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SASSCommAQ Software
Version 4
Operation Manual

For use with SASS and Super SASS

SASSCommAQ-9800 Rev. D

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Revision History

Rev.	Description	Date
A	Release of SASSCommAQ V 1.0 Operation Manual.	08-09-99
B	Release of SASSCommAQ V 3.0 Operation Manual. This manual is compatible with SASS control box firmware 2.0 and greater.	10-10-00
C	Release of SASSCommAQ V4.0 Operation Manual This manual is compatible with SASS & Super SASS control box firmware 4.0 .	12-06-00
D	Added modem support to SASSCommAQ.	01-08-01

Copyright

1.0   GETTING STARTED

1.1   Hardware and Software Requirements

The following are requirements for using SassCommAQ™ Version 4.0:

- IBM-PC/AT, or Pentium® compatible computer (minimum Pentium® 90 MHz)
- Minimum 8MB RAM installed (16MB or more recommended)
- Display adapter: VGA or better with minimum resolution 800X600
- Mouse or other pointing device
- Windows9x, Windows Me, Windows NT, or Windows 2000
- Minimum of 6 MB of free hard disk space
- 3-1/2" diskette drive

1.2   Installation

There are two disks containing SassCommAQ™ software. To install:

1. Insert SassCommAQ™ installation Diskette #1 into the floppy drive.
2. Click Windows **<START>** button and then **<Run>.**
3. Type in **A:\Setup**, and press **<Enter>**. Follow the instructions on screen.

2.0   DESCRIPTION

Met One Instruments provides with the SASS a Windows 9X®,Me or 2000 based Graphic User Interface software on two diskettes.   SassCommAQ™ is designed to operate on a standard PC or lap top computer with an available RS-232 communications port. Its function is to retrieve data from the SASS RS-232 communication port or through a standard modem and convert the data to a usable format. The data retrieved from SASS can be viewed on screen. Included in the data are start /stop time, minimums and maximums for temperature and barometric pressure, average and total flow rate for the entire sample, flow coefficient of variance for each flow, flow error indicators for flows that exceed 10%, filter temperature errors, five minute average data, and power failures.

If printing is needed, SassCommAQ™ has an option to create hard copy data reports. The user can select to print summary data, averages for the sample, flow error reports, and flow deviation reports.

SassCommAQ™ also creates export files that can be opened in most spreadsheet and word processor applications. The export file is in comma-delimited format set up for direct entry into an Excel file. The record format contained in the export file is described in section 4.2.

3.0   Operation

3.1   Configuring the Communications

Start SassCommAQ™ software by clicking on the Windows
Start / Programs / SassCommAQ ▨ .

The first step is to configure the software to operate as needed for your application. The Files/Reports screen will always open first to allow the operator to select options. After the software has completed loading, select the correct communications port (COM 1-4) as show in the Serial Communications Section. Normally, COM 1 will be available. If a modem is going to be used to retrieve data select the communications port the modem is located on. If the wrong communications port is selected, the computer will not be able to communicate with the modem or the SASS unit.   See Figure #1 for typical screen view.

3.2   Data Retrieval

Laptop
Connect the SASS RS 232-communication cable part number 3159 to left most connector on the bottom of the SASS control box (next to the ground cable). Connect the DB-9 connector to the appropriate COMM Port on your Laptop.

Modem
Select the communication port connected to the modem.

Transfer Module (UX-961)
Connect the transfer module communication cable to left most connector on the bottom of the SASS control box (next to the ground cable) using the cable part number 3169. Connect the DB-9 end to the transfer module. Power for the module is supplied from the RS-232 connection on the SASS control box.
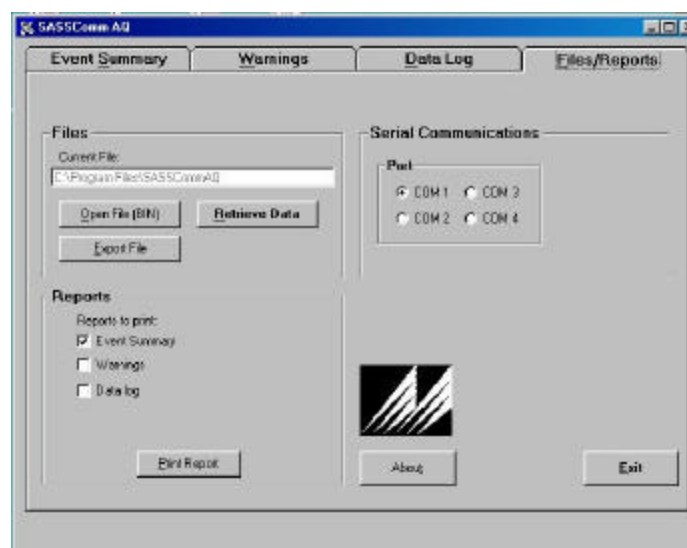

Figure #1 Typical Files/Reports Screen

On the SASS Sampler: At the end of a SASS sample event or run use the OPERATE menu selection and then select the SUMMARY key F4 to check the data and verify that the test was completed correctly. The contents of the SASS Sampler can then be extracted using a direct RS-232 connection to a PC using SassCommAQ™ software or by using the Transfer Module Model UX-961. If the transfer module was used, the same procedure should be followed except that the module with power supply and cable replaces the direct connection to the SASS Sampler. A third option exists using a modem installed in the PC this option requires that a Met One Instruments modem, part number UX-996WP, be installed at the remote SASS site.

Now click the **Retrieve Data** button on the **Files/Reports** tab. The program will now check to see if a SASS or if a modem is connected to the specified COM Port. If the "**Unable to open Port!**" message is seen refer to section 3.1 on selecting the right COM port or Section 5.0 for Responding to Errors.
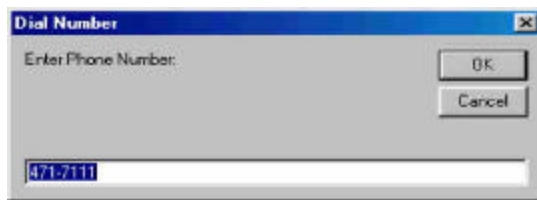

Figure #3 Dial Number

Figure #4 Modem Status

Figure #5 Com Port Error

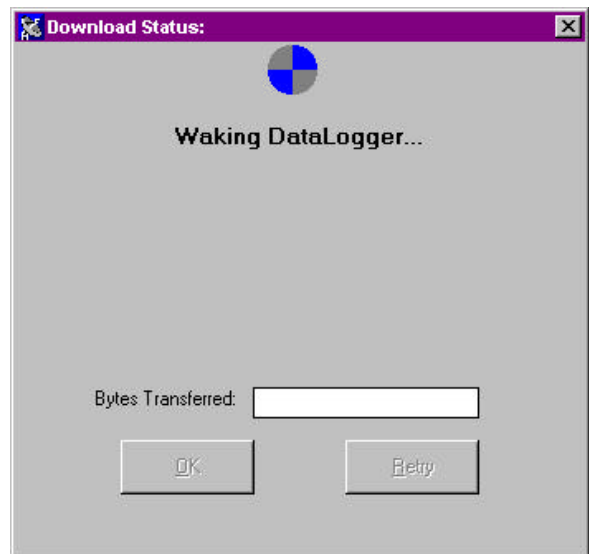**Figure #6 Download Type Selection**

Figure #7 Download Status Dialog Box

Dial Number" Message will appear on the screen. The phone number of the SASS unit should be entered in this screen. Next the "**Modem Status**" Message will be displayed, it will show the phone number being dialed. After connection with the SASS unit, the same screens will be displayed as if the unit was connected directly to the computer.

If connected directly to the SASS Sampler, the "**Waking Data logger..**" Message will appear on the screen.   If the data logger is connected, a choice of **"Download Type"** screen will appear. At this point a selection can be made to either download only the event data from the tests by selecting **"Yes"** or to

then display a message that indicates it is either "**Downloading Event Data from SASS Unit, Please Wait…**" or one that indicates "**Downloading All Data from SASS Unit, Please Wait…** transfer takes place. A typical transfer of all data files will take approximately 10 minutes, while a transfer of only event data will take only a couple minutes to download.

If a data transfer module was connected instead of the SASS or Super SASS, the message on the download status dialog box changes to "**Downloading From Data Module, Please Wait…!** that the transfer from the transfer module has begun. If there is no indication that a transfer has started, hit the ESC key to abort the transfer process. The SASS or the transfer module must be connected to the computer and powered up. At the end of data transfer, the download status dialog will read "**Transfer Complete!**" Once completed the new data will automatically replace any partial data base files as well as create the individual data files, and CSV files.

Figure #8 Error Waking DataLogger Dialog Box	**Figure #9 Transfer of Data from SASS Unit Dialog Box**	**Figure #10 Transfer of Data from Transfer Module Dialog**

SassCommAQ™ will now return to the Files/Reports Screen and the data just retrieved can be viewed on subsequent folders: Event Summary, Warnings and Data Log.

Additional selections are available using the Retrieve Data button in the Files Section of the Files/Reports menu. The Open File (BIN) button allows the user to select a previously collected binary file and load it into the SASSCommAQ program. There is also a button selection for Export File (See Section 4.0). When selected, this button will export the current Binary file that is being viewed by the SASSComm Software.

3.3   Viewing Data

3.3.1 Event Summary
Under the Event Summary tab the user can view four windows of information. The contents of each window can vary in size and dimension based on the number of canisters that are used in each individual test or sequence

- Temperature and Pressure: displays the average ambient and filter temperature (Super SASS provides individual filter temperatures) as well as the barometric pressure recorded during the test.

- Event: displays the starting and ending time and date of the sample, the total elapsed time, the ID of the unit, software version number as well as the model of the SASS it is connected to.

- Flow Statistics: Provides the Volume, CV%, Flow and Standard Deviation of Flow and filter temperature for each of the canisters (or those used) in the system.

- Minimum/Maximum: This screen records the max and min values for the filter temperature. The value and occurrence date and time of the max and min values are also recorded.

- Ambient Temperature and Pressure: Values for the average ambient temperature, as well as the max and min values with the time and date of occurrence are displayed in this portion of the display. It also shows similar values for the measured barometric pressure.

Figure #11 Event Summary Screen

3.3.2 Warnings

Under the Warnings, tab the program displays three information screens.

- Warnings: Displays warnings of errors that a problem has occurred. These include excessive temperature (± 5 Degrees) difference between ambient and filter temperatures. The date/time of the first error and maximum temperature difference with date/time is listed. Other errors such as the elapsed time being too short or if there were are any flow problems the warning is set active and the date/time is recorded.

- Flow Warnings: Records any excessive variance of flow outside the limits (± 5%). The error value is recorded as well as the date/time of the error occurrence.

- Power Failures: Records up to 10 power failures, including the date/time of the event.
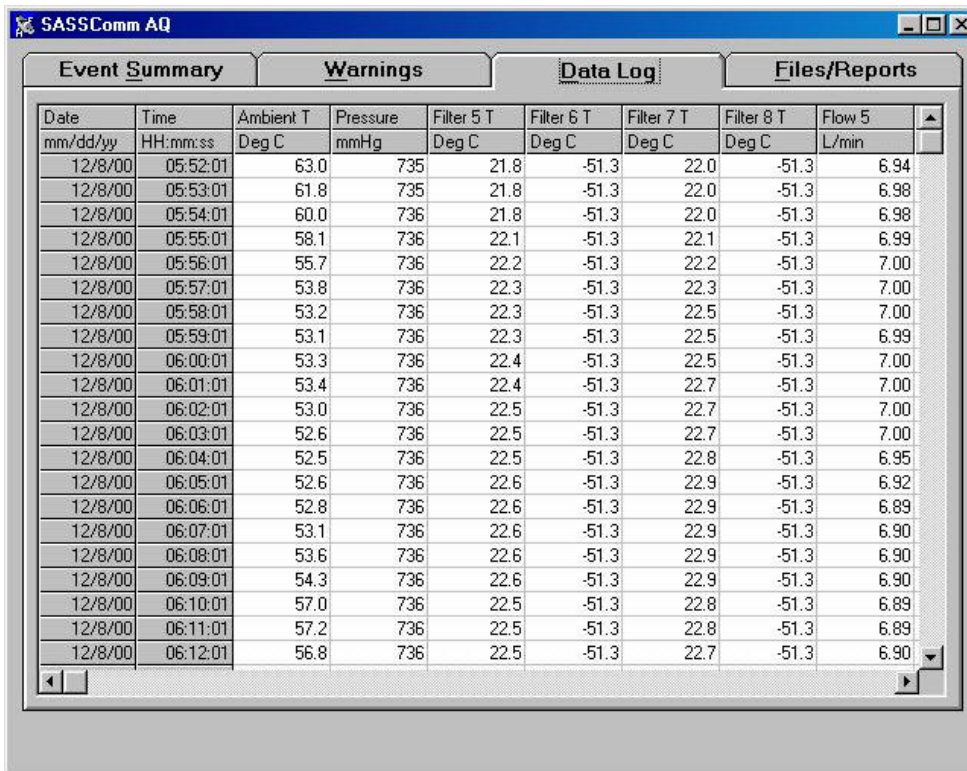
Figure #12 Warnings Screen

3.3.3 Data Log
Under the Data Log screen, the 5 minute recorded values are displayed with the date and time of each recorded value. The recorded values in addition to the date and time, includes the following additional information: The Canister number will depend on the configuration: Ambient and Filter Temperature, Barometric Pressure, and Flow.

Date	Time	Ambient T	Pressure	Filter 5 T	Filter 6 T	Filter 7 T	Filter 8 T	Flow 5
mm/dd/yy	HH:mm:ss	Deg C	mmHg	Deg C	Deg C	Deg C	Deg C	L/min
12/8/00	05:52:01	63.0	735	21.8	-51.3	22.0	-51.3	6.94
12/8/00	05:53:01	61.8	735	21.8	-51.3	22.0	-51.3	6.98
12/8/00	05:54:01	60.0	736	21.8	-51.3	22.0	-51.3	6.98
12/8/00	05:55:01	58.1	736	22.1	-51.3	22.1	-51.3	6.99
12/8/00	05:56:01	55.7	736	22.2	-51.3	22.2	-51.3	7.00
12/8/00	05:57:01	53.8	736	22.3	-51.3	22.3	-51.3	7.00
12/8/00	05:58:01	53.2	736	22.3	-51.3	22.5	-51.3	7.00
12/8/00	05:59:01	53.1	736	22.3	-51.3	22.5	-51.3	6.99
12/8/00	06:00:01	53.3	736	22.4	-51.3	22.5	-51.3	7.00
12/8/00	06:01:01	53.4	736	22.4	-51.3	22.7	-51.3	7.00
12/8/00	06:02:01	53.0	736	22.5	-51.3	22.7	-51.3	7.00
12/8/00	06:03:01	52.6	736	22.5	-51.3	22.7	-51.3	7.00
12/8/00	06:04:01	52.5	736	22.5	-51.3	22.8	-51.3	6.95
12/8/00	06:05:01	52.6	736	22.6	-51.3	22.9	-51.3	6.92
12/8/00	06:06:01	52.8	736	22.6	-51.3	22.9	-51.3	6.89
12/8/00	06:07:01	53.1	736	22.6	-51.3	22.9	-51.3	6.90
12/8/00	06:08:01	53.6	736	22.6	-51.3	22.9	-51.3	6.90
12/8/00	06:09:01	54.3	736	22.6	-51.3	22.9	-51.3	6.90
12/8/00	06:10:01	57.0	736	22.5	-51.3	22.8	-51.3	6.89
12/8/00	06:11:01	57.2	736	22.5	-51.3	22.8	-51.3	6.89
12/8/00	06:12:01	56.8	736	22.5	-51.3	22.7	-51.3	6.90

#13 Data Log Screen

3.4   Printing Data

To print data select the Files/Reports Menu Tab. Under this menu selection there is an area labeled Reports. This allows the selection of the reports to print, select the check boxes for the reports to be printed. When ready to print the reports, click the "Print Report" button.
The reports, include the following:

- Event Summary:
  It consists of the following primary items. The event sample times, the event average parameters, event flow statistics, and the event maximum and minimum statistics. (See Appendix B for an example of this report)

- Warnings:
  It consists of the following primary items. Filter Temperature Warnings, the Elapsed Time Warnings, the Flow Cut Off Warnings, and finally the Flow Warnings for the canisters. (See Appendix C for an example of this report)

- Data Log:
  It consists of the 5-minute data collected over the entire event. It provides the values for the ambient temperature, filter temperatures, barometric pressure, as well as the flow in liters/minute of all the canisters. (See Appendix D for an example of this report)

4.0   Export Files

4.1   View Existing Files

SASSCommAQ™ has the ability to view the files it has already collected. To view a file, select the Files/Reports tab and in the menu area for Files, select the Open File (BIN) button.   Choose the desired file name by scrolling and clicking from the dialog box and click the OK button. The retrieved data will now be available for all the menu tabs.

4.2   Exporting Files

The export file is formatted to the standard comma-delimited style, which is recognized by most spreadsheet and word processor applications. Contained in the export file is all the data for an entire sample period. Files are automatically named when written to the disk, as they are collected. The export file name will be the same file name as the collected binary file except it has a .CSV extension. The .CSV format allows for direct input into a variety of database or spread sheet programs.

Files are named using this convention:

The filename is based on the station ID and the start time and date of the event.

 Typical File Name   0001_2000_09_28_18_00_01.BIN   Binary Data File
                       0001_2000_09_28_18_00_01.CSV Comma Separated Export File

This breaks down as:

0001 Station ID   2000 Year   09 Month   28 Day   18 Hour   00 Minute   01 Second

An example of the Export .CSV file can be found in the Appendix A of this manual. It is automatically formatted, and labeled with all collected information for each test summary. In addition the 5-minute data is also reported for the entire test interval.

5.0   Responding to Errors

Error	Possible Cause	Correction
Unable to open Port!	Wrong COM port selected	Select another COM port in the serial communications section under Controls.
	Multiple communication programs opened simultaneously	Close other terminal programs that may be using the same COM port
	COM port device driver conflict	Refer to Windows® help to solve the conflict
Error Waking Data Logger!	RS232 cable not connected	Connect RS232 cable from SASS to COM port specified for communications
	Faulty RS232 cable	Check RS232 cable with a continuity meter. Pin 2 to 3, 3 to 2, and 5 to 5 should have continuity
	Remote unit lost power	Check power to remote unit
	SASS Firmware version 3.0 or older	Make sure the SASS is in the top screen and try again
Run-Time Error '70' Permission denied – during data retrieval	The current Export file is opened by another program	Close the program that has the export file open and retrieve data again

Appendix A

Example of raw CSV file format

```
"File:","1234_2000_12_08_01_50_01.bin"

"Firmware:","4.0"

"Event"
"Status:","Finished"
"Start:","12/8/00","01:50:01"
"Stop:","12/8/00","05:50:01"
"Elapse:","","04:00:00"
"Unit ID:","1234"

"Event Average Parameters"
"Ambient Temperature:","57.8","C"
"Barometric Pressure:","735","mmHg"
"Filter Temperature  1:","22.6","C"
"Filter Temperature  2:","-51.3","C"
"Filter Temperature  3:","22.2","C"
"Filter Temperature  4:","-51.3","C"

"Event Flow Statistics"
"","Volume(m3)","CV(%)","Flow(L/min)","Std Dev(L/min)"
"Canister 1: ","1.669","0.5","6.95","0.04"
"Canister 2: ","1.673","0.4","6.97","0.02"
"Canister 3: ","1.669","0.2","6.95","0.01"
"Canister 4: ","1.655","0.3","6.89","0.02"

"Event Maximum/Minimum Statistics"
"Ambient Temperature:"
"Maximum:","60.5","C","12/8/00","02:02:01"
"Minimum:","38.0","C","12/8/00","01:51:01"

"Barometric Pressure:"
"Maximum:",736,"mmHg","12/8/00","01:50:01"
"Minimum:",735,"mmHg","12/8/00","02:46:01"

"Filter Temperature:"
"Filter  1","":"
"Maximum:","23.3","C","12/8/00","03:59:01"
"Minimum:","21.8","C","12/8/00","01:58:01"
"Filter  2","":"
"Maximum:","-51.3","C","12/8/00","01:50:01"
"Minimum:","-51.3","C","12/8/00","01:50:01"
"Filter  3","":"
"Maximum:","22.8","C","12/8/00","02:35:01"
"Minimum:","21.5","C","12/8/00","01:58:01"
"Filter  4","":"
"Maximum:","-51.3","C","12/8/00","01:50:01"
"Minimum:","-51.3","C","12/8/00","01:50:01"

"Warnings"
"Filter  1:","No"
"Filter  2:","No"
"Filter  3:","No"
"Filter  4:","No"
```

```
"Elapse:","Yes","04:00:00"," < ","23:00:00"

"Flow Warnings","","","L/Min"
"Canister:"," 1","No"
"Canister:"," 2","No"
"Canister:"," 3","No"
"Canister:"," 4","No"

"Date","Time","Ambient Temperature","Ambient Pressure","Filter 1 Temperature","Filter 2
Temperature","Filter 3 Temperature","Filter 4 temperature","Flow(1)","Flow(2)","Flow(3)"
,"Flow(4)","Pump Box Temperature"
"12/8/00","01:51:01","38.0","736","22.4","-51.3","22.2","51.3","6.93","6.94","6.94"
,"6.88","25.0"
"12/8/00","01:52:01","41.9","736","22.3","-51.3","22.1","-51.3","6.94","6.88","6.88"
,"6.93","24.8"
"12/8/00","01:53:01","47.1","736","22.2","-51.3","22.0","-51.3","6.94","6.87","6.87"
,"6.92","25.1"
"12/8/00","01:54:01","50.4","736","22.1","-51.3","21.9","-51.3","6.93","6.85","6.85"
,"6.91","24.9"
"12/8/00","01:55:01","52.8","736","22.0","-51.3","21.8","-51.3","6.92","6.85","6.85"
,"6.91","24.9"
"12/8/00","01:56:01","54.6","736","22.0","-51.3","21.7","-51.3","6.90","6.89","6.89"
,"6.90","25.0"
"12/8/00","01:57:01","56.0","736","21.9","-51.3","21.6","-51.3","6.89","6.88","6.88"
,"6.90","24.8"
"12/8/00","01:58:01","56.8","736","21.8","-51.3","21.5","-51.3","6.88","6.87","6.87"
,"6.89","24.8"
```

Note: because of page width limits the 5-minute data base is compacted in this example.

Unit 1 Event Summary Report

Event Sample Times
```
Status: Finished
 Start: 09/28/00  18:00:01
  Stop: 09/29/00  06:00:01
Elapse:            12:00:00
```

Event Average Parameters
```
Ambient Temperature:  23.7 C
Barometric Pressure:  738mmHg
 Filter Temperature   5:  23.5 C
 Filter Temperature   6:  23.4 C
 Filter Temperature   7:  23.6 C
 Filter Temperature   8:  23.4 C
```

Event Flow Statistics

	Volume(m3)	CV(%)	Flow(L/min)	Std Dev(L/min)
Canister 5:	4.731	0.1	6.57	0.01
Canister 6:	4.693	0.1	6.51	0.01
Canister 7:	4.902	0.03	6.80	0.01
Canister 8:	4.708	1.0	6.54	0.06

Event Maximum/Minimum Statistics

```
Ambient Temperature
Maximum: 25.1 C        09/28/00 17:02:15
Minimum: 23.7 C        09/29/00 05:13:35

Filter Temperature
Filter   5:
Maximum: 25.0 C        09/28/00 18:05:40
Minimum: 23.5 C        09/29/00 05:37:35

Filter   6:
Maximum: 25.0 C        09/28/00 18:05:40
Minimum: 23.5 C        09/29/00 05:37:35

Filter   7:
Maximum: 25.0 C        09/28/00 18:05:40
Minimum: 23.5 C        09/29/00 05:37:35
```

```
Filter   8:
Maximum: 25.0 C          09/28/00 18:05:40
Minimum: 23.5 C          09/29/00 05:37:35


Barometric Pressure
Maximum: 738 mmHg        09/28/00 02:53:25
Minimum: 736 mmHg        09/28/00 18:06:00
```

```
File: C:\Program Files\SassCommAQ V4\Data\0001_2000_09_28_18_00_01.bin
Firmware: 4.0
```

Warnings Printed Report

Unit 1 Warnings Report

Filter Temperature Warning
```
  Filter  5: No
  Filter  6: No
  Filter  7: No
  Filter  8: No
```

Elapse Warning
```
  Elapse:  Yes    12:00:00 < 23:00:00
```

Flow Warning   L/min
```
Canister:  5     No
Canister:  6     No
Canister:  7     No
Canister:  8     No
```

```
File: C:\Program Files\SassCommAQ V4\Data\0001_2000_09_28_18_00_01.bin
Firmware: 4.0
```

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Appendix D
Data Log Printed Report

Unit 1 Data Log Report

C:\Program Files\SASSCommAQ V4\Data\0001_09_28_00_18_00_01.bin

Date	Time	Ambient (C)	Filter (C)	Pressure (mmHg)	Flow 1 (L/min)	Flow 2 (L/min)	Flow 3 (L/min)	Flow 4 (L/min)	Flow5 (L/min)
09/28/00	18:00:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:05:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:10:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:15:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:20:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:25:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:30:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:35:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:40:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:45:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:50:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	18:55:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:00:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:05:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:10:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:15:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:20:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:25:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:30:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47
09/28/00	19:35:00	24.9	24.8	737	6.59	6.53	6.82	6.57	6.47

Till completion of logged data.

| 09/29/00 | 17:55:00 | 24.9 | 24.8 | 737 | 6.59 | 6.53 | 6.82 | 6.57 | 6.47 |