Working with Data sent to a Computer or Flash Stick

File Names and File Formats

Data sent to a flash stick is saved as a .TXT file. The file name for the saved file is in the format:

"Serial Number-Data File Type-DateTime.TXT"

where date is presented in the format "YYMMDD" and time is presented in the 24-hour format (for more information on sending data to a flash stick, see section 5.3.1 of the user manual.)

Data saved from the HQ40d PC Application is saved as a .CSV file. The file name format for this file follows the model of the .TXT file described above (for more information on the HQ40d PC Application, see section 5.3.2 of the user manual.)

Table 1 Example File Names for Files Sent to a Flash Stick

DATA FILE TYPE	EXAMPLE FILE NAME
Send Data Log	9999NN000000-SENDDATA-0603131624.TXT
Send Current Calibration	9999NN000000-SENDCCAL-0603131624.TXT
Send Calibration History	9999NN000000-SENDCALH -0603131624.TXT
Real Time Data	RTDATA.TXT

Data File Content

General Description

Each line of the .TXT file is a record containing several fields separated by commas. If a field is not used or is not populated for a particular record, the field will be blank and only the comma (,) will appear in the file.

The records for Data Log, Current Calibration and Calibration History are ordered such that the most recent record is listed first. As the Real Time Data file is updated after each reading, the records in this file are ordered such that the oldest record is listed first.

Column Header Information

Both the .TXT and .CSV files contain data only. These files do not contain header information describing each field. When importing these files into an application such as Excel®[*], complete the following steps in order to include column header information.

1. Open a spreadsheet application such as Excel.

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[*] Excel is a registered trademark of Microsoft Corporation.

2. Open the file HQdHeader.csv. This will populate the first row of the spreadsheet with column header labels. Table 2 explains the name, description and sample values for each column.

3. Save the file with your desired file name.

4. Import the .TXT or .CSV file into your saved file. To import in Excel, select "Data → Get External Data → Import Text File" and select the desired data file. As you step through the import process, you will need to indicate that the file is "Delimited" and that it is delimited by "Comma." When prompted to select where you would like to put the data, select the first cell in the second row of the spreadsheet.

5. Save the file.

Formatting Date Values

Date fields are stored using the POSIX time format, which is the number of seconds from 1/1/1970. Using formulas in Excel (PC), you can convert these date fields to the date format of your choosing. Once you have imported the column headers and file data into an application such as Excel using the steps above, complete the following steps in order to format the date fields.

1. Open Excel.

2. Open the Data File you created using the steps above.

3. Insert a new column to the right of the "Time" column. Give this column a header name such as "Formatted Date & Time."

4. For each row where the "Time" column is populated, enter the following formula into your new column:

   - "=SUM((cell reference)/86400.00)+25569)"

   - Example: In Figure 1 below, the equation displayed in the Formula Bar represents the formula to convert the Time in Cell C2.

Figure 1 Example Spreadsheet

	A	B	C	D	E
1	Type	Parameter Type	Time	Formatted Date & Time	Opera
2	IC	pH	1142288557	38789.93237	HOW/
3	IC	pH	1142288566		HOW/
4					

D2 = =SUM((C2/86400)+25569)

5. Select the cell with the formula explained above and change the format of that cell to the Date Type of your choosing.

6. Copy and paste this formula for all cells with Date/Time content.

Notes

- Information contained in each row will vary depending on the type of record. Only fields that apply to the type of record will contain data, otherwise, they will be blank. The first six fields will be present in all records.
- Calibration data (columns 29 - 79) will be present and possibly populated for Reading (RD), Calibration (CL), and Check Standards (CK) record types.
- Calibration (CL) Records will not have any data in the Reading locations (columns 8 - 24) or Check Standards locations (columns 25 - 28.)
- Calibration History (CH) Records will contain partial data in the calibration fields (columns 29 - 79.)
- Calibration History (CH) and Current Calibration (IC) Records will not have any data in the Reading locations (columns 8 - 24) or Check Standards locations. (columns 25 - 28.)
- Values for Check Standards (CK) Records are stored in the Reading locations.

Table 2 Data File Field Names and Descriptions

Column Position	Spreadsheet Column	Column Header Name	Description and Example Values
1	A	Type	"RD" = Reading Record Type "CL" = Calibration Record Type "CK" = Check Standard Record Type "CH" = Calibration History Record Type "IC" = Current Calibration Record Type
2	B	Parameter Type	Ex. "LDO", "pH", "CDC"
3	C	Time	Time of Reading in POSIX = Seconds from 1/1/1970 To calculate this value into a common date format, follow directions above.
4	D	Operator ID	Operator ID of the person who performed the Reading or Calibration. Will display "- - -" if default Operator ID is used.
5	E	Probe Model	Ex. "pHC101", "CDC401", "LDO101"
6	F	Probe SN	Probe Serial Number Will be prefaced by "<" or ">" to indicate which port the probe was connected to during the reading
7	G	Method Name	User-defined name for the method used for the reading
8	H	Sample ID	User-defined Sample ID for the reading. Will display "Sample ID" if default Sample ID is used.
9	I	Primary Reading Value	Numerical reading value. May display "-----" if out of range.
10	J	Primary Reading Units	Ex. "pH" or "mS/cm"
11	K	Supp Reading 1	First Supplemental Reading, if applicable. Ex. Temperature
12	L	Supp Units 1	Units for First Supplemental Reading, if applicable.
13	M	Supp Reading 2	Second Supplemental Reading, if applicable. Ex. "mV" for pH

14	N	Supp Units 2	Units for Second Supplemental Reading, if applicable.
15	O	Supp Reading 3	Third Supplemental Reading, if applicable.
16	P	Supp Units 3	Units for Third Supplemental Reading, if applicable.
17	Q	Reading Setting 1	Any settings that affect the reading
18	R	Reading Setting 2	Ex. "NaCl/Non-Linear"
19	S	Reading Setting 3	
20	T	Reading Setting 4	
21	U	Reading Message 1	Any message (warning, information, etc.) about the
22	V	Reading Message 2	reading
23	W	Reading Message 3	Ex. "Out of limits"
24	X	Reading Message 4	
25	Y	Check Std Value	Standard we measured against during Check Standard Ex. "7.000"
26	Z	Check Std Units	Ex. "pH"
27	AA	Check Std Graph	Bar-graph showing the measurement vs. the standard Ex. "<---|------>"
28	AB	Check Std Status	Status of Check Standard Reading Ex. "Reading within limits"
29	AC	Calibration Status	Ex. Ok: Indicates current calibration is valid ?: Indicates expired calibration
30	AD	Cal Time	Time of Reading in POSIX = Seconds from 1/1/1970 To calculate this value into a common date format, follow directions above.
31	AE	Cal Operator ID	The Operator ID specified when the probe was calibrated May display "- - -" if undefined.
32	AF	Cal Slope Name	Ex. "Slope" for pH "Cell Constant" for Conductivity
33	AG	Cal Slope	The calibration slope value
34	AH	Cal Slope Aux	Used by pH to give the percent of nominal slope
35	AI	Cal Slope Units	Units of the calibration slope Ex. For pH this would be mV/pH
36	AJ	Cal Offset	Calibration offset value
37	AK	Cal Offset Units	Calibration offset units Ex. For pH this would be "mV"
38	AL	Cal r^2	Unitless correlation slope
39	AM	Cal Stds Quantity	Number of standards used during calibration Ex. 0-7 or blank depending on Record Type, Parameter Type and Method Settings.
40	AN	Cal Std 1	Numerical value of Standard 1
41	AO	Cal Std 1 Units	Units in which Standard is given
42	AP	Cal Std 1 Primary Value	Numerical value of actual Reading
43	AQ	Cal Std 1 Primary Units	Units in which actual reading is given
44	AR	Cal Std 1 Supp Value	Numerical value of supplemental measurement Ex. Temperature value for pH
45	AS	Cal Std 2	Populated only if a second calibration standard is used. If blank, following "Cal Std 2…" fields will also be blank.
46	AT	Cal Std 2 Units	
47	AU	Cal Std 2 Primary Value	

48	AV	Cal Std 2 Primary Units	
49	AW	Cal Std 2 Supp Value	
50	AX	Cal Std 3	Populated only if a third calibration standard is used. If blank, following "Cal Std 3…" fields will also be blank.
51	AY	Cal Std 3 Units	
52	AZ	Cal Std 3 Primary Value	
53	BA	Cal Std 3 Primary Units	
54	BB	Cal Std 3 Supp value	
55	BC	Cal Std 4	Populated only if a fourth calibration standard is used. If blank, following "Cal Std 4…" fields will also be blank.
56	BD	Cal Std 4 Units	
57	BE	Cal Std 4 Primary Value	
58	BF	Cal Std 4 Primary Units	
59	BG	Cal Std 4 Supp Value	
60	BH	Cal Std 5	Populated only if a fifth calibration standard is used. If blank, following "Cal Std 5…" fields will also be blank.
61	BI	Cal Std 5 Units	
62	BJ	Cal Std 5 Primary Value	
63	BK	Cal Std 5 Primary Units	
64	BL	Cal Std 5 Supp Value	
65	BM	Cal Std 6	Populated only if a sixth calibration standard is used. If blank, following "Cal Std 6…" fields will also be blank.
66	BN	Cal Std 6 Units	
67	BO	Cal Std 6 Primary Value	
68	BP	Cal Std 6 Primary Units	
69	BQ	Cal Std 6 Supp Value	
70	BR	Cal Std 7	Populated only if a seventh calibration standard is used. If blank, following "Cal Std 7…" fields will also be blank.
71	BS	Cal Std 7 Units	
72	BT	Cal Std 7 Primary Value	
73	BU	Cal Std 7 Primary Units	
74	BV	Cal Std 7 Supp Value	
75	BW	Cal Std Supp Units	Units applicable to all secondary calibration readings Ex. "⁰C" or "⁰F" for temperature
76	BX	Cal Message 1	Any messages about the calibration
77	BY	Cal Message 2	If there are no messages associated with the calibration, these fields will be blank.
78	BZ	Cal Message 3	
79	CA	Cal Message 4	