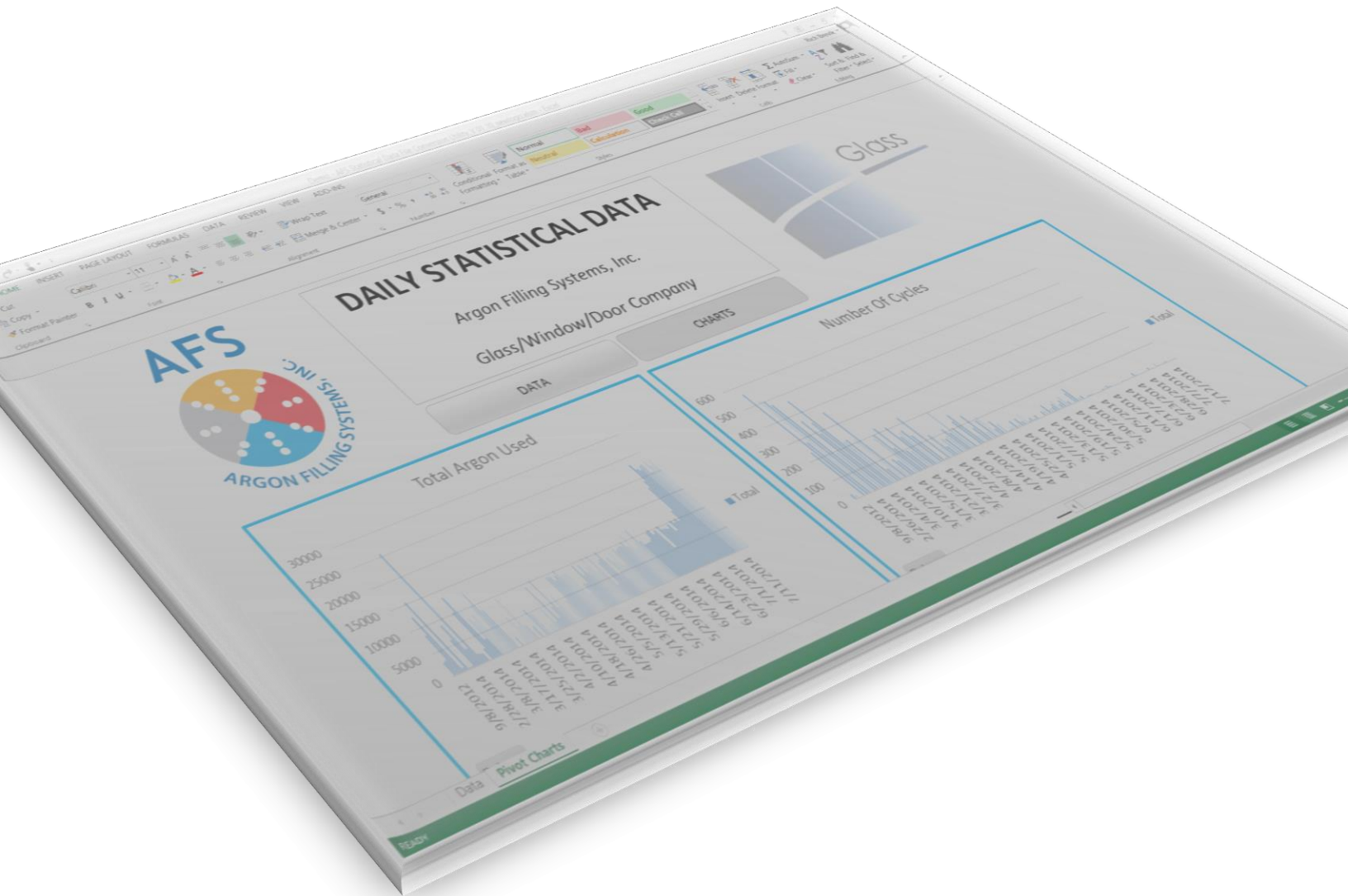




AFS Options Manual



Note: This manual is only applicable to optional features of gas filling units manufactured by Argon Filling Systems. Options are specific to AFS models and some options may not be available for specific models and configurations. All efforts have been made to cover all settings and any changes to recommended settings should be fully understood by the operating facility.

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Machine Considerations

FOR PROPER OPERATION OF THE DATA COLLECTION FUNCTIONS – KEEP THE AFS MACHINE POWERED ON AT ALL TIMES.

Screen saver and sleep modes are activated after periods of inactivity.

Data Files

The AFS Data Collection Option writes files to the microSD card located in the PLC. The microSD card slot is located on the side of the PLC in the door panel of the AFS machine.

The data file(s) remain on the microSD card and is accessible by removing the microSD card and installing into a PC, or the optional Ethernet Connectivity option (as noted on page 7-8).

DO NOT DELETE FILES FROM THE microSD CARD - THIS WILL CAUSE ALL DATA COLLECTION TO STOP WORKING.

Daily Statistical Data Archiving

Daily Statistical Data Archiving creates and saves a daily data file with statistical information regarding the operation of the AFS machine. The data is accessed and analyzed using an AFS created excel MACRO. The spreadsheet can be saved and archived for company records.

Daily Statistical Log File (DAILYVAL.csv):

Using the Daily Statistical Data archiving option creates a .csv file on the microSD card containing the following information for each day:

- Date
- Number of successfully completed cycles for each line
- Total number of successfully completed daily cycles
- Average cycle time for each line
- Total average cycle time
- Average time between cycles (minutes)
- Total argon used during each shift
- Total argon used

Barcode Scanning and Data Archiving

Barcode Scanning and Data Archiving creates and saves a file of important data for each IGU filled and scanned. The data is accessed and analyzed using an AFS created excel MACRO. The spreadsheet can be saved and archived for company records.

Barcode Scanner

AFS machines with the optional Barcode Scanning and Data Archiving feature come with industrial grade 2D wireless barcode scanners. These scanners are manufactured for industrial environments, but should still be handled with care. The barcode scanner charging base is attached to the outside of the enclosure and the handheld scanner should be replaced when not in use to ensure the batteries remain charged and ready for operation.

Barcode Log File (AFSWINDOW.csv):

Using the Bar Code Scanning and Data Archiving option creates a .csv file on the microSD card containing the following information for each IGU successfully filled and scanned:

- Shift Number
- Operator Number
- Time of Day
- Date
- IGU Barcode Number
- Fill Percentage
- Time to fill
- Line # used to fill IGU
- Last Calibration Date of Line # used to fill IGU

The Shift # and Operator # are determined by the data entered on the “Operator Entered Data” section of this manual.

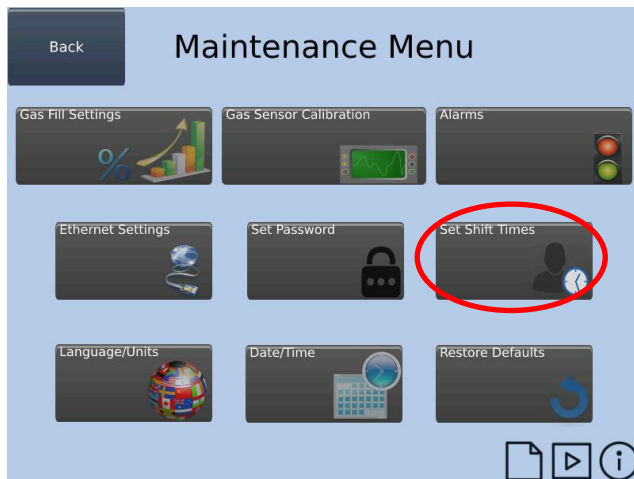
Operator Entered Data

Shift Times

1. To access/adjust the shift start setpoints, press 'Settings' on the "Main Menu."
2. A password screen will appear.
3. Enter password and press ↵.

Note: Factory default is no password (blank). A custom password can be assigned from the 'Maintenance Menu.'

4. The 'Maintenance Menu' will appear.

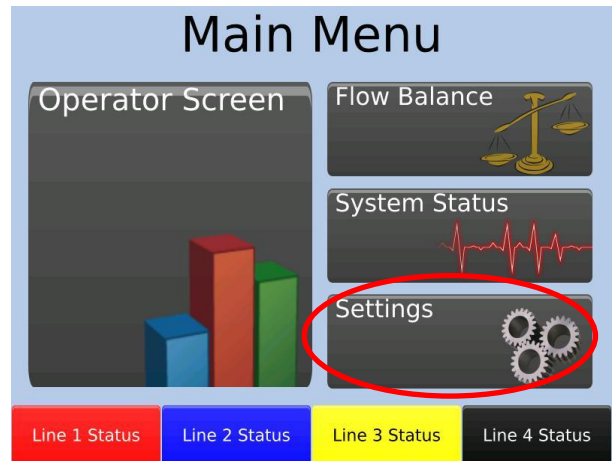


Note: For 1 or 2 shift operations, set the End of Shift as noted.

Data is written to the SD card prior to the start of Shift 1 – so all of Shift 3 data will appear on the date of the start of the Shift.

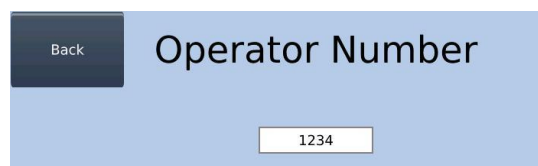
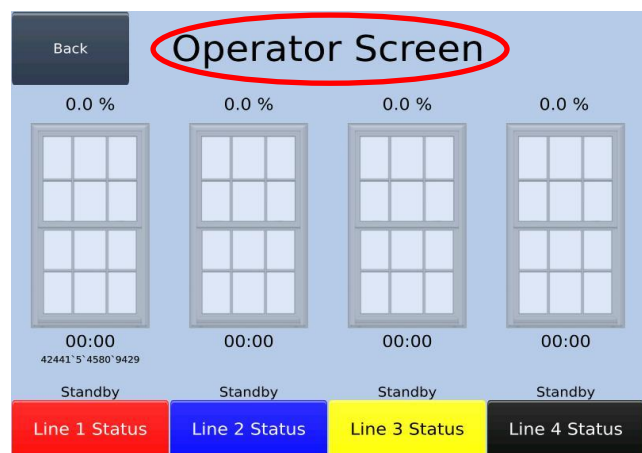
Operator Number

1. To set the operator number - press "Operator Screen" menu title at the top of the screen.
2. The "Operator Number" screen will appear.
3. Press the box on the screen.
4. A keypad will appear.
5. Enter Operator number and press ↵.
6. Press 'Back' on "Operator Number" screen.



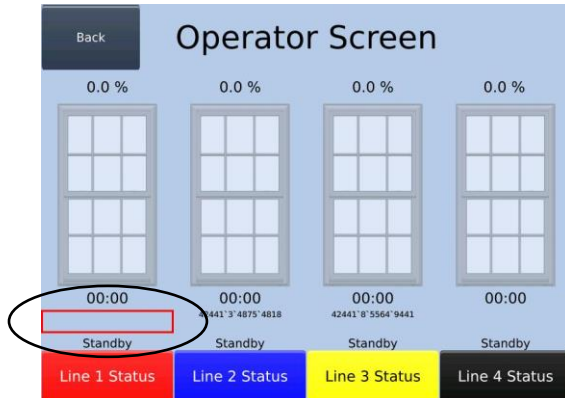
5. Press 'Set Shift Times.'
6. On the "Shift Times" screen, set the shift start times by pressing the corresponding time display.
7. A keypad will appear. Enter the shift start times and press ↵.

Press "Shift Times" menu title for instructions



Barcode scanning IGUs

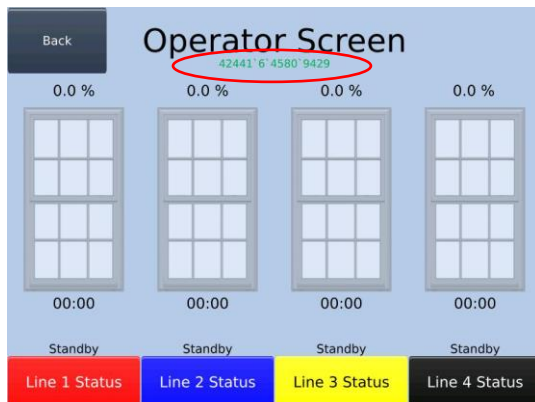
When an IGU filling process starts, the barcode scanner is ready to be used. Two consecutive scans are required for each IGU; one scan of the IGU barcode and one scan of the line that is filling the IGU. These two scans can occur in any order. There is a 10-second timer between scans. After the 10 second timer, the indications outlined below will be canceled and removed from the screen. The on-screen indications below, keep you informed of the status of the scans.



Line # scanned – waiting for IGU scan

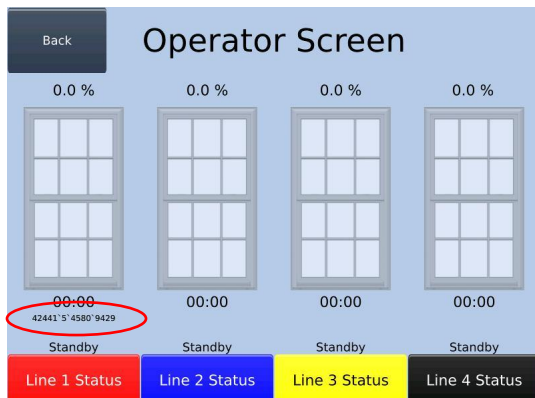
This screen shows an empty box at line 1, between the line status and the fill timer. “Line 1” barcode has been scanned and is ready for the IGU barcode to be scanned.

This screen also shows successful scans on Line 2 and Line 3.



IGU scanned – waiting for Line # scan

This screen shows an IGU barcode (number below the “Operator Screen”) has been successfully scanned and is waiting on the line # to be scanned.



Successful IGU/Line scan sequence!

This screen shows the IGU Barcode has been successfully assigned to Line 1 – the IGU barcode number is shown between the Line 1 fill timer and the line status.

In this manner, all the lines can be started and scanned in any sequence.

IF NO IGU IS SCANNED “IGU NOT SCANNED” WIL APPEAR ON THE SCREEN AND IN THE DATA TABLE.

Note: If a scan is made in error, you can wait ten seconds for the scan timer to clear or rescan a Line # barcode or IGU barcode to overwrite the previous scan.

Ethernet/Email Option

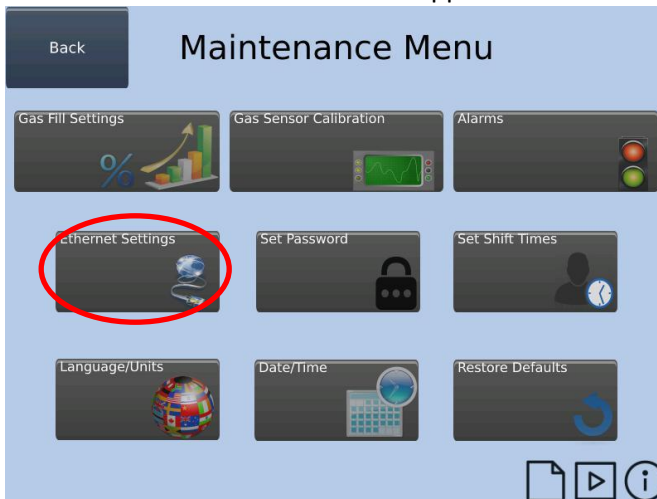
The correct ethernet settings are critical to ensure the AFS machine can properly send the data to the user defined email address.

Adjust the IP Settings is by selecting Edit IP Settings from the System Status screen.

1. To access/adjust the shift start setpoints, press 'Settings' on the "Main Menu."
2. A password screen will appear.
3. Enter password and press ↵.

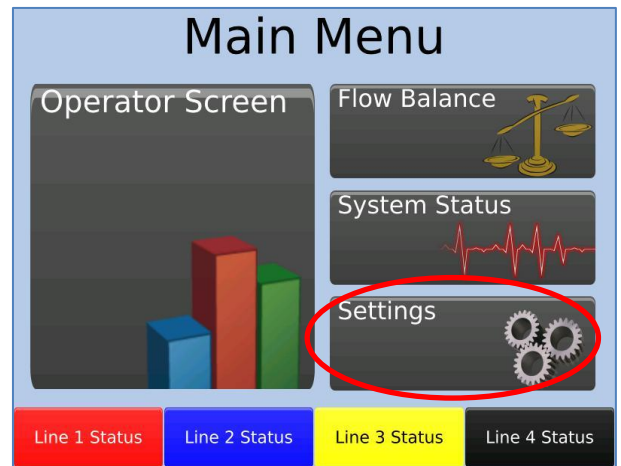
Note: Factory default is no password (blank). A custom password can be assigned from the 'Maintenance Menu.'

4. The 'Maintenance Menu' will appear.

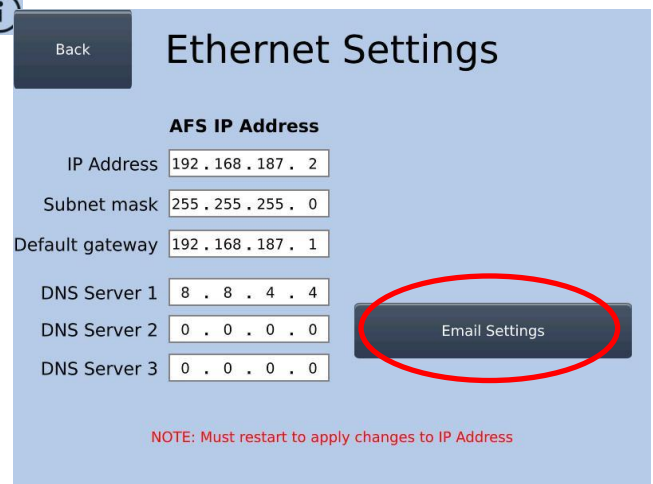


Note: The changes you make from the "Edit IP Settings" screen will not take effect immediately. You must cycle the power for the updated IP settings to take effect.

Contact your plant network group for assistance.



5. Press 'Ethernet Settings.'
6. On the "Ethernet Settings" screen, set the IP Address, Subnet Mask, and Default Gateway by pressing the corresponding display box.
7. A keypad will appear. Enter the correct address and press ↵.
8. Press 'Back' to return to the "Maintenance Menu."
9. Press 'Back' to return to the "Main Menu."



Email

From the “Ethernet Settings” screen, press the ‘Email’ button to open the “Email Settings” screen. When an email address is entered (and the Ethernet connection is properly configured), the AFS machine can be configured to send the data files the 1st day of the month. Alternatively, press the ‘Send Data’ button to immediately send the data to the email address entered.

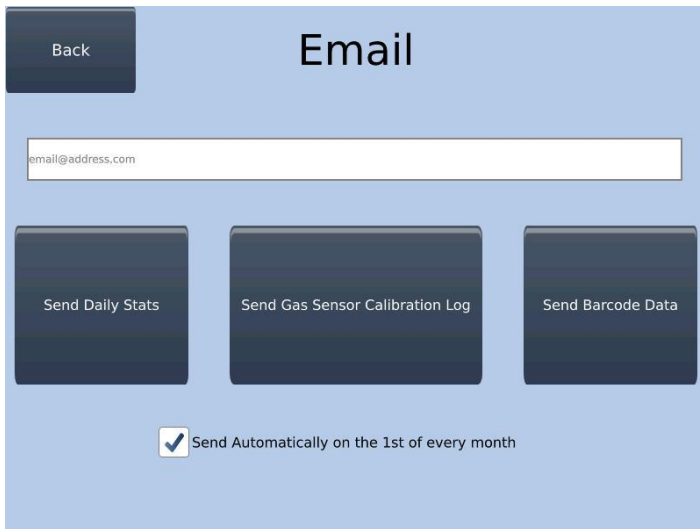
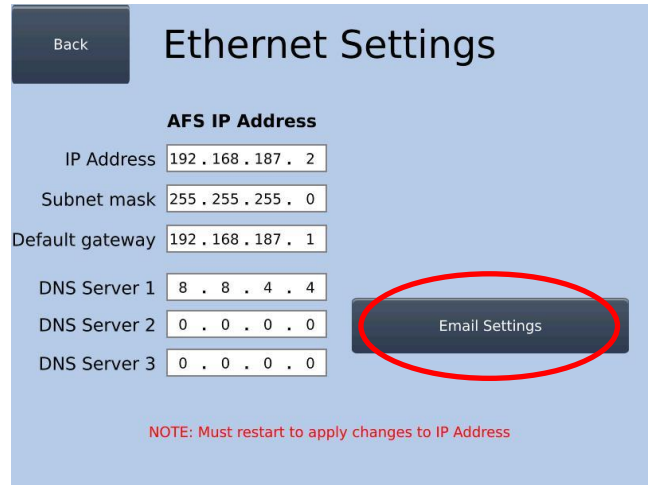
1. Tap in the email address bar.
2. A keypad screen will appear.
3. Enter an email address and press ↵.

To immediately send a data file;

4. Press the appropriate “send...” button.

To have all files sent the 1st of every month;

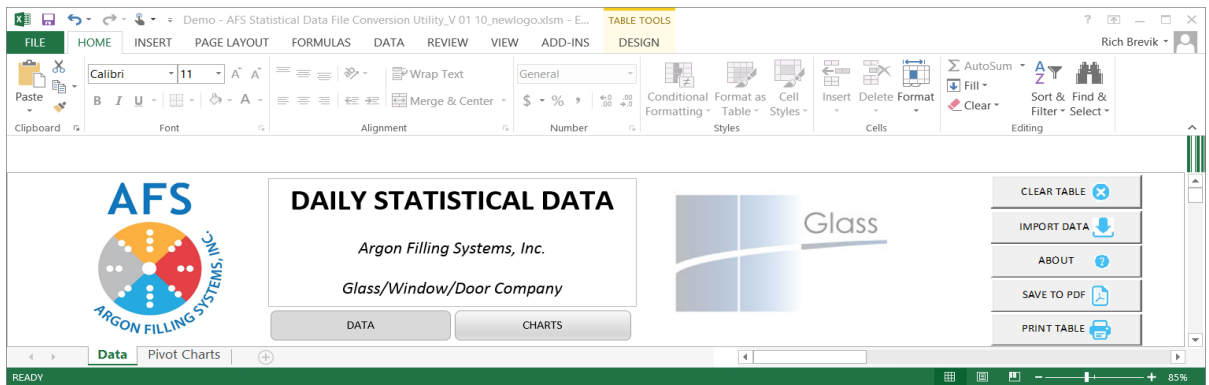
5. Ensure the check box is filled in with ✓.



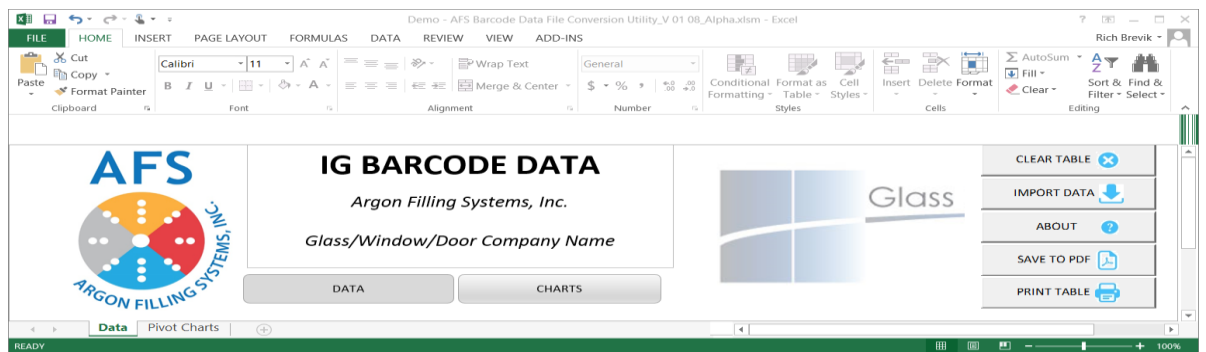
AFS Excel Data Importing and Reporting Macro

AFS has created Microsoft Excel Macro to make importing, searching, and reporting the AFS system operational data easier. The macro files will be supplied by AFS when the options are purchased. The files are named:

AFS Statistical Data File Conversion Utility_V ##...



AFS Barcode Data File Conversion Utility_V ##...



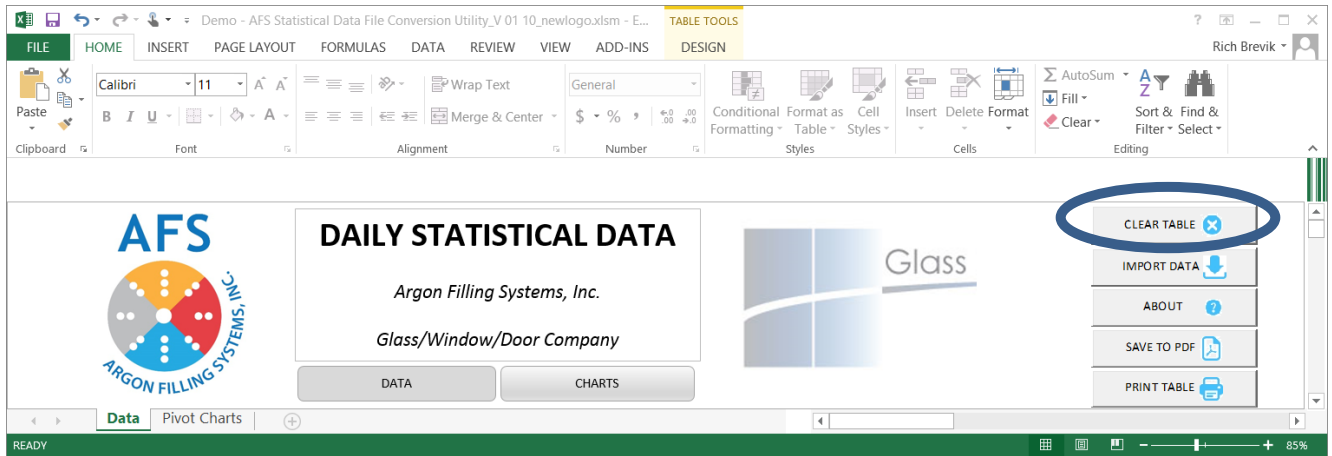
All data is written to the microSD card in the PLC. To obtain the data, you must know the path to the appropriate file (see “Network Settings” on Page 7). The AFS macro will allow only the proper data file to be imported. Options for the file path include:

1. MicroSD card removed from the PLC and inserted into local computer (no data is collected while SD card is removed from the PLC).
2. Direct to the SD card still in the PLC – must have the internet connectivity option (see page 5).

Both macros function in a similar manner – the following is an explanation of data retrieval and description of the “Daily Statistical Data” macro.

Data Retrieval

1. Open the appropriate excel macro file (For this example – “AFS Statistical Data...”)



2. Click on the “IMPORT DATA” button a pop-up window will appear.

- a. Click “Next”
- b. Click “Select File” button
- c. Select the correct file

Note options on page 6

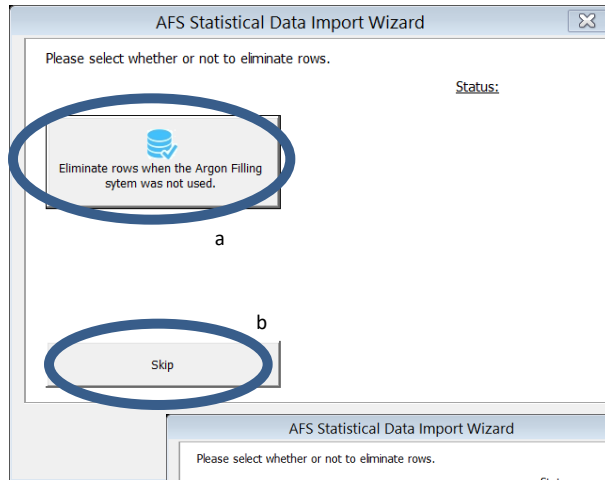
- d. Click “Import”
- e. After import click “Next”



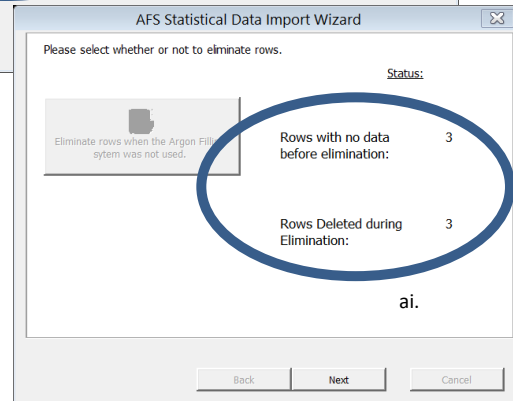
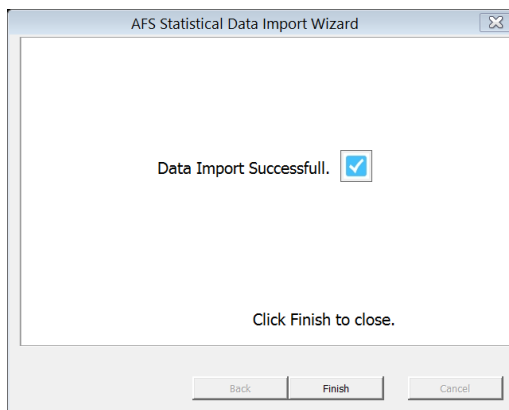
The Data Import Wizard provides the option to remove data that consists of all zeros, i.e. days that the AFS machine was not run. Examples are weekends and holidays.

REMINDER: The AFS machine should be kept powered on when the data collection options are purchased. The AFS system requires very little power and the screen will shut off during periods of no use.

3. Select the desired option.
 - a. Delete “zero” rows
 - i. Status is provided
 - b. “Skip” will include “Zero” rows



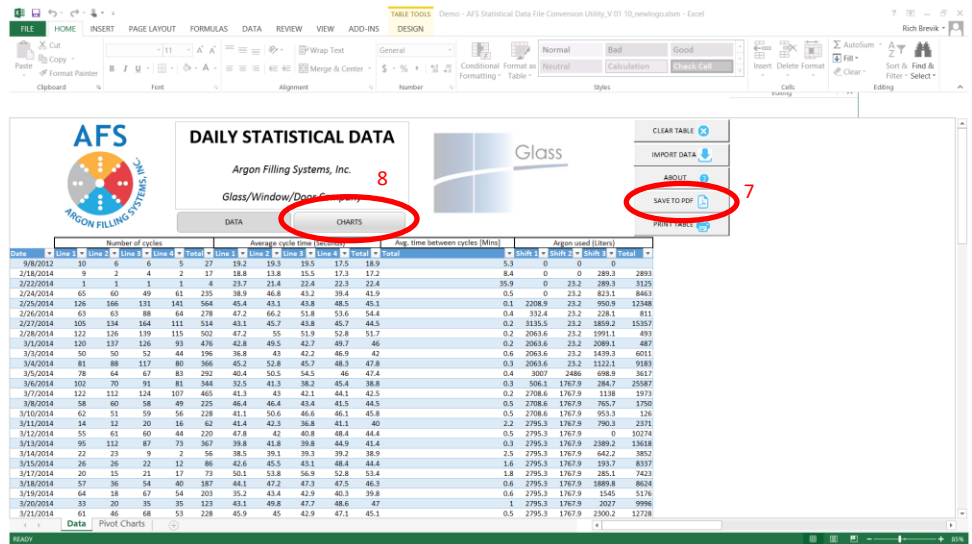
4. Click “Finish” – this will close the Wizard.



5. Data table is now filled in with ALL data from the AFS file.
 - a. Data is never erased from the SD card – data will be from date of first use

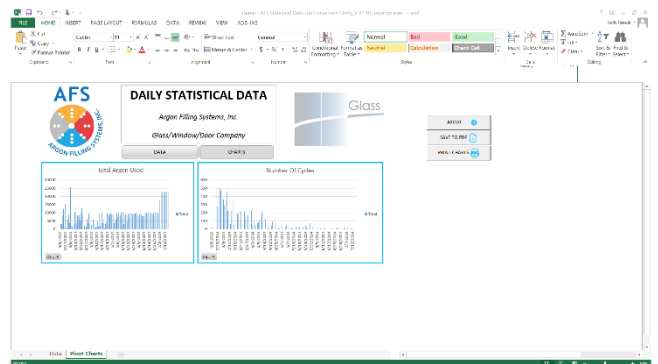
Date	Number of cycles				Average cycle time (Seconds)				Avg. time between cycles (Mins)			Argon used (Liters)			
	Line 1	Line 2	Line 3	Total	Line 1	Line 2	Line 3	Total	Shift 1	Shift 2	Shift 3	Total	Shift 1	Shift 2	Total
9/8/2012	10	6	6	22	19.2	19.3	19.5	17.5	18.9	5.3	0	0	0	0	0
2/16/2014	9	2	4	15	17	18.8	11.8	15.5	17.3	8.4	0	0	289.3	289.3	289.3
2/22/2014	1	1	1	3	23.7	21.4	22.4	22.3	22.4	35.9	0	23.2	289.3	312.5	312.5
2/24/2014	65	60	49	174	38.9	46.8	43.2	39.4	41.9	0.5	0	23.2	823.1	846.3	846.3
2/25/2014	126	166	131	423	36.4	45.4	43.1	43.8	48.5	0.1	2208.9	23.2	950.9	1224.8	1224.8
2/26/2014	63	63	88	214	27.8	47.2	66.2	51.8	53.6	0.4	332.4	23.2	228.1	460.5	460.5
2/27/2014	105	134	164	403	43.1	45.7	43.8	45.7	44.5	0.2	3135.5	23.2	1859.2	1535.7	1535.7
2/28/2014	122	126	139	387	47.2	55	51.9	52.8	51.7	0.2	2063.6	23.2	1991.1	493	493
3/1/2014	120	137	126	383	47.6	42.8	49.5	42.7	49.7	0.2	2063.6	23.2	2089.1	487	487
3/3/2014	50	50	52	152	36.8	43	42.2	46.9	42	0.6	2063.6	23.2	1439.3	601.1	601.1
3/4/2014	81	88	117	286	45.2	52.8	45.7	48.3	47.8	0.3	2063.6	23.2	1122.1	918.9	918.9
3/5/2014	78	64	67	209	40.4	50.5	54.5	46	47.4	0.4	3007	24.86	698.9	361.7	361.7
3/6/2014	102	70	91	263	41.3	38.2	45.4	38.8	41.1	0.3	506.1	1767.9	284.7	2588.7	2588.7
3/7/2014	122	112	124	358	41.3	43	42.1	44.1	42.5	0.2	2708.6	1767.9	1138	1973	1973
3/8/2014	58	60	58	176	46.4	46.4	43.4	41.5	44.5	0.5	2708.6	1767.9	765.7	1750	1750
3/10/2014	62	51	59	172	41.1	50.6	46.6	46.1	45.8	0.5	2708.6	1767.9	953.3	1217	1217
3/11/2014	14	12	20	46	41.4	42.3	36.8	41.1	40	2.2	2795.3	1767.9	790.3	2371	2371
3/12/2014	55	61	60	176	47.8	42	40.8	48.4	44.4	0.5	2795.3	1767.9	0	1017.4	1017.4
3/13/2014	95	112	87	294	39.8	41.8	39.8	44.9	41.4	0.3	2795.3	1767.9	2389.2	1361.8	1361.8
3/14/2014	22	23	9	54	38.5	39.1	39.3	39.2	38.9	2.5	2795.3	1767.9	642.2	385.2	385.2
3/15/2014	26	26	22	74	42.6	45.5	43.1	48.4	44.4	1.6	2795.3	1767.9	153.7	833.7	833.7
3/17/2014	20	15	21	56	50.1	53.8	56.9	52.8	53.4	1.8	2795.3	1767.9	385.1	742.3	742.3
3/18/2014	57	36	54	147	44.1	47.2	47.3	47.5	46.3	0.6	2795.3	1767.9	1889.8	862.4	862.4
3/19/2014	64	18	67	149	35.2	43.4	42.9	40.3	39.8	0.6	2795.3	1767.9	1545	517.6	517.6
3/20/2014	33	20	35	88	43.1	49.8	47.7	48.6	47	1	2795.3	1767.9	2027	999.6	999.6
3/21/2014	61	46	53	160	45.9	45	42.9	47.1	45.1	0.5	2795.3	1767.9	2300.2	1272.8	1272.8

6. Data can be selected and sorted by the drop down menus at the data headers.
 - a. Select as much or as little data as needed
 - b. The selected data will be the only data used when making a pdf report and in the automated charts
7. Once the data is sorted – the file can be imported as a pdf report.



8. Charts are created automatically – click on the “CHARTS” button to access.

- a. As with any excel spreadsheet, you can create any additional charts from the data as desired



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AFS



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