LORING CONTROL SYSTEM (LCS) v2

Bigger. Smarter. Faster.

Loring Control System (LCS) v2 provides a larger touchscreen, increased flexibility with precise control of roasts thanks to PID-driven Profile Roasting, and a more responsive interface.

Advanced Display

LCS v2 comes with a screen that is 20 percent larger than the legacy 10.4-inch model. It also delivers a familiar QWERTY onscreen keyboard.

- 12.1-inch (diagonal) touch screen

- Better brightness and contrast

- Higher resolution

- More responsive user interface: Switching screens is faster, and buttons react more quickly

Interface Improved

- Easier to read, with improved layout of gauges and controls, making critical roast information more accessible

- QWERTY keyboard

- Easy access to network and email settings

- Cropster plug-and-play on 6-slot machines, no Phidget needed

12.1"
widescreen display

Touchscreen Comparison

	T100 (Legacy)	X2 (2017)
Size (diagonal)	10.4-inch	12.1-inch
Resolution	800 x 600	1280 x 800
Aspect ratio	4:3 (fullscreen)	16:9 (widescreen)
Backlight	CCFL (cold cathode fluorescent lamp)	LED (light-emitting diode). Improved contrast and color

PID-Driven Profile Roasting

LCS v2 includes an enhanced PID-driven profile roasting feature. It allows you to dial in a baseline profile that can be run at different batch sizes, or on different Loring roasters, and get consistent results. This is achieved through a combination of carefully defined charge temperatures and burner settings that prepare the roast for the turn around. The PID (Proportional, Integral, Derivative) control then takes over, actively monitoring bean temperature, and automatically increasing / decreasing the burner percentage to follow the baseline curve. This happens multiple times per second to achieve a predetermined bean temperature at a given time. This results in much more fine-grained temperature control, and repeatability of roast results regardless of batch size.

Automated Roasting: Burner Recipe and Profile Roasting Comparison

	Burner Recipes	**PID Profile Roasting**
Temperature control	Burner percentage, triggered by temperature	PID control loop
System Type	Open loop (indeterminate)	Closed loop (determinate)
Reproducibility of roasts	Same roaster model and batch size	Variable batch sizes.* Transferable between roaster models.*

* Profile roasting allows the transfer of roast profiles between roasters. Ability to match a given profile may depend on the thermodynamic properties of the roaster.

For more information, please contact Loring: +1-707-526-7215, www.loring.com, info@loring.com

Frequently Asked Questions

1. Can all existing Loring owners upgrade? * †

All S model roasters are capable of being upgraded. S15, S35, S70.

2. What is included in the upgrade kit?

- 12.1-inch touchscreen
- H2-DM1E processor
- Replacement Operator Interface Enclosure (aka consolette) lid
- Lid hinge pin removal tool
- Jeweler screwdriver, for screen connector wire swap
- T10 torx driver

3. Do I need a service technician visit to perform the upgrade?

The LCS v2 upgrade is designed to be customer serviceable.

4. Can I save my old burner recipes?

If you wish to keep existing recipes you should backup to a USB stick prior to upgrade. If you wish to migrate recipes from an LCS v1 T100 machine to an LCS v2 X2 machine, please contact Loring support for assistance in converting the files.

5. Why bean temp PID profile roasting, rather than burner recipes?

Burner Recipes work based on temperature and burner %. At a specific temperature, the system will adjust burner percentage to a predefined amount. This is an indeterminate, open looped system, which does not take into account time or allow for variability in batch size when reproducing a roast.

Bean Temp PID Profile Roasting leverages an automated PID loop to control the roaster following a baseline. It constantly monitors bean temperature, and automatically increases / decreases burner percentage to follow the baseline curve. This happens multiple times per second to achieve a predetermined bean temperature at a given time (i.e. determinant). This results in much more fine-grained temperature control, and repeatability of roast results regardless of batch size.

6. How is the LCS v2 profile roasting different than LCS v1 profile roasting?

LCS v1 used return air temperature for the Profile Roasting feature. v2 utilizes bean temperature. The v2 PID is an enhanced version that provides more accurate tracking of the baseline.

7. How much does the upgrade kit cost?

Please contact your local distributor or sales rep for pricing information. You may also contact Loring Smart Roast: +1-707-526-7215, www.loring.com, info@loring.com

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*. A rear mounted Green Bean Vacuum Elevator system is required, either as a factory install or as a retrofit kit.
†. S35 Kestrel roasters built in 2007 and earlier will need a thermocouple upgrade to take advantage of all LCS V2 features.