



Fischer Industries Inc.®

-2630 Kaneville Court • Geneva • Illinois 60134 • USA
Phone: (800) 356-5911 • In Illinois: (630) 232-2803 • Fax: (630) 232-2875

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Programming the CAL Controls 32E Developer Temperature Controller

Models: 3000S, 3000ST, 4000M, 4000MT, FP-2000, FP-2000M and some 3000SV, Classic E

Rev. 3 (Added Note 4, Range Setting for Dryer Temperature Control, 4000MT)

Date: 11-08-05

Serial Numbers: All

Overview

The CAL 32E controller senses developer fluid temperature via its connection to an RTD temperature sensor probe that is inserted in the developer fluid section of the processor tank. When fluid temperature is below controller set point, the controller sends a 5 VDC signal to a CRYDOM solid state relay which, when activated, applies line voltage (110 VAC or 220 VAC) to the heating element. At this time the controller LED flashes and developer fluid temperature will begin to rise. When developer fluid temperature reaches the controller set point, the “Developer Ready” light will turn on, the controller LED remains off and film can be processed. The controller will maintain temperature set point as long as the processor remains turned on.

Controller Temperature Set Point

To check current temperature set point, press and hold down the View (or *) button on the far left of the controller. (See Figure 1). Current temperature set point will be displayed.

To increase temperature set point, press and hold the View button. At the same time, press and hold the “up” button located on the far right until desired set point is reached.

To decrease temperature set point, press and hold the View button. At the same time, press and hold the “down” button located in the middle until desired set point is reached.

Note: Controller temperature set points are factory set and should not require field adjustment.

Programming Functions

The CAL 32E temperature controller is pre-programmed at the factory. Field programming the controller is not recommended. However, if a new temperature sensor is installed, zero calibration may be required. Zero calibration is done in Level 3

The CAL 32E is programmed via three buttons on the front of the LED display. The left button is the “View” button. The middle button is the “Down” button. The right button is the “Up” button. This is shown in Figure 1 below.

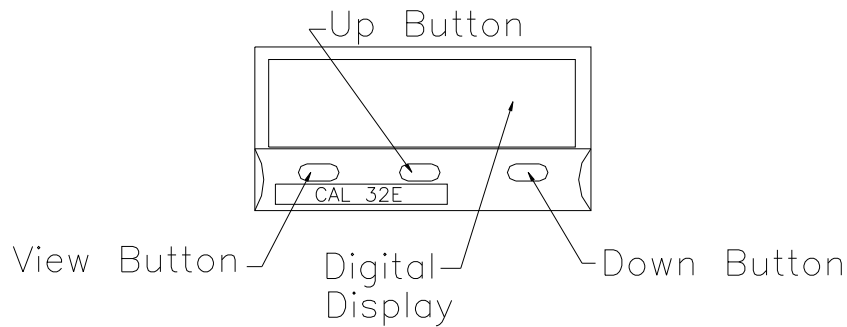


Figure 1 - CAL Controls 32E Temperature Controller Front View

Unlocking the Controller

If programming or zero adjustment is necessary, the controller must be unlocked. When the controller is locked, none of the programming functions can be changed. To unlock the controller:

1. Push the Down (middle) and Up (right) buttons in at the same time for at least 10 seconds. The display will now alternate between “**tunE**” and “**oFF**”. “**tunE**” is the first function on programming Level 1.
2. Use the Up button until the display alternates between “**LEVL**” and “**1**”.
3. To get to programming Level 3, hold down the View button and use the Up button to get the display to change to “**3**”.
4. Use the down button to scroll through the Level 3 functions until the display alternates between “**uEr**” and “**3**”.
5. Hold the Up and Down buttons down for at least 10 seconds until the display alternates between “**LoCY**” and “**ALL**”. You are now in programming Level 4.
6. Hold down the View button and press the up button to select “**nonE**”. The controller is now unlocked on all programming levels.

Programming the Controller

After unlocking the controller, the display should now be alternating between “**LoCY**” and “**nonE**”. To get from programming Level 4 to programming Level 1:

1. Use the Up button to scroll through the programming functions until the display alternates between “**LEVL**” and “**4**”.
2. Hold down the View button and press the Down button until the display changes to “**1**”. You are now in programming Level 1.

Use the Up and Down buttons to scroll through the other program functions on this level. Hold down the View button and press the Up or Down buttons to change the value or option for each function. When done, release the View button. Functions on Level 1 should be programmed as follows:

LEVEL 1	
Function	Setting
tunE	oFF
bAnd	0.1
int.t	17
dEr.t	14
dAC	5.0
CYC.t	on.oF
oFSt	0.0
SP.LY	oFF
Set.2	0.0
Bnd.2	3.6
CYC.2	on.oF

To move up to programming Level 2, press the Up button until the display alternates between “**LEVL**” and “**1**”. Hold down the View button and use the Up button to get the display to change to “**2**”. Using the View, Up, and Down buttons, configure the functions on this level as follows:

LEVEL 2	
Function	Setting
SP1.P	100
hAnd	oFF
PL.1	100
PL.2	100
SP2.A	dV.hi
SP2.b	hold
dIsp	0.1
hi.SC	98 See Note 4 Below
Lo.SC	89.5
inPt	rtd
unit	See Note 1 Below

Similarly, program Level 3 and Level 4 as follows:

LEVEL 3	
Function	Setting
SP1.d	SSd
SP2.d	rLy
burn	uP.SC
rEv.d	1r.2d See Note 2 Below
rEv.L	1n.2n
SPAn	0.0
ZErO	See Note 3 Below
ChEY	Off
rEAd	UAr°
dAtA	Ct A
uEr	See Note 6 Below
rSEt	nonE

Programming Notes

1. “**unit**” is used to switch between °F and °C temperature units.
2. When temperature set point has been reached, the temperature controller provides an open contact at terminals 5&6 for use with the developer ready light. For Fischer models 3000SV, 3000SV-TDR and Classic E, this setting must be changed to a closed contact. To accomplish this, change the **rEv.d** function from **1r.2d** (open contact) setting to **1r.2r** (closed contact).

3. “**ZEr**” is used to correct, or zero, the display to read the actual temperature in the developer tank. This function is necessary because not all RTD temperature probes are exactly the same. For example, if the controller display reads 76.5°F but a calibrated thermometer reads 72.6°F, then using the Up and Down buttons, adjust “**ZEr**” to -3.9 (this is 72.6°F minus 76.5°F). The display temperature should now match the thermometer.
4. When using the Cal 32E controller for controlling dryer temperature, Level 2, function **hi.SC**, setting should be **150**. This allows maximum temperature set point to be 150 degrees F.
5. For use on Fuji Processors, Level 2 function **hi.SC** setting is **97** degrees F. Level 2 function **Lo.SC** setting is **87**.
6. “**uEr**” is used to get to **LEVL 4**. While the “**uEr**” function is displayed, hold down the Up and Down buttons for at least 10 seconds. The display will change to alternate between “**LoCY**” and “**nonE**”. Use the Up and Down buttons to scroll through the functions on this level. The functions should be entered as follows:

LEVEL 4	
Function	Setting
LoCY	nonE
ProG	Auto
no.AL	on
diS.S	32
dEr.S	0.5

Locking the Controller

To lock the controller, you must be in programming Level 4. Press the Up or Down buttons until the display alternates between “**LoCY**” from “**nonE**”. Hold down the View button and use the Down button to select to “**ALL**”. Let go of the View button, and the controller is now locked. Hold the Up and Down buttons in at the same time to get out of programming mode and get to the temperature display.