

**F&J SPECIALTY PRODUCTS, INC.**

*The Nucleus of Quality Air Monitoring Programs*

# OPTIONS FOR GLOBAL AIR SAMPLER SYSTEMS



Rev: 20 November 2024

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**F&J SPECIALTY PRODUCTS, INC.**  
*The Nucleus of Quality Air Monitoring Programs*

**METEOROLOGICAL STATION  
GLOBAL AIR SAMPLER SYSTEMS  
WS-110**



**Measured Parameters**

- Wind Speed
- Wind Direction
- Temperature
- Humidity
- Barometric Pressure

**Accuracy**

- ± 2 knots
- < 4° per second average error
- ± 1.1°C
- ± 5% R.H.
- ± 2 mbar



LOW VOLUME System



HIGH VOLUME System

## ELECTRICAL SURGE PROTECTION FOR HIGH VOLUME AIR SAMPLING SYSTEMS

**P/N: FJ-SSI-AS-03**



**NORTH AMERICAN**

**P/N: FJ-SSI-02E-UK**



**UK RECEPTACLE**

**P/N: FJ-SSI-HLASE**



**SCHUKO RECEPTACLE**

Surges or power line transients are brief overvoltage spikes or disturbances on a power wave form which can damage, degrade or destroy electronic equipment and motors. Externally generated transients include utility grid switching, magnetic coupling and nearby or direct lightning strikes.

F&J SPECIALTY PRODUCTS, INC. (F&J) recommends the use of a “Surge Protective Device” (SPD) for digital air samplers utilized in high volume (HV)/low volume (LV) air sampling applications. F&J has commissioned a leading manufacturer of SPDs in the USA to design and develop a product that would protect air sampling instruments utilized in NPP HV/LV air sampling programs from the negative effects of power line surges.

Dimensions: 8”L × 8”W × 4.4”H (20.3 x 20.3 x 11.2 cm)

Weight: 5.8 lbs. (2.6 kg)

Receptacles; Two (2) 250VAC, 13A United Kingdom (UK) style grounding receptacles. This unit can be factory installed in the HV/LV air sampler at the time of fabrication or retro fitted to older air samplers with only minor changes.

Test Standard; IEEE Std C62.41.2<sup>TM</sup>– 2002 and IEEE Std C62.62<sup>TM</sup>—2010

#### References:

- IEEE Std C62.41.1<sup>TM</sup>–2002—IEEE Guide on the Surge Environment in Low-Voltage (1000 V and less) AC Power Circuits
- IEEE Std C62.41.2<sup>TM</sup>–2002—IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits
- IEEE Std C62.62 –2010—IEEE Standard Test Specifications for Surge-Protective Devices (SPDs) for use on the Load Side of the Service Equipment in Low-Voltage (1000 V and less) AC Power Circuits

These are the standards that describe the surge environment and govern performance specifications of SPDs.

# Global Air Sampler Data Acquisition Software Program Description “GASdaq”

## General Description

The [Global Air Sampler data acquisition program](#) GASdaq, is a sophisticated software program that compliments the F&J air sampling systems which contain Global Air Sampler (GAS) advanced-technology electronic hardware systems.

The GAS systems are designed for air sampling applications which have one or more of the following criteria requirements:

- 1) Remote and unattended sampling systems requiring sample data download after the sample event
- 2) Air sampling systems which require that alarm notifications be transmitted immediately to specified individuals or locations by email, telephone or to a central server with optional communications hardware
- 3) Air sampling systems requiring that data be transmitted from the field station to a central location on a near real-time basis including alarm notifications

The GAS electronics module can be setup and operated utilizing its on-board four button keypad and the 4 line by 24 character vacuum fluorescent display, or the GASdaq data acquisition software.

GAS systems can be integrated with a second air sampler (DFM Mode) or a Weather Station (WS Mode)

The following pages illustrate the various operator selectable features of the GAS systems via the GASdaq User Settings Screen and an example of the various GASdaq program screens viewable on a PC which is connected to the GAS system.

## A. Standard Air Sampling Mode

### GASdaq: Data Acquisition Software

The GASdaq software enables the user to connect a PC to any F&J Global Air Sampler and easily setup, monitor, transmit, and download the sample data from the instrument after the sample event, or at operator selectable transmission frequencies during the sample event. Operator selectable features include the following:

- 1) Setup the air sampling instrument utilizing operator selectable radio button system
  - a) Engineering units for measured and calculated parameters
  - b) Reference temperature and pressure values for volumetric flow
  - c) Alarm settings for six different parameters
  - d) Operating modes
  - e) Data storage averaging frequencies
  - g) Data transmission frequencies

### User Settings Screen

**User Settings**

\* Language \*  
 English  
 Français

Flow Type  
 Volumetric  
 Mass  
 Isokinetic

\* Flow \*  
 SCFM  
 SLPM  
 scc/min  
 sm<sup>3</sup>/hr  
 sm<sup>3</sup>/min

\* Volume \*  
 SCF  
 SL  
 scc  
 sm<sup>3</sup>

\* Mass Flow \*  
 g/min  
 lb/hr  
 kg/hr

\* Temperature \*  
 °C  
 °F

\* Pressure \*  
 atm  
 InHg  
 mmHg  
 bar  
 kPa  
 mbar  
 hPa

Reference Temp.  
 32.0 °F  
 59.0 °F  
 68.0 °F  
 70.0 °F  
 77.0 °F

Reference Press.  
 29.92 InHg  
 29.53 InHg

Operation Mode  
 Continuous  
 5 min. hourly  
 1 hr. weekly

1: motor on, 0: off  
 Each 1 or 0: 5 min.

Each 1 or 0: 1 hour  

	0	7	8	15	16	23
Sun	00000000	00000000	00000000	00000000		
Mon	11111111	11111111	11111111	11111111		
Tue	11111111	11111111	11111111	11111111		
Wed	11111111	11111111	11111111	11111111		
Thu	11111111	11111111	11111111	11111111		
Fri	11111111	11111111	11111111	11111111		
Sat	10000000	10000000	10000000	10000000		

End Mode  
 Maximum: 9.99E+30 SCF  
 By time (Storage Freq. dependent)  
 day  hr  min  
 By volume  
 SCF

Instrument Identifiers (8 char. max., A-Z 0-9 ! @ # & \* ( ) \_ - + = . , ; : ? / )  
 Company Name:  Plant Site:  Station Number:  Filter1 ID:  Filter2 ID:

Setup Flow  
 SCFM

Obtain Setup from Instr. Send Setup to Instrument Load Setup from File Save Setup to File

(c) 2010-2013 F&J Specialty Products, Inc. 404 Cypress Road, Ocala, FL 34472, USA  
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Note: \*...\* parameters can be changed interactively regardless of the settings in the instrument.

# Options for Global Air Samplers

The following two screen displays represent the Main Data Screen viewable on the PC during the sample event (measurement in process) and the Main Data Screen after sample event has been terminated.

## Main Screen during Operation

The screenshot shows the 'Global Air Sampler Data Acquisition by F&J V01.02.14' window. The status is 'Communication with Global Air Sampler is OK - Measurement is running, pump is on'. The measurement settings include Volumetric flow type, 32.0 °F ref. temp, 1 sec RS232 freq, and 22.0 - 32.0 InHg inlet P. range. The measurement summary for 02 MAY 2021 12:32 (refreshed every 10 min.) shows a start at 10:00 and end at 12:32, with a standard flow of 10.97 and an average of 11.93 SCFM. The correction to reference T and P shows a standard flow of 11.98 SCFM and an average flow of 11.92 SCFM. The correction to ambient conditions shows an ambient flow of 11.92 CFM and an ambient volume of 1681.1 CF. The elapsed time is 0,02:31 d,h,m.

Measurement Settings		Serial #:	5041	Recal. Due:	15 FEB 2022
Flow Type:	Volumetric	Op. Mode:	Continuous	End After:	14,23:59 d,h,m
Ref. Temp.:	32.0 °F	Ref. Press.:	29.92 InHg	Storage Freq.:	1 min
RS232 Freq.:	1 sec	Flow Diff. Alarm:	±15%	Inlet P. Drop:	2.5 InHg
Inlet P. Range:	22.0 - 32.0 InHg	Temp. Range:	45.0 - 100.0 °F	Setup Flow:	12.00 SCFM

Measurement Summary at 02 MAY 2021 12:32 (refreshed every 10 min.)		Minimum	Maximum	Average	
Start at:	02 MAY 2021 10:00	Standard Flow:	10.97	12.13	11.93 SCFM
End at:		Ambient Flow:	10.51	11.45	11.13 CFM
Stored Data Record(s):	151	Temperature:	20.0	20.8	20.8 °C
Power Outage(s):	0	Ambient Press.:	29.97	30.03	29.99 InHg
Power Outage(s) Time:	0,00:00 d,h,m	Differential Press.:	0.081	0.097	InHg
Initial Flow:	12.03 SCFM				
Percent Availability:	99.9 %	Inlet P. Drop Reference:	28.0 InHg		

Correction to Reference T and P		Correction to Ambient Conditions	
Standard Flow:	11.98 SCFM	Ambient Flow:	11.92 CFM
Average Flow:	11.92 SCFM	Avg. Ambient Flow:	11.12 CFM
Sample Volume:	1803.8 SCF	Ambient Volume:	1681.1 CF
Temperature:	20.8 °C	Ambient Press.:	30.02 InHg
Elapsed Time:	0,02:31 d,h,m	Inlet Pressure:	28.02 InHg
Instrument Alarm(s):			

## Main Screen after Termination of the Sample Event

The screenshot shows the 'Global Air Sampler Data Acquisition by F&J V01.02.14' window. The status is 'Communication with Global Air Sampler is OK - Measurement is completed'. The measurement settings include Volumetric flow type, 32.0 °F ref. temp, 1 sec RS232 freq, and On - On inlet P. range. The measurement summary for 02 MAY 2021 12:32 - Measurement is completed shows a start at 10:00 and end at 12:32, with a standard flow of 10.97 and an average of 11.93 SCFM. The correction to reference T and P shows a standard flow of 11.98 SCFM and an average flow of 11.92 SCFM. The correction to ambient conditions shows an ambient flow of 11.92 CFM and an ambient volume of 1681.1 CF. The elapsed time is 0,02:32 d,h,m.

Measurement Settings		Serial #:	5041	Recal. Due:	15 FEB 2022
Flow Type:	Volumetric	Op. Mode:	Continuous	End After:	9,00E+30 SCF
Ref. Temp.:	32.0 °F	Ref. Press.:	29.92 InHg	Storage Freq.:	1 min
RS232 Freq.:	1 sec	Flow Diff. Alarm:	On	Inlet P. Drop:	On
Inlet P. Range:	On - On	Temp. Range:	On - On	Flow Ratio:	1 : 200

Measurement Summary at 02 MAY 2021 12:32 - Measurement is completed		Minimum	Maximum	Average	
Start at:	02 MAY 2021 10:00	Standard Flow:	10.97	12.13	11.93 SCFM
End at:	02 MAY 2021 12:32	Ambient Flow:	10.51	11.45	11.13 CFM
Stored Data Record(s):	151	Temperature:	20.0	20.8	20.8 °C
Power Outage(s):	0	Ambient Press.:	29.97	30.03	29.99 InHg
Power Outage(s) Time:	0,00:00 d,h,m	Differential Press.:	0.081	0.097	InHg
Initial Flow:	12.03 SCFM				
Percent Availability:	99.9 %	Inlet P. Drop Reference:	28.0 InHg		

Sample Volume:	1803.8 SCF		
Ambient Volume:	1681.1 CF		
Elapsed Time:	0,02:32 d,h,m		

# Options for Global Air Samplers

The GASdaq software enables a user to view on the PC screen and print the following reports on a Windows printer:

- 1) Management Report and data charts for the sample event
- 2) Data records report
- 3) Alarm settings report

## Management Report for GASdaq in Standard Air Sampling Mode

### Management Report

#### IDENTIFICATION OF AIR SAMPLER

Serial Number:	5041	Company Name:	COMPNAME
Station Number:	STATION#	Plant Site:	PLNTSITE
Filter1 ID:	FILTER_1	Recalibration Due:	15 FEB 2022
Filter2 ID:	FILTER_2	Software Version:	V03.03c

#### SETUP PARAMETERS IN AIR SAMPLER

Flow Type:	Volumetric	Operation Mode:	Continuous
Flow Unit:	SCFM		
Volume Unit:	SCF		
Temperature Unit:	°C		
Pressure Unit:	InHg		
Reference Temp.:	20.0 °C		
Reference Press.:	29.92 InHg		
End After:	100000.0 SCF	RS-232 Freq.:	1 sec
Setup Flow:	5.00 SCFM	Storage Freq.:	1 min
Flow Diff. Alarm:	±15%	Inlet P. Drop:	3.6 InHg
Inlet P. Range:	26.6 - 30.2 InHg	Temp. Range:	12.8 - 37.2 °C

#### MEASUREMENT SUMMARY

Start at:	20 FEB 2021 00:17	Stored Data Record(s):	24786	
Elapsed Time:	0,18:15 d,h:m	Power Outage(s):	2	
Sample Volume:	12385.0 SCF	Power Outage(s) Time:	0,11:22 d,h:m	
Ambient Volume:	12242.0 CF	Percent Availability:	29.5%	
Initial Flow:	34.81 SCFM	Number of Alarms:	30	
		Inlet P. Drop Reference:	30.0 InHg	
	Minimum:	Maximum:	Average:	
Standard Flow:	0.00	82.65	29.97	SCFM
Ambient Flow:	0.00	81.77	29.63	CFM
Temperature:	13.9	21.3	18.6	°C
Ambient Press.:	29.87	30.09	30.01	InHg
Differential Press.:	-0.135	0.738		InHg

Comments:

F&J GASdaq V01.02.14

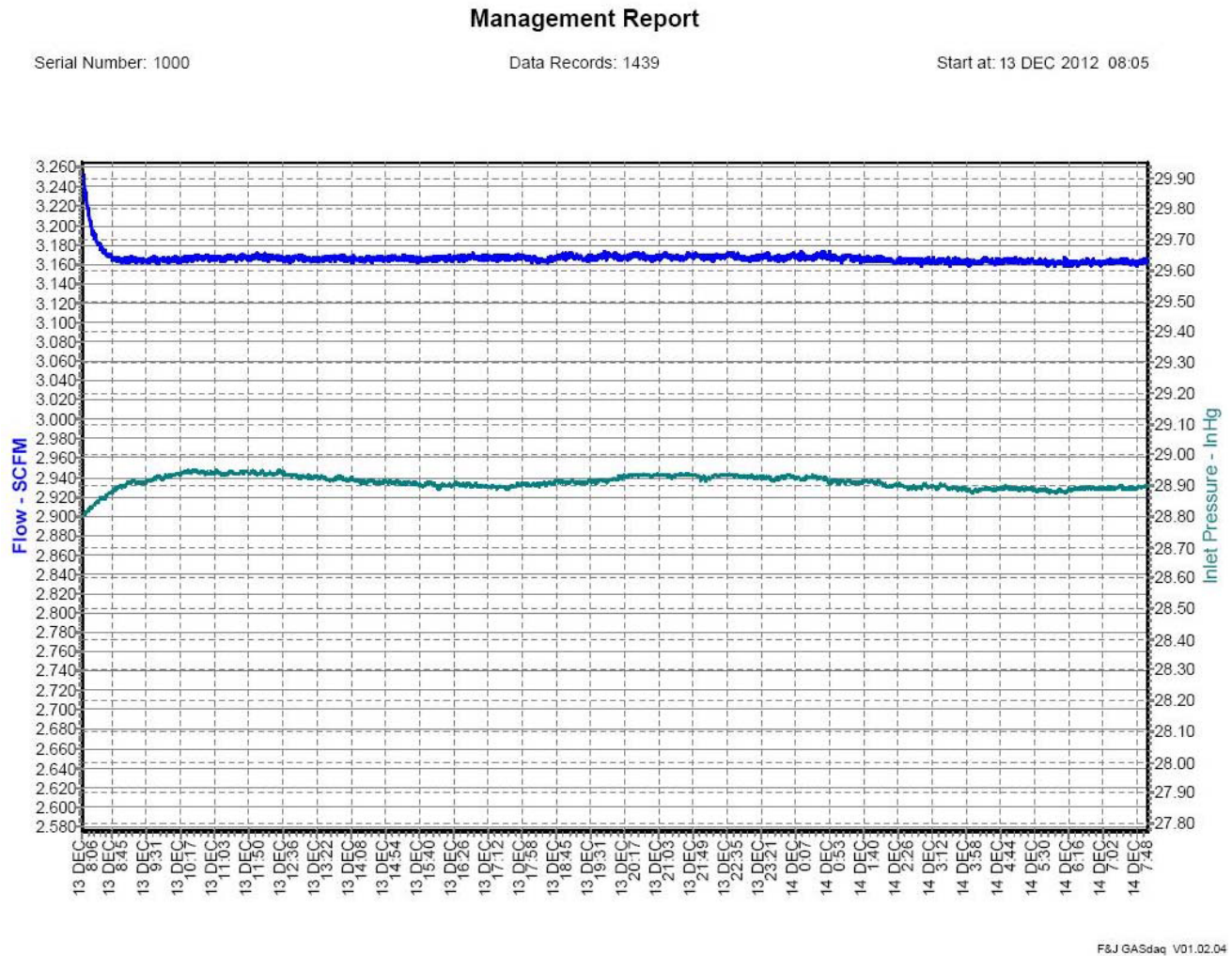
Operator:  
Date:

Approved by:  
Date:



## Management Report Chart

Charts are printed according to graph selection and current zoom / chart positioning. The engineering units can be changed in User Settings.



Depending on the alarms, errors, and instrument options the chart header may contain error-related information.

Serial Number: 8894		<b>Management Report</b>		Start at: 18 DEC 2013 17:53	
Data Records:	144	Records with Alarms/Errors:	3	Number of Alarms/Errors:	1
<input type="checkbox"/> Flow % Alarm:	0	<input checked="" type="checkbox"/> Pressure Alarm:	1	<input type="checkbox"/> Temperature Alarm:	0
<input type="checkbox"/> Pressure Drop Alarm:	0	<input type="checkbox"/> Data Record Error:	0		
NOTE: (x) marks alarm(s) depicted on the chart					

## Data Records Table in Standard Air Sampling Mode

Record Number	Date & Time From Stored Record	Flow SCFM	Diff.P. InHg	Temp. °F	Inlet P. InHg	Alarms F,P,T,D,R
1	01 FEB 2021 11:37	0.00	0.001	66.3	30.22	
2	01 FEB 2021 11:38	0.00	0.000	66.3	30.22	F
3	01 FEB 2021 11:39	0.00	0.000	66.3	30.23	f
4	01 FEB 2021 11:40	0.00	0.000	66.3	30.23	f
5	01 FEB 2021 11:41	0.00	0.000	66.3	30.23	f
6	01 FEB 2021 11:42	0.00	-0.000	66.3	30.22	f
7	01 FEB 2021 11:43	0.00	0.000	66.3	30.23	f
8	01 FEB 2021 11:44	0.00	0.000	66.3	30.23	f
9	01 FEB 2021 11:45	0.00	-0.000	66.3	30.22	f
10	01 FEB 2021 11:46	0.00	0.000	66.3	30.22	f
11	01 FEB 2021 11:47	0.00	-0.000	66.3	30.22	f
12	01 FEB 2021 11:48	0.00	0.000	66.3	30.22	f

## Alarms Settings in Standard Air Sampling Mode

Alarm Settings	
Report alarm when:	
<input checked="" type="checkbox"/> Flow differs from Setup flow by	<input type="radio"/> ±10% <input type="radio"/> ±15% <input checked="" type="radio"/> ±20%
<input checked="" type="checkbox"/> Inlet Pressure higher than	34.0 InHg
<input checked="" type="checkbox"/> Inlet Pressure lower than	20.0 InHg
<input checked="" type="checkbox"/> Temperature higher than	110 °F
<input checked="" type="checkbox"/> Temperature lower than	40 °F
<input checked="" type="checkbox"/> Inlet Pressure drop (dust loading)	5.0 InHg
Air Sampler Clock Setting	
<input checked="" type="checkbox"/> Synchronize Air Sampler's clock with PC clock when sending Setup to Instrument	
Directory for Automatically Saved Data and Setup Files	
Current Directory:	C:\ACCMAN21
	Browse

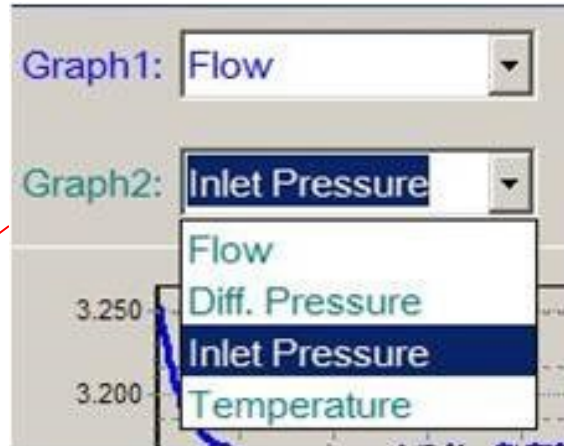
**Operator selectable alarms are available for:**

- Flow deviation
- High inlet pressure
- Low inlet pressure
- High temperature
- Low temperature
- Inlet pressure drop due to dust loading

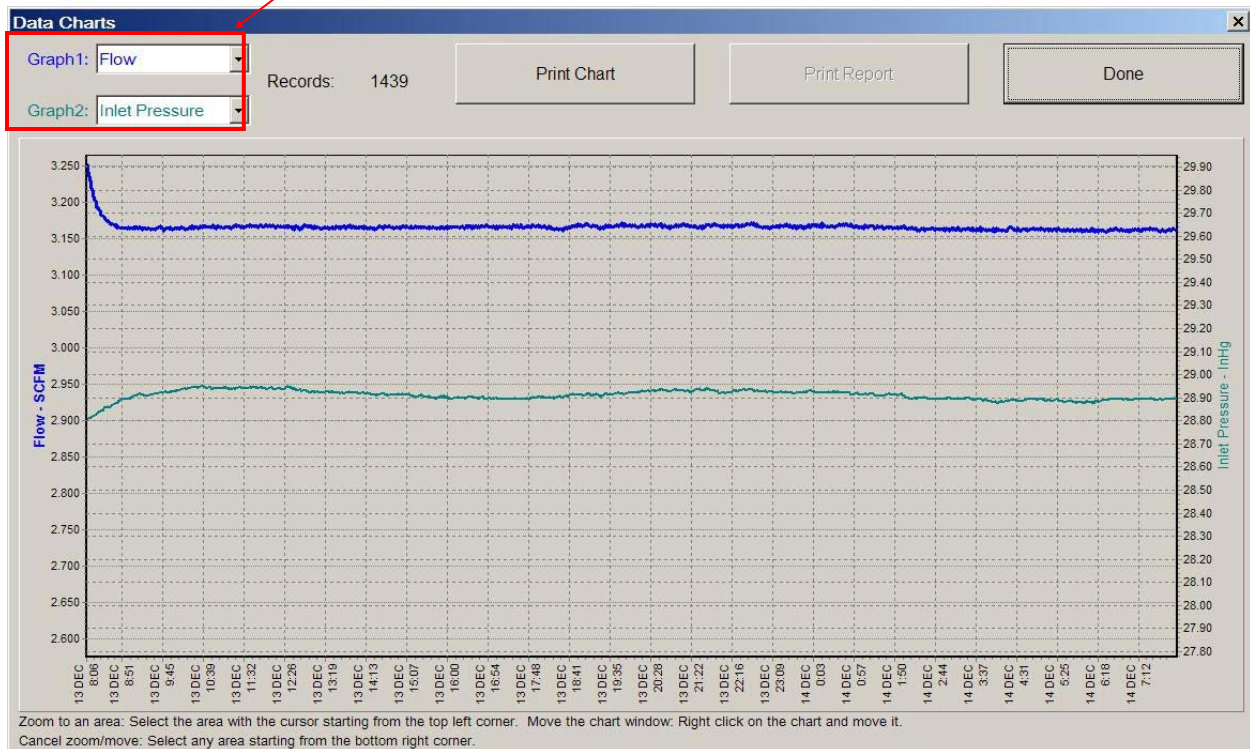
# Options for Global Air Samplers

The GASdaq software enables a user to view and print data charts vs. time of two operator selectable measured parameters in still mode, moving chart mode, or in zoom mode. The data charts illustrate alarm events, if any.

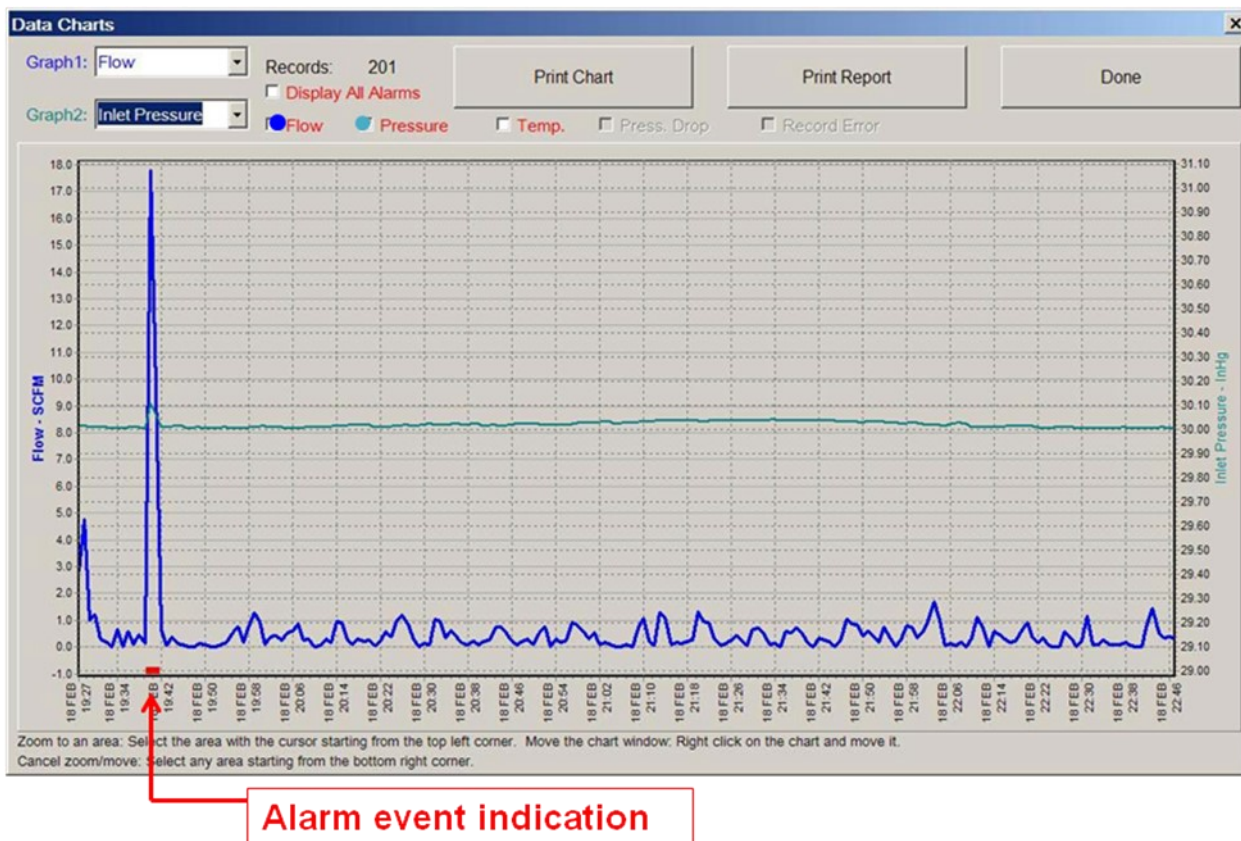
## Data Chart Selection Option



## Data Chart



## Data Chart with Alarm Event



F&J provides purchasers of GAS systems with the computer commands necessary to control the air sampler in the field via direct connection or remotely. The command set includes the following functions:

- 1) Start/stop
- 2) Send stored data since last transmission
- 3) Send data continuously at operator selectable frequency

The command set enables purchasers to create their own software programs to interact with GAS field air sampling instruments in lieu of the GASdaq software.

## B. Second Air Sampler Integration (DFM Mode)

### Main Screen in DFM Mode (Measurement in process)

Any Global Air Sampler can accept the RS232 data input from either an independent F&J Digital Flow Meter (DFM) or another Global Air Sampler (GAS) air sampling system.

Typically this second air sampler will be utilized to collect another radioactive pollutant species on a different collection medium.

For example the UHV-600 Series air sampler utilizes the DFM system option with a TE3.2 TE-DA impregnated charcoal cartridge and a FP102M2 pre-filter (part number DF-UHV-3.2) for purposes of radioiodine collection.

The output of the DF-UHV-3.2 DFM RS232 is routed to the inlet RS232 of the UHV-600 GAS electronic module. The DFM air sampling data is stored on the GAS electronics module for future transmission and reports using the GASdaq software.

Another application is for a REMP particulate iodine system to accept data from a tritium collection system located in the same ambient shelter.

**Global Air Sampler Data Acquisition by F&J V01.02.14**

**Status:** Communication with Global Air Sampler is OK - Measurement is running, pump is on

**Measurement Settings**

Flow Type:	Volumetric	Serial #:	5041	Recal. Due:	15 FEB 2022
Ref. Temp.:	32.0 °F	Op. Mode:	Continuous	End After:	14,23:59 d,h:m
RS232 Freq.:	1 sec	Ref. Press.:	29.92 InHg	Storage Freq.:	1 min
Inlet P. Range:	22.0 - 32.0 InHg	Flow Diff. Alarm:	±15%	Inlet P. Drop:	2.5 InHg
		Temp. Range:	45.0 - 100.0 °F	Setup Flow:	12.00 SCFM

**Measurement Summary at 01 MAY 2021 12:32 (refreshed every 10 min.)**

	Minimum	Maximum	Average
Start at:	01 MAY 2021 0:00	Standard Flow:	10.97 12.13
End at:		Ambient Flow:	10.51 11.45
Stored Data Record(s):	151	Temperature:	20.0 20.8
Power Outage(s):	0	Ambient Press.:	29.97 30.03
Power Outage(s) Time:	0,00:00 d,h:m	Differential Press.:	0.081 0.097
Initial Flow:	12.03 SCFM		
Percent Availability:	99.9 %	Inlet P. Drop Reference:	28.0 InHg

**Air Sampler Data**

Standard Flow:	11.98 SCFM
Ambient Flow:	11.92 SCFM
Temperature:	20.8 °C
Inlet Pressure:	30.18 InHg
Sample Volume:	1803.8 SCF
Ambient Volume:	1681.1 CF
Elapsed Time:	0,02:31 d,h:m
Instrument Alarm(s):	No AC

**DFM Data**

Standard Flow:	11.93 SCFM
Ambient Flow:	11.94 CFM
Temperature:	20.1 °C
Inlet Pressure:	30.13 InHg
Sample Volume:	1800.1 SCF
Ambient Volume:	1806.8 CF
Elapsed Time:	0,02:31 d,h:m

### Termination Screen

After the termination of the measurement the final elapsed time and volume values are shown for both the Global Air Sampler and the DFM.

Sample Volume:	7532.6 SCF	Sample Volume:	7591.6 SCF
Ambient Volume:	5533.4 CF	Ambient Volume:	5580.8 CF
Elapsed Time:	0,17:03 d,h:m	Elapsed Time:	0,17:03 d,h:m

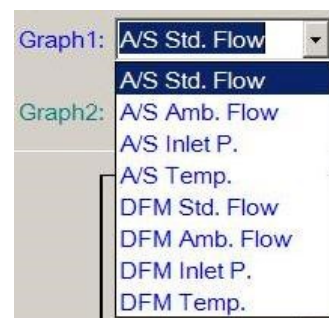
## Data Record Table DFM Mode

In DFM data mode measured values from the Global Air Sampler and the DFM are displayed side by side in the data table. The communication error signals DFM connection or data transfer problems.

Data Records:	44			Chart & Report		Done				
Records with Alarms/Errors:	3									
Number of Alarms/Errors:	2									
(Flow: 0, Press: 1, Temp: 1, pDrop: 0)										
(AC loss: 0, Low batt.: 0, Comm.err: 0, Rec.err: 0)										
Record	Date & Time From Stored Record	A/S Std. Flow SCFM	A/S Amb. Flow CFM	A/S Temp. °F	A/S Inlet P. InHg	DFM Std. Flow SCFM	DFM Amb. Flow CFM	DFM Temp. °F	DFM Inlet P. InHg	Alarms F,P,T,D,A,L,C,R
1	18 JAN 2014 12:13	18.73	18.93	68.8	29.82	18.38	18.44	68.2	29.47	
2	18 JAN 2014 12:14	18.74	18.95	68.8	29.81	18.80	18.92	68.2	29.49	P,T

## Data Charts in DFM Mode

In DFM data mode graph selection includes Global Air Sampler and DFM parameters.



Individual checkboxes are available for all alarms and errors.

Graph1:  Records: 70

Graph2:   Display All Alarms

Flow  Pressure  Temp.  Press. Drop  AC Loss  Low Batt.  Comm. Error  Record Error

## Additional Field for DFM Mode Option

In DFM mode the elapsed time, ambient and standard volumes, and averaged flows are printed in the Measurement Summary data section as follows:

DFM Data			
Elapsed Time:	0,00:03 d,h:m		
Sample Volume:	75.9 SCF	Average Sample Flow:	23.60 SCFM
Ambient Volume:	55.8 CF	Average Ambient Flow:	17.35 CFM

## C. Weather Station Mode

The Global Air Sampler (GAS) electronics can be integrated with the WS100X Weather Station. The WS100X measures wind speed, wind direction, air temperature, barometric pressure and humidity. The weather station data is transmitted to the GAS electronics via the RS232 port via cable

The GASdaq program allows user to select air sampler operation based on the conditional operator selectable criteria of wind speed and direction. This is referred to as a “conditional sampling” mode.

Alternatively, the operator can measure and report the weather station data continuously to the GAS electronic module for future transmission and reports using the GASdaq software.

### Main Screen in Weather Station Mode (Measurement in process)

The screenshot displays the 'Global Air Sampler Data Acquisition by F&J V01.02.14' window. The status indicates 'Communication with Global Air Sampler is OK - Measurement is running, pump is on'. The interface is divided into several sections: Measurement Settings, Measurement Summary, Air Sampler Data, and Weather Station Data. There are also buttons for 'COM Port Setting', 'User Settings', 'Refresh Data', 'Stop Measurement', and 'Advanced Features (Autostart, Records)'.

Measurement Settings		Serial #:	8700	Recal. Due:	22 FEB 2022
Flow Type:	Volumetric	Op. Mode:	Continuous	End After:	14,23:59 d,h:m
Ref. Temp.:	68.0 °F	Ref. Press.:	29.92 InHg	Storage Freq.:	1 min
RS232 Freq.:	1 sec	Flow Diff. Alarm:	±20%	Inlet P. Drop:	0.4 InHg
Inlet P. Range:	26.5 - 30.5 InHg	Temp. Range:	55.0 - 105.1 °F	Setup Flow:	7.00 SCFM

Measurement Summary at 17 MAY 2021 15:04 (refreshed every 10 min.)				Minimum	Maximum	Average
Start at:	17 MAY 2021 15:04	Standard Flow:		0.00	0.00	0.00 SCFM
End at:		Ambient Flow:		0.00	0.00	0.00 CFM
Stored Data Record(s):	0	Temperature:		32.0	32.0	32.0 °F
Power Outage(s):	0	Ambient Pressure:		0.00	0.00	0.00 InHg
Power Outage(s) Time:	0,00:00 d,h:m	Differential Press.:		0.000	0.000	InHg
Initial Flow:	Not avail.	Inlet P. Drop Reference:		Not avail.		
Percent Availability:	Not avail.					

Air Sampler Data		Weather Station Data	
Standard Flow:	43.52 SCFM	Wind Direction:	66 degree
Ambient Flow:	44.72 CFM	Wind Speed:	6 mph
Temperature:	77.4 °F	Temperature:	77.3 °F
Inlet Pressure:	29.64 InHg	Barometric Pressure:	29.82 InHg
Sample Volume:	152.4 SCF	Humidity:	50 %
Ambient Volume:	154.9 CF		
Elapsed Time:	0,00:04 d,h:m	A/S Ambient Pressure:	29.84 InHg
Instrument Alarm(s):			

## Alarm Settings Screen

**More User Settings**

Alarm Settings

Report alarm when:

- Flow differs from Setup flow by  ±10%  ±15%  ±20%
- Inlet Pressure higher than  InHg
- Inlet Pressure lower than  InHg
- Temperature higher than  °F
- Temperature lower than  °F
- Inlet Pressure drop (dust loading)  InHg

Air Sampler Clock Setting

Synchronize Air Sampler's clock with PC clock when sending Setup to Instrument

Directory for Automatically Saved Data and Setup Files

Current Directory:

Available Data Option

Weather Station Data

Done

Wind Conditions

Click sector to select or deselect

NORTH

Select All Sectors

Min. Wind Speed:

Set zero speed for unconditional sampling.

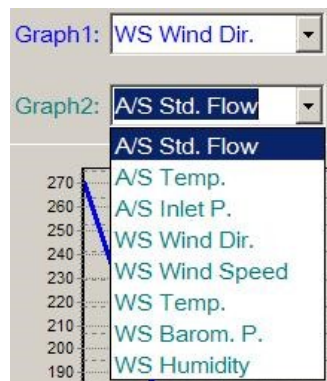
## Data Records in Weather Station Mode

In weather station mode measured values from the Global Air Sampler and the weather station are displayed side by side in the data table.

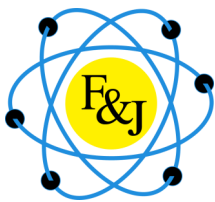
Record	Date & Time From Stored Record	A/S Std. Flow SLPM	A/S Temp. °C	A/S Inlet P. hPa	WS Wind Dir. degree	WS Wind Speed mph	WS Temp. °C	WS Barom P. hPa	WS Humidity %	Alarms Errors
1	22 MAY 2014 13:45	200.2	25.3	1005	271	8.6	20.6	1012	49	
2	22 MAY 2014 13:46	205.6	25.3	1005	296	7.5	20.9	1012	48	

## Data Charts in Weather Station Mode

In weather station mode graph selection includes Global Air Sampler and weather station parameters.







## Cellular Phone Data Interface System for F&J Global Air Sampler (GAS) Air Sampling Systems

**F&J P/N: CASRPS**

### System Overview:

The CASRPS system uses an Motorola defy phone coupled with a data concentrator electronic module and power supply to equip GAS based F&J air sampling systems with the ability to wirelessly transmit alarm notifications as well as sampling data from a remote location.

The phone runs a custom F&J application that permits connection to any F&J GAS air sampler whereby allowing the sampler to transmit alarm notifications, power loss alerts and periodic measurement data via email and/or short message service (SMS).

The setup feature within the application allows the configuration of an email server that gives the user the ability to specify up to three recipients to receive periodic averaging data and alarm notifications from the sampler. In addition, the operator can also equip the phone with a SIM card (using their local service provider) to allow the phone to send the data through SMS to an additional three recipients. The frequency in which the periodic data is transmitted is also user specified from the settings menu of the application. As a result, air sampler status messages are sent to the specified recipients alerting the necessary personal when an unexpected event occurs such as loss of power and/or a user specified alarm is triggered/cleared.

The CASRPS system can be utilized with either low volume or high-volume Global Air Sampler systems and is mounted in a NEMA enclosure external to the main air sampler enclosure (note: This may vary for some F&J air sampling models) which has a locking hasp for a padlock to provide some measure of security.

### Phone Specifications:

Glass front (Gorilla Glass Victus), plastic frame, plastic back  
IP68 dust/water resistant (up to 1.5m for 35 minutes)  
MIL-STD-810H Compliant\*

\* Does not guarantee ruggedness or use in extreme conditions

Operating Temperature Range: -30°C – 55°C (-22°F – 131°F)

Drop-to-concrete resistance from up to 1.8m

Li-Po 5000 mAh, non-removable



# Ruggedized Cell Phone System Features

Network Operation: CDMA, GSM or Wi-Fi

Email server settings

- SMTP Server
- SMTP Port
- Sender Email Address
- Sender Password
- SMS Text Settings

Operator Selectable Engineering Units

- Flow: SCFM, SLPM, SCCM, Sm<sup>3</sup>/hr, Sm<sup>3</sup>/m
- Temperature: °C, °F
- Pressure: Atm, InHg, mmHg, bar, kPa, mbar, or hPa

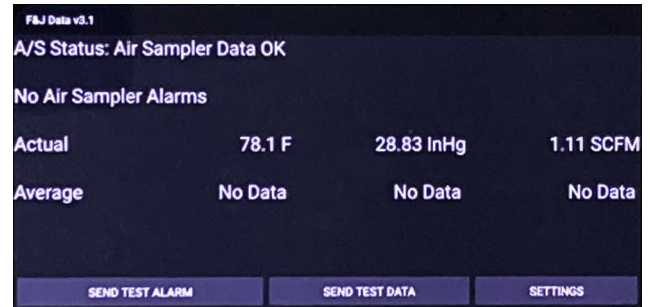
Operator Selectable E-mail/Text Frequency: 10 seconds to 12 hours

Operating Temperature: -30°C to 55°C (-22°F to 131°F)

Operating Humidity: 95%; non-condensing

Certification: MIL SPEC 810H

## Main Screen



## Data Concentrator Specifications

- Power supply: 9V DC, minimum 800mA
- Power connector: Barrel connector jack, 2.0mm ID, 5.5mm OD, center positive
- Power protection: Reverse polarity protected
- Instrument connections: Up to 4 bidirectional RS-232 (RX, TX, GND)
- RS232 Cable, (USB conn) ACDFM to PC, 60" long (DFMFCB184)
- Phone connection: USB 2.0 (host/OTG)
- USB capability: Data and charge
- USB connector: Micro USB
- Mating USB cable: Micro-A OTG (must use supplied red cable, regular USB cable will not work)
- Power indicator: Red LED
- Operation indicator: Yellow LED (phone is connected and application is running)
- Processor: 16 bit embedded flash microcontroller
- Operating temperature: -25°C to +60°C (-13°F to 140°F)
- Panel size: 3.0" x 3.9"



# TWO PORT SERIAL TO ETHERNET SERVER F&J MODEL 2PSETH

### NOTABLE FEATURES:

- State-of-the-Art Electronics
- Input Voltage: 7 – 24V DC; 12V @ 120mA
- AC Adapter included
- Serial Ports: 2 each RS-232; 9 pin DB9 connectors
- Ethernet Interface: 10/100 BaseT with RJ45 connector
- LEDs for Ethernet Link, Activity, and Power
- LEDs for status of serial ports
- Web-based configuration
- Environmental Operating Temperature: -40° to 85° C
- UL, C/UL, CE, and FCC approvals
- Dimensions: 4.20" x 3.25" x 1.00"  
(not including mounting brackets)



### GENERAL DESCRIPTION:

The 2PSETH is a complete serial to Ethernet converter. Using two devices, a serial-to-Ethernet tunnel can be established over an Ethernet network or the Internet to enable serial connectivity with an F&J air sampler and a computer.

Creation of the serial tunnel requires one converter to act as a server and another as a client. Configuration of a device as a server or a client is accomplished through the web-based configuration interface that is accessed through the Ethernet connection on each device. The client device (most likely connected to the computer) initiates communication with the server device (connected to the air sampler). This requires the client device to know the IP address of the server device which means a static IP address is required for the server device. This can be obtained from your network or Internet service provider.

Communications over long-distances may involve communicating through routers or firewalls. Therefore, some configuration of the Internet service gateway may be required.

# Options for Global Air Samplers

