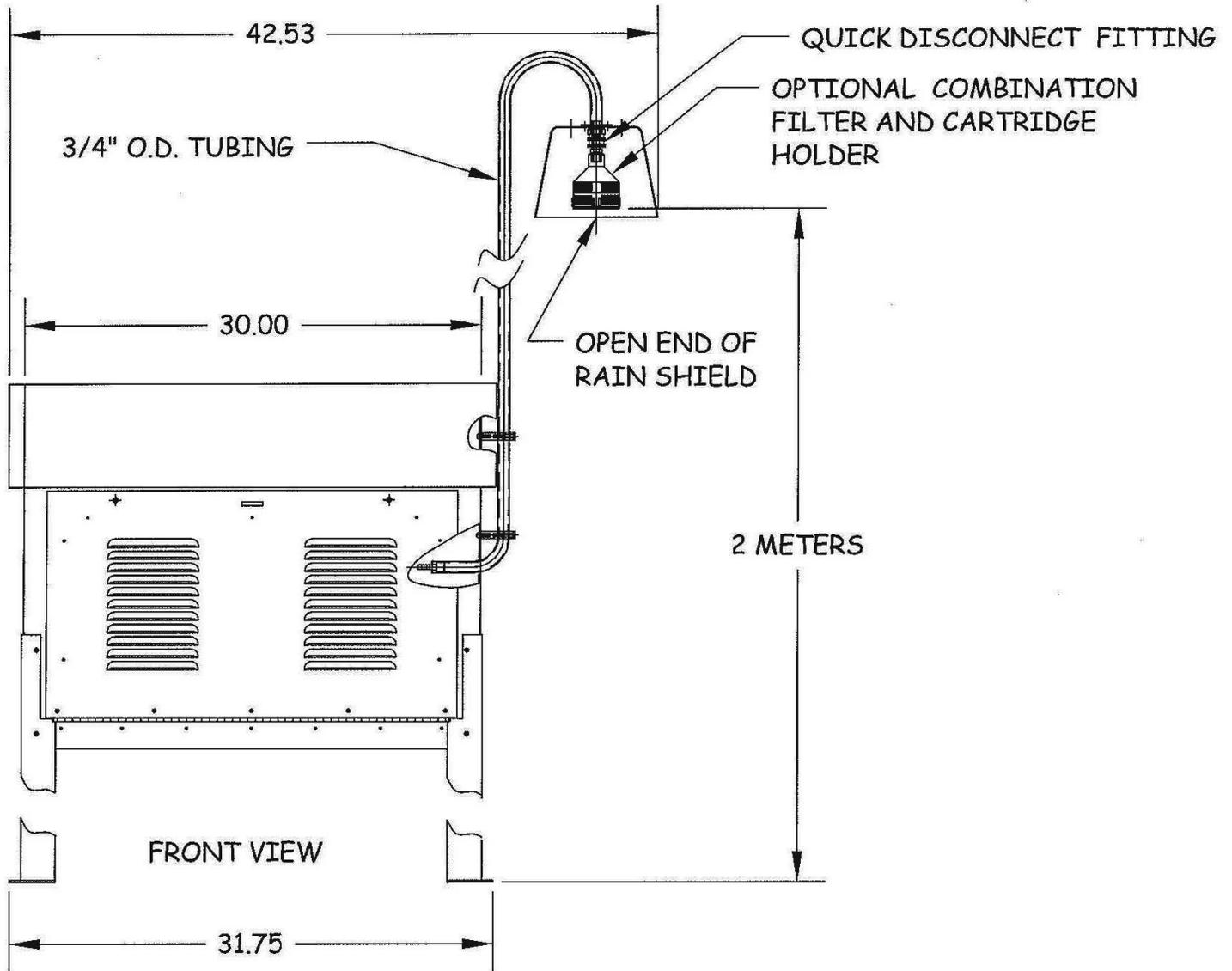


Optional Features:

- Bluetooth Dongle for PC Device (P/N: BTDG)

OPTIONAL GOOSENECK SAMPLING SYSTEM P/N: 2108GN

Standard DOE Design Vertical Arrangement



Environmental Air Sampling System with external standard style
Gooseneck sampling assembly 3/8"

LOW VOLUME AIR SAMPLER WITH DIGITAL FLOW METER F& MODEL DF-28-2G SERIES

NOTABLE FEATURES:

- Bright OLED Display
- Flowrate and volume totalizations displayed are corrected to a factory settable reference Temperature and Pressure (4 options available)
 - Classical STP 0°C, 760 mmHg
 - Normal T and P 20°C, 760 mmHg
 - Modified Normal T and P 21°C, 760mmHg
 - Standard Ambient T and P 25°C, 760 mmHg
- Reference and ambient flow conditions are displayed
- Elapsed time meter (electronic)
- 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>
SLPM	SL
SCMH	SCM
SCFM	SCF
- Internal Data Storage Downloadable as (.csv) file
- Data download via Type A USB port wired connection or through Bluetooth with optional Bluetooth Dongle for PC Device



GENERAL DESCRIPTION:

The Model DF-28B-2G environmental air sampling system with digital flowmeter is a low volume air sampler consisting of a 1/4 H.P. oilless 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 OLED display.

The DF-28B-2G 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).

SPECIFICATIONS:

PUMP TYPE:	Oilless, carbon vane 1/4 HP, 50/60 Hz, 1 PH
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)
HANDLE:	Steel
DIMENSIONS:	19"L × 12 ½"W × 13 ¼"H (48,3L × 31,75W × 33,7 cm H)
NOISE LEVEL:	Average dB 64.3 @ 1 meter
WEIGHT:	59 lbs. (26,8 kg)
OPERATING TEMPERATURES:	0°-122°F (-18°- 50°C)
INSTALLATION CATEGORY:	Pollution Degree 3
ENCLOSURE RATING:	IPX3

ELECTRONIC SPECIFICATIONS:

MEASUREMENT ACCURACY

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

CALIBRATION:	Factory calibration once per year
COMMUNICATIONS INTERFACE:	Type A USB Port

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)

Optional Features:

Bluetooth Dongle for PC Device (P/N: BTDG)

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 a quick-disconnect function.

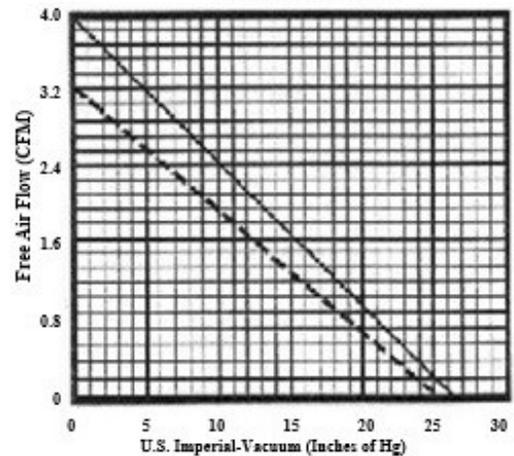
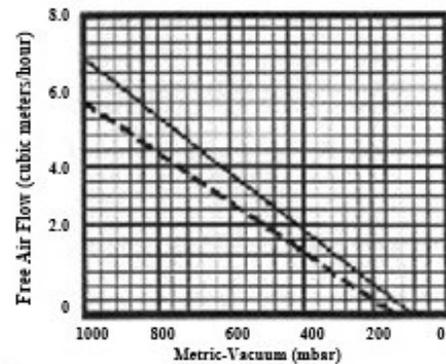
STANDARD COMBINATION FILTER HOLDERS:

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

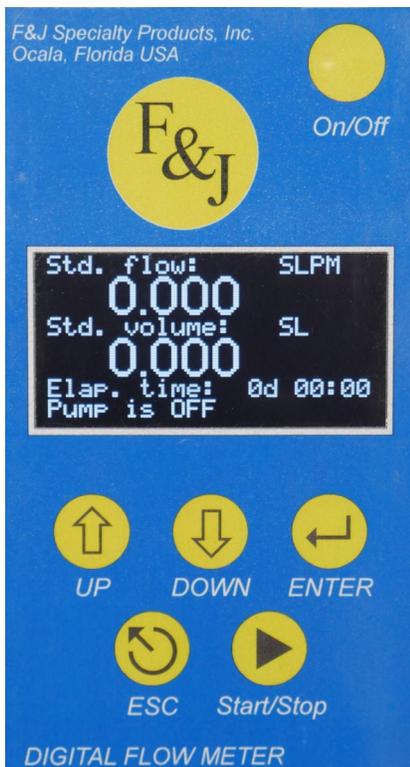
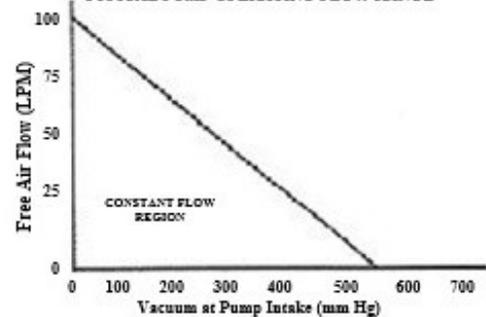
PUMP CURVE

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

1425 RPM @ 50Hz
1725 RPM @ 60Hz



CONSTANT AIR FLOW REGULATOR CURVE
TYPICAL PUMP OPERATING FLOW RANGE



DFM Main Screen Display

Bluetooth Dongle for 2nd Generation DFM with OLED Display

P/N: BTDG

Wireless communication



Dongle
BTDG



The Bluetooth dongle allows the user to wirelessly download the collected data from F&J's OLED Digital Flow Meter (DFM) to a computer in the form of a .csv file. F&J's dedicated application, DataComm, makes it easy for the user to communicate with the air sampler, download stored data and send commands to the DFM. **(Note: The application runs on most Windows operating systems so there is no need for any special process for installation.)**

When using the Bluetooth dongle, the computer must be within 10 feet of the working air sampler. On the application, the air sampler can be easily identified by its serial number. Once a connection is established, the user can download the collected data and save it to any desired location on the computer. When downloading, the user will be provided with a progress bar; if the user wants to interrupt the data transfer, they can do so with the cancel button; however, the partially downloaded data will still be saved in the designated file location.

After a successful download, the collected data stored on the DFM can be erased and a new sample can be initiated after the filter medium is replaced.

AIR FLOW CALIBRATORS



**WORLD CALIBRATOR
PC VERSION
(PC Interfaceable)**



**WORLD CALIBRATOR
VFD VERSION
(PC Interfaceable)**



**PC INTERFACEABLE
MULTI-SENSOR SERIES VFD VERSION
(Up to 4 different sensor ranges)**



**COMPACT DIGITAL
CALIBRATOR V.2 SERIES**



**ECONOCAL AIR FLOW
CALIBRATOR SERIES**



**BEMCHTOP DIGITAL
CALIBRATOR V.2 SERIES**



**HIGH FLOW WORLD CALIBRATOR
WC-600E-VFD**



MINI CALIBRATOR

Top of Flow Range

Standard Flow Range
250 Sccm to 70 SCFM

High Flow Product Flow Ranges
90 SCFM to 600 SCFM
(~153 SCMh to ~1020 SCMh)

CONSUMABLES AND ACCESSORIES FOR AIR MONITORING PROFESSIONALS

Assorted Filter Paper



Filter Holders



Radioiodine Collection Cartridges



PRODUCT PROFILE

Air Sampling Systems

- High Volume Air Samplers
 - Portable Grab Samplers
 - Environmental Systems
 - Enzyme Dust Samplers
 - PM10 Systems
- Continuous Air Samplers
 - Environmental Systems
 - Portable
 - Fixed Station
- Personal Air Samplers
- Emergency Response DC Powered Air Sampling Systems

Filter Paper

- Glass Fiber
- Cellulose
- Membrane
- Quartz

Filter Holders

- Open face
- In-Line
- PAS Filter Holders
- Materials
 - Plastic
 - Aluminum
 - Stainless Steel

Radon Detection Devices

- 2-Day Passive Charcoal Canisters
- 7-Day Passive Charcoal Canisters
- Continuous Radon Monitors

Tritium Detection Systems

- Portable and Fixed Station Collection Systems utilizing Silica Gel or Molecular Sieve Absorbents
- Continuous Tritium Monitors

New Products

- Global Air Sampling Systems
- Digital Flow Meter Air Samplers
- C-14 Collection Systems
- ELITE DIGITAL LIGHT (EDL) Air Samplers
- Isokinetic Air Sampling Systems
- MEGA High Volume Air Samplers
- ULTRA High Volume (CTBTO) Air Samplers
- JUNIOR CTBTO Air Samplers

Radioiodine Collection Cartridges

- TEDA Impregnated Charcoal
- Silver Zeolite
- Custom Cartridges
- Bulk Silver Zeolite

Air Flow Calibrators

- World Calibrator Series
- Compact Digital V.2 Series
- Mini-Calibrator

