

ASPEN BOX LOG FILE LEGEND – SECTION 1 – HEADER DATA

1	PARAMETER	VALUE	UNITS/NOTES
2	ASPENserial	ABXXXXXX	(HHB serial identification)
3	HMserial	HMXXXXXX	(Main controller serial ID)
4	HDserial	HDXXXXXX	(Shield serial ID)
5	HP1serial	HPXXXXXX	(Filter 1 pump serial ID)
6	HP2serial	HPXXXXXX	(Filter 2 pump serial ID)
7	HGserial	HGXXXXXX	(Gas module serial ID)
8	COserial	A nine-digit number	(CO gas sensor serial ID)
9	NO2serial	A nine-digit number	(NO2 gas sensor serial ID)
10	O3serial	A nine-digit number	(O3 gas sensor serial ID)
11	CO2serial	20-digit number formatted as xxxxxxxx-xxxxxxx-xxxxxx	(CO2 gas sensor serial ID)
12	Firmware	Version of firmware running on the Home Health Box	(Installed firmware version)
17	SAMPLE IDENTIFICATION		
19	LogFilename	Name of the file as saved on the microSD card	(log file filename-automatically defined)
20	SampleName	Sample name as entered in the mobile application	(sample name)
21	CIDfilter1	Filter sample 1 cartridge ID as entered in the app	(Filter 1 cartridge ID)
22	CIDfilter2	Filter sample 2 cartridge ID as entered in the app	(Filter 2 cartridge ID)
27	SETUP SUMMARY		
29	GPSUTCOffset	UTC offset for local time zone	(hours offset from UTC date time)
30	ProgrammedStartUnixtime	Unix time when sample was programmed to start	(s) (0 means 'now')
31	ProgrammedRuntime	Programmed duration for real-time data log	(s) (360000000 means 'indefinite')
32	Filter1ProgrammedRuntime	Programmed duration for filter sample 1	(s) (360000000 means 'indefinite')
33	Filter2ProgrammedRuntime	Programmed duration for filter sample 2	(s) (360000000 means 'indefinite')
34	Filter1VolumetricFlowRate	Programmed volumetric flow rate for filter sample 1	(L*min ⁻¹)
35	Filter2VolumetricFlowRate	Programmed volumetric flow rate for filter sample 2	(L*min ⁻¹)
36	Filter1DutyCycle	Programmed duty cycle for filter sample 1	(%)
37	Filter2DutyCycle	Programmed duty cycle for filter sample 2	(%)
38	AppVersion	The version of the app used to program the sample	(i=iOS, A=Android)
43	SAMPLE SUMMARY		
45	StartDateTimeUTC	UTC date/time when real-time data started logging	(YYYY-MM-DDTHH:MM:SS)
46	Filter1StartDateTimeUTC	UTC date/time when filter sample 1 started	(YYYY-MM-DDTHH:MM:SS)
47	Filter2StartDateTimeUTC	UTC date/time when filter sample 2 started	(YYYY-MM-DDTHH:MM:SS)
48	EndDateTimeUTC	UTC date/time when real-time data stopped logging	(YYYY-MM-DDTHH:MM:SS)
49	Filter1LastUpdateUTC	UTC date/time when filter sample 1 data last updated	(YYYY-MM-DDTHH:MM:SS)
50	Filter2LastUpdateUTC	UTC date/time when filter sample 2 data last updated	(YYYY-MM-DDTHH:MM:SS)
51	Filter1ShutdownMode	Why did filter sample 1 end?	(0=unknown error
52	Filter2ShutdownMode	Why did filter sample 2 end?	1=user pushbutton stop
			2=depleted battery
			3=completed preset sample duration
			4=thermal protection shutdown
			5=max power at initialization
			6=max power during sample
			7=blocked flow during sample)
53	Filter1SampledVolume	Volume of air sampled through filter 1	(L)
54	Filter2SampledVolume	Volume of air sampled through filter 2	(L)
55	ASPENSampledRuntime	Duration for which real-time data were logged	(Hr)
56	Filter1SampledRuntime	Duration for which air was sampled through filter 1	(Hr)
57	Filter2SampledRuntime	Duration for which air was sampled through filter 2	(Hr)
58	Filter1AverageVolumetricFlowRate	Average volumetric flow rate during filter sample 1	(L*min ⁻¹)
59	Filter2AverageVolumetricFlowRate	Average volumetric flow rate during filter sample 2	(L*min ⁻¹)

ASPEN BOX LOG FILE LEGEND – SECTION 2 – SAMPLE LOG

Headers specifying the units for each column in the sample log are on line 67. Descriptive column headers are on line 68. The log data begin on line 69. Each of the 47 columns in the sample log is listed below (PARAMETER = descriptive column header), along with a short description (VALUE), and the unit header (UNITS/NOTES).

	PARAMETER	VALUE	UNITS/NOTES
1	SampleTime	Time stamp of the logged data point relative to the start of the sample.	(HH:MM:SS)
2	UnixTime	Unix time stamp	(s)
3	DateTimeUTC	UTC Date/Time	(YYYY-MM-DDTHH:MM:SS) (UTC date time format)
4	DiscoTemp	Temperature measured on the surface of the main circuit board	(C)
5	DiscoRH	Relative humidity measured at the surface of the main circuit board	(%)
6	DiscoPress	Absolute pressure measured at the surface of the main circuit board	(hPa)
7	ExternalTemp	Temperature measured by the external probe in the radiation shield	(C)
8	ExternalRH	Relative humidity measured by the external probe in the radiation shield	(%)
9	GasTemp	Temperature measured in the gas sensor housing	(C)
10	GasRH	Relative humidity measured in the gas sensor housing	(%)
11	CO2	Uncorrected CO ₂ concentration reported by low-cost NDIR sensor	(ppm)
12	COweReading	Reading from the analog-to-digital converter (ADC) used to log CO sensor working electrode data	(integer)
13	COweV	Carbon monoxide sensor working electrode voltage	(V)
14	COauxReading	Reading from ADC used to CO sensor auxiliary electrode data	(integer)
15	COauxV	Carbon monoxide sensor auxiliary electrode voltage	(V)
16	NO2weReading	Reading from ADC used to NO ₂ sensor working electrode data	(integer)
17	NO2weV	Nitrogen dioxide sensor working electrode voltage	(V)
18	NO2auxReading	Reading from ADC used to log NO ₂ sensor auxiliary electrode data	(integer)
19	NO2auxV	Nitrogen dioxide sensor auxiliary electrode voltage	(V)
20	O3weReading	Reading from ADC used to log oxidizing gas (O ₃ + NO ₂) sensor working electrode data	(integer)
21	O3weV	Oxidizing gas (O ₃ + NO ₂) sensor working electrode voltage	(V)
22	O3auxReading	Reading from ADC used to log oxidizing gas (O ₃ + NO ₂) sensor auxiliary electrode data	(integer)
23	O3auxV	Oxidizing gas (O ₃ + NO ₂) sensor auxiliary electrode voltage	(V)
24	SPS30pm1	PM _{1.0} concentration reported by the Sensirion SPS30 sensor	(ug*m ⁻³)
25	SPS30pm2.5	PM _{2.5} concentration reported by the Sensirion SPS30 sensor	(ug*m ⁻³)
26	SPS30pm4	PM _{4.0} concentration reported by the Sensirion SPS30 sensor	(ug*m ⁻³)
27	SPS30pm10	PM ₁₀ concentration reported by the Sensirion SPS30 sensor	(ug*m ⁻³)
28	SPS30pn0.5	Number concentration of 0.3 to 0.5 µm particles reported by SPS30	(#*cm ⁻³)
29	SPS30pn1	Number concentration of 0.3 to 1.0 µm particles reported by SPS30	(#*cm ⁻³)
30	SPS30pn2.5	Number concentration of 0.3 to 2.5 µm particles reported by SPS30	(#*cm ⁻³)
31	SPS30pn4	Number concentration of 0.3 to 4.0 µm particles reported by SPS30	(#*cm ⁻³)
32	SPS30pn10	Number concentration of 0.3 to 10 µm particles reported by SPS30	(#*cm ⁻³)
33	SPS30typicalParticleSize	Typical particle size reported by the Sensirion SPS30 sensor	(µm)
34	PMS5003pm1cf1	PM _{1.0} concentration reported by PMS5003 sensor (correction factor = 1)	(ug*m ⁻³)
35	PMS5003pm2.5cf1	PM _{2.5} concentration reported by PMS5003 sensor (correction factor = 1)	(ug*m ⁻³)
36	PMS5003pm10cf1	PM ₁₀ concentration reported by PMS5003 sensor (correction factor = 1)	(ug*m ⁻³)
37	PMS5003pm1atm	PM _{1.0} concentration reported by PMS5003 (atmospheric correction)	(ug*m ⁻³)
38	PMS5003pm2.5atm	PM _{2.5} concentration reported by PMS5003 (atmospheric correction)	(ug*m ⁻³)
39	PMS5003pm10atm	PM ₁₀ concentration reported by PMS5003 (atmospheric correction)	(ug*m ⁻³)
40	PMS5003count0.3	Number concentration of particles > 0.3 µm reported by PMS5003	(#*0.1L ⁻¹)
41	PMS5003count0.5	Number concentration of particles > 0.5 µm reported by PMS5003	(#*0.1L ⁻¹)
42	PMS5003count1	Number concentration of particles > 1.0 µm reported by PMS5003	(#*0.1L ⁻¹)
43	PMS5003count2.5	Number concentration of particles > 2.5 µm reported by PMS5003	(#*0.1L ⁻¹)
44	PMS5003count5.0	Number concentration of particles > 5.0 µm reported by PMS5003	(#*0.1L ⁻¹)
45	PMS5003count10	Number concentration of particles > 10 µm reported by PMS5003	(#*0.1L ⁻¹)
46	PMS5003readTime	Time taken to read the Plantower PMS5003 data	(s)
47	SensorReadLogTime	Time taken to read and log all sensor data	(s)