

A. CONFIGURING DATA LOG POINTS

1. From the **HOME SCREEN**, press the **MENU** key as shown in Fig. 1. The **MENU SCREEN** will be displayed.
2. From the **MENU SCREEN**, touch **DATA LOGGING** as shown in Fig. 2. The **DATA LOG MENU** will now be displayed.
3. From the **DATA LOG MENU**, touch **SELECT DATA POINTS** (refer to Fig. 3). The **SELECT DATA POINTS** screen will now be displayed.
4. Select the points for data logging. For example, for a thermocouple connected to Analog Input 1, touch **ANALOG INPUT** then select **YES** for the input that the thermocouple is connected to. Refer to Figs. 6A & 6B.

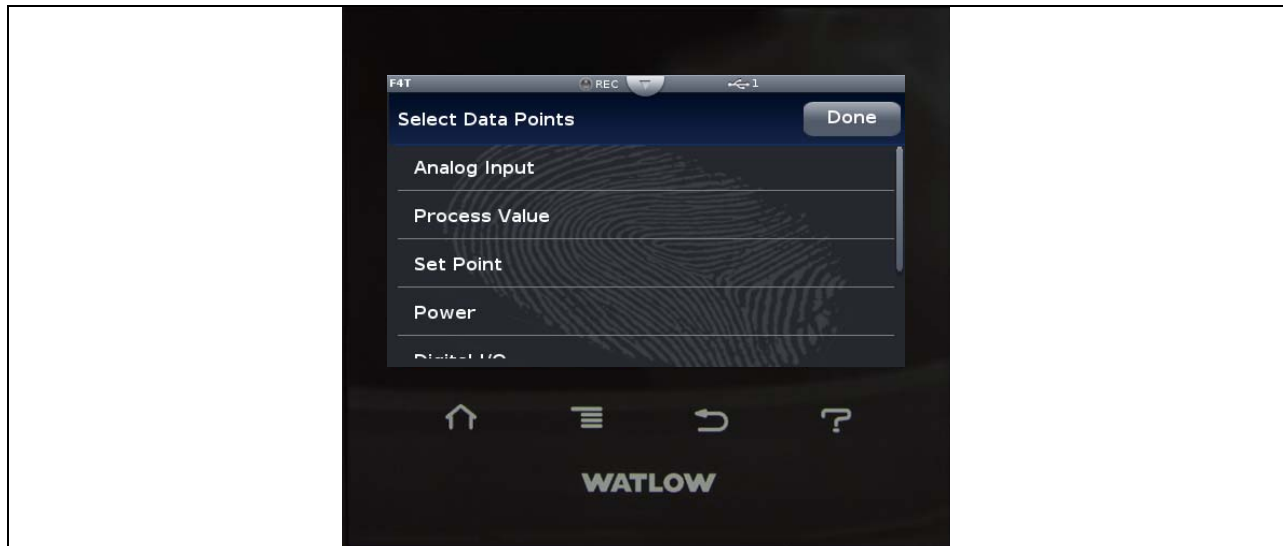


Fig. 6A: SELECT DATA POINTS

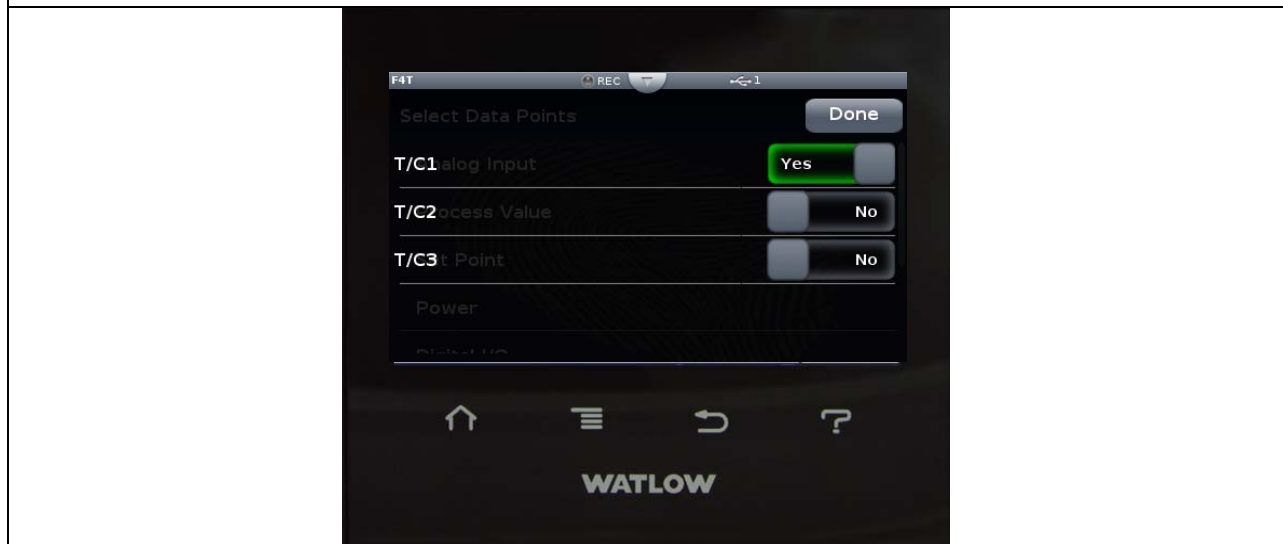


Fig. 6A: SELECT DATA POINTS

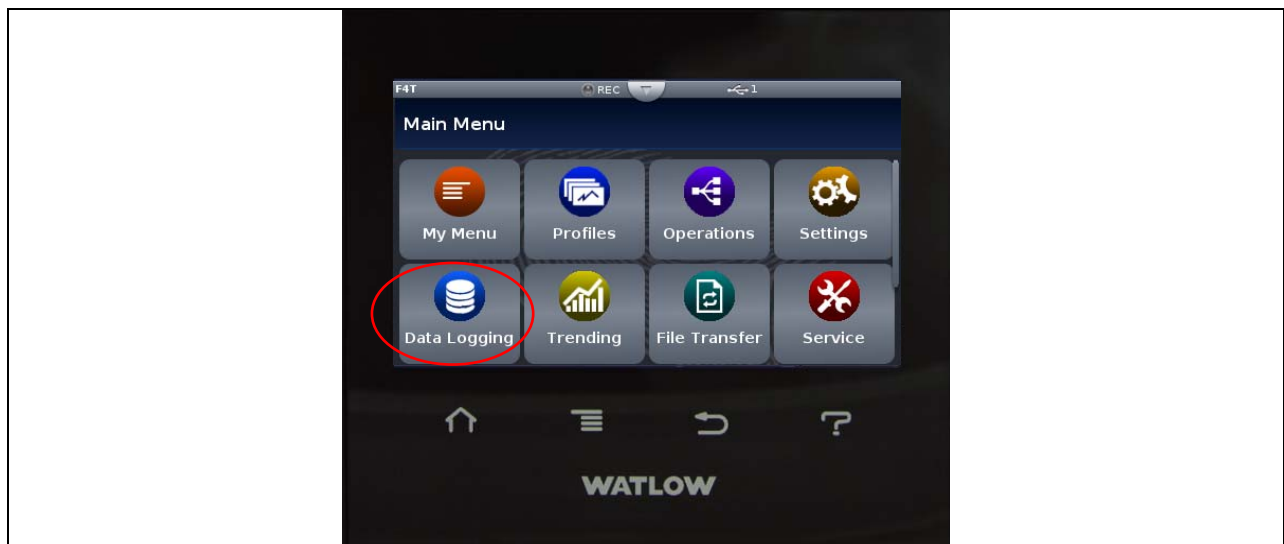
5. Repeat step 4 for each additional data log point.
6. Touch **DONE** to return to **DATA LOG MENU**

B. CONFIGURING DATA LOGGING

1. From the **HOME SCREEN**, press the **MENU** key as shown in Fig. 1. The **MENU SCREEN** will be displayed.

**Fig. 1: HOME SCREEN**

2. From the **MENU SCREEN**, touch **DATA LOGGING** as shown in Fig. 2. The **DATA LOG MENU** will now be displayed.

**Fig. 2: MENU SCREEN**

3. From the **DATA LOG MENU**, touch **SETUP** (refer to Fig. 3). The **SETUP SCREEN** will now be displayed.



Fig. 3: DATA LOG MENU

4. From the **SETUP SCREEN**, enter the data log details. Refer to Figs. 4A & 4B.
 - a. Enter the log file name (the name the file will be saved as) in the **FILE NAME** field.
 - b. The **LOG TO** field selects the initial file save location.
 - 1) Select either **INTERNAL** (typical operation), or **USB**.
 - a) For **INTERNAL**, max file size is 20MB, and will overwrite oldest data first once file sized is reach, unless **AUTO TRANSFER** is configured.
 - b) For **USB**, max file size is 1GB, and data logging will stop when file sized reached.
 - c. The **LOG INTERVAL** field sets the period of time in over which data is taken. Set to the desired logging interval.
 - d. The **FILE TYPE** field sets the data log file type. Select the desired log file type. Options are as follows, depending on Watlow F4T that was purchased:
 - 1) **CSV**: Comma separated value which can be opened using Microsoft Excel (typical)
 - 2) **ENCRYPTED**: Encrypted file that can only be decrypted using Watlow Composer Software.
 - 3) **BOTH**: Saves an encrypted file and CSV file.
 - e. The **FILE SIZE LIMIT (MB)** field determines the maximum size of the data log file. Set to the desired data log file size (max 20MB for internal, 1GB for USB)
 - f. The **MEMORY FULL ACTION** field determines how data logging reacts if there is no space available.

- 1) Select either **STOP** (stop data logging) or **OVERWRITE** (overwrites data, starting with the oldest data first). **OVERWRITE** cannot be selected for USB.



Fig. 4A: SETUP SCREEN



Fig. 4B: SETUP SCREEN

5. Touch **DONE** to return to **DATA LOG MENU**.

C. CONFIGURE DATA LOG FILE TRANSFER (EXPORT DATA)

1. From the **HOME SCREEN**, press the **MENU** key as shown in Fig. 1. The **MENU SCREEN** will be displayed.
2. From the **MENU SCREEN**, touch **DATA LOGGING** as shown in Fig. 2. The **DATA LOG MENU** will now be displayed.
3. From the **DATA LOG MENU**, touch **DATA LOG FILE TRANSFER** (refer to Fig. 3). The **DATA LOG FILE TRANSFER SCREEN** will now be displayed.

4. From the **DATA LOG FILE TRANSFER SCREEN**, enter the data log file transfer details. Refer to Figs. 7A & 7B.
5. The **AUTO TRANSFER TYPE** field selects where to transfer the data log file when logging is stopped, or when log file size is reached.
 - a. Select either **USB**, or **SAMBA** (storing to a network computer).
 - 1) If set to **USB**, verify a USB flash drive is inserted into either of the ports on the back of the F4T controller. No further action is required. Touch **DONE** to return to **DATA LOG MENU**.
 - 2) If set to **SAMBA** (storing to a network computer):
 - a) On the computer where the log file will be saved, create a User Account with password and Administrator privileges (Control Panel\User Accounts\Manage User Accounts). Write down and save the user account name, password, and domain listed. If problems creating a user account are encountered, refer to p. 31-32, Steps 1-11 under **CONFIGURING A SAMBA SHARED FOLDER of WATLOW F4T CONTROLLER SETUP AND OPERATIONS USER GUIDE**.
 - b) Create a shared folder with read/write access to user specified above on the computer's main directory. Write down the folder's name. If problems creating a shared folder are encountered, refer to p. 32-33, Steps 12-18 under **CONFIGURING A SAMBA SHARED FOLDER of WATLOW F4T CONTROLLER SETUP AND OPERATIONS USER GUIDE**.
 - c) Write down the computer's IP address.
 - d) Enter the user name from above in the **SAMBA USER NAME** field.
 - e) Enter the password from above in the **SAMBA PASSWORD** field.
 - f) Enter the shared folder name from above in the **SAMBA PATH** field.
 - g) Enter the domain from above in the **REMOTE HOST NAME** field.
 - h) Enter the computer's IP address from above in the **REMOTE IP ADDRESS** field.
 - i) Touch **DONE** to return to **DATA LOG MENU**.

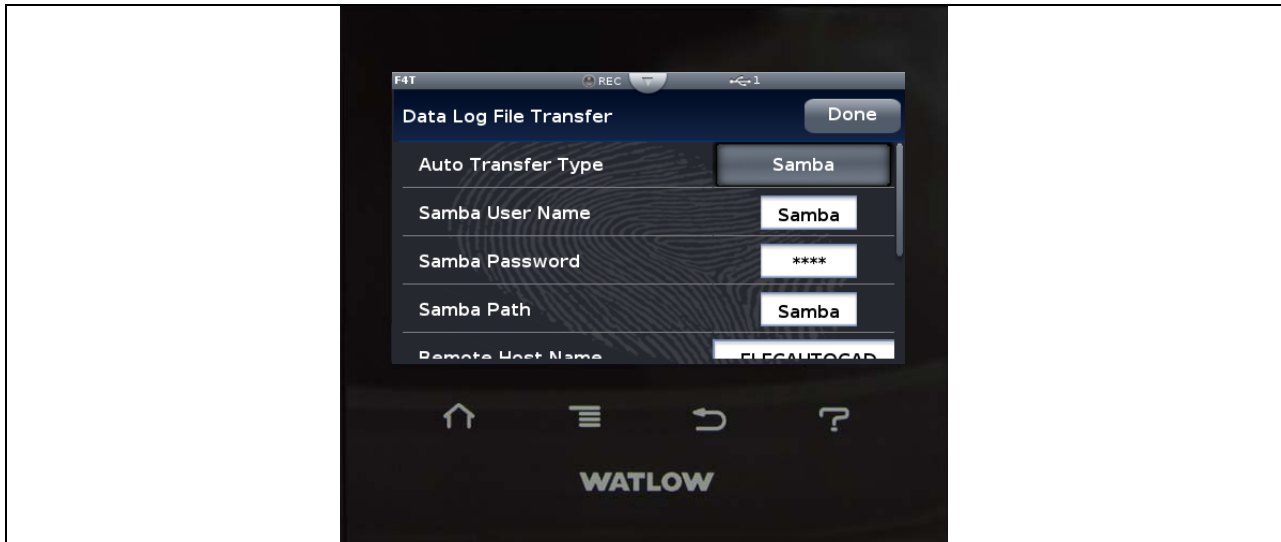


Fig. 7A: DATA LOG FILE TRANSFER

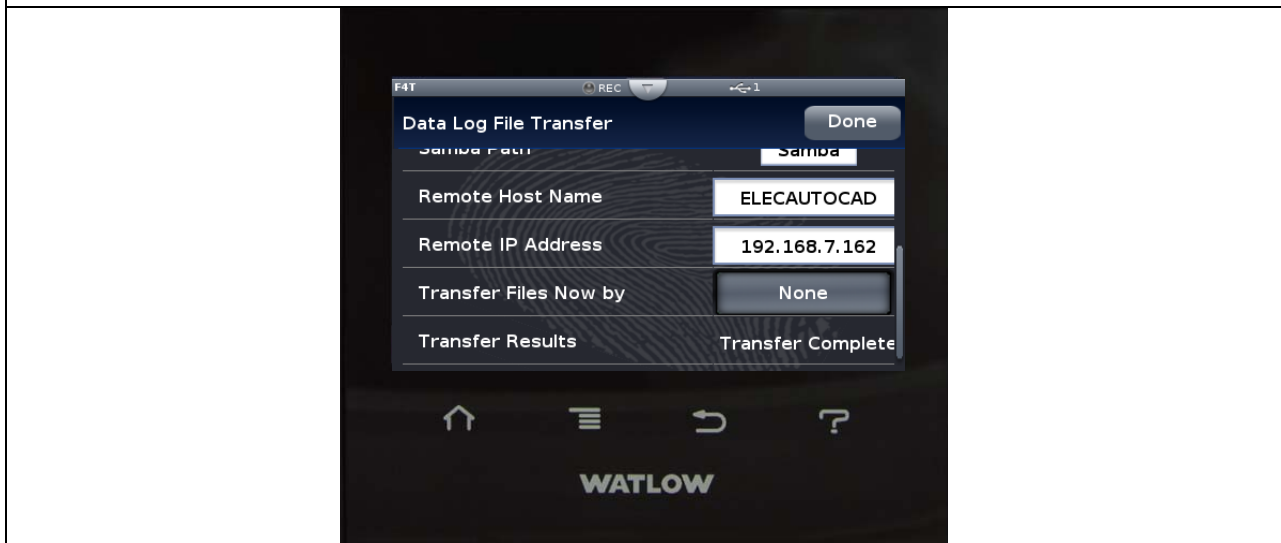


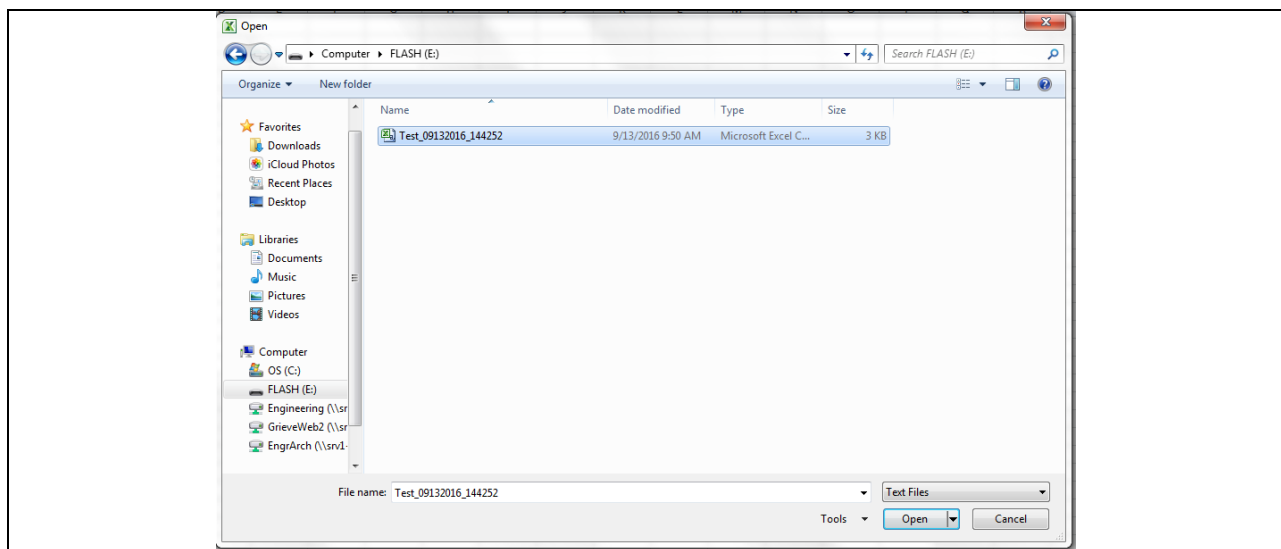
Fig. 7B: DATA LOG FILE TRANSFER

D. RUNNING DATA LOGGING

1. From the **HOME SCREEN**, press the **MENU** key as shown in Fig. 1. The **MENU SCREEN** will be displayed.
2. From the **MENU SCREEN**, touch **DATA LOGGING** as shown in Fig. 2. The **DATA LOG MENU** will now be displayed.
3. To start data logging, touch **START** (refer to Fig. 3). Data logging indicated by green **REC** light at top center of screen.
 - a. To stop data logging, press **STOP**.
4. To add an annotation to a data log file, touch **ANNOTATION** and type annotation in the field displayed (refer to Fig. 3). Annotations can be added at any time during a data log.

E. VIEWING DATA LOG FILES

1. To view an unencrypted CSV data log file using Microsoft Excel:
 - a. If data log file is stored on a USB flash drive:
 - 1) Insert the USB flash drive into the computer.
 - 2) Open Microsoft Excel.
 - 3) In Microsoft Excel, from the **FILE** menu, select **OPEN**.
 - 4) On the left hand side of the **OPEN** window, select the USB flash drive. From the drop down menu on the lower right corner, select "**TEXT FILES**". Select the file with the data log name, date and time stamp you want to open, and click "**OPEN**", see Fig. 8.

**Fig. 8: OPEN DATA LOG FILE IN MICROSOFT EXCEL**

- 5) The data log file will now open. Expand the columns as needed to view the information. For an example data log file, see Fig. 9.

	A	B	C	D	E	F	G
1	Date (MDY)	Time	T/C1 (Deg F)	T/C2 (Deg F)	T/C3 (Deg F)	HEAT Set Point (Deg F)	
2	9/13/2016	2:43:02 PM	80.406	76.745	75.777		550
3	9/13/2016	2:43:12 PM	80.423	76.884	75.822		550
4	9/13/2016	2:43:22 PM	80.415	76.908	75.739		550
5	9/13/2016	2:43:32 PM	80.411	76.902	75.789		550
6	9/13/2016	2:43:42 PM	80.414	76.955	75.814		550
7	9/13/2016	2:43:52 PM	80.392	76.924	75.861		550
8	9/13/2016	2:44:02 PM	80.394	76.892	75.663		550
9	9/13/2016	2:44:12 PM	80.405	76.721	75.483		550
10	9/13/2016	2:44:22 PM	80.392	76.595	75.398		550
11	9/13/2016	2:44:32 PM	80.394	76.637	75.431		550
12	9/13/2016	2:44:42 PM	80.423	76.581	75.348		550
13	9/13/2016	2:44:52 PM	80.428	76.544	75.328		550
14	9/13/2016	2:45:02 PM	80.406	76.552	75.406		550
15	9/13/2016	2:45:12 PM	80.435	76.565	75.287		550
16	9/13/2016	2:45:22 PM	80.417	76.571	75.276		550
17	9/13/2016	2:45:32 PM	80.416	76.487	75.246		550
18	9/13/2016	2:45:42 PM	80.433	76.495	75.126		550
19	9/13/2016	2:45:52 PM	80.456	76.444	75.067		550 Batch 1
20	9/13/2016	2:46:02 PM	80.44	76.476	75.191		550
21	9/13/2016	2:46:12 PM	80.432	76.677	75.487		550
22	9/13/2016	2:46:22 PM	80.407	76.841	75.684		550
23	9/13/2016	2:46:32 PM	80.445	76.967	75.821		550
24	9/13/2016	2:46:42 PM	80.431	76.922	75.663		550
25	9/13/2016	2:46:52 PM	80.423	76.968	75.498		550
26	9/13/2016	2:47:02 PM	80.449	76.905	75.404		550
27	9/13/2016	2:47:12 PM	80.467	76.867	75.418		550
28	9/13/2016	2:47:22 PM	80.439	76.892	75.412		550
29	9/13/2016	2:47:32 PM	80.498	76.902	75.48		550
30	9/13/2016	2:47:42 PM	80.465	76.948	75.616		550
31	9/13/2016	2:47:52 PM	80.466	76.894	75.594		550
32	9/13/2016	2:48:02 PM	80.484	76.849	75.53		550
33	9/13/2016	2:48:12 PM	80.493	76.907	75.439		550
34	9/13/2016	2:48:22 PM	80.488	76.98	75.521		550
35	9/13/2016	2:48:32 PM	80.501	77.19	75.825		550
36	9/13/2016	2:48:42 PM	80.47	77.266	75.957		550
37	9/13/2016	2:48:52 PM	80.496	77.272	75.921		550
38	9/13/2016	2:49:02 PM	80.454	77.314	76.023		550
39	9/13/2016	2:49:12 PM	80.459	83.515	86.037		550 Batch 2
40	9/13/2016	2:49:22 PM	80.464	81.606	82.611		550
41	9/13/2016	2:49:32 PM	80.453	80.349	80		550
42	9/13/2016	2:49:42 PM	80.463	86.714	78.898		550
43	9/13/2016	2:49:52 PM	80.448	84.248	78.158		550 Batch 3
44	9/13/2016	2:50:01 PM	80.457	84.01	77.764		550

Fig. 9: EXAMPLE CSV DATA LOG FILE

- a. If Data log file is stored on a shared folder on the computer:
 - 1) Open Microsoft Excel.
 - 2) In Microsoft Excel, from the **FILE** menu, select **OPEN**.
 - 3) From the **OPEN** window, navigate to and open the shared folder where the data log file is stored. From the drop down menu on the lower right corner, select **"TEXT FILES"**. Select the file with the data log name, date and time stamp you want to open, and click **"OPEN"**, see Fig. 8.
 - 4) The data log file will now open. Expand the columns as needed to view the information. For an example data log file, see Fig. 9.

2. To view an encrypted data log file using Watlow Composer:
 - a. If data log file is stored on a USB flash drive:
 - 1) Insert the USB flash drive into the computer.
 - 2) Open Watlow Composer.
 - a) Watlow Composer can be downloaded from www.watlow.com/f4t.cfm
 - 3) In Watlow Composer, click **"DATA LOGS"** in the upper left corner and then select **"VIEW"**. See Fig. 10.

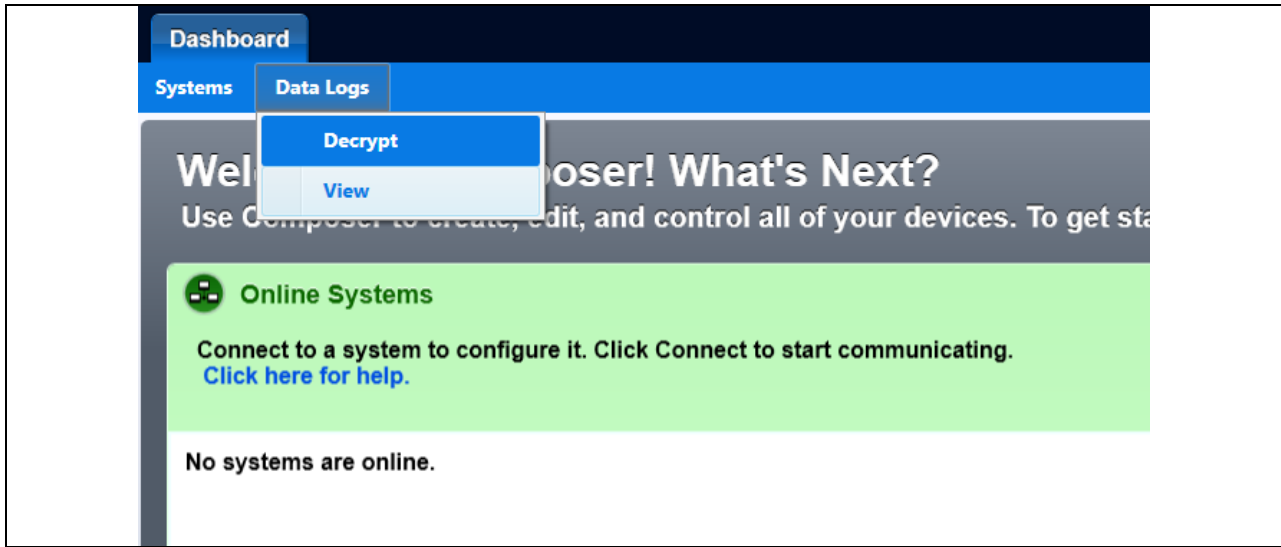


Fig. 10: OPEN ENCRYPTED DATA LOG FILE IN WATLOW COMPOSER

- 4) On the left hand side of the **OPEN** window, select the USB flash drive. Select the file with the data log name, date and time stamp you want to open, and click "**OPEN**", see Fig. 11.

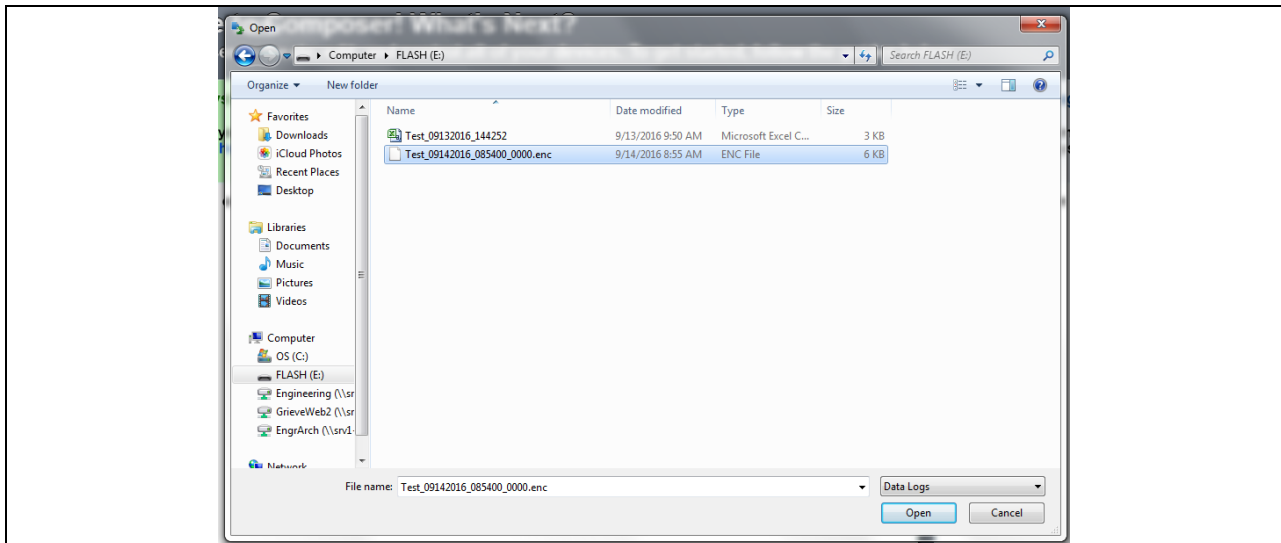
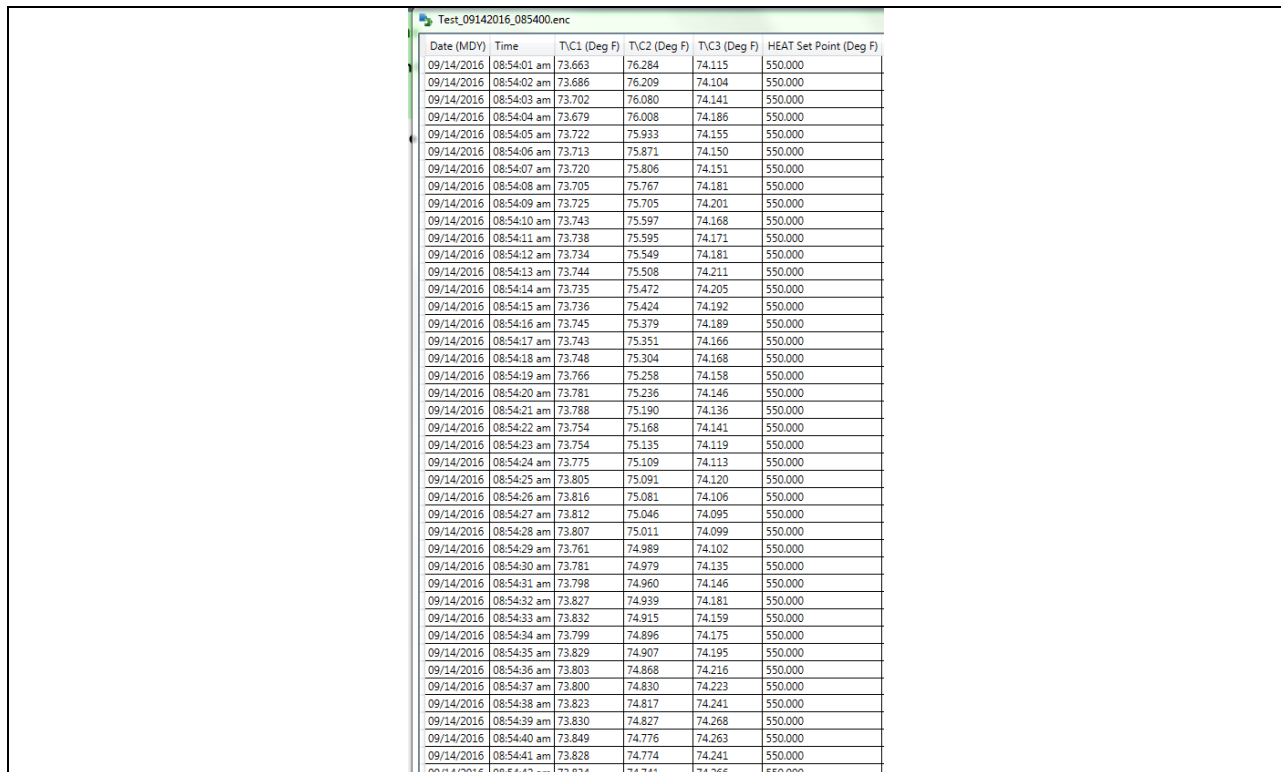


Fig. 11: OPEN ENCRYPTED DATA LOG FILE IN WATLOW COMPOSER

- 5) The data log file will now open. For an example data log file, see Fig. 12.



Date (MDY)	Time	TC1 (Deg F)	TC2 (Deg F)	TC3 (Deg F)	HEAT Set Point (Deg F)
09/14/2016	08:54:01 am	73.663	76.284	74.115	550.000
09/14/2016	08:54:02 am	73.686	76.209	74.104	550.000
09/14/2016	08:54:03 am	73.702	76.080	74.141	550.000
09/14/2016	08:54:04 am	73.679	76.008	74.186	550.000
09/14/2016	08:54:05 am	73.722	75.933	74.155	550.000
09/14/2016	08:54:06 am	73.713	75.871	74.150	550.000
09/14/2016	08:54:07 am	73.720	75.806	74.151	550.000
09/14/2016	08:54:08 am	73.705	75.767	74.181	550.000
09/14/2016	08:54:09 am	73.725	75.705	74.201	550.000
09/14/2016	08:54:10 am	73.743	75.597	74.168	550.000
09/14/2016	08:54:11 am	73.738	75.595	74.171	550.000
09/14/2016	08:54:12 am	73.734	75.549	74.181	550.000
09/14/2016	08:54:13 am	73.744	75.508	74.211	550.000
09/14/2016	08:54:14 am	73.735	75.472	74.205	550.000
09/14/2016	08:54:15 am	73.736	75.424	74.192	550.000
09/14/2016	08:54:16 am	73.745	75.379	74.189	550.000
09/14/2016	08:54:17 am	73.743	75.351	74.166	550.000
09/14/2016	08:54:18 am	73.748	75.304	74.168	550.000
09/14/2016	08:54:19 am	73.766	75.258	74.158	550.000
09/14/2016	08:54:20 am	73.781	75.236	74.146	550.000
09/14/2016	08:54:21 am	73.788	75.190	74.136	550.000
09/14/2016	08:54:22 am	73.754	75.168	74.141	550.000
09/14/2016	08:54:23 am	73.754	75.135	74.119	550.000
09/14/2016	08:54:24 am	73.775	75.109	74.113	550.000
09/14/2016	08:54:25 am	73.805	75.091	74.120	550.000
09/14/2016	08:54:26 am	73.816	75.081	74.106	550.000
09/14/2016	08:54:27 am	73.812	75.046	74.095	550.000
09/14/2016	08:54:28 am	73.807	75.011	74.099	550.000
09/14/2016	08:54:29 am	73.761	74.989	74.102	550.000
09/14/2016	08:54:30 am	73.781	74.979	74.135	550.000
09/14/2016	08:54:31 am	73.798	74.960	74.146	550.000
09/14/2016	08:54:32 am	73.827	74.939	74.181	550.000
09/14/2016	08:54:33 am	73.832	74.915	74.159	550.000
09/14/2016	08:54:34 am	73.799	74.896	74.175	550.000
09/14/2016	08:54:35 am	73.829	74.907	74.195	550.000
09/14/2016	08:54:36 am	73.803	74.868	74.216	550.000
09/14/2016	08:54:37 am	73.800	74.830	74.223	550.000
09/14/2016	08:54:38 am	73.823	74.817	74.241	550.000
09/14/2016	08:54:39 am	73.830	74.827	74.268	550.000
09/14/2016	08:54:40 am	73.849	74.776	74.263	550.000
09/14/2016	08:54:41 am	73.828	74.774	74.241	550.000
09/14/2016	08:54:42 am	73.834	74.741	74.266	550.000

Fig. 12: EXAMPLE ENCRYPTED DATA LOG FILE

- b. If Data log file is stored on a shared folder on the computer:
 - 1) Open Watlow Composer.
 - a) Watlow Composer can be downloaded from www.watlow.com/f4t.cfm
 - 2) In Watlow Composer, click **“DATA LOGS”** in the upper left corner and then select **“VIEW”**. See Fig, 10.
 - 3) From the **OPEN** window, navigate to and open the shared folder where the data log file is stored. Select the file with the data log name, date and time stamp you want to open, and click **“OPEN”**, see Fig. 11.
 - 4) The data log file will now open. For an example data log file, see Fig. 12.