

## E1.x Instruction Manual Supplement for Model 32 and 40

### **Installation Note:**

**When a hub is used with conduit connections to the panel, they are to be connected to the conduit before the hub is connected to the enclosure**

### **Submenus for Screens 6, 8, and 9**

If screen 6, 8, or 9 is selected a submenu listing of choices will appear (see example figure below).

```
(use ► to open choice, ◀ to return)
Mortality
Management
Reset data
```

Screen 9 Submenu listing

Use the Up Arrow or the Down Arrow to highlight the desired submenu choice. Then press the Right Arrow key to enter the desired submenu screen. To return back to the submenu list, make sure the control is out of the edit mode, then press the Left Arrow to return to the submenu list.

### **Back-up Thermostat Reminder**

```
Adjust your backup settings
because of temperature change

Press any key
```

Adjust Backup settings reminder pop-up screen

A pop up window will appear every time the set temperature is changed by more than 2 degrees reminding the user to adjust the back-up thermostats in the house. This window will appear whether the set temperature is changed manually or by the set temperature curve. To clear the window press any key.

### **Natural Mode Parameters:**

```
ON      OFF      OUTPUT      TIMER
76.0    Natural ALLOWED
73.5    70.5 Main curtain range
74.0    Exh Fan 2      Min Vent
73.0    Exh Fan 1      Min Vent
72.0    Set temperature
71.0    71.5 Ht Zone 1      ( 0:00)
```

Screen 3: Main Curtain range

The standard functionality of the Natural Mode has not changed from previous software levels (see the Control Operation Overview, Standard Mode Functionality section of the Chore-Tronics® control manual). However, many of the Natural Mode parameters that

in the past were not editable can now be defined by the user. These parameters are described below.

### Main Curtain Range (Screen 3)

The Main curtain range is defined in screen 3 and has a default setting of + or – 1.5 degrees F of the set temperature. Once the control has made the full transition from Power to Natural mode (or Tunnel to Natural), each main curtain’s control sensor will either open or close the main curtain(s) to try to keep the sensor’s temperature within the Main curtain range. If the curtain’s control sensor temperature goes above the range then the curtain will open. If the curtain’s control sensor temperature goes below the range then the curtain will close. The amount the curtain moves is based upon how far the curtain’s control sensor(s) is from the AVERAGE of the Main curtain range. If the curtain’s control sensor(s) goes more than 8 degrees F ABOVE the AVERAGE of the Main curtain range, the curtains will be given a continuous open signal until the temperature returns to within the Main curtain range. If the curtain’s control sensor(s) goes more than 8 degrees F BELOW the AVERAGE of the Main curtain range the curtains will be given a continuous close signal until the temperature returns to within the Main curtain range or until the control returns to Power Mode. The control returns to power mode when the main curtain(s) reach the first opening position (see Natural to Power Mode transition in the Chore-Tronics manual).

### Time Between Curtain Movements (Screen 12):

WHILE IN NATURAL MODE:	
Main 1 curtain sensor	12----
Main 2 curtain sensor	--34--
<b>Time between crtn mvmts</b>	<b>2:00 (m:ss)</b>
<b>Rate of crtn mvmt</b>	<b>1.2" /deg</b>

Screen 12: Time between curtain movements and Rate of curtain movement

The Time between curtain movements is the amount of time the control will wait after an opening or closing of the main curtain(s) before checking the temperature again and doing another open or close movement. The default time between curtain movements is 2 minutes. The amount time between curtain movements can be set between 1 minute and 5 minutes.

### Rate of Curtain Movement (screen 12)

The Rate of Curtain Movement is the amount the control will either open or close the curtain(s) during a curtain movement. The actual amount of curtain movement is calculated by taking the Rate of curtain movement and multiplying by the number of degrees the curtains control sensor is from the AVERAGE of the Main Curtain Range. For example, if the Rate of curtain movement is 1.2 inches per degree F, the AVERAGE

of the Main Curtain Range is 74.0 degrees F and the curtains control sensor is reading 76.0 degrees F then the control will open the curtain 2.4 inches (1.2 x [76-74]). The default Rate of Curtain Movement is 1.2 inches per degree F and can be set between 1 in and 4 inches per degree F.

### Additional Temperature Sensors and Airspeed indication-Screen 1

```

POWER mode sensors avg. 90.0
          Set temperature 91.0
*Sen.1 122.0 *Sen.2 122.0 *Sen.3 122.0
Sen.4 122.0 *Sen.5 122.0 *Sen.6 122.0
Sen.7 122.0 *Sen.8 122.0 *Sen.9 122.0
CHECK SWITCHES                CHECK ALARMS
SP .05 RH 99 Air Speed LOW
10:03a 10 Dec 2002 Outside sensor 68.3

```

If the optional second I/O board is installed, an additional three sensors can be connected to the control (sensors 7,8,9) and can be used in the same manner as sensors 1-6.

If the optional IDM board is installed, an airspeed sensor can be connected to the control for monitoring purposes only. If the airspeed becomes less than 125 feet per minute, the control will show “LOW” in the display. Once the airspeed reaches 125 feet per minute or greater, the airspeed will begin reading again.

### Heat Zone Off Temperatures-Screen 3

ON	OFF	OUTPUT	TIMER
72.0		Set temperature	
71.0	71.5	Ht Zone 1	( 0:00)
71.0	71.5	Ht Zone 2	(12:15)
71.0		Ht Zone 3	( 0:34)

Each Heat Zone can have its own “Off” temp up to 10.5 degrees above set temperature. If no temperature is entered into the “Off” temperature column, then the Heat Zone will shut off at .5 degrees above the “On” temperature. To remove an “Off” temperature from a Heat Zone, raise the Heat Zone’s “Off” temperature to be more than 10.5 degrees above the Set Temperature.

## Feed, Light and Spare Clock(s)-Screens4,5

CURRENT FEED CLOCK		Day 1	Curve ON
ON at	OFF at	ON at	OFF at
1. 10:00p	2:00a	5. ---:--	--:--
2. ---:--	---:--	6. ---:--	--:--
3. ---:--	---:--	7. ---:--	--:--
4. ---:--	---:--	8. ---:--	--:--

  

BP 1	FEED CLOCK CURVE	Day 001
ON at	OFF at	ON at OFF at
1. 12:00a	11:59p	5. ---:-- --:--
2. ---:--	---:--	6. ---:-- --:--
3. ---:--	---:--	7. ---:-- --:--
4. ---:--	---:--	8. ---:-- --:--

Feed Clock using “On At”, “Off At” format

CURRENT FEED CLOCK		Events = 4
START	RUN FOR	
1. 12:00a	11:59:00	
2. ---:--	---:--:--	
3. ---:--	---:--:--	
4. ---:--	---:--:--	

Feed Clock using “Runtime” format

An “On At” and an “Off At” event may now be entered to go past Midnight (for example “On At” 10:00p, “Off At” 2:00a) in all clocks. If the clock is to be on continuously (24 hours per day) then the “On At” and “Off At” times must match (“On At” 12:00a, “Off At” 12:00a).

Feed Clock- The Feed clock can be set up to have an “On At” and “Off At” format, or a “Start” and “Run for” (Runtime) format (see screens above). The “On At”, “Off At” format will still have a curve available. The “Start”, “Run for” format will not have a curve available, but can have a maximum of 24 programmable events.

```

CURRENT LIGHT CLOCK Day 1 Curve ON
Min% = 010 Max% = 100 Act% = 010
ON at OFF at ON at OFF at
1. 12:00a 11:59p 5. ---:-- ---:--
2. ---:-- ---:-- 6. ---:-- ---:--
3. ---:-- ---:-- 7. ---:-- ---:--
4. ---:-- ---:-- 8. ---:-- ---:--

BP 1 LIGHT CLOCK CURVE Day 001
Min% = 010 Max% = 100
ON at OFF at ON at OFF at
1. 12:00a 11:59p 5. ---:-- ---:--
2. ---:-- ---:-- 6. ---:-- ---:--
3. ---:-- ---:-- 7. ---:-- ---:--

```

Light Clock with optional Light Dimmer Control

Light Clock-The light clock can be set to control a remote light dimmer. This requires that an IARM board be installed in the control. The light level can be changed at the bend points on the Light Clock Curve. There is also a Sunrise and Sunset time that can be set in Screen 12. When the “ON at” time for an event is reached the control will increase the light percentage from the Min % level to the Max % level over the amount of sunrise time. If the sunrise time is 0 then the control will instantly change the light percentage from the Min % level to the Max % level at the “ON at” time. When the clock reaches the “OFF at” time for an event the control will decrease the light percentage from the Max % level to the Min % level over the amount of sunset time. If the sunset time is set to 0 then the control will instantly change the light percentage from the Max% level to Min% level at the “OFF at” time. The sunrise feature will occur at every “On at” time and the sunset feature will occur at every “OFF at” time. If the IARM board is installed and Light dimmer is answered “Yes” in Screen 12, it is not necessary to have a relay assigned to the Light Clock. If there is a relay assigned to the light clock and the IARM board is connected to a light dimmer, then the sunset feature will not function. If the IARM board is not installed the light clock can still be used to control up to 4 relays.

### Light Dimmer Setup

```

LIGHT DIMMER
Sunrise time (min)          30
Sunset time (min)          30
Output form                 0-10V

```

Light Dimmer section of the setup screen 12

Sunrise time-The sunrise time is the amount of time in minutes that the control will change the light percentage in the house from the Min% level to the Max% level when the Light Clock reaches an “ON at” time for an event.

Sunset time-The sunset time is the amount of time in minutes that the control will change the light percentage from the Max% level to the Min% level when the Light Clock reaches an “OFF at” time for an event.

Output form-Set the Output form to 0-10v if 0 volts is equal to no light and 10 volts is equal to full light on the light dimmer. Set the Output form to 10-0v if 10 volts is equal to no light and 0 volts is equal to full light on the light dimmer.

### Daily History Screens-Screen 6.1, 6.2, 6.3

Daily Temperature/Heater History (Screen 6.1)-This screen shows the Maximum and Minimum temperatures and the runtime of each of the Heat Zone outputs for the last 99 days plus today.

Daily Management History(Screen 6.2)-This screen shows the Daily total Mortality, Daily total water consumed, Individual Water Meter Usage, Total Feed consumed and Individual Feed Scale usage for the last 99 days plus today.

Reset Daily History(Screen 6.3)-This is where the data in the Screen 6.1 and 6.2 is reset for the next batch.

Daily temperature / heater history					
DAY	MAX TEMP	MIN TEMP	HTZONE1		
7	71.1	10:33p	62.4	4:13a	0:00
6	71.1	10:33p	62.4	4:13a	0:00
5	71.1	10:33p	62.4	4:13a	0:00
4	71.1	10:33p	62.4	4:13a	0:00
3	71.1	10:33p	62.4	4:13a	0:00
2	71.1	10:33p	62.4	4:13a	0:00
1	71.1	10:33p	62.4	4:13a	0:00
00	71.1	10:33p	62.4	4:13a	0:00
99	etc.				
98	etc.				
.....					

Daily temperature/heater history

Daily management history					
Day	Mort.	Drink.	Meter1	Feed	Scale1
7	12345	12345	12345	12345	12345
6	12345	12345	12345	12345	12345
5	12345	12345	12345	12345	12345
4	12345	12345	12345	12345	12345
3	12345	12345	12345	12345	12345
2	12345	12345	12345	12345	12345
1	12345	12345	12345	12345	12345
00	12345	12345	12345	12345	12345
99	etc.				
98	etc.				
.....					

Daily management history

## Alarm settings-Screen 7

Alarm system	Enabled
Tunnel Mode	
Max relative to set temp	+10.0 ( 82.0)
Min relative to set temp	-10.0 ( 62.0)
Natural Mode	
Max relative to set temp	+10.0 ( 82.0)
Min relative to set temp	-10.0 ( 62.0)
Power Mode	
Max relative to set temp	+10.0 ( 82.0)
Min relative to set temp	-10.0 ( 62.0)
High static pressure alarm	.13
Low static pressure alarm	.02
Max feed run time (min)	60

### Alarms Screen

Maximum/Minimum temperature alarms for Power, Natural, and Tunnel Modes- Maximum and Minimum temperature alarms can now be set individually for Power, Natural, and Tunnel Modes.

Max Feed Run time alarm-An optional Maximum Feeder Run time alarm can be set to activate the alarm if the feed system has run longer than the set amount of time entered. The control can also turn off the relays that are assigned to the Feed Clock. The control will not turn the Feed Clock relays on again until the user has noticed the alarm. This Max Feed Run time alarm option requires that the second I/O board be installed.

No Sensor Available Alarm-When a temperature sensor and its assigned back up sensor fail then a “No Sensor Available” loud alarm will be given. This alarm will not recover by itself and must be cleared by the user.

## Feeder Window Curve-Screen 8.3

FFEDER WINDOW CURVE	Day	1	Curve OFF
Current Pos 10	MANUAL/RECALIBRATING		
	Day	Pos	
1.	1	10	
2.	2	9	
3.	3	8	
4.	4	7	
	6.	6	9
	7.	7	7
	8.	8	5
	9.	9	3

### Feed Window Curve Screen

The feeder window curve is a sub screen of screen 8 (Curve Settings). The feeder window curve allows the automatic closing and/or opening of the Revolution™ feeder flood windows via an actuator. Relays must be assigned to the FEED WIN OP and the FEED WIN CL relays in order for this screen to appear. There are 10 bend points in the curve with each bend point having a day (bird age) setting and a feeder window position setting. A position number of 1 indicates the windows are fully open and a position of 10 indicates that the windows are fully closed. The control moves the windows to a new position on the curve at midnight of the day indicated on the bend point. If either the

open or the close switch is moved into the manual position the curve will automatically turn off and a pop up window will appear telling the user that the curve is turned off. The feeder window curve screen will then indicate that the feeder window is in MANUAL control.

Feeder Window Curve is off and not controlled anymore  Press any key
---

When both the open and closed switches are placed back in the automatic position the control will recalibrate the feeder windows by closing the window completely and the opening to the Current Position. While the control is recalibrating the control will show RECALIBRATING in the feeder window screen.

### Mortality-Screen 9.1

	Mortality		
	Dead	Culled	Total
Picked Up	5	0	5
Agreed?	NO		
Today	4	2	6
Accum	180	20	200
%Mort	1.0	0.0	1.0
Curr Housed			24800
Init Housed			25000
Partially taken out			0

Mortality Screen

The Mortality screen is a submenu of Screen 9 (Mortality/Management). The number of dead and culled animals collected is entered on the Picked Up line. When agreed is changed to YES the number(s) entered in the picked up line will be added to the Today and the Accum lines. The %Mort and the Curr (Current) Housed will be recalculated. The total daily mortality will also appear in the Daily History (Screen 6) screen. The Mortality data can be reset by choosing Reset Data in the Screen 9 submenu listing.

## Management-Screen 9.2

Management	
Cumulative water (drinker)	1234567
Cumulative feed	1234567
Water consumed prev. 15 min	27
Feed consumed prev. 15 min	200
Water per (animal/1000 birds)	123.4
Feed per (animal/1000 birds)	123.4
Bin Inventory	123456
Feed delivered	123456
Agreed	Yes
Last Delivered	123456
Water:Feed relation	1.23 : 1
Estimate Feed conversion	12.34
Estimate weight	123.45

Management Screen

The Management screen is a submenu of screen 9. This screen will only appear if a water meter and/or a feed scale is connected to the control. The screen can show Cumulative drinking water and feed consumed and the cumulative amount of feed and water consumed per 1000 birds or per animal. The control will also calculate how much water and/or feed has been consumed during a certain time interval. If a feed scale has been connected to the control, Bin inventory can be monitored. The control will also calculate a water to feed relationship. The user can also enter an estimated weight of the animals to receive an estimated feed conversion number if the Mortality option is used. The feed conversion calculation is meant to be an estimate only. The Management screen data can be reset in the same manner as the Mortality screen.

## Static Pressure

Current static pressure	.05		
Current SP limits:	High	.06	Low .04
	POWER		TUNNEL
	First	Second	
High control limit	.06	.06	.00
Low control limit	.04	.04	.00
Fixed inlet anticipation (sec)	25		
Wind delay(sec)	12		

Static Pressure Screen with Fixed Anticipation Feature

Fixed Anticipation- An optional fixed anticipation feature is available. This feature allows the inlets to open the same amount of time every time before the fan(s) assigned to Min Vent timer turn on. The control will not automatically calculate the anticipation time needed when this feature is used. When fixed anticipation is selected, the Min Vent timer's minimum "On" time becomes 5 seconds. If fixed anticipation is not selected the Min Vent timer's minimum "On" time is 30 seconds.

The control will anticipate when the fans assigned to Min Vent timer come on due to the timer or due to the fans “On” temperature being reached. This will occur with both fixed and calculated anticipation.

**Current Static Pressure Limits-** This is the High and Low static pressure limits currently being used by the control to operate the inlets and/or the tunnel curtain.

STATIC PRESSURE:			
Fixed inlet anticipation		YES	
Tun inlet SP assist in power		YES	
Current SP safety limit		.20	
Second static pressure		YES	
Select sensor	1-----		
LOW STAT PRES ALARM:			
In power mode		YES	
In tunnel mode		NO	

Screen 12-Static Pressure section

Tunnel inlet assist in Power-If tunnel inlet assist in power mode is desired then this feature should be set to “Yes” in Screen 12. If set to “Yes” Tunnel inlet assist in Power will occur when the static pressure is above the High Static Pressure Control Limit continuously for 1 minute and there are at least 3 fans running.

Current SP safety limit-This setting allows the safety limit to be changed to maximum of .28 inches of water column. This allows for higher static pressure control settings in screen 10. **Caution:** When the SP safety limit is raised, the higher the static pressure must be before the tunnel curtain will open as a safety measure (not tunnel inlet assist). Higher SP alarm settings can be set as well.

**Flush Feedback Option**

If the PDS drinker control is being used to automatically flush water lines, the control will ignore the pulses coming from the Water meter(s) while the lines are being flushed. The water usage will be estimated during the flush time by using the average water usage for the hour previous to flushing. This option requires that the second I/O board be installed.

**Water Meter(s)/Feed Scale(s)**

WATER METER			
Meter	Gal/pulse	Function	Today
1	1.00	-	12345
2	1.00	drinker	12345
3	1.00	non drinker	12345

Screen 12-Water Meters

When a water meter(s) or Feed scale(s) are used the function of each meter/scale must be chosen in Screen 12. If a water meter is being used to monitor water consumption in the house, then “Drinker” should be chosen in the Function column for that meter. If a water meter is not being used to monitor consumption (for example a water meter attached to the evaporative cooling system) then “Non-Drinker” should be chosen in the Function

column for that meter. For the Feed Scale, either “Feed” or “Non-Feed” must be chosen in the Function column of each scale.

The second I/O board is required in order to use the feed scale option. Multiple water meters and/or feed scales require that the IDM board be installed.

### Two Inlet Machine Relay Assignments

Inlet OP	22	24
Inlet CL	23	25

Two Open and Two Close relays can be assigned to operate two inlet machines simultaneously.

### Cool/Cool Pad Relay addition

Cool 4	2	T	---4-----
	3		
	-		
	-		
Cool pad	4	T	---4-----
	5		
	-		
	-		

Screen 12-Cool/Cool Pad Relay additions

Each Cool output and the Cool Pad output can have a maximum of 4 relays assigned to each output. The first relay must be assigned before the other 3 relay assignment positions will appear below it.

### Cool Pad Function Addition

COOL PAD SETTINGS	
Water pre fill time	8 sec
Water incr/decr time	5 sec
Repetition rate (mm:ss)	5:00
Temp check every	3 repetition rates
Full on at water on time	40 sec
Actual water on time	- sec
<b>Max. water on allowed</b>	<b>300 sec</b>
Flush cool pad at	--:-- for --:--

Screen 12-Cool Pad Function addition

The line “Max water on allowed” has been added to the Cool Pad settings in Screen 12. This will allow the user to keep the cool pad from running continuously. The default setting is the amount of time of the Repetition rate in seconds.

### Tunnel Fan in Natural mode

A tunnel fan can now be allowed to run in the Natural mode if desired.

## The Setup Key-Optional Device

The Setup Key can be used to transfer the settings of one control to another similarly wired control. To use the Setup Key use the following procedure.

- 1.) First remove power to the control.
- 2.) Remove the I/O to MS cable from the I/O board.
- 3.) Plug the Setup Key into the I/O board where the flat cable was connected.
- 4.) Restore power to the control. Press any key when Prompted
- 5.) After pressing any key, a Setup Key menu will appear asking whether to transfer from the control to the key or transfer from the key to the control.

```
The setup key menu

Transfer FROM control TO setup key   NO
Transfer FROM setup key TO control   NO

Current control:      MODEL 40 D1.0
Content setup key:    MODEL 40 D1.0
```

- 6.) Make desired selection. Answer “Yes” to the question “Are you Sure”
- 7.) When download is complete press any key when prompted.
- 8.) Remove power to the control.
- 9.) Remove Key.
- 10.) Replace I/O to MS cable.
- 11.) Restore power to control.

## Additional Hardware

### Second I/O board

- Temperature Sensors 7,8,9
- Flush Feedback (must use with PDS drinker control)
- Max Run time alarm input
- Feed Scale input

### IARM Board

- Used to control a remote light dimmer with a 0-10 volt control input.

### IDM Board

- Connect multiple water meters and/or feed scales (total of 9 water meters and 8 dump scales).
- Airspeed Sensor