



CRESCENDO™ AUTO DRAW-OFF SYSTEM 3RD EDITION INSTRUCTION GUIDE

MAKE AWESOME MAPLE SYRUP.



QUICKER.

Consistent draw-offs will help your evaporator run more smoothly. Also, vital information to monitor your syrup's progress will be available at a glance, allowing you to reduce the frequency of tedious hydrometer readings.



SAFER.

Overcooking a pan full of syrup — or worse, scorching and warping a pan — is a costly mistake. With the Crescendo Auto Draw-Off System, an alarm will sound if the syrup temperature exceeds your safety setting. Also, the Crescendo Accessory Outlet can be used to activate additional warning and/or defense systems in case of an emergency. This versatile feature takes safety to new heights.



SMARTER.

Smoky Lake Maple Products has built a reputation for itself through unparalleled quality, beautiful craftsmanship and intelligent design. We confidently stand behind every one of our auto draw-off units with a two-year limited warranty and personal customer support. You have made a smart investment.

This Is What It Boils Down To™.

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WARNINGS



WARNINGS

-  Electrical hazard. Keep moisture away from the electrical outlets.
-  Never immerse electrical components in water. To clean, unplug and wipe with a clean, damp rag.
-  Never put fingers or other foreign objects into the opening of the Automated Draw-Off Valve or into any outlets.
-  Extreme heat can damage the Command Center and/or the Automated Draw-Off Valve's control head. Position both the Command Center and Automated Draw-Off Valve's control head as far from the heat as possible.
-  In your first draw off of the day, it is recommended to verify the density of the syrup with a hydrometer and Murphy Cup.
-  Make sure that sap is fully covering the floor of your pans at all times. Lack of liquid during a boil will damage your pans.
-  Wear protective gloves, apron, goggles, etc., to prevent burns while working near hot maple sap/syrup and hot equipment.
-  Opening or tampering with internal mechanisms of the Command Center or making other alterations to this equipment will void warranty.
-  The Crescendo Auto Draw-Off System may cause feelings of invincibility. However, never leave your evaporator unattended. You are still in command. The Crescendo is your assistant.
-  Smoky Lake Maple Products, LLC can not be held responsible for malfunctions, damages, injuries or loss of revenue occurring as a result of improper usage of the equipment or general lack of supervision of the evaporator. For details of warranty and coverage, visit us at SmokyLakeMaple.com/terms.



COMPONENTS

COMPONENTS

1

Command Center.....

Durable, customizable and easy to use.

2

Syrup Probe.....

These specialized, food-grade, stainless steel probes are designed and assembled by the elite American manufacturer, Auber Instruments. Auber is known and trusted worldwide for their high-quality precision instruments. The Syrup Probe's connection wires are well marked, and the cord offers an ample 20' of reach.

3

Probe Fitting.....

These fittings are durable stainless steel. They allow you to easily adjust depth and tightly secure the position of your Syrup Probe on any evaporator pan with a 1/4" port.

4

Automated Draw-Off Valve (Model SL3P).....

Each ball valve is 100% stainless steel, NOT nickel plated. Full port opening allows maximum syrup flow when necessary. Unlike traditional solenoid valves, the SL3P valve offers a soft opening and closing action which subdues syrup surging and mixing.



Valve Control Head
(Actuator)

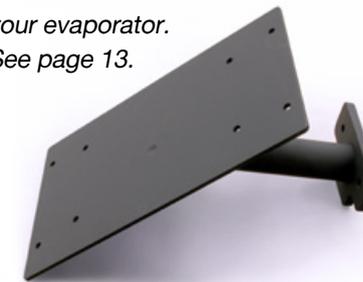
OPTIONAL VALVE ASSEMBLY



For more details, see page 16 of this manual or contact us at SmokyLakeMaple.com.

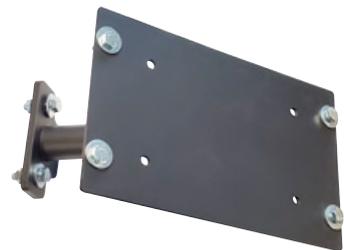
OPTIONAL EVAPORATOR MOUNT

Conveniently secures your Command Center onto your evaporator. See page 13.

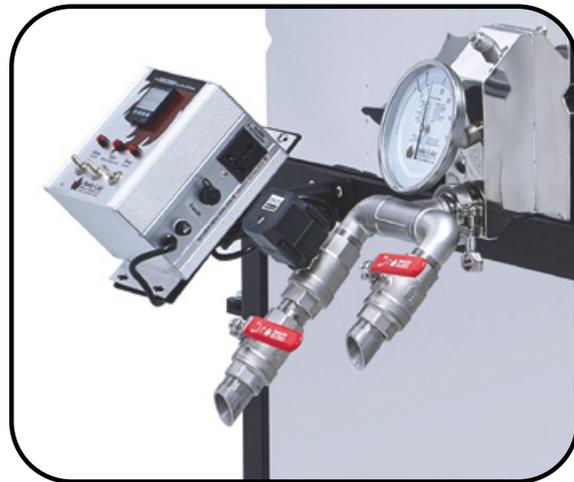




GENERAL SETUP



The optional Smoky Lake Evaporator Mount conveniently and safely secures the Command Center to the side of your evaporator.



GENERAL SETUP

Included:



Other:

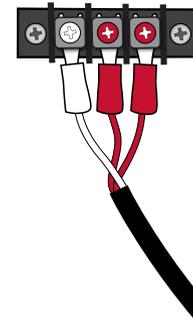


1 Mount the Command Center near your evaporator's finishing pan.

- ✓ The photos on page 13 demonstrate the optional Smoky Lake Evaporator Mount.
- ✓ Position within your line of sight
- ✓ Within reach for the Syrup Probe and the Automated Draw-Off Valve
- ⊘ Keep away from moisture
- ⊘ Keep away from excessive heat

2 Connect Syrup Probe to the Command Center.

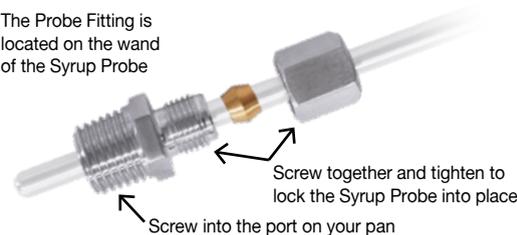
- Loosen the three center screws on the Probe Connection Bracket on the Command Center.
- Slide each wire from the Syrup Probe underneath its corresponding screw. (The two red wires are interchangeable.)
- Retighten the screws.



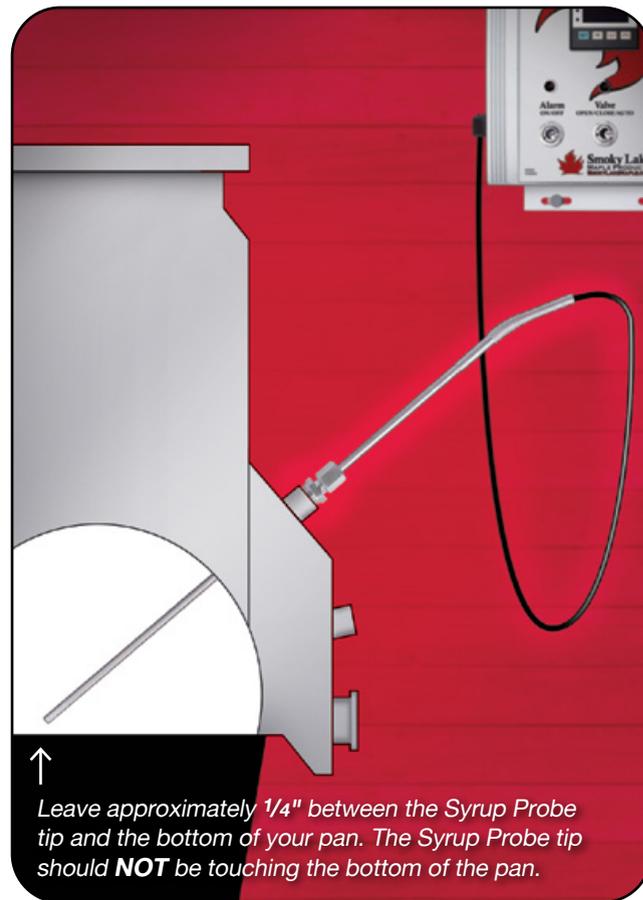
3 Connect the Syrup Probe to your evaporator.

- The Probe Fitting is made up of three parts. Arrange these parts on your Syrup Probe as shown below.

The Probe Fitting is located on the wand of the Syrup Probe



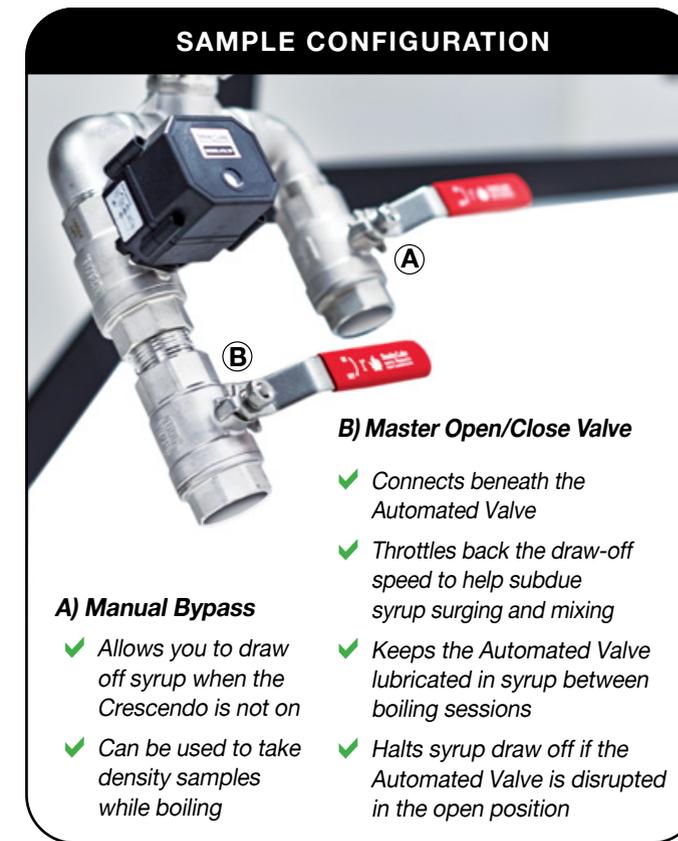
- Insert the stainless steel wand of the Syrup Probe into your pan's thermometer port or auto draw-off port. (The port is located where the syrup is drawn off of the evaporator.) Then screw the bottom of the Probe Fitting into the port.
- Make sure the tip of the wand is within 1/4" of the bottom of your pan, but NOT touching the bottom of the pan. Then screw the top and bottom stainless steel pieces of the Probe Fitting together. Tighten gently with a crescent wrench to secure the Syrup Probe's position. Overtightening will result in lack of adjustability.



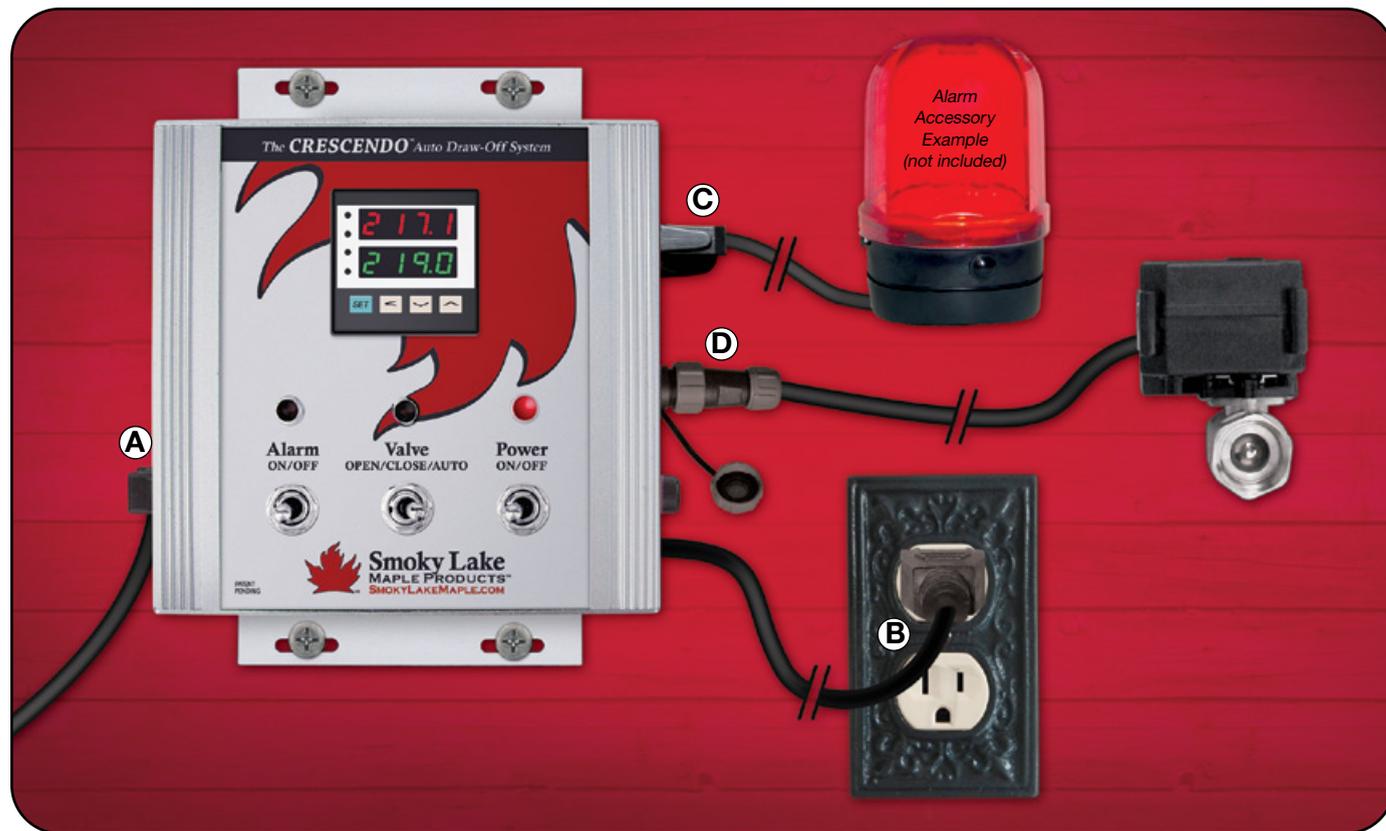
4 Mount the Automated Draw-Off Valve to your evaporator pan's draw-off port. (Mounting configurations may vary based on different evaporators or personal preferences.)

Regardless of your configuration, please note the following points:

- We recommend Teflon plumber's tape on all connection threads to ensure a watertight seal and to prevent thread binding.
- Never** pull or put pressure on the Valve Control Head. Instead, grip the stainless steel part of the Automated Draw-Off Valve with a wrench to tighten.
- Your mounting configuration should include a Master Open/Close Valve and Manual Bypass as illustrated in the sample configuration to the right.
- Using the Master Open/Close Valve as a throttle, strive to draw off syrup in a slow, controlled stream. Make your draws as long and continuous as possible. This will help boost syrup quality and efficiency of operation.



▲ To learn more about this **Auto Draw-Off Valve Assembly**, visit us at SmokyLakeMaple.com.



A) Connection for Syrup Probe
B) Command Center connects to power outlet

C) Accessory Outlet that activates with alarm
D) Connection for Automated Draw-Off Valve (Model SL3P)

5

Connect the Automated Draw-Off Valve to the Command Center.

- Unscrew the cap on the round outlet on the Command Center.
- Line up the three pins inside the plug with the three holes inside the outlet and insert until snug.
- Secure the plug to the Command Center by pulling up on the plug's outer sheath and screwing it onto the outlet.

6

Plug the Command Center into a power outlet and flip the power switch to the ON position.

Then wait 10 seconds as it boots up and runs through its calibration screens.

7

Flip the valve control switch on the Command Center to AUTO for automatic operation.

(Check your system's temperature settings before relying on the AUTO mode.)



Temperature Accuracy Tip: Between boils, clean the tip of the Syrup Temperature Probe.

VALVE MAINTENANCE

It is critical to clean the ball valve portion of your Automatic Draw-off Valve regularly. Especially when boiling RO-concentrated sap or when operating a Smoky Lake High Output pan set, the ball of the valve naturally accumulates crystallized sugarsand, inhibiting free movement, and causing early fatigue of the actuator.

To clean the valve, use a 2 1/2 mm allen key to separate the valve from the actuator. (Fig A) The actuator remains tethered to the power cord and cannot get wet.

Then, use a pliers to rotate the stem of the valve (Fig B) so that the ball is roughly half open (Fig C). Soak the valve/fittings in a 50/50 mixture of white vinegar and water overnight if possible, or at least for a few hours. Rinse, wipe dry, and reassemble. You are all set.

Fig A



Fig B



Fig C





DRAW-OFF SETTING

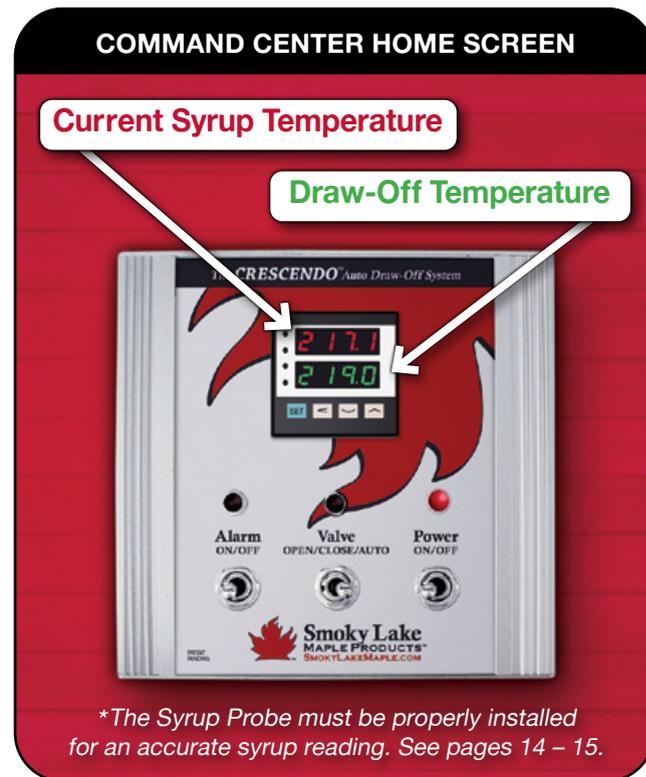
DRAW-OFF SETTING

Your Crescendo Auto Draw-Off System came from the factory with a draw-off setting of 219°F (displayed in green). In most cases this will be a good starting point for your draw-off temperature. However, personal preferences as well as environmental factors can make the ideal temperature fluctuate.

The easiest way to determine your ideal temperature is to use a hydrometer and Murphy Cup to test the density of your first syrup drawn off and then make adjustments accordingly.

For example, if you draw syrup off at 219°F and then determine that the syrup is more dense than desired, customize your draw-off setting to be **lower** than 219°F.

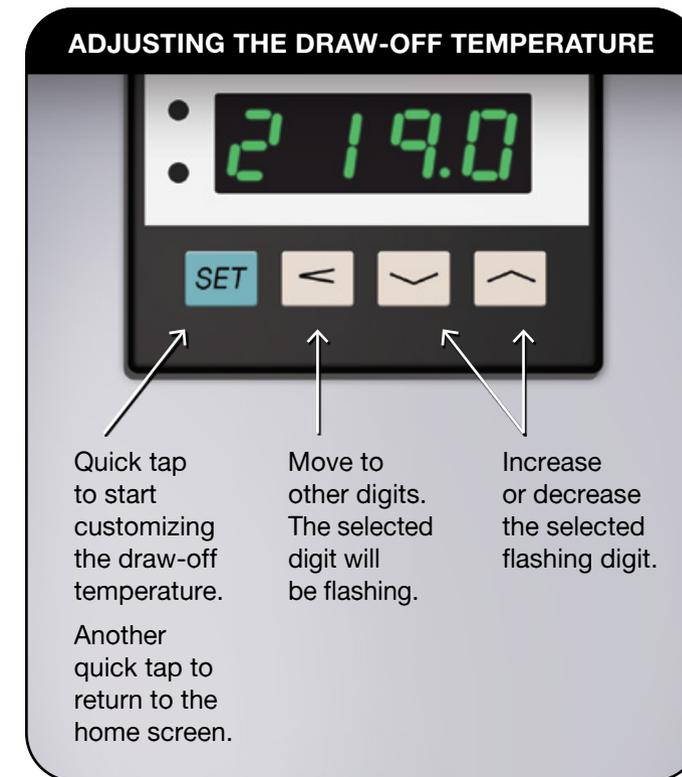
NOTE: To reclaim perfect density of syrup that has been boiled a little too long, slowly mix sap or distilled water into the syrup until its density meets your satisfaction.



To customize draw-off temperature:

NOTE: Perform the General Setup before customizing your draw-off setting. See pages 12 – 18.

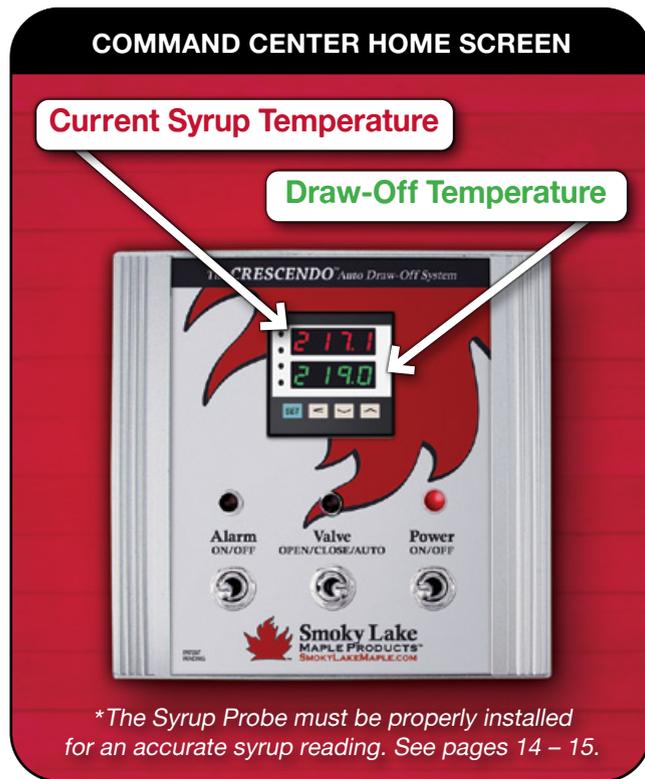
- 1 Give the SET button on the Command Center one quick tap. Then use the up and down arrow buttons to adjust the temperature in increments of a tenth of a degree.
- 2 To make larger adjustments to temperature, use the left arrow button to move to other digits. You can then adjust those digits with the up and down arrow buttons.
- 3 Give the SET button a quick tap to return to the main screen.





SAFETY SETTING

SAFETY SETTING



All Smoky Lake Maple Products Auto Draw-Off Systems come with a built-in audible alarm. The factory preset will sound the alarm if your syrup's temperature exceeds your draw-off setting by 3°F or more. You can, however, easily customize this safety setting to sound the alarm at a different temperature as described below.

To customize the alarm safety setting:

NOTE: Perform the General Setup before customizing your safety setting. See pages 12 – 18.

- 1 First, take note of your draw-off temperature setting, displayed in green on the home screen of the Command Center (see illustration to the left). Then, hold the SET button for 4 seconds. The number that will appear is the differential between your draw-off temperature and your alarm temperature. For example, if your draw-off temperature setting is 219°F and your alarm setting is 3, that means the alarm will sound at 222°F (219° + 3 = 222°).

- 2 Adjust the flashing digit as you desire using the up and down arrow buttons. Move to other digits using the left arrow button.

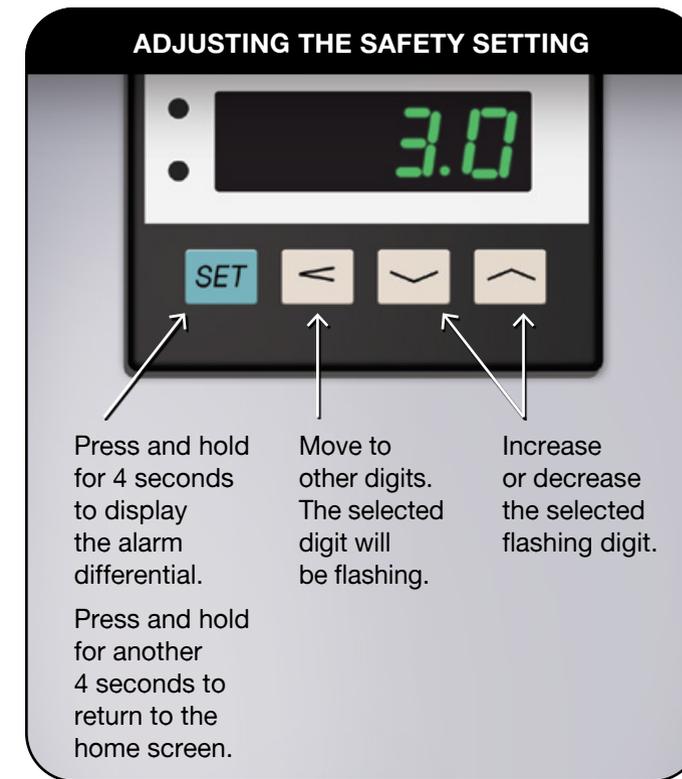
NOTE: Setting the differential to 0 will make the alarm sound whenever syrup is being drawn off.

- 3 Hold the SET button for 4 seconds to return to the home screen OR after 30 seconds, the computer will automatically return to the home screen on its own.

*NOTE: You can NOT give the SET button a quick tap to return to the home screen. Instead, a quick tap in this mode would take you to the LCY display screen. **The LCY value should always be zero.***



If the audible alarm sounds while you are boiling, give your evaporator immediate attention. See pages 35 – 36 for more information.





ACCESSORY OUTLET

ACCESSORY OUTLET

As discussed in the previous chapter, an audible alarm will sound whenever temperatures in your front pan reach or exceed your safety setting. In addition to the audible alarm, your Crescendo Accessory Outlet can activate an auxiliary device as well. An auxiliary device can perform a multitude of helpful functions and its use is limited only by your imagination. (See page 30 for two great ideas.)

To use the Accessory Outlet:

- 1 Adjust your safety setting to determine when your auxiliary device will activate (see pages 25 – 26).
- 2 Plug your desired auxiliary device into the ALARM/ACCESSORY outlet on the right side of the Command Center (see illustration to the right).
- 3 Flip the ALARM switch on the front of the Command Center to the ON position.



If the auxiliary device activates while you are boiling, give your evaporator immediate attention. See page 36 for more information.

Ideas for usage:



Automatically activate a visual alarm — such as a bright light — whenever the alarm sounds.

This solution is perfect in scenarios where an audible alarm cannot be heard easily.

- Overcome environments containing other loud noises.
- Assist operators who are hearing impaired.
- Alert helpers who are outside the boiling room (assuming you mount the light in a place where it can be seen).



Automatically add more sap whenever the alarm sounds.

If your syrup gets much too dense or if there is not enough liquid covering the floor of your pan, this could result in serious damage to your pan. In either scenario, it would be imperative to add more sap to the pans right away to help prevent warping or scorching.

- Using plumber's tape, attach a power-activated valve to the draw-off port on a feed tank (sold separately).
- Plug the power-activated valve into the Accessory Outlet on the Command Center.
- Fill the feed tank with raw sap or water. Position the tank so that if the Command Center's safety setting is activated, the sap will be released into the evaporator pan.



FREQUENTLY ASKED QUESTIONS

FREQUENTLY ASKED QUESTIONS

GENERAL QUESTIONS...



How do I purchase extra fittings or spare parts?

If you are seeking additional fittings or spare parts, contact an authorized Smoky Lake dealer or visit us at SmokyLakeMaple.com.



What can I be doing to properly maintain my Crescendo during and after the maple season?

Clean the Syrup Probe with a piece of emery cloth to remove all sugar sand deposits. This will ensure continued accuracy.

Clean the Automated Draw-Off Valve by removing the valve from the Control Head (AKA Actuator) and soaking it. This will keep the valve operating freely, and reduce strain on the Automated Draw-Off Valve's Control Head. NEVER immerse the Control Head in water. Details on page 18.



Why does the Crescendo Auto Draw-Off System monitor syrup temperature?

Boiling temperature is an indicator of your syrup's density. Maple syrup finishes at 7°F above the boiling point of water, about 66.9% sugar density. Note that the boiling point of water can fluctuate based on elevation, barometric pressure, and other variables.



Why isn't my auto draw-off showing the correct syrup temperature?

To narrow down the problem, select one of the following three symptoms shown in bold.

1) **The number on the Command Center is bouncing around.**

- Clean the Syrup Probe
- Adjust the Syrup Probe's position so that its tip is within 1/8- to 1/4-inch of the bottom of the pan. Note that it should NOT be touching the bottom of the pan.

- Adjust the depth of the sap in your evaporator pan so that at least 1 1/2 inches of the Syrup Probe is immersed at all times.
- Remove any other tools or elements which could be influencing or creating the temperature fluctuations.
- Make sure the Syrup Probe is connected to the command center securely.
- Make sure the Syrup Probe's cord is not leaning up against the evaporator or is not otherwise damaged/melted.

2) **The temperature is consistently higher or lower than what I believe it should be.**

The boiling point of your syrup is influenced by barometric pressure, altitude, etc. This means your syrup will NOT always reach perfect density at 219°F. You may need to make adjustments to your draw-off setting each day due to the way atmospheric pressures are affecting the boiling point. Use a Murphy Compensation Cup and hydrometer to verify density and draw-off temperature.

That being said, the auto draw off temperature reading is customizable and can be adjusted to your preference. See our instructional video at SmokyLakeMaple.com/ado-temp

3) **The screen is showing dashes at high temps.**

This could be a problem with the wire connection. Flip flop the connection wires. In other words, instead of connecting the red wire into the red screw. Try connecting a red wire to a white screw. This will determine whether or not the colored screws had been seated in the opposite connection port by accident.

If and only if you have ruled out any problem with the connection, there is a possibility that the probe may need to be replaced. Smoky Lake Maple Products offers a 2-year limited warranty. Contact us at SmokyLakeMaple.com/repair-request for personal technical support. Please note that you may need to provide a dated copy of your receipt for replacement parts to be covered under warranty.

DRAW-OFF QUESTIONS...



Why is my syrup temperature rising during draw off?

It is very common for the temperature to rise about 2°F above the set point on the first draw off of the day due to some mixing that may have occurred since your last boiling day. The temperature may rise slightly during subsequent draw offs too, but not as much.

If the syrup temperature consistently rises too high for your preferences, lower the system's draw-off temperature setting so that it starts drawing off syrup sooner.



When does the Automated Draw-Off Valve close?

The valve will automatically close when the syrup temperature is 0.2°F below your draw-off setting. This is the factory preset and is in place to prevent short cycling.

ALARM QUESTIONS...



How do I know if the syrup is too hot?

Your syrup's current temperature is displayed in red on the Command Center. The boiling temperature of maple syrup gets higher as it becomes more dense. It is done boiling when it reaches 7°F above the boiling point of water. *(Note that the boiling point of water will fluctuate based on environmental factors.)*

An audible alarm will sound when your syrup temperature reaches or exceeds your safety setting. The factory preset for this safety setting is 3°F above your draw-off temperature.



How do I silence the alarm?

You can silence the alarm by flipping the Command Center's alarm switch to the OFF position. If you do not do this, the alarm will turn itself off when the syrup temperature drops back below your safety setting.

Silencing the audible alarm will NOT deactivate your accessory device.



What should I do when the alarm sounds and/or my auxiliary device activates?

Immediately decrease the heat in the firebox — turn off air blowers, reduce draft and/or turn off the gas/oil burners — and then analyze the situation.

- First, make sure there is at least 1 – 2 inches of syrup depth in your front pan. If not, add sap immediately to prevent scorching/warping.
- Inspect the draw-off valve.
- Check/increase your float box's sap depth (if applicable).
- Make sure all valves connecting the front and back pan are open and clear (if applicable).
- Make sure there is still sap in your head tank feeding the pans.
- Add a drop of defoamer to the pan.

It is impossible to anticipate and address every possible scenario in this guide. Always monitor sap availability, sap/syrup depths and syrup temperatures in order to protect your syrup and your equipment.

If your syrup is **NOT** excessively hot but the alarm is sounding anyway, you may need to adjust your alarm's safety setting as explained on pages 25 and 26. Also, check the connections between the Syrup Probe and the Command Center to make sure they are secure.

NOTE: Smoky Lake Maple Products, LLC offers Sight Glasses and other instruments which monitor sap depths and other crucial aspects of your evaporator. See SmokyLakeMaple.com or your local Smoky Lake dealer for details.



I am having trouble customizing my safety setting. What should I do?

From the home screen of the AUTO DRAW-OFF module, press and hold SET for 4 seconds to access the safety setting. From there, quick tap SET. The LCY mode will appear. Change the LCY mode to 0. Then, quick tap SET to return to the safety setting.



WARRANTY

For two years from the original date of purchase, your Crescendo Auto Draw-Off System is covered by a limited warranty. Smoky Lake Maple Products, LLC will repair/replace components which prove to be defective in materials or workmanship.

Important Information:

Please fill in the following information. Also, keep a receipt/delivery slip as proof of the purchase date.

Purchase Date: _____

Purchased From: _____

Model Number: _____
(Located on the back of the Command Center.)

Serial Number: _____
(Located on the back of the Command Center.)

To Request Service:

Contact us at [SmokyLakeMaple.com/repair-request](https://www.SmokyLakeMaple.com/repair-request). You will need the information/documentation listed in the “Important Information” section of this page. Repairs or replacements under warranty will be provided by Smoky Lake Maple Products, LLC of Wisconsin, USA.

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Product features or specifications as described or illustrated are subject to change without notice.

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