













TruFlow

User Manual

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September 2014

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About User Manual and TruFlow System

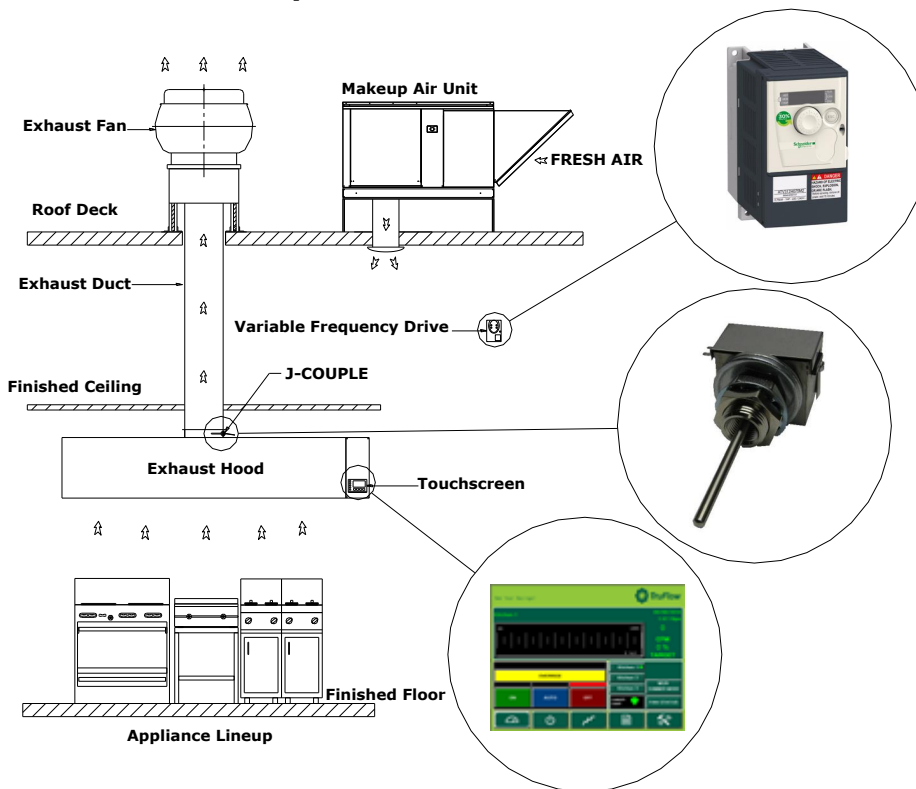
This manual will cover basic operation as well as advanced setup of your TruFlow system.

Main windows, which include the Dashboard, Power, Alarm Status, Report and Primary Toolbox windows, will be underlined and bolded.

Icons to be touched to take you to another window will be bolded.

Auxiliary windows, like the Automatic Start/Stop Schedule setting windows, will be underlined.

Typical TruFlow Setup:



TruFlow measures heat from the appliances and automatically adjusts fan speeds throughout the day, giving you the precise amount of exhaust at all times. As more cooking appliances are used the exhaust and supply volume increase; as fewer appliances are used, the exhaust and supply volume decrease.

You have the ability to increase the exhaust volume to 100% at any time. Because you control it, overrides are kept to a minimum to maximize energy efficiency. The override system runs for an adjustable timed period of 15 minutes and can be activated on the panel or via an optional remote control.

TruFlow monitors ventilation system efficiency relative to your utility costs, in real-time, so that you can manage your kitchen to take advantage of off peak times by turning down appliances. Setting an energy reduction goal reduces your utility costs even more!

Main System Components



This is your TruFlow Touchscreen panel.

The panel can be mounted on a wall or on of the hoods and puts operation of your kitchen exhaust equipment at your fingertips.

Additionally, the TruFlow can be set up to control up to seven cooking appliances, seven external lighting zones, and two extra exhaust hoods connected to motor starters.



J-Couple

TruFlow measures the temperature in each exhaust duct collar for each hood connected to an exhaust fan that will be sped up or slowed down using a j-couple.



Variable Frequency Drive (VFD)

Each exhaust fan has its own variable frequency drive. The TruFlow sends a signal to the drive telling it to slow down or speed up the fan.

Some makeup air units will also have a VFD

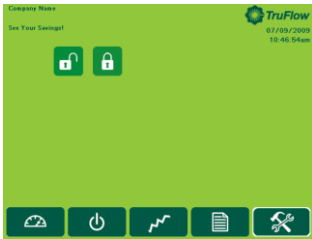


Log In / Log Out

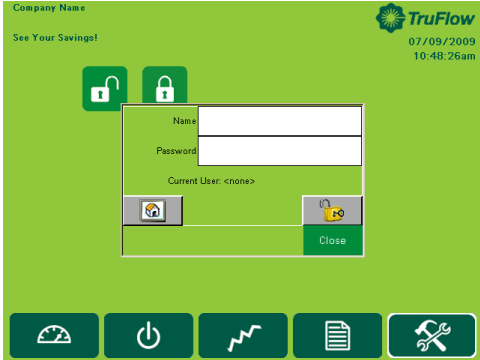
In order to make any changes to the settings on your TruFlow system, you will need to log in.



Touch the **Primary Toolbox** icon.



Touch the **Login** icon.

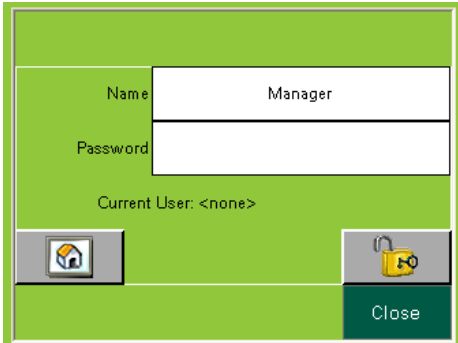


Touch the white field beside **Name**.



Type your login name using the pop-up keyboard.
Touch **Enter** key.
The login window will return.

The login name is case sensitive. The CAPS key is on automatically. If you do not know your login name and password call Spring Air Systems.



Touch the white field beside **Password**



Type your password using the pop-up keyboard.
Touch **Enter** key.
The login window will return.

The password is also case sensitive.



Touch the **UNLOCK** icon.
Touch the word **Close** to close the login box.

You are now logged in.

Logout

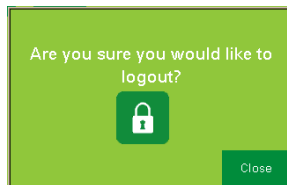
TruFlow will automatically log you out after a set amount of time (see Changing Time to Dashboard)



Touch the **Primary Toolbox** window icon.



Touch the lock.



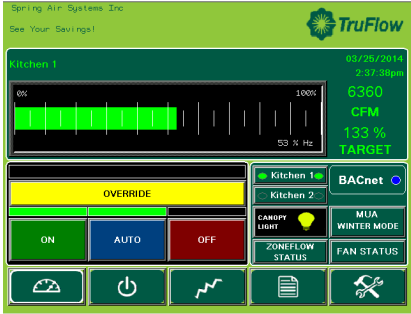
Touch the lock again.

You are now logged out.



Dashboard Window

The **Main Dashboard** is the heart of the TruFlow system. It provides current exhaust operating data and a visual representation to the kitchen staff whether or not they are meeting your Energy Reduction Goal.



133 % TARGET **0 % TARGET** **Target**

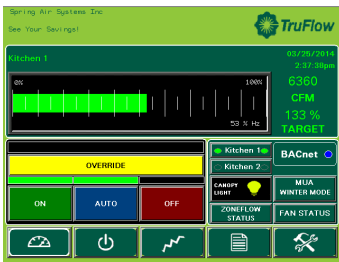
The dashboard shows the operating efficiency of the kitchen as it relates to your Energy Reduction Goal. In the example, the kitchen has exceeded the Energy Reduction Goal by 33%. When the system is operating in override,

6360 CFM **Current Exhaust Volume**



Canopy Lights *Touch* this icon to turn on and off the canopy lights are on the bulb is yellow.

When



Status Bar

This bar is a visual representation of the operating efficiency and updates continuously. When the staff is meeting or exceeding your Energy Reduction Goal, the status bar will be green and the Target icon will show the percentage the Energy Reduction Goal is being exceeded. When the Energy Reduction Goal is not been achieved, the status bar will be red and the Target icon will show the percentage of the Energy Reduction Goal that is being reached.

Override



To override the TruFlow, *touch* and hold the override bar for 3 seconds. Operation will drive to 100% for a pre-set length of time and the **Efficiency** icon will zero out. The override time is adjustable through the Kitchen setup window.



Touch to open the **Power** window



Touch to open the **Alarm Status** window



Touch to open the **Report** window



Touch to open the **Primary Toolbox** window. This window is accessible only with a password.



The **Company Name**, **Message Center**, **Date** and **Time of Day** can be changed in the **Primary Toolbox** window with a password.



Lon or BACnet Connection

When this symbol is displayed on the **Dashboard**, the complete TruFlow operation is controlled by the building computer. The only local interaction with the TruFlow is the Override. The TruFlow ON/OFF operation is controlled by the building computer.



Motor Starters

Touch the Hand icon beside the motor starter you would like to turn on or off.



Kitchen Setup

The Power Window provides access to all of the exhaust components controlled by the TruFlow. These include canopy lights, fan on/off, summer/winter and override settings.



Fan Status. When system is on, fan icon rotates.



Canopy Lights Touch this icon to turn on and off the canopy. When the lights are on the bulb is yellow.



Kitchen Start

Touch ON/OFF button to start/stop Kitchen



Summer/Winter.

Touch icon to switch between summer and winter mode.

When in winter mode, makeup air burner will activate as required to maintain makeup air temperature.



Manual System Operation.

Touch 'ON' button to operate exhaust system manually.

When manual operation is engaged, there will be a green line above

Automatic start/stop times can be setup in the **Primary Toolbox**. See page 15 for instructions on how to set

Override Timer

Touch icon to access Override Timer window to adjust the length of Override time.



Touch the dark green field next to minutes.

Type the time, in minutes, the Override should run for using the pop-up keyboard.



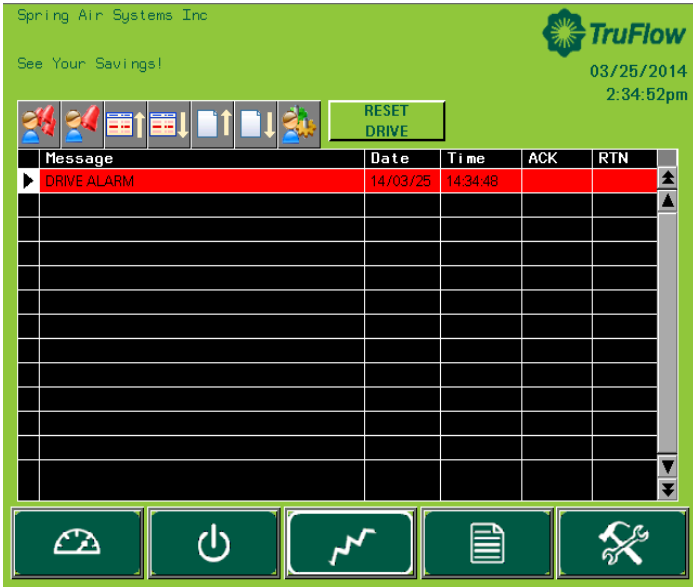
Touch OK to return to **Power** window.

Multiple Kitchen Display:



Alarm Status Window

The Alarm Status window provides a list of current and previous alarms that have been recorded by the TruFlow. You will need to go to this screen to clear alarm. Unacknowledged alarms will show in red on the list; acknowledged alarms will be yellow or green.



Acknowledge All Alarms icon
Touch this icon to acknowledge all active faults.



Acknowledge Alarms icon
Touch this icon to acknowledge only the highlighted active fault.



Scroll Up one line
Touch this icon to scroll the page up by one line.



Scroll Down one line
Touch this icon to scroll the page down by one line.

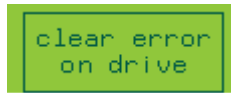


Scroll Up one page
Touch this icon to scroll the page up by one page.



Scroll Down one page
Touch this icon to scroll the page down by one line.

Clear errors on VFD.



Touching this icon to clear the drive errors.

Alarms (errors) will also be recorded on the VFD. Some alarms also require the VFD to be restarted. For a list of errors that require the VFD to be restarted prior to touching **clear error on drive**, see Appendix L.

The exception to this is Thermal Start alarms and J-Couple Trouble alarms. These alarms will not be recorded on the VFD.

Unless directed to do by an authorized service agent, or Spring Air Systems, do not turn off power to the TruFlow Lite Touchscreen. Turning off the power to the TruFlow Lite Touchscreen will cause all recorded alarm messages to be deleted.

Alarm Status Window



Alarm Messages



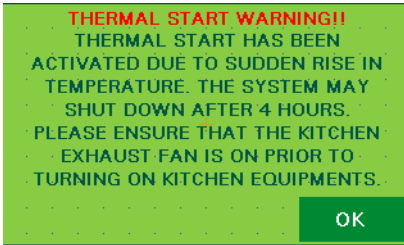
When an alarm that requires immediate attention or action occurs, the screen will change to red with a yellow exclamation mark. These types of alarm include certain drive errors where the VFD cannot reset automatically, and catastrophic equipment failures (exhaust fan or makeup air unit not running).

Touching the screen anywhere and opens the **Alarm** window. The current alarm message including the date, time, state and whether the alarm has been acknowledged. There will also be an explanation of the cause of the alarm.

Once the cause of the alarm has been corrected, it can be acknowledged by touching the Acknowledge fault icon and then the Clear Error On Drive button to resume normal operation. .

Current alarm messages will be highlighted in red. Alarms that have been acknowledged but not cleared will be highlighted yellow. Alarms that have been both acknowledged and cleared will be highlighted in green.

Thermal Start



The TruFlow Lite will automatically turn on the exhaust and supply fans when a threshold temperature under the hood is reached.

When this occurs, the window shown left will popup.

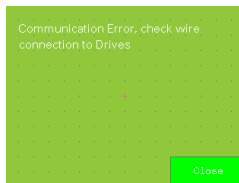
Touch **ok** to exit the thermal start warning window.

Be sure to turn the fans on manually, or switch operation to schedule for continual operation. If you do not, the thermal start will turn the system off after four hours, and this process will begin again.

J-Couple Cable Trouble

J-Couple Cable Trouble errors occur when the J-couple cable has been unplugged. This alarm will cause the TruFlow Lite to operate on high (100%) until the cable is plugged back in.

Example Error Popups



Typical fault displayed on **Alarm** window after MODbus, Comm Port or Comm alarm.

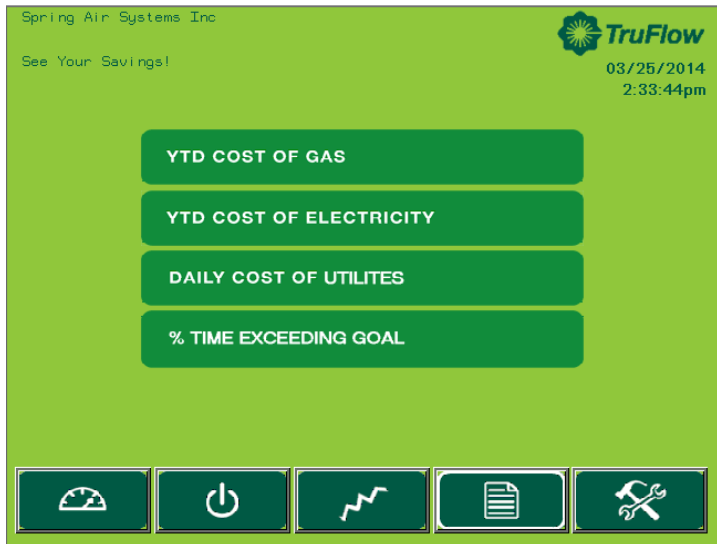


Typical fault displayed on **Dashboard** window after surface fire suppression activates.



Report Window

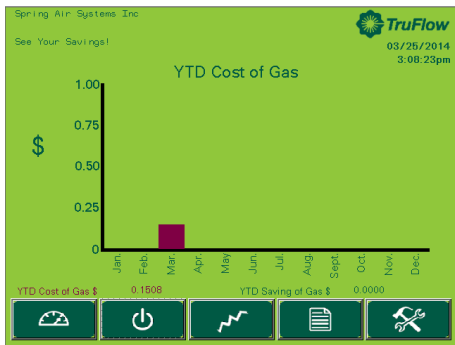
The Report Window provides access to reports generated using gas and electricity rates as entered by you. **For accurate reports, make sure gas and electricity rates are kept up-to-date.** These rates can be changed in the **Primary Toolbox** window.



The reports available are listed on the window.

Touch any **bar** to view the reports named.

YTD Cost of Gas

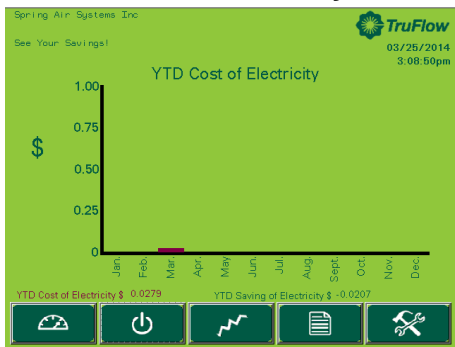


The YTD Cost of Gas report is a chart of the cost of gas in dollars for the month. The cost of gas includes the cost to heat the kitchen makeup air during winter operation.

YTD Cost of Gas \$ 0.5945

Year to Date Cost of Gas is the accumulative gas cost

YTD Cost of Electricity



The YTD Cost of Electricity report is a chart of the cost of electricity in dollars for the month. The electricity cost includes the cost to run any motor connected to the TruFlow and the cost to air condition the kitchen during the summer, if any.

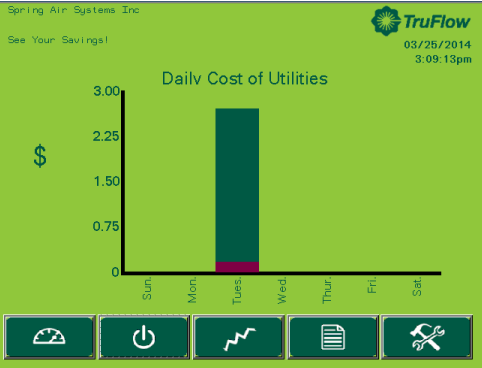
YTD Cost of Electricity \$ 0.0000

Year to Date Cost of Electricity is the accumulative electricity cost



Report Window

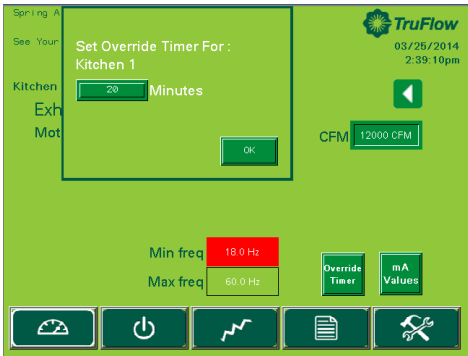
Daily Cost of Utilities



DAILY COST OF UTILITIES

The Daily Cost of Utilities report is a chart of the daily cost of gas and electricity in dollars for the day of the week. The daily costs combines electricity and gas.

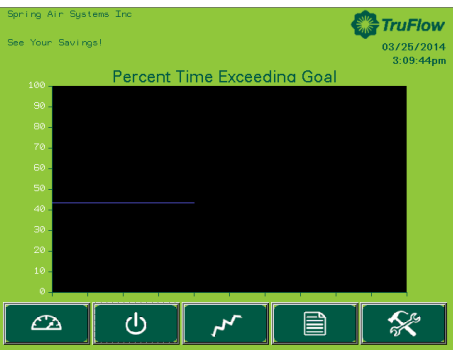
% Time in Override



% TIME IN OVERRIDE

The % Time in Override graph plots the percentage of time in override vs the total time of operation.

% Time Exceeding Goal



% TIME EXCEEDING GOAL

The % Time Exceeding goal graph plots the percentage of time you have exceeded your Energy Reduction Goal vs the total time of operation.

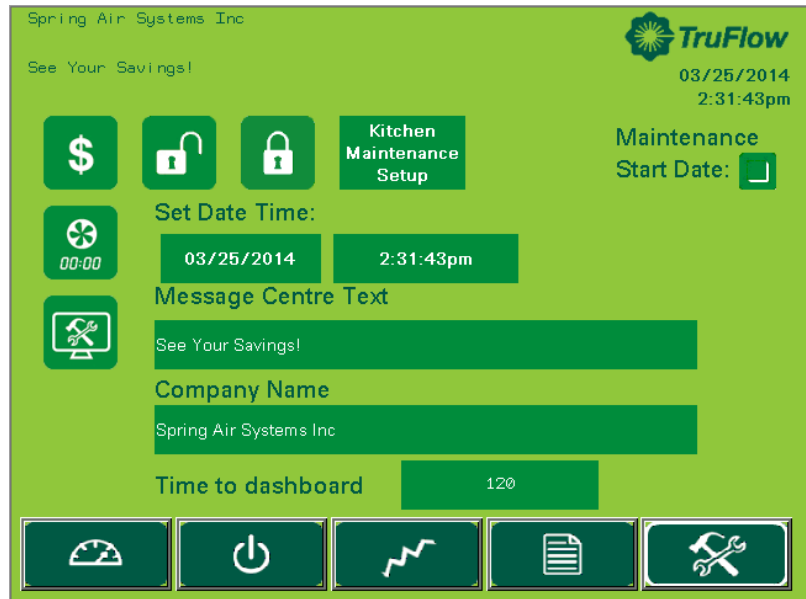
If the value is above zero you are exceeding your Energy Reduction Goal.

Some TruFlows have a built-in Auto Goal Setting feature. The Truflow will analyze the rate of change of the percentage of time exceeding goal and automatically increase your Energy Reduction Goal to increase energy savings.



Primary Toolbox Window

The Primary Toolbox window allows you to update the utilities costs, make changes to the date, time, Message Center and Company Name, automatic on/off times, along with the time to dashboard, and water wash timer (if equipped).



Changing Date and Time

Touch the dark green field with the date.



Touch the dark green field next to Month, Day or Year.



Type the new information in the pop-up keyboard. Touch **enter** to return to Set Date window.

Touch the dark green field with the time.



Touch the dark green field next to Hour or Minute



Type the new time using the pop-up keyboard. Touch **enter** to return to Set Date window.

Touch **OK** to save changes or **Cancel** to delete and return to the Primary Toolbox window.



Primary Toolbox Window



Changing Message Centre Text

Touch the dark green field to change **Message Centre Text**.



Type new text using the pop-up keyboard. Touch **Enter** to save or **ESC** to cancel and return to the **Primary Toolbox** window.



Changing Company Name

Touch the dark green field to change **Company Name**.



Type new Company Name using the pop-up keyboard. Touch **Enter** to save or **ESC** to cancel and return to the **Primary Toolbox** window.



Changing Time to Dashboard

Touch the dark green text box to adjust the number of seconds before TruFlow view changes back to **Dashboard** window.



Type the new setting (in seconds) using the pop-up keyboard. Touch **enter** to return to **Primary Toolbox** window.



Changing Language to French

Touch the dark green box besides French to switch to the French language.



Primary Toolbox Window – Energy Reduction Goal Setup

Setting up and changing the Energy Reduction Goal and utilities costs.

The Energy Reduction Goal is set by you. It is the percentage of energy you would like to save by turning down or off unused appliances. Once these appliances are turned off, the temperature in the hood will drop, allowing TruFlow to slow down the exhaust fan(s) and makeup air. Setting up your Energy Reduction Goal and setting guidelines for staff to turn down or off appliances is key to getting the most savings.



Touch the **Energy Reduction Goal Setup** icon to access the Energy Goal Setup window.



Change Reduction Goal



Touch the dark green text box.



Type the reduction goal percentage in the pop-up keyboard.

Touch **Enter** to return to Energy Goal Setup window.

Change Gas Cost



Touch the dark green field.



Type the gas cost based on \$/thm (\$/1,000,000 btu's) using the pop-up keyboard.

Touch **Enter** to return to Energy Goal Setup window.

Change Electricity Cost



Touch the green text box.



Type the electricity cost based \$/KWH using the pop up keyboard.

Touch **Enter** to return to Energy Goal Setup window.



Primary Toolbox Window – Energy Reduction Goal Setup

Air Conditioning Cost



Touch **A/C** icon when the kitchen makeup air is cooled.

When summer mode is selected on the **Power** window, additional electricity costs will be included in the energy usage calculations for air conditioning.



Touch **A/C** icon to de-select air conditioning if none is available.

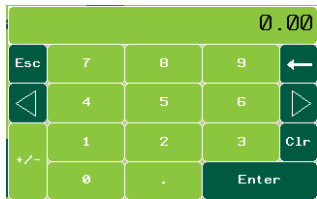
Time-of-Use Electricity



Touch the checkbox if your electricity rate increases during peak periods of the day. When Time-of-Use Electricity is selected, additional setup options become available.



Touch the dark green field besides **Cost**.



Type the rate based on \$/kWh using the pop-up keyboard.

Touch **enter** to return to Energy Goal Setup window.



Touch **up/down** icons to change the hour and minute of day the peak electrical rate starts.

Touch **up/down** icons to change the hour and minute of day the Peak electrical rate ends.

Touch **AM/PM** icon to adjust time of day.

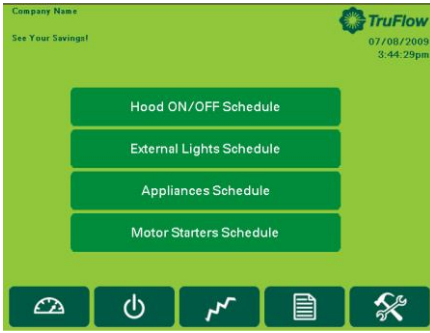


Touch the **Primary Toolbox** icon to exit Energy Goal Setup window.



Primary Toolbox Window – Automatic Start/Stop Setup

Setting the automatic Start/Stop Times



The automatic schedule is useful if you would like your exhaust system, external lights, appliances and motor starters to turn on and off at a set time each day. You can set up a different automatic start and stop time for each day of the week, and each lighting zone/appliance/motor starter. You will need to set an automatic start/stop time for every day of the week you will *not* be operating the exhaust system in manual (HAND) mode.

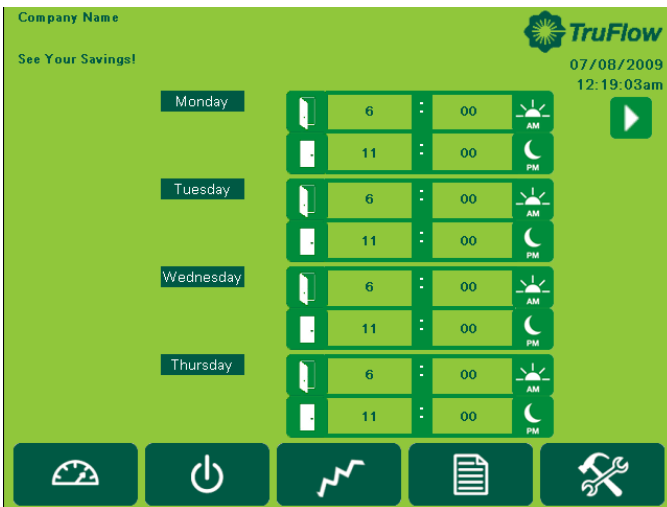


From the **Primary** Toolbox window, *Touch Automatic Schedule* icon.

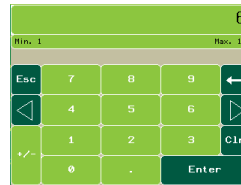
The screen will change to the Automatic Schedule window if your TruFlow controls fans with variable frequency drives only.



If your TruFlow also controls your appliances, zone lights, or exhaust fans with motor starters, you will need to also touch the **Hood ON/OFF Schedule** bar after *touching the Automatic Schedule* icon.



Touch the light green fields next to the open door to set the hour and minute for the exhaust system to turn on. The first field is for the hour (6 in the example) and the second field is for minute (00 in the example).



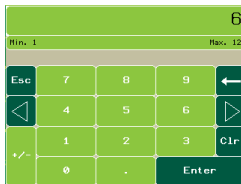
Using the pop-up keyboard, *type* the number for the time. *Touch enter* to return to the Automatic Schedule window.



Touch the **am/pm** icon change.



Touch the light green field next to the closed door to set the hour and minute for the exhaust system to turn off. The first field is for the hour (11 in the example) and the second field is for the minute (00 in the example).



Using the pop-up keyboard, *type* the number for the time. *Touch enter* to return to the Automatic Schedule window.



Touch the **am/pm** icon to change.



Touch the **next page** icon to set the times for Friday, Saturday and Sunday.

If you want the hood to stay turned off on a particular day, set the on and off times to the same. For example, if you are not open Sundays, set Sunday's opening and closing time to 12:00 a.m.



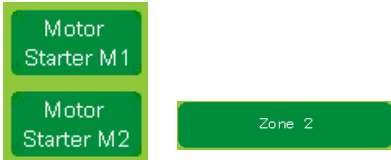
Primary Toolbox Window – Motor Starters Schedule

Setting the automatic on/off times for exhaust fans running on motor starters.

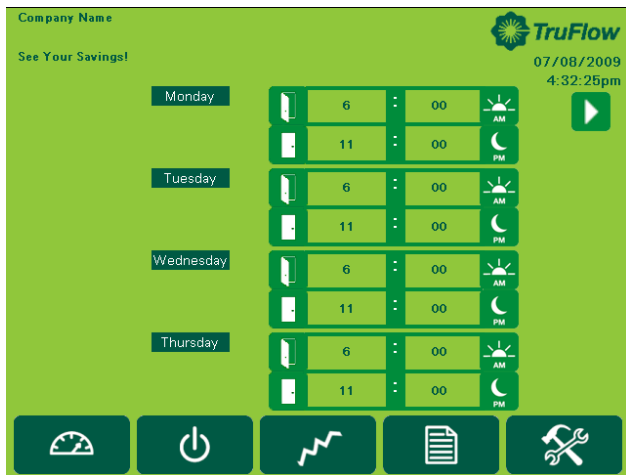


Touch the **Motor Starters** bar to switch to the Motor Starters Schedule window.

Touch the motor starter button to turn on or off the automatic schedule.



Touch the **motor starter** bar you would like to .set up a schedule for. Your motor starters will be name at the time of startup (i.e. Dishwasher rather than Zone 1).



Touch the light green fields next to the open door to set the hour and minute for the motor starter to turn on. The first field is for the hour (6 in the example) and the second field is for minute (00 in the example).



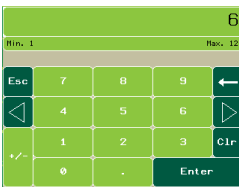
Using the pop-up keyboard, *type* the number for the time. Touch **enter** to return to the Motor Starters Schedule window.



Touch the **am/pm** icon to change.



Touch the light green field next to the closed door to set the hour and minute for the motor starter to turn off. The first field is for the hour (11 in the example) and the second field is for the minute (00 in the example)



Using the pop-up keyboard, *type* the number for the time. Touch **enter** to return to the Motor Starter Schedule window.



Touch the **am/pm** icon to change.



Touch the **next page** icon to set the times Friday, Saturday and Sunday.

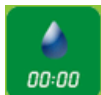
Repeat these steps for each motor starter you want to automatically turn on and off.

If you want a motor starter set on an automatic on/off schedule to stay turned off on a particular day, set the on and off times to the same. For example, if you are not open Sundays and do not want the motor starters on, set Sunday's opening and closing time to 12:00 a.m.

Touch **OK** to return to the Automatic Schedule window.

Optional Water Wash Sequence(s) setup.

If your hoods are equipped with a water wash system, you can adjust the length of time after the exhaust system is turned off before the wash cycle will turn on and how long the wash sequence will run for. A different setting can be set for up to three different water wash systems as long as they are connected to the TruFlow control panel. These settings are adjusted by your Spring Air Systems authorized service technician at the time of startup; however you can adjust them as needed.



Touch the **water wash timer** icon to access the Water Wash Timer window.

System Name	Sequence 1		Sequence 2		Sequence 3	
	Delay	Wash	Delay	Wash	Delay	Wash
	(Sec)	(Sec)	(Sec)	(Sec)	(Sec)	(Sec)
Kitchen 1	120	120	0	0	0	0



Touch the dark green field beneath the delay time for the sequence you are setting up.

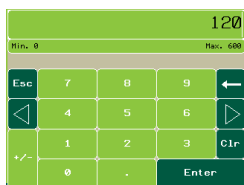


Using the pop-up keyboard, *type* the length of time (in seconds) after the exhaust system has been turned off before the wash sequence will run.

Press **enter** to return to the Water Wash Timer window.



Press the dark green field under the wash time for the sequence you are setting up.



Using the pop-up keyboard, *type* the length of time (in seconds) after the wash sequence should run for.

Press **enter** to return to the Water Wash Timer window.

Repeat these steps for each water wash system connected to the TruFlow.

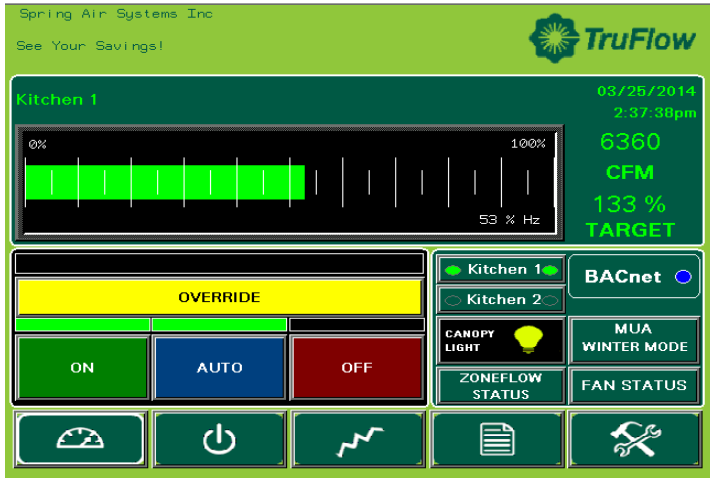
Press **OK** to return to the Primary Toolbox window.

The wash cycle will run when the exhaust fan is turned OFF.



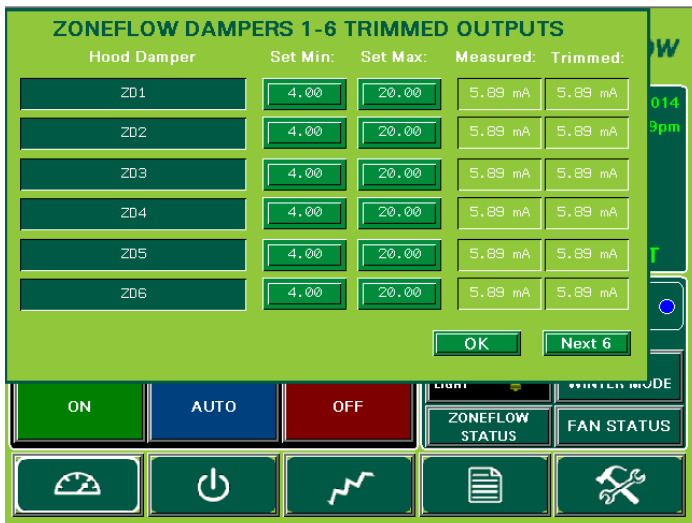
A blinking water drop will show on the Dashboard window when the wash sequence is running. The number in the water drop indicates which number sequence is currently running.

Zoneflow Status



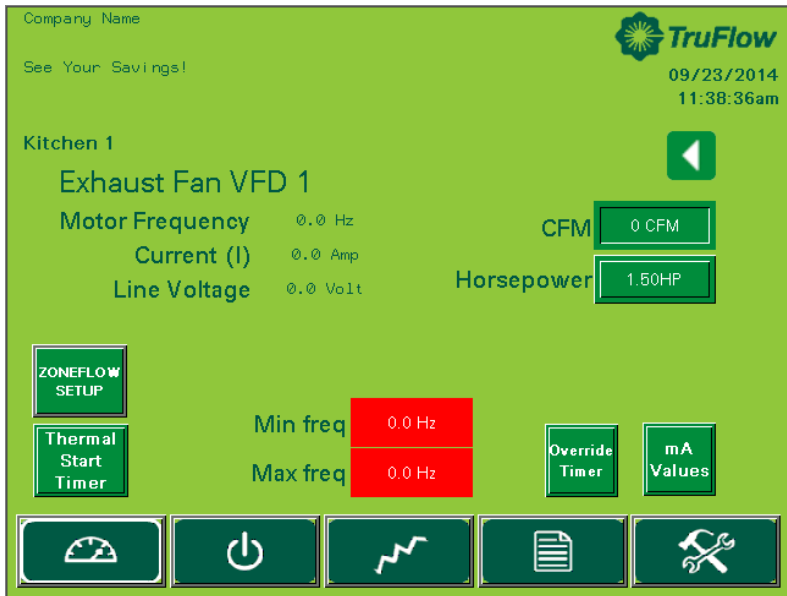
Zoneflow Status Screen

From the Dashboard screen, *touch* the Zoneflow Status icon. A new screen will appear showing Zoneflow Dampers 1-6 Trimmed outputs. First column shows damper name, second and third columns allow manual trimming for minimum and maximum set value. Fourth column shows the measured value from the J-couples and PID control. Fifth column shows what is being sent to Zoneflow damper. All numerical values are MA values. 4 MA represents closed damper and 20 MA represents open damper. On shutdown, normal position for Zoneflow dampers are 100% open, 20 MA. Also on a surface fire trip, the Zoneflow dampers will fully open at 20 MA. When system is set to override, the zoneflow dampers go to maximum set value.



Zoneflow Dampers

Zoneflow Dampers



Zoneflow Dampers

Zoneflow Damper setup is accessed from the fan status screen. When fan is not running and the service technician has logged into administration screen. CFM for each damper damper is entered on the damper screen. Each Truflow systems are capable of controlling 12 dampers. They are identified as ZD1 through ZD-12. Individual names can be assigned by touching ZD # and inputting required description. CFM's can be entered or edited by touching the box to the right of each ZD - # damper

