Farm
Premium
Controllers

User Manual

Farm Premium, Premium-P Premium XL, P-XL

Climate Controllers (Standard Mode)

Ag/MIS/UmGB-2252-07/15 Rev. 1.0
P/N: 110532

Munters

Farm Premium, Premium-P

Standard Mode User Manual

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Product Software: Version 5.09

This manual for use and maintenance is an integral part of the apparatus together with the attached technical documentation.

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1 Introduction

1.1 Disclaimer

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1.2 Introduction

Congratulations on your excellent choice of purchasing an Farm Premium!
In order to realize the full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the fan, this manual should be studied carefully. It is also recommended that it is kept safely for future reference. The manual is intended as a reference for installation, commissioning and day-to-day operation of the Munters Controllers.

1.3 Notes

Date of release: May 2009
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2 Introduction to Standard Mode

Computerized electronic controllers such as the Farm Premium enable farmers to raise high quality poultry by controlling the environment **accurately** and **simply**. For example, instead of struggling with individual thermostats for heat zones and ventilation, Farm Premium brings these functions together into one convenient place.

Simplicity and ***Ease of Use*** are important benefits of Farm Premium Standard Mode. Each fan and heater has its own on and off temperature. The light and feed clocks are easy to understand and apply.

The Farm Premium Controller provides a variety of Management and History utilities. You can choose from simple overviews or fully detailed by the minute records of minimum, maximum and average temperatures for each individual sensor. The unique ***Table of Events*** records the moment of every significant action taken by the Farm Premium and, optionally, its operator.

Communication software is available to users who wish to access their Farm Premium controllers from their computers at Munters' website, www.munters.com. **Munters** provides technical support on the website, as well as through the large dealer and agent network.

- Front Panel, page 10
- Keypad, page 10
- Relay Switches, page 11
- Hot Screens, page 12
- Standard Display, page 13
- Main Menu Icons, page 15

2.1 Front Panel

Figure 1 shows the Farm Premium-P XL front panel and its elements. All controllers have similar elements.

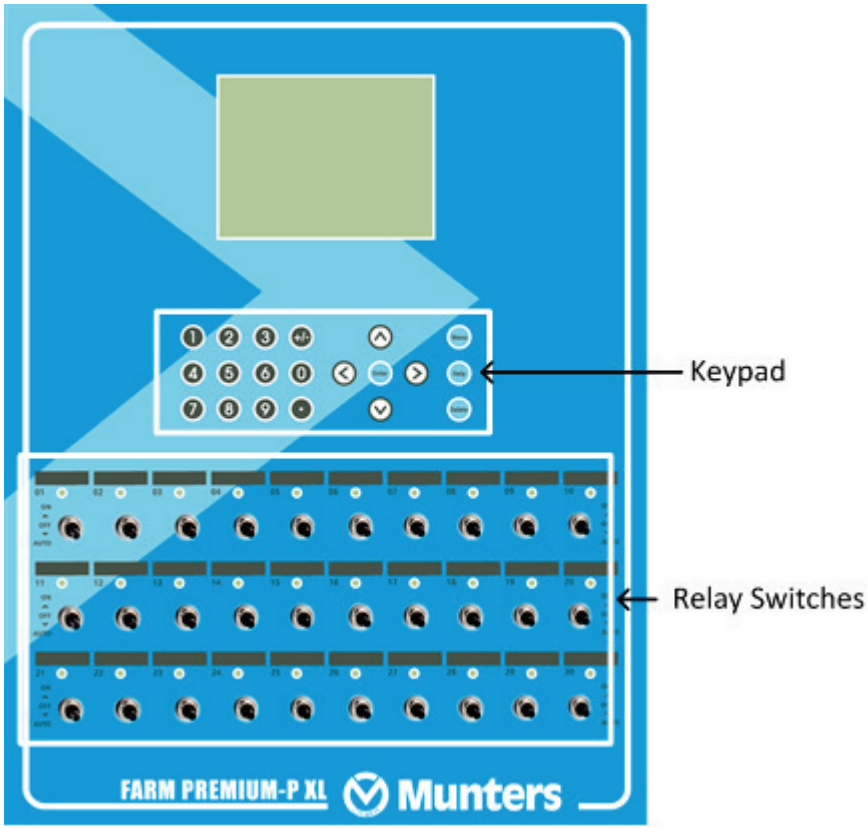


Figure 1: Farm Premium-P XL Front Panel

The following sections detail the front panel elements.

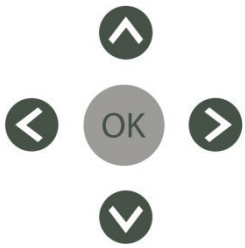
2.2 Keypad

Enter main menu, also acts as "ESC" or "Back" keys

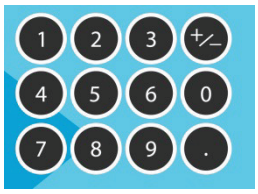
Access help screens and graphs

Erase typing mistakes

Enter menus, values, open windows



Scroll up, down, left and right



Enter values, select options and make selections

Toggle between positive and negative values and mark check boxes.

2.3 Relay Switches

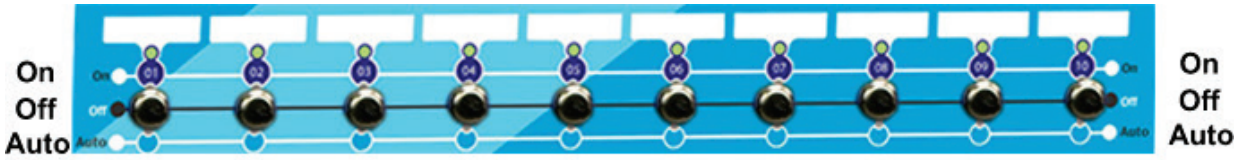


Figure 2: Standard Relay Switches

Figure 2 illustrates a row of standard relay switches. Set each relay to:

- **On**: Always on
- **Off**: Always off
- **Auto**: The relay operates according to its set parameters.

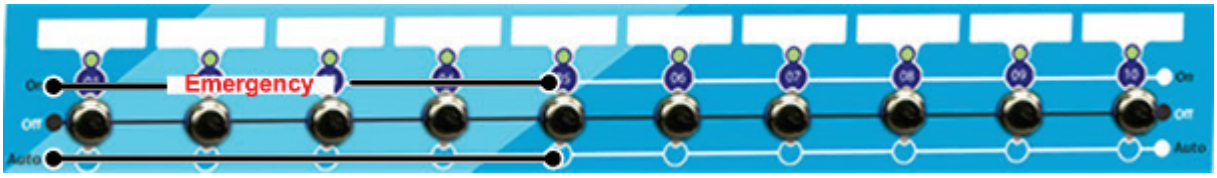


Figure 3: Emergency Relay Switches

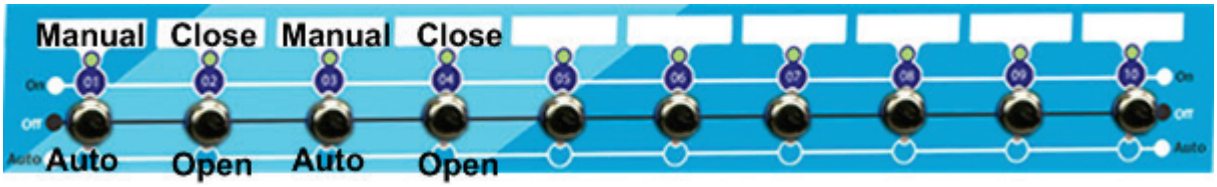


Figure 4: Winch Switches

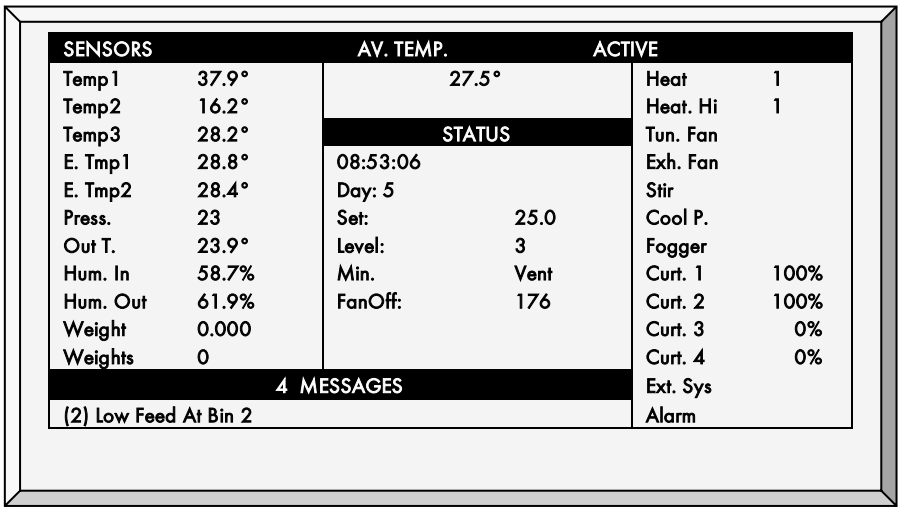
2.4 Hot Screens

Many of the keys serve as shortcuts. Here are the main ones:

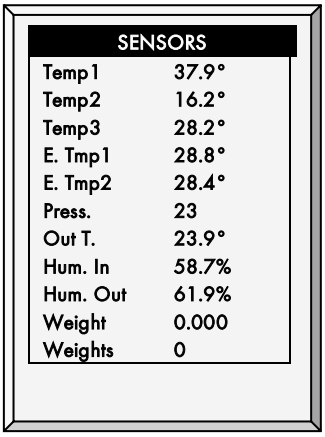
HELP	Software version
1	Return to standard main screen
2	Temperature, humidity status, and wind chill temperature
3	Curve status
4	Curtain position curtain, tunnel, vent, and attic opening positions (Version 5.0x only)
5	Bird Scale and Feed Bin Status
6	Light Status
7	Analog Output Status
8	Temperature sensors
9	Silo Status
0	Water and Feed status
.	Scan through Hot Screens for five seconds each
>	Air Status (refer to, page for details on this screen)
^	Increase/ decrease offset settings
OK	
v	

2.5 Standard Display

The main screen consists of five parts.



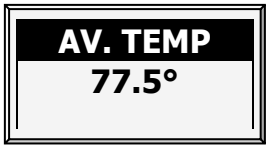
1. Shows individual sensor readings. Temperature sensors marked with dark squares form the current average temperature.



- **Filled square:** Indicates the sensor participates in the average calculation.
- **Empty square:** Indicates the sensor does not participate in the average calculation.

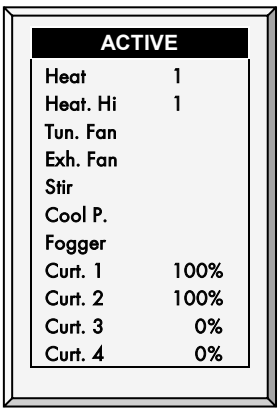
NOTE: Refer to Table 3, page 83 to view all possible sensors.

2. Reports the current average temperature.



3. Shows the output relay list. The filled black boxes indicate active outputs. Controller also informs the position of inlets and curtains, as well as the number of operating heaters or fans.

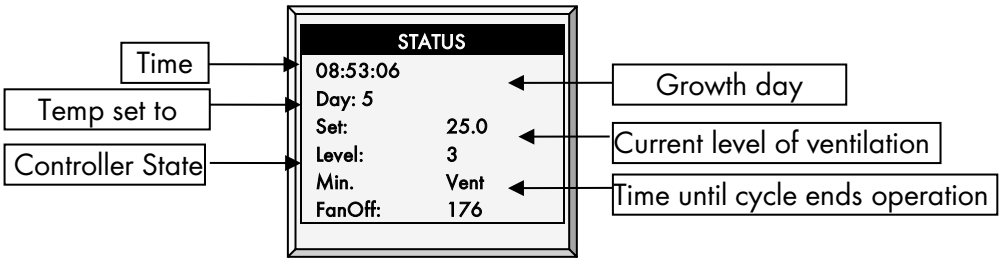
NOTE: Refer to Table 4, page 83 to view all possible readings.



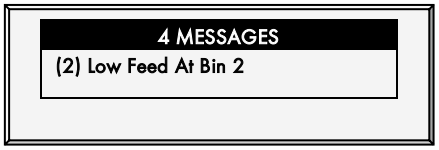
*NOTE: The **ACTIVE** screen shows rectangular markers by the outputs. Filled rectangles indicate operating outputs; empty rectangles indicate outputs that are off.*

4. Status Window gives important general information such as the time and ventilation mode.

EXAMPLE:

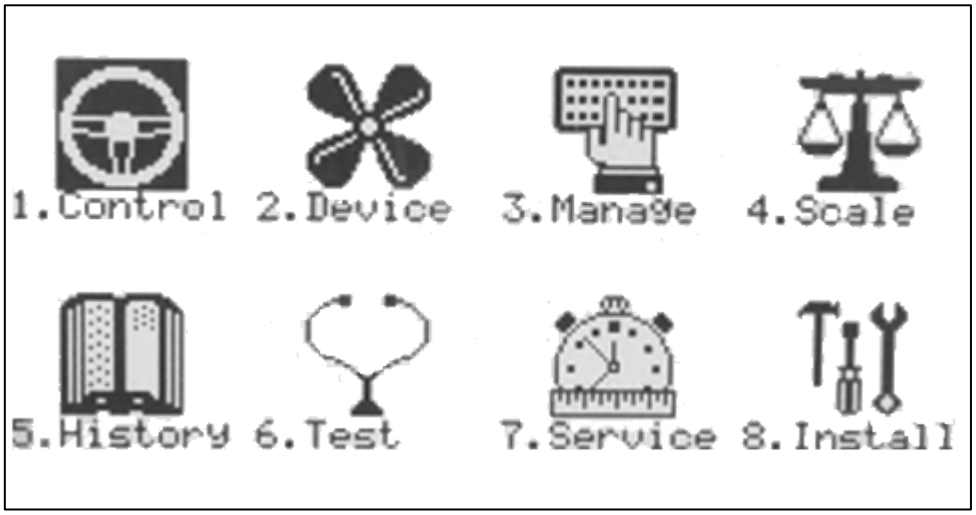


5. Displays important messages/alarms. The title bar shows the number of important messages, and if there are several messages they each appear in turn.



2.6 Main Menu Icons

- To enter the Main Menu screen, press **Menu**.
- To select an option, press **Enter**.



1. Control temperature, humidity, ventilation, static pressure and system parameters.
2. Define equipment settings
3. Manage inventory, flock, and alarm/password settings.
4. Set, calibrate and test Bird Scale and Silo Scale.
5. View history of all controller functions.
6. Test to see switches, relays, communication, and alarms are functioning properly.
7. Calibrate temperature, humidity, ventilation, static pressure, feed, water, read/save to plug.
8. Install sensors, devices, communication, etc.

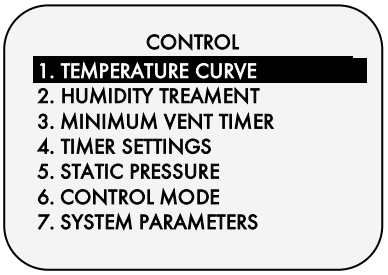
3 Control Menu

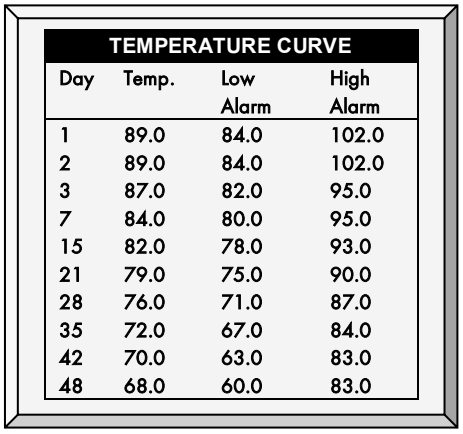
The following sections detail:

- Temperature Curve, page 16
- Minimum Vent Timer, page 17
- Timer Settings, page 21
- Static Pressure, page 22
- Control Mode, page 23
- System Parameters, page 24

3.1 Temperature Curve

For every growth day define the desired target temperature.





TEMPERATURE CURVE

Day	Temp.	Low Alarm	High Alarm
1	89.0	84.0	102.0
2	89.0	84.0	102.0
3	87.0	82.0	95.0
7	84.0	80.0	95.0
15	82.0	78.0	93.0
21	79.0	75.0	90.0
28	76.0	71.0	87.0
35	72.0	67.0	84.0
42	70.0	63.0	83.0
48	68.0	60.0	83.0

1. In *Install* > *Analog Sensors* (refer to Analog Sensors, page 77), designate the required number of sensors as temperature sensors. When using more than one sensor, Farm Premiumbegins treatments based on the average.

2. If required, go to *Service* > *Temperature Calibration*, calibrate the sensors (refer to Temperature Calibration, page 63).

3. In *Install* > *Temperature Definition* (refer to Temperature Definition, page 81), assign specific sensors brood setups, heater zones, and devices. If a zone does not have an assigned sensors, calculations are based on the current average temperature.

4. In *Control* > *Temperature Curve*, define the required target temperature curve

- Set up to 20 lines, 999 growth days. When a curve is not required (for example when growing layers), enter temperatures in the first line only.
- Define:
  - **Day:** Set Growth Day.
  - **Temp.:** Set the temperature that triggers heating to begin.
  - **Alarm Low & High:** Set alarms for when the temperature is too LOW and too HIGH.

3.1.1 Temperature Curve Help | Set

? *While viewing the Temperature Curve menu: Press **HELP**, select SET, and press **ENTER**.*

SYSTEM PARAMETERS	
TEMPERATURE CURVE	
Temperature Curve Offset	0.0
Set Temp. Change Reminder (Diff)	3.0

- **Temperature Curve Offset:** Adjustment of all curves either by warmer or cooler temperatures than the one programmed in the curve. This enables the user to set only this parameter instead of defining all the other parameters once again.
- **Set Temp. Change Reminder (Diff):** Sets the change in set temperature triggering a reminder to set backup thermostats. Often producers forget to set backup thermostats as their birds grow from baby chicks to market age, so the Farm Premiumreminds you. When you press Enter to acknowledge the reminder, the Farm Premium logs it in the Table of Events.

NOTE: '0' disables this parameter (if value is changed an appropriate message is displayed).

3.2 Humidity Treatment

Humidity treatment enables keeping humidity levels within defined levels by controlling the air exchange. Farm Premium uses a combination of vent openings and ventilation to maintain these levels. When the relative humidity rises above the defined levels, the fans' minimum on time increase by the levels defined in the table below.

- Humidity treatment is functional only when the controller employs minimum ventilation (cycle).
  - If the temperature rises and fans switch to continual operation, Humidity Treatment stops. Humidity Treatment does not prevent the fans from entering continual operation.
  - By default, all fans switch from Minimum Ventilation to continual or Tunnel Mode as required. However, as an option, a user can designate fans to run only in Minimum Ventilation (refer to Option, page 27). If one fan runs only in Minimum Ventilation, Humidity Treatment continues even if other fans operate continually.
- The maximum on time is [cycle time – minimum off time].
- Treatment ends when the relative humidity drops below [target – band].
- When treatment is in progress, the Main Screen displays the Humidity Status.

CONTROL

1. TEMPERATURE CURVE
2. HUMIDITY TREATMENT
3. CO2 TREATMENT
4. MIN/MAX LEVEL
5. STATIC PRESSURE
6. CONTROL MODE
7. SYSTEM PARAMETERS

HUMIDITY TREATMENT

Day	Humidity (%)	Vent Change
1	40	10
7	50	10
10	50	7
15	55	7
20	60	7
28	65	5
30	70	5

1. In *Install* > *Analog Sensors* (refer to Analog Sensors, page 77), designate up one or two sensors as indoor humidity sensors (outdoor sensor is for information only). When using two sensors, Farm Premium begins treatments based on the average.

2. If required, go to *Service* > *Humidity Calibration*, and calibrate the sensors (refer to Humidity Calibration, page 64).

3. In *Control* > *Humidity Treatment* set the parameters as required.
    - **Day:** Growth day. Can set multiple programs for same day (Maximum number of programs: 20)
    - **Humidity %:** Relative humidity target at which to begin treatment
    - **Ventilation Change%:** Increase minimum ventilation ON time by this percentage.
4. Set the Help parameters.
5. Set the Humidity Sensor Alarm (page 46).

3.2.1 Humidity Treatment Help | Set Definitions

? *While viewing the Humidity Treatment menu: Press **HELP**, select SET, and press **ENTER**.*

Humidity Treatment	
Band (Below Target) %	2.0
Delay Before Treatment (Sec)	0
Cycle Minimum OFF Time (sec)	60
Humidity Below Heat	No

- Band (Below Target) %: Once treatment begins, it continues until the relative humidity drops to [target – band].
- Delay Before Treatment (Sec): Once the relative humidity rises about the permitted level, Farm Premium waits this amount of time before beginning treatment.
- Cycle Minimum OFF Time (sec): The minimum amount of time treatment ceases in each cycle.
- Humidity Below Heat: Enable humidity treatment when the temperature is below the target heat.

3.3 Minimum Vent Timer

This option enables the user to set the minimum ventilation timing.

- How Does Minimum Ventilation Work?
- Setting up Minimum Ventilation
- Ramping Timer Help | Set
- Additional Details

3.3.1 How Does Minimum Ventilation Work?

Ventilation time in the Farm Premium runs in two modes:

- **Minimum ventilation (MV)**: Fans run in an on/off cycle, where the cycle time changes as the temperature changes. Change in the cycle time only happens after a user-defined delay. Since temperatures can fluctuate constantly, the delay ensures stable fan speeds.
- **Continual operation**: Fans remain on until the temperature drops

Figure 5 illustrates the ventilation modes.

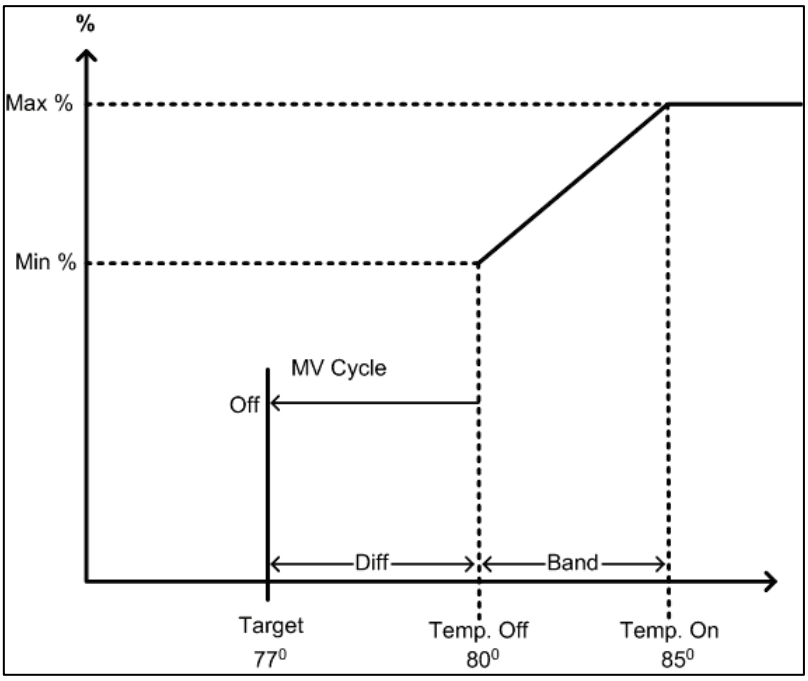


Figure 5: Minimum Ventilation

As shown in the graph:

- When the temperature is below the target temperature, ventilation is off.
- When the temperature is between the Target and Temp. Off temperatures (labeled Diff in the graph) (refer to Figure 6):
    - If the temperature is rising, the fans run according to the cycle settings
    - If the temperature is dropping, the fans continue to run at the calculated on/off time value

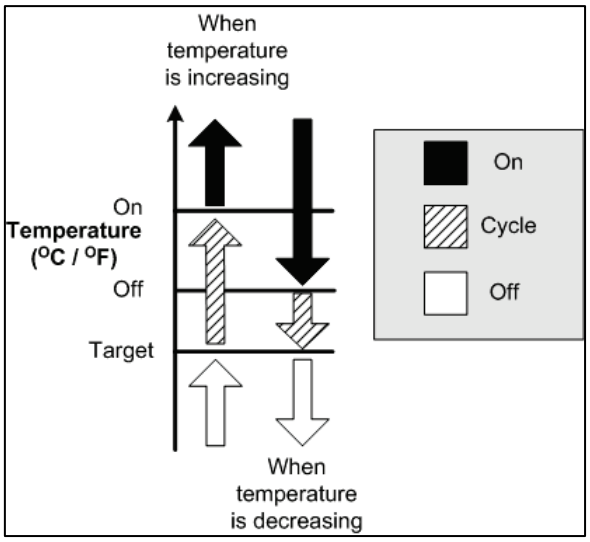


Figure 6: Minimum Ventilation Schemes

- When the temperature is between the Temp. Off and Temp. On temperatures (labeled Band in the graph), the fans run according to the calculated on/off time.
- When the temperature is above the Temp On temperature, the fans run continuously.

In Figure 5:

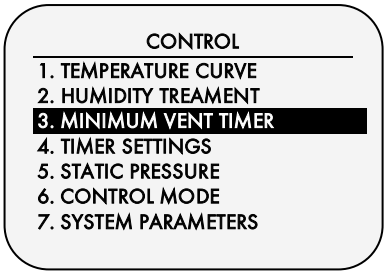
- Fans are off below 75°
- Between 75° - 80° fans run:

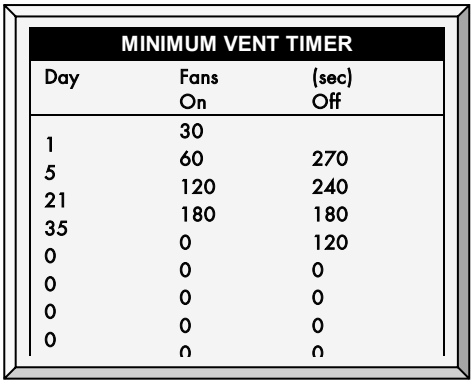
- At minimum ventilation if the temperature is rising
- At the calculated on/off time if the temperature is dropping

- Between 80° - 85°, the fans run at the calculated on/off time
- Above 85° the fans run continuously.

3.3.2 Setting up Minimum Ventilation

This procedure describes the setup for a house using powered minimum ventilation.





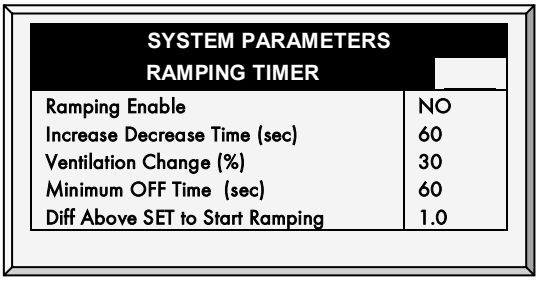
MINIMUM VENT TIMER

Day	Fans On	(sec) Off
1	30	
5	60	270
21	120	240
35	180	180
0	0	120
0	0	0
0	0	0
0	0	0
0	0	0

1. In *Installation* > *Setup*, enable **Minimum Vent.**
2. In *Device Setting* > *Temp & Timer Setting* for the required fans set the parameters as required.
3. In *Control* > *Minimum Vent Timer* define:
   - **Day:** Set the growth day.
   - **Fans On/Off:** Set the on/off cycle times.
4. Set the Ramping Timer Help parameters as required.

3.3.3 Ramping Timer Help | Set

? *While viewing the Minimum Vent Timer: Press **HELP**, select **SET**, and press **ENTER**.*



SYSTEM PARAMETERS
RAMPING TIMER

Ramping Enable	NO
Increase Decrease Time (sec)	60
Ventilation Change (%)	30
Minimum OFF Time (sec)	60
Diff Above SET to Start Ramping	1.0

Ramping means a temporary change in the minimum ventilation. Ramping operates in two manners:

- **Increase**: When the temperature rises above [Set Temperature + Difference above Set], the minimum ventilation increases by the amount (percentage) set in Ventilation Change.
- **Decrease**: When the temperature is below [Set Temperature + 0.5° F], the minimum ventilation decreases by the amount (percentage) set in Ventilation Change.
- **Ramping Enable**: Set to No/Yes.
- **Increase Decrease Time**: When ramping ventilation begins, the fans operate at the increased or decreased rate for this amount of time.
- **Ventilation Change**: This parameter determines the amount of change in the Fan Air Capacity. For example, if the capacity is 20,000 CFM and the change is 20%, the CFM's increases to 24,000 CFM. The second time the CFM will increase to 28,800 CFM. Range 5 – 50%; default 20%.

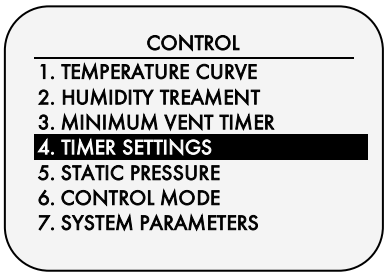
- **Minimum OFF time (sec)**: This parameter determines the minimum ventilation off time. Range 10 – 300 seconds; default 60 seconds.
- **Diff Above SET to Start Ramping**: The differential above the Set Temperature point at which ramping increase begins.

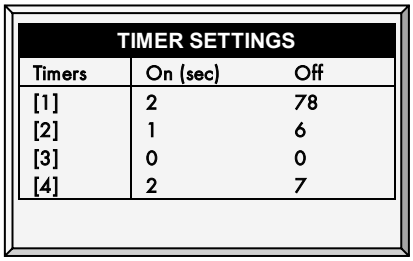
3.3.4 Additional Details

- When the temperature begins to decrease, the fans remain at the same cycle until the temperature reaches the off temperature. For example, in Figure 5 if the fans are running continually when the temperature drops to 80°, they continue to run continually until the temperature reaches 75°. If the temperature is 78° when the temperature begins to drop, the fan cycle remains the same until the temperature reaches 75°.
- If a heater goes on, all fans begin working at Minimum Ventilation automatically.
- After a power outage, the cycle runs at Minimum Ventilation.

3.4 Timer Settings

This section enables setting the timer schedule. Timers control the cooling devices (foggers/cooling pads) on/off schedule





TIMER SETTINGS

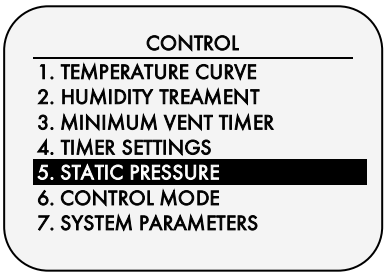
Timers	On (sec)	Off
[1]	2	78
[2]	1	6
[3]	0	0
[4]	2	7

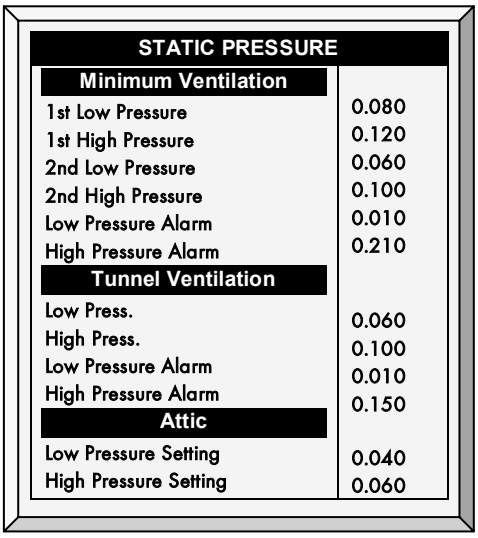
1. Define the number of seconds the timer is **ON** and **OFF**.
2. In *Device > Temp & Timer Settings*, scroll to each cooling device.
3. Under option, select a timer setting.

NOTE: *Unlike the **Min. Vent Timer**, this cycle timer also operates above the set temperature.*

3.5 Static Pressure

This section controls air pressure during minimum ventilation. Set the static pressure parameters in the following screen.





STATIC PRESSURE	
Minimum Ventilation	
1st Low Pressure	0.080
1st High Pressure	0.120
2nd Low Pressure	0.060
2nd High Pressure	0.100
Low Pressure Alarm	0.010
High Pressure Alarm	0.210
Tunnel Ventilation	
Low Press.	0.060
High Press.	0.100
Low Pressure Alarm	0.010
High Pressure Alarm	0.150
Attic	
Low Pressure Setting	0.040
High Pressure Setting	0.060

Minimum Ventilation

- **1st Low Pressure:** Set desired static pressure for low outside temperature conditions. Be sure that there is proper airflow at this setting.
- **1st High Pressure:** Set desired static pressure for high temperature conditions. Normally this pressure is lower to obtain a larger air inlet opening.

NOTE: *Controller interpolates between the LOW and HIGH Temperature.*

- **Low Pressure Alarm:** Set alarm for low static pressure. If you disable it by setting zero, the Farm Premium warns you and enters a record in the Table of Events.
- **High Pressure Alarm:** Set alarm for high static pressure.

Tunnel Ventilation

- **Low Pressure:** Set required low pressure for Tunnel Ventilation (minimum opening).
- **High Pressure:** Set required high pressure for Tunnel Ventilation (maximum opening).
- **Low Pressure Alarm:** Set alarm for low static pressure.
- **High Pressure Alarm:** Set alarm for high static pressure.

Attic

- **Low Pressure:** Set required low pressure for Attic Ventilation (minimum opening).
- **High Pressure:** Set required high pressure for Attic Ventilation (maximum opening).

3.5.1 Disabling Static Pressure

To disable the static pressure function:

1. Go to *Installation* > *Setup*.
2. Set the Static Pressure Unit to **None**.

The main screen then stops:

- displaying the pressure
- displaying High Pressure and Pressure Sensor Failure alarms

NOTE: *If either of these alarms were active before disabling the static pressure, the main screen continues to display the alarms. Reset the alarms once.*

3.5.2 Static Pressure Help | Set Definitions

? *While viewing the Static Pressure menu: Press **HELP**, select SET, and press **ENTER**.*

SYSTEM PARAMETERS	
STATIC PRESSURE	
Wind Gust Delay Time (sec)	10
Static Pressure During Tunnel	YES
Transitional Tunnel	NO
Minimum Vent Using	VENT
Emergency S. Press. Delay (sec)	60
Curt. Pos. In Emerg. S. Press.%	100
Min. Tunnel Curtain. Level (%)	50
Min. Tunnel Curt. % To Start Fan	25
2nd S.P. At This Fan Temp. ON	None

- **Wind Gust Delay Time (sec):** Set length of time (seconds) before starting Static Pressure control after an unexpected change in air pressure.
- **Static Pressure During Tunnel:** Select **YES** or **NO** for using Static Pressure control when in Tunnel mode.
- **Transitional Tunnel:** Select **YES** or **NO** for using tunnel inlets when static pressure is high and vents are already at 100%
- **MinVent Using:** Select **Vent** or **Tunnel** for controlling static pressure when in minimum ventilation.
- **Emergency S. Press. Delay (sec.):** Length of time Farm Premium waits before taking emergency action when static pressure remains above the high pressure alarm setting. Note that chronologically it is important to open and go to the next setting.
- **Curtain Position in Emergency Static Pressure %:** Set the position non-active curtains should go to in an emergency pressure situation.
- **Min Tunnel Curtain Level (%):** When using static pressure in tunnel mode, tunnel inlet opens at least this far in tunnel mode.
- **Min Tunnel Curtain % to Start Fan:** Set a value that serves as a minimum to begin fan operation in tunnel mode.
- **2nd S.P. At This Fan Temp ON**: When the defined fan turns on, Farm Premium switches to the second static pressure parameter.

NOTE: Refer to menu Install > Curtain Setup Help > Set *for defining additional settings.*

3.6 Control Mode

Choose house operating modes, turn temperature curves on or off and select which type of min/max level method to use.

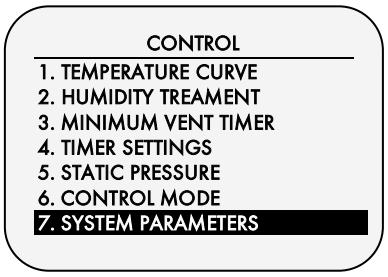
CONTROL
1. TEMPERATURE CURVE
2. HUMIDITY TREAMENT
3. MINIMUM VENT TIMER
4. TIMER SETTINGS
5. STATIC PRESSURE
6. CONTROL MODE
7. SYSTEM PARAMETERS

CONTROL MODE	
House Mode	FULL HOUSE
Empty House Mode	NO
Temperature Curve	ON
Minimum Vent. Curve	OFF
Tunnel	ALLOWED

- **House Mode:** Select whether the house is in one of the brood set ups, or in full house.
- **Empty House Mode:** Select **YES** in order to disable all alarms.

- **Temperature Curve:** Select **NO** to disable curve. Temperature settings become fixed values.
- **Minimum Vent Curve:** Set **ON/OFF** for automatic minimum ventilation ramping
    - **On:** A curve according to days
    - **Off:** Time changes at start day of each line in Min Vent tables
- **Tunnel:** Select either to **NOT ALLOW** or **ALLOW** tunnel ventilation.

3.7 System Parameters



System Parameters consolidate all of the **HELP | SET** menus into one scroll screen.

Page	System Parameter	Page	System Parameter
34	Light	17	Temperature Curve
32	Water & Feed	23	Static Pressure
42	Feed Inventory	28	Temp & Timer Settings
37	Emergency Setting	28	Stir Fans
44	Alarm Setting	28	Radiant Heaters
31	Foggers	30	Cooling Pad
38	V. Speed Settings	79	Curtains
		28	Attic

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4 Device Menu

- Temp & Timer Setting, page 27
- Cool Pad, page 29
- Foggers, page 30
- Water & Feed, page 31
- Light, page 33
- Extra Systems, page 35
- Emergency Setting, page 36
- Variable Speed Fan Setting, page 37

4.1 Water on Demand

The Water on Demand (WOD) function enables regulating the pressure of all nipple lines in the house from one central point, ensuring uniform pressure in all lines. The function also enables immediate transitioning between different preset pressures of all nipple lines in the house by closing and opening of valves at the central point (manual or solenoid according to the mode installed).

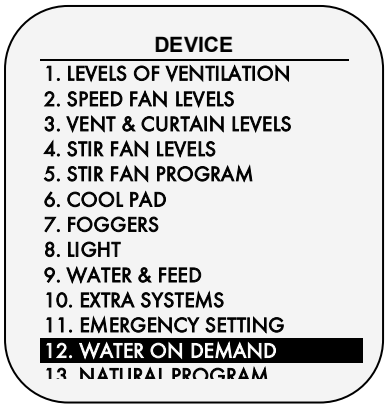
Farm Premium enables controlling the water cycle times using relays and controlling the water pressure using analog input and output sensors. The two methods are complimentary. A user can use either one alone or both.

- Relay Control
- Sensor Control

NOTE: The two methods are complimentary.

4.1.1 Relay Control

You can specify up to 50 time periods.



1. In *Installation* > *Relay Layout* designate up to four relays as WOD valves (relays 179 to 182). Refer to page 73 for details.
2. In *Device* > *Water on Demand*, configure the following parameters:
    - **Day**: Specifies the day to activate the selected WOD valve

- **From Time/To Time**: Specifies the time to activate and deactivate the specified WOD valve
- **Relay**: Specifies the WOD valve to be activated

3. Set the WOD alarms in Alarm Setting Help | Set Definitions, page 41.

4.1.2 SENSOR CONTROL

NOTE: When using sensor control, WOD status appears on the Main Screen, Hot Screen 7, and Hot Screen 0.

WATER ON DEMAND				
Day	From Time hh:mm	To Time hh:mm	WOD	Press IN. W.C
1	12:00	14:00	1	30.00
2	12:00	14:00	2	20.00
3	12:00	14:00	3	15.00
5	12:00	14:00	3	10.00
7	12:00	14:00	4	10.00
9	12:00	14:00	4	5.00

To add precision measurements:

1. To control the water valve opening, **In** *Installation* > *Analog Output*:
   a. designate one output device as Water on Demand Precision.
   b. set the minimum input and output voltages.
2. In *Installation* > *Analog Sensor*, designate one sensor as **Water of Demand Pre**. This setting enables a sensor to measure the water flow.
3. In *Device* > *Water on Demand*, configure the following parameters:
   - **Day**: Specifies the day to activate the selected WOD valve
   - **From Time/To Time**: Specifies the time to activate and deactivate the specified required pressure.
   - **Pressure**: Specifies the required water pressure. The unit that appears is the unit defined in *Installation* > *Setup* (pressure unit) (page 72).
4. In *Device* > *Water on Demand* > *Help* set the parameters (optional).

5. In *Service* > *WOD Calibration*:
   a. Enter the first pressure and voltage data points.
   b. Repeat for second data point.
   c. Set the Help definitions (optional, refer to WOD Calibration Help | Set Definitions, page 71).
6. Set the WOD alarms in Alarm Setting Help | Set Definitions, page 41.

4.1.3 WATER ON DEMAND HELP | SET DEFINITIONS

SYSTEM PARAMETERS	
Water Pres. During Flush:	0
Relay Active During Flush:	0

- **Water Pressure During Flush**: Designate the system water pressure when nipple flush is operative.
- **Relay Active During Flush**: Designate which WOD relays remain active during flushing.
- , page 39

4.2 Temp & Timer Setting

This section enables the user to set the temperature and the timer setting for all heating and cooling devices.

NOTE: Refer to Appendix B: Device Setup Summary.

DEVICE

1. TEMP & TIMER SETTING
2. COOL PAD
3. FOGGERS
4. WATER & FEED
5. LIGHT
6. EXTRA SYSTEMS
7. EMERGENCY SETTING
8. V. SPD FANS SETTIG
9. WATER ON DEMAND

TEMP & TIMER SETTINGS				
Device	ON	OFF	MT	Option
Tunnel Fan 2	88.0	85.0	✓✓	----
~Tunnel Fan 1	88.0	85.0	-✓	Min. V
TUNNEL SETTING	88.0	85.0		
Fogger 1	83.0	82.0	-✓	Timer1
Exhaust Fan 2	81.0	82.0	-✓	Timer1
~Exhaust Fan 1	81.0	80.0	✓✓	----
SET TEMPERATURE	80.0			
Heat 2	75.0	76.0		
Heat 1	75.0	76.0		

1. Define devices as required in the Installation Menu (Relay Layout, Analog Sensors, and Analog Output).
2. Define the fields as required.

- **Device:** Read only. This column lists the devices defined in the Installation Menu.
- **On/Off:** Set the temperature at which the device starts/stops operating.
- **MT**: These letters stand for Minimum Ventilation/Tunnel. Press the +/- key to enable each **cooling** device to work in the mode(s) required. You can choose both modes if required.

NOTE: Minimum Vent (Power) and Tunnel Ventilation must be enabled in Installation > Setup *for this function to operate.*

- **Option**: Set the timing method for each device. The choices available depend on the device.
  - Ventilation device:
    - Min.V: The device only works according to the On/OFF schedule set in *Control > Minimum Vent Timer*. It does not switch to tunnel mode.
    - ----: This ventilation device works according to the on/off temperature only (no cycling). When the temperature is above the ON temperature, the fan remains on. When the temperature is below the OFF temperature, the fan remains off. In between those two temperatures

- Foggers and cooling pads:
  - **Timer 1/2/3/4**: The cooling device operates between the temperatures set in the Temperature and Timer Settings screen, according to the on/off schedule defined in *Control > Timer Setting*. Select which timer defines the schedule.
  - **Program**: This selection disables the parameters set in this page. The cooling device works according to the device's program screen. Foggers operate according to the parameters set in Control > Foggers. Cooling pads operate according to the parameters set in Control > Cooling Pad.
  - **----**: This cooling device works according to the on/off temperature only (no cycling).
    - When the temperature is above the ON temperature, the fans operate.
    - When the temperature is below the OFF temperature, the fans cease to operate.

3. Define the help settings as required.

4.2.1 TEMP & TIMER SETTINGS HELP | SET

*While viewing the Temp & Timer Settings menu: Press **HELP**, select SET, and press **ENTER**.*

TEMP & TIMER SETTINGS	
Minimum Tunnel Fans On	4
Tunnel Exit Delay (minutes)	5
Non Brood Area Diff. From Heat	-99.0
STIR FAN	
OFF Cycle Delay Time (sec)	0
ON Time (sec)	30
ON Temp Output (MV)	STOP
Variable Stir Output	100
RADIANT HEATERS	
Radiant Heater High Diff	1.0
Radiant Ignition Time (sec)	30

- **Minimum Tunnel Fans On:** The minimum number of fans in tunnel entry. If not enough fans exist for operating according to temperature, the fans with the lower temperatures will be added in order to reach that number. If not enough fans that can operate in tunnel exist, an alarm will be activated.
- **Tunnel Exit Delay (minutes):** The time ***Farm Premium*** waits after satisfying tunnel exit conditions.
- **Non brood Area Diff. From Heat:** Set point for non-brood heaters. Can be either positive or negative where **positive = warmer** and **negative = cooler**. (-99) = heaters not operating.

Stir Fan

In Installation > Relay Layout or Installation > Analog Output, define stir fans.

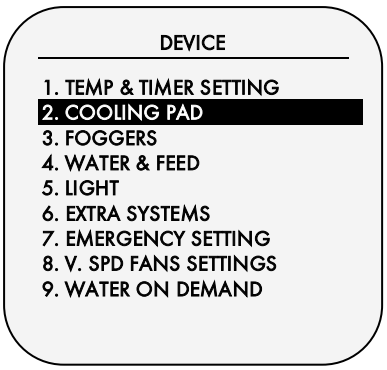
- **OFF Cycle Delay Time (sec)**: Stir fans continue to run this amount of time after minimum ventilation fans cease operating.
- **ON Time (sec)**: Stir fans operate this amount of time (**when not operating** according to the Control > Minimum Vent Timer).
- **ON Temp Output (MV)**: This parameter enables keeping the variable speed stir fans off when the temperature rises to the on temperature.
- **Variable Stir Output**: Set the operating speed (in voltage percentage) of variable speed stir fans.

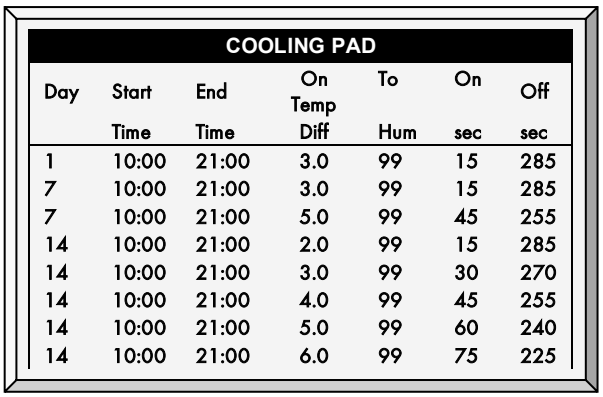
➲ **In Installation > Relay Layout, define radiant heaters.**

- **Radiant Heater High Diff:** This parameter sets the difference from the target temperature at which the high radiant heating begins.
- **Radiant Ignition Time (sec)**: Set time to begin ignition of radiant heater.

4.3 Cool Pad

This menu sets the operating conditions for the Cool Pad.





COOLING PAD

Day	Start Time	End Time	On Temp Diff	To Hum	On sec	Off sec
1	10:00	21:00	3.0	99	15	285
7	10:00	21:00	3.0	99	15	285
7	10:00	21:00	5.0	99	45	255
14	10:00	21:00	2.0	99	15	285
14	10:00	21:00	3.0	99	30	270
14	10:00	21:00	4.0	99	45	255
14	10:00	21:00	5.0	99	60	240
14	10:00	21:00	6.0	99	75	225

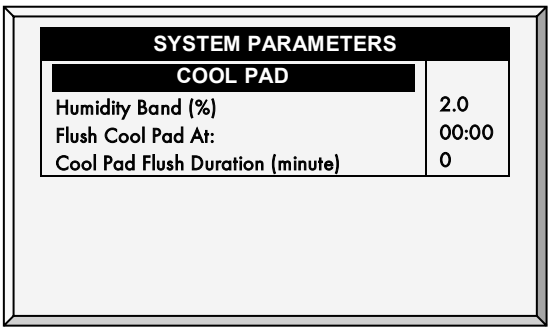
1. In *Installation* > *Relay Layout*, define a relay(s) as cooling pad.
2. In *Device* > *Cooling Pad*, define the parameters below.
3. In *Device* > *Temp & Timer Settings*, scroll to each cool pad.
4. Under Option, select **Prog**.

NOTE: To enable this screen, you must select Prog.

5. Set the Help parameters as required.
   - **Day:** Set growth day.
   - **Start Time:** The cool pad begins operating.
   - **End Time:** The cool pad ceases to operate.
     - It is possible to set multiple start and stop times for a single day.
     - In the screen above, growth day jumps from day 7 to day 14, the cool pad continues to work according to day 7 settings from growth day 7 through growth day 14.
   - **On Temperature Difference:** Set difference from tunnel temperature to use this setting. You can use negative differential temperatures.
     - Note the settings for Day 14. Farm Premium uses the maximum temperature differential that applies to choose the correct settings.
   - **To Humidity:** Set maximum humidity allowed before stopping cool pad. You can enter 100%.
   - **On Sec:** Set the maximum on time for each cycle of cool pad operation.
   - **Off Sec:** Set the minimum off time for each cycle of cool pad operation.

4.3.1 Cool Pad Help | Set Definitions

? *While viewing the **Cool Pad** menu: Press **HELP**, select SET, and press **ENTER.***



- **Humidity Band (%):** Define the on/off hysteresis relative to humidity.
- **Flush Cool Pad At:** Set time of day (hh:mm) to start a continuous application of water to the cool cells in order clean them of any deposits.
- **Cool Pad Flush Duration (minutes):** Set the length of time in minutes for flushing. If parameter is set, flush is applied without regard to ventilation level or operating mode.

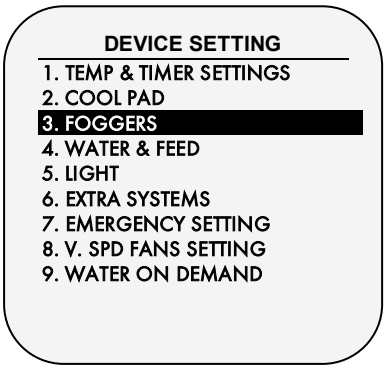
Example: Cool Pad ON temperature = 80°, Diff set to 2° F:

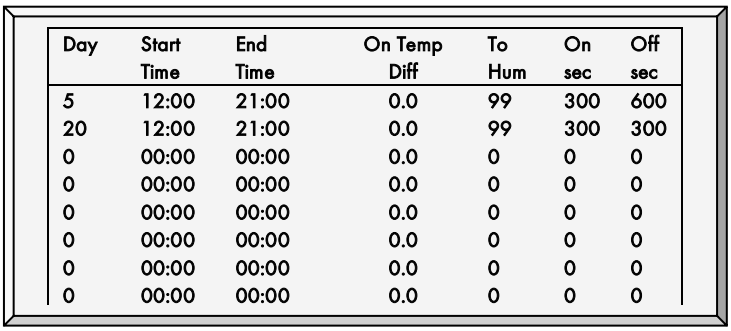
Cool Pad #	Assigned Sensor	Diff Between Cool Pads Stage	Actual ON Temperature
1	Average	0.0	80°
2	Average	2.0	82°
3	Temp Sensor 2	0.0	80°
4	Temp Sensor 2	2.0	82°

4.4 Foggers

This menu sets the operating conditions for the Foggers.

NOTE: *Foggers and cooling pads operate according to the same parameters.*





Day	Start Time	End Time	On Temp Diff	To Hum	On sec	Off sec
5	12:00	21:00	0.0	99	300	600
20	12:00	21:00	0.0	99	300	300
0	00:00	00:00	0.0	0	0	0
0	00:00	00:00	0.0	0	0	0
0	00:00	00:00	0.0	0	0	0
0	00:00	00:00	0.0	0	0	0
0	00:00	00:00	0.0	0	0	0
0	00:00	00:00	0.0	0	0	0

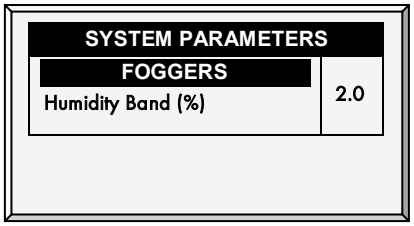
1. In *Installation* > *Relay Layout*, define a relay(s) as fogger.
2. In *Device* > *Foggers*, define the parameters below.
3. In *Device* > *Temp & Timer Settings*, scroll to each fogger.
4. Under Option, select **Prog**.

NOTE: *To enable this screen, you must select Prog.*

5. Set the Help parameters as required.
    - **Day:** Set growth day
    - **Start Time & End Time:** Time of day you want foggers to start and stop.
        - It is possible to set multiple start and stop times for single day.
        - In the screen above, the first programmed line is at day 47. The foggers do not operate before growth day 47 in this case. Since there are no entries other than day 47, the day 47 program lines apply from then on.
    - **On Temperature Difference:** Set difference from tunnel temperature to use this setting. You can use negative differential temperatures.
        - Note the settings for Day 14. Farm Premium uses the maximum temperature differential that applies to choose the correct settings.
    - **To Humidity:** Set maximum humidity allowed before stopping foggers.
    - **On Sec:** Set the maximum on time for each cycle of fogger operation.
    - **Off Sec:** Set the minimum off time for each cycle of fogger operation.

4.4.1 Foggers Help | Set Definitions

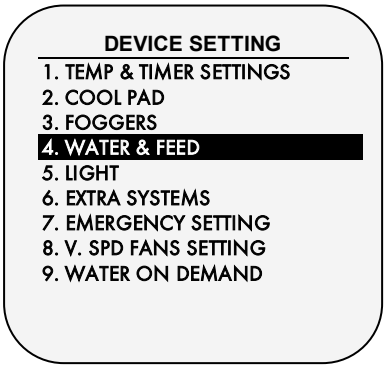
*While viewing the Foggers menu: Press **HELP**, select SET, and press **ENTER**.*

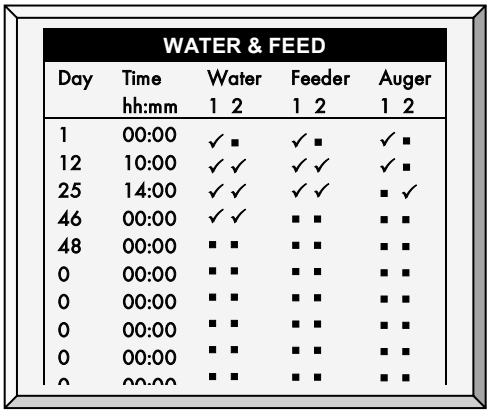


- **Humidity Band (%):** Define the on/off hysteresis relative to humidity.

4.5 Water & Feed

This menu sets the operating conditions for water and feed devices.





1. Go to Installation > Relay Layout.
2. Define the relays as required.
3. Go to Device Setting > Water and Feed.
4. Define the parameters.
    - **Day:** Set growth day.

- **Time:** Set event times for water, feeder, or auger. Check marks indicate ON at the event time, and dots indicate OFF. Toggle between check marks and dots with the +/- keys.
- **Water:** Select a check mark to mark water lines to turn on, dot the ones to turn off.
- **Feeder:** Check mark feed lines to turn on, dot the ones to turn off.
- **Auger:** Check mark auger lines to turn on, dot the ones to turn off.

NOTE: *You can implement mealtime, clean up meals and other options similarly as shown earlier in the light programs.*

4.5.1 Water and Feed Help | Set Definitions

These parameters define the feed and water delivery schedule through the week.

NOTE: *The Water and Feed parameters work in conjunction with the Lighting parameters.*

- **Daily**: Same schedule for every day of the week.
- **2 – 6 Days**: Select a cycle that lasts the number of days chosen and then repeats itself. For example, 2 Days means that the cycle lasts two days and then repeats itself.

SYSTEM PARAMETERS			
WATER & FEEDS Feed Day Cycle			2 DAYS
DAYS CYCLE			
Day:	1	2	
Feed:		√	
WATER ON NO FEED DAYS			
Start	Stop	Start	Stop
10:00	10:30	11:30	12:30

- **Week**: Select which days in the week that feed and water are delivered.

SYSTEM PARAMETERS							
WATER & FEEDS Feed Day Cycle							WEEK
DAYS CYCLE							
Day:	SUN	MON	TUE	WED	THU	FRI	SAT
Feed:	√		√	√		√	
WATER ON NO FEED DAYS							
Start 10:00		Stop 10:30		Start 11:30			Stop 12:30

NOTE: *If you choose Daily, the Scale function is always enabled. If you choose 2- 6 Days or Week, the Scale function is **disabled** on non-feeding days.*

NOTE: *If you want to provide feed every day, select Daily. Selecting Week and marking each day, causes problems with this function.*

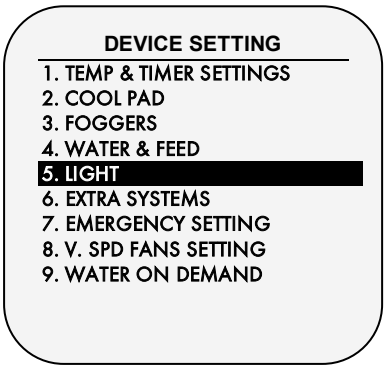
If you select the 2 – 6 Day schedule or the Week schedule, configure:

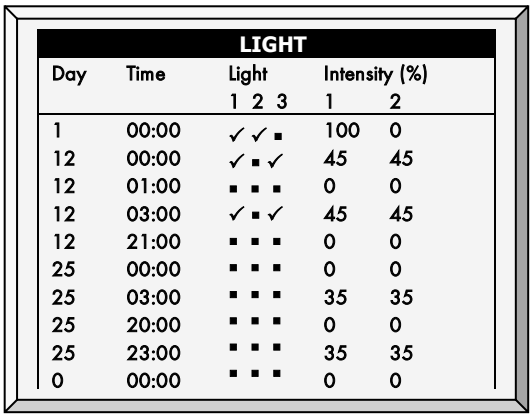
- **Days Cycle (2 – 6 Days)**: Select which days in the cycle that feed and water is delivered.
- **Week Cycle**: Select the days that feed and water is delivered.
- **Water on No Feed Days**: Select up to two time periods when water is delivered on non-feed days.

NOTE: *On feed days, water is delivered when feed is delivered.*

4.6 Light

This menu sets the operating conditions for lights. The controller has a capacity for up to four channels of *On/Off Lights* and up to four channels of *Dimmer Lights*.





LIGHT

Day	Time	Light 1	Light 2	Light 3	Intensity (%) 1	Intensity (%) 2
1	00:00	✓	✓	▪	100	0
12	00:00	✓	▪	✓	45	45
12	01:00	▪	▪	▪	0	0
12	03:00	✓	▪	✓	45	45
12	21:00	▪	▪	▪	0	0
25	00:00	▪	▪	▪	0	0
25	03:00	▪	▪	▪	35	35
25	20:00	▪	▪	▪	0	0
25	23:00	▪	▪	▪	35	35
0	00:00	▪	▪	▪	0	0

The configuration of this menu is dependent on the Water and Feed Help | Set Definitions (page 32) configuration:

- If you select Daily, the above screen appears when you select Light; configure the Light menu once.
- If you select 2 – 6 Days or Week, the screen below appears.

1. Select **Feed** and press **Enter**. The Light parameters screen appears. These parameters configure the Light functions on feed days.

2. Configure the parameters.

3. Select **No Feed** and press **Enter**. The Light parameters screen appears. These parameters configure the Light functions on non-feed days.

4. Configure the parameters.

- **Day:** Set Growth Day

In the example, the brood lights (channel 1) and bright center lights (channel 2) turn on from day 1, while the grow end lights (channel 3) are off. The example shows two channels of light dimmer, Channel 1 at 100% and Channel 2 at 0% (for baby chicks in the brood zone).

- **Time:** Set event times for the lights.
    - On day 12, the center lights turn off, and the dimmer lights go to 45%. There are two periods of darkness: from 01:00 to 03:00 in the morning, and 09:00 PM to midnight. This program repeats until day 25.
    - From day 25 the on/off lights stay off, and the dimmer lights provide dim light during the on periods, and go out fully for two periods of darkness. The dark periods total 6 hours, being from midnight to 03:00 AM and from 08:00 PM (20:00) to 11:00 PM (23:00).

- **Light:** Check mark the desired light(s) you would like to turn on. Apply dots for lights you would like to turn off. Switch between check marks and dots by pressing the +/- key.
- **Intensity (%):** Set intensity in percentage for light dimmer(s). Dimmer lights start to brighten if the intensity increases, and complete dimming if the intensity decreases at the set time. That is, they start dimming the 'sunset time' in advance of the set time (see **Help | Set** below).

4.6.1 LIGHT HELP | SET DEFINITIONS

*While viewing the Light menu: Press **HELP**, select SET, and press **ENTER**.*

DEVICE SETTING	
LIGHT	
Sunrise Time (minutes)	0
Sunset Time (minutes)	0
Allow Spiking from Day	0
Spike Cycle (minutes	0
Spike Duration (minutes)	0
Spike Increase Amount (%)	0
Signal Light Is:	LIGHT2
Signal Before Feed (seconds)	60
Signal During Feed (seconds)	60
Light Sensor Active	

- **Sunrise Time (minutes)**: The amount of time required for the light intensity to rise from 0% to the designated level.
- **Sunset Time (minutes)**: The amount of time required for the light intensity to decline from the designated level to 0%.
- **Allow Spiking from Day**: The day spiking begins.
- **Spike Cycle (minutes)**: The time length that the spike is at its maximum level. Reaching the maximum level and returning to the preset level both take one minute. For example if the spike duration is 10 minutes, the spike cycle is 8 minutes.
- **Spike Durations (minutes)**: The total amount of time of the spike cycle, including the rise and fall times.
- **Spike Increase Amount**: Set the increase in intensity for the spike in relation to the current light intensity.
- **Signal Light Is**: Only one light operates during feeding times. Select which light is lit or choose "None".

NOTE: *After the feeding period ends, all lights selected in the Light Parameters screen relight.*

- **Signal Before Feed (seconds)**: Amount of time, before the feeding starts, that all other lights go off.
- **Signal During Feed (seconds)**: Amount of time that the selected light remains on after feeding ends.

NOTE: *The above two parameters are disabled on no feed days.*

- **Light Sensor Active**: The light sensor turns off all lights when sufficient outside lights exists (refer to Light Sensor Calibration, page 66). If a light sensor is installed, enable this option to turn off the light during feeding time when there is sufficient outside light.

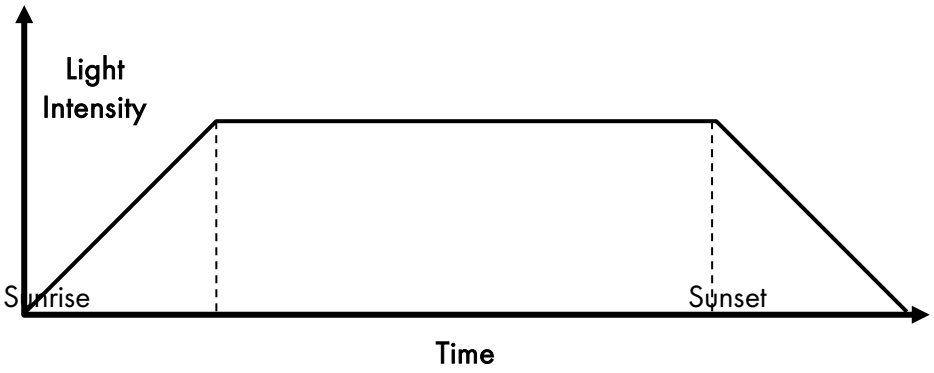


Figure 7: Lighting without Spiking

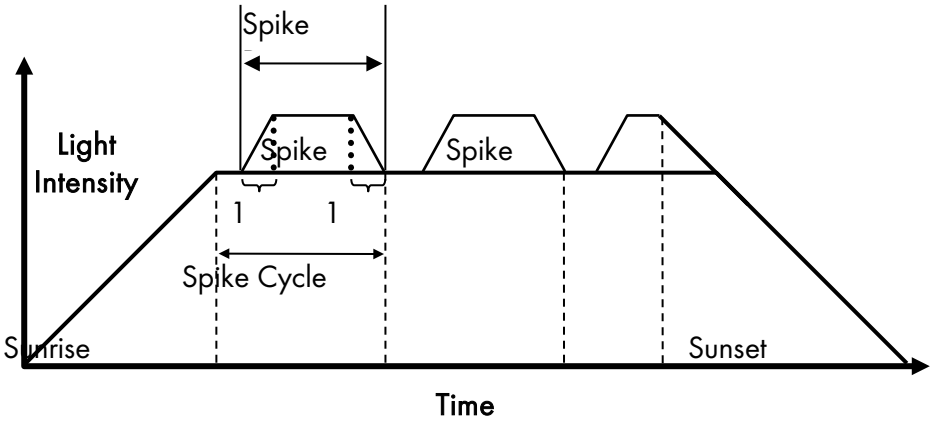
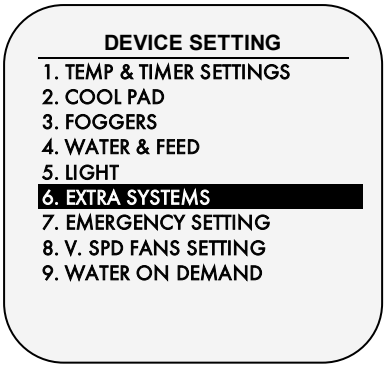


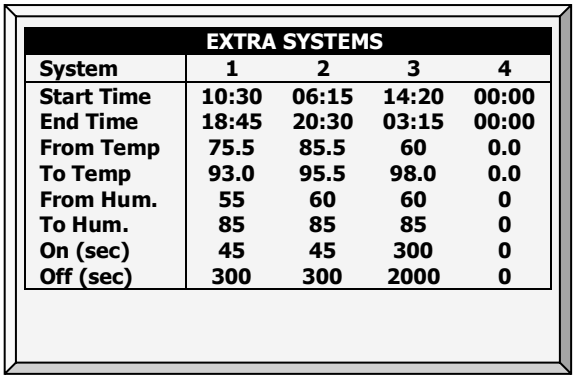
Figure 8: Lighting with Spiking

NOTE: *The initial reference time for the Spike Cycle is the end of Sunrise. The spike begins Spike Duration minutes before the end of the Spike Cycle, and has one minute up and down ramps in intensity. If Sunrise Duration is set to zero, no spiking occurs.*

4.7 Extra Systems

This menu is for setting the parameters of the other devices that are not listed in the controller.





EXTRA SYSTEMS				
System	1	2	3	4
Start Time	10:30	06:15	14:20	00:00
End Time	18:45	20:30	03:15	00:00
From Temp	75.5	85.5	60	0.0
To Temp	93.0	95.5	98.0	0.0
From Hum.	55	60	60	0
To Hum.	85	85	85	0
On (sec)	45	45	300	0
Off (sec)	300	300	2000	0

- **Start Time:** Time at which this Extra System starts.
- **End Time:** Time at which this Extra System stops.
- **From Temp:** Temperature above which Extra System operates.
- **To Temp:** Temperature below which Extra System operates.
- **From Humidity:** Humidity above which Extra System operates

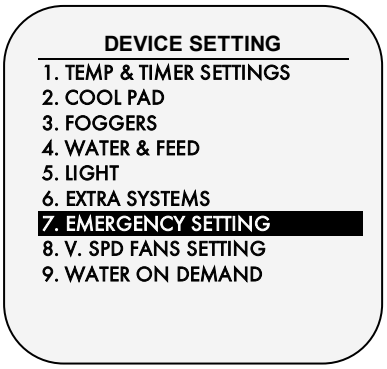
- **To Humidity:** Humidity below which Extra System operates.
- **On (sec):** On time for the Extra System. If set to 0, the extra system does not operate.
- **Off (sec):** Off time for Extra System after completion of on time. If you have values in both ON and Off, the extra system cycles. If you have zero OFF time, and any ON time, the system simply stays on as long as the other parameters are satisfied.

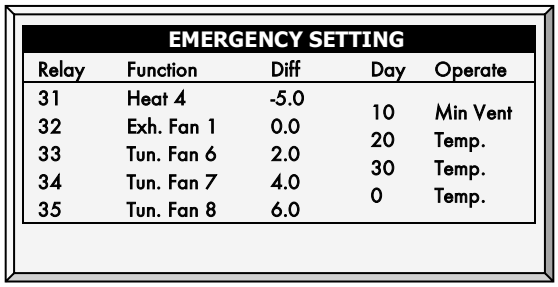
NOTE: *All parameters must be satisfied for an Extra System to operate. If the temperature is below the From Temperature or the Humidity below the From Humidity for example, the system is OFF. You can assign specific temperature sensors to an Extra System in Install | Temp Definition. The Extra System uses the Inside Humidity, not the Outside Humidity. If there is no humidity sensor, the Extra Systems ignore the humidity parameters.*

4.8 Emergency Setting

This selection applies to optional emergency cards. These cards are battery backed, and operate as standard switch and relay cards during normal operation. If an emergency occurs, the cards continue to operate according to their emergency settings.

➲ **This function requires installing an Emergency card.**





EMERGENCY SETTING

Relay	Function	Diff	Day	Operate
31	Heat 4	-5.0		
32	Exh. Fan 1	0.0	10	Min Vent
33	Tun. Fan 6	2.0	20	Temp.
34	Tun. Fan 7	4.0	30	Temp.
35	Tun. Fan 8	6.0	0	Temp.

- **Relay:** The Farm Premium determines the relay numbers automatically from the position in the controller in which the Emergency Switch card is installed.
- **Function:** Assign the relay function in Install | Relay Layout. Your selections will likely be different from the example above. The Farm Premium does not allow certain selections for the emergency functions.
- **Differential**: The difference from target temperature at which the device operates during emergency operation.
- **Day**: After this day, the device operates continuously without regard to temperature setting during emergency operation. In this example:
    - Exhaust Fan 1 operates up to the target temperature using the Min Vent timer calculated in Help | Set on the next page, and continuously above the target temperature. However, from Growth Day 10 forward, the fan operates continuously without regard to temperature.
    - Tunnel Fan 6 is off below 2.0° + Target, and operates continuously if the temperature is more than 2.0° above Target Temperature. However, if the Growth Day is 20 or greater, Tunnel Fan 6 operates continuously without regard to temperature during emergency conditions.
- **Operate**: Choose whether the Min Vent timer applies to this device or only the temperature differential.

4.8.1 Emergency Setting Help | Set Definitions

? *While viewing the Emergency Setting menu: Press **HELP**, select SET, and press **ENTER**.*

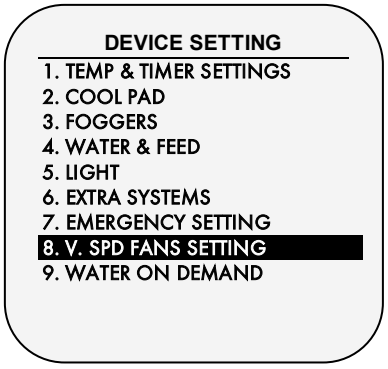
SYSTEM PARAMETERS	
EMERGENCY SETTING	
Diff Above Target For Emergency	15.0
Diff Below Target For Emergency	-10.0
Min. Vent On Time Day 1 (sec)	30
Min. Vent Off Time Day 1 (sec)	270
Min. Vent On Time Day 21(sec)	300
Min. Vent Off Time Day 21(sec)	0
Delay Time to Start Fans (sec)	30

- **Diff above target for emergency:** Set a value above temperature target at which the emergency card enters emergency operation.
- **Diff below target for emergency:** Set a value below temperature target at which the emergency card enters emergency operation.
- **Min. vent on time day 1 (sec):** Set the minimum ventilation on time for 1-day-old birds in this parameter. The card calculates run times between days 1 to 21.
- **Min. vent off time day 1 (sec):** Set the off time for minimum ventilation cycle timer during emergency for growth day 1
- **Min. vent on time day 21 (sec):** Set the on time for minimum ventilation for three-week old birds.
- **Min. vent off time day 21 (sec):** Set the off time for minimum ventilation cycle timer during emergency for growth day 21.
- **Delay time to start fans (sec):** Set a delay time for the card to wait upon entering emergency before starting fans. This delay gives air inlet devices time to pre-position before fans turn on and build static pressure. Otherwise, the static pressure could cause air inlet curtains to stick to wire mesh barriers.

4.9 Variable Speed Fan Setting

This section details the configuration procedure.

➲ **This function requires an Analog Output card in the controller.**



1. In *Installation* > *Analog Output*, configure:
   a. analog outputs as variable speed fans.
   b. the minimum and maximum voltage output for each fan.

ANALOG OUTPUT				
Output Number	Function	No.	Min V. Out	Max V. Out
1	Tunnel Fan	1	0.0	0.0
2	Tunnel Fan	3	0.0	10.0
3	Exhaust Fan	3	0.0	10.0
4	Stir Fan	1	0.0	0.0
5	<None>			
6	<None>			
7	<None>			
8	<None>			

2. In *Device > Variable Speed Fans Setting*, set the following parameters (refer to Figure 7):

VAR. FAN#	Min	Max
Tun.Fan3	30	100
Exh.Fan3	30	100
3	30	100
4	30	100

- Min: The minimum fan speed/analog output (in percentage)
- Max: The maximum fan speed/analog output (in percentage)

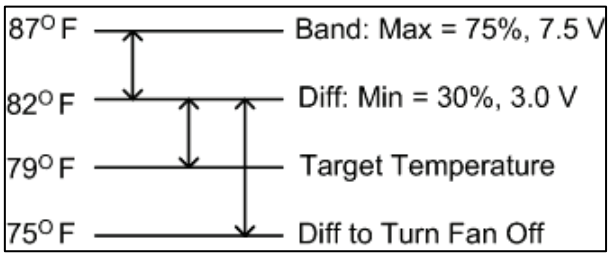


Figure 9: Variable Speed Fan Example

3. Set the Help parameters as required.
4. In Device > Tem & Timer Settings, scroll to MT.
5. Enable M and/or T as required.
6. Under Option, select the on/off schedule:
   - Min.V: When in minimum ventilation, fans run on the schedule defined in *Control > Minimum Vent Timer*.
   - —: When in minimum ventilation, fans run continually.

4.9.1 Variable Speed Fan Help | Set Definitions

? *While viewing the V. SPD Fans Setting: Press **HELP**, select SET, and press **ENTER***

SYSTEM PARAMETERS	
V. SPEED SETTING	
Diff to Turn Fan Off	-36.0
Day to Disable Fan Off	0

- Diff to Turn Fan Off. If required, the variable fan can operate at minimum ventilation below the Target Temperature. This parameter configures the temperature below the Target Temperature at which ventilation runs at minimum. In Figure 7, the F. MV Off is 7° F. Default is 0° F
- Day to Disable Fan Off: The growth day at which the variable speed fan ceases to operate

4.10 Water on Demand

The Water on Demand (WOD) function enables regulating the pressure of all nipple lines in the house from one central point, ensuring uniform pressure in all lines. The function also enables immediate transitioning between different preset pressures of all nipple lines in the house by closing and opening of valves at the central point (manual or solenoid according to the mode installed).

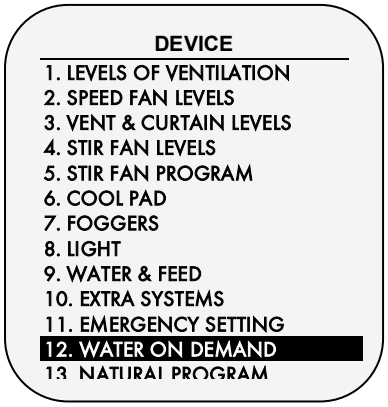
Farm Premium enables controlling the water cycle times using relays and controlling the water pressure using analog input and output sensors. The two methods are complimentary. A user can use either one alone or both.

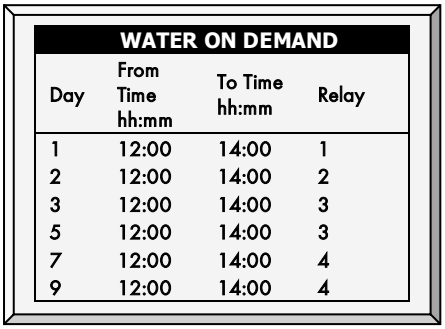
- Relay Control
- Sensor Control

NOTE: The two methods are complimentary.

4.10.1 Relay Control

You can specify up to 50 time periods.





WATER ON DEMAND

Day	From Time hh:mm	To Time hh:mm	Relay
1	12:00	14:00	1
2	12:00	14:00	2
3	12:00	14:00	3
5	12:00	14:00	3
7	12:00	14:00	4
9	12:00	14:00	4

1. In *Installation* > *Relay Layout* designate up to four relays as WOD valves (relays 179 to 182). Refer to page 75 for details.
2. In *Device* > *Water on Demand*, configure the following parameters:
   - **Day**: Specifies the day to activate the selected WOD valve
   - **From Time/To Time**: Specifies the time to activate and deactivate the specified WOD valve
   - **Relay**: Specifies the WOD valve to be activated
3. Set the WOD alarms in Alarm Setting Help | Set Definitions, page 44.

4.10.2 Sensor Control

NOTE: When using sensor control, WOD status appears on the Main Screen, Hot Screen 7, and Hot Screen 0.

WATER ON DEMAND				
Day	From Time hh:mm	To Time hh:mm	WOD	Press IN. W.C
1	12:00	14:00	1	30.00
2	12:00	14:00	2	20.00
3	12:00	14:00	3	15.00
5	12:00	14:00	3	10.00
7	12:00	14:00	4	10.00
9	12:00	14:00	4	5.00

To add precision measurements:

1. To control the water valve opening, **In** *Installation* > *Analog Output*:
   a. designate one output device as Water on Demand Precision.
   b. set the minimum input and output voltages.
2. In *Installation* > *Analog Sensor*, designate one sensor as **Water of Demand Pre**. This setting enables a sensor to measure the water flow.
3. In *Device* > *Water on Demand*, configure the following parameters:
   - **Day**: Specifies the day to activate the selected WOD valve
   - **From Time/To Time**: Specifies the time to activate and deactivate the specified required pressure.
   - **Pressure**: Specifies the required water pressure. The unit that appears is the unit defined in *Installation* > *Setup* (pressure unit) (page 74).
4. In *Device* > *Water on Demand* > *Help* set the parameters (optional).

5. In *Service* > *WOD Calibration*:
   a. Enter the first pressure and voltage data points.
   b. Repeat for second data point.
   c. Set the Help definitions (optional, refer to WOD Calibration Help | Set Definitions, page 73).
6. Set the WOD alarms in Alarm Setting Help | Set Definitions, page 44.

4.10.3 Water on Demand Help | Set Definitions

SYSTEM PARAMETERS	
Water Pres. During Flush:	0
Relay Active During Flush:	0

- **Water Pressure During Flush**: Designate the system water pressure when nipple flush is operative.
- **Relay Active During Flush**: Designate which WOD relays remain active during flushing.

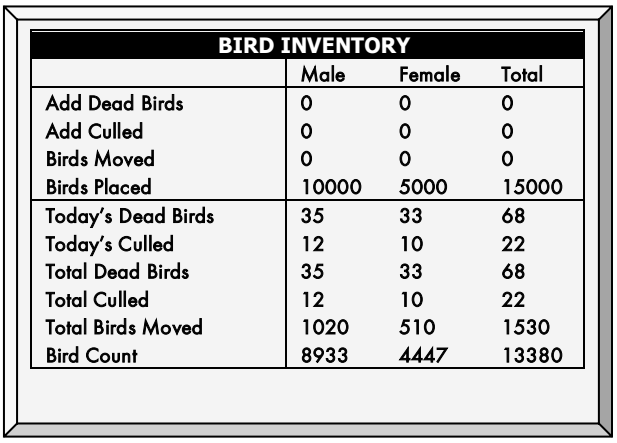
5 Management Menu

This section details the Management Menu.

- Bird Inventory, page 41
- Feed Inventory, page 42
- Time & Date, page 43
- Growth Day & Flock, page 43
- Alarm Setting, page 43
- Alarm Reset, page 46
- Fail Safe Setting, page 46
- Password, page 47
- Relay Current, page 47

5.1 Bird Inventory

Maintain your bird inventory by entering data into the controller.



BIRD INVENTORY

	Male	Female	Total
Add Dead Birds	0	0	0
Add Culled	0	0	0
Birds Moved	0	0	0
Birds Placed	10000	5000	15000
Today's Dead Birds	35	33	68
Today's Culled	12	10	22
Total Dead Birds	35	33	68
Total Culled	12	10	22
Total Birds Moved	1020	510	1530
Bird Count	8933	4447	13380

- Maintain bird inventory by entering quantities in the upper half of the screen. There are separate columns for male and female. If you do not wish to keep separate data, simply enter the data into one or the other.
- Initially, enter the number of birds **placed**. Thereafter, enter the quantity found **dead**, **culled** (Add Culled) or **moved** as needed. The Farm Premium shows totals and subtotals in the lower portion of the screen.
- You can correct an error, so long as you correct it on the same day before midnight, by entering a negative quantity (press the +/- key after the number) to subtract the error. After midnight, the information transfers to the HISTORY Menu.

5.2 Feed Inventory

Maintain your feed inventory by entering data into the controller.

MANAGEMENT

1. BIRD INVENTORY
2. FEED INVENTORY
3. TIME & DATE
4. GROWTH DAY & FLOCK
5. ALARM SETTING
6. ALARM RESET
7. FAIL SAFE SETTING
8. PASSWORD
9. RELAY CURRENT

FEED INVENTORY

No.	Date	Silo 1	2	3	4
1	2-Jan-12	7800	0	0	0
2	5-Jan-12	0	9000	15000	10000
3	13-Jan-12	8000	0	0	0
4	- -	0	0	0	0
5	- -	0	0	0	0
6	- -	0	0	0	0
7	- -	0	0	0	0
8	- -	0	0	0	0
Total Feed:	ACTIVE	15800 √	9000 √	150000 √	10000 √

To enter feed inventory manually:

1. Type the day of the month and press **ENTER**.
2. Select the month and press **ENTER**.
3. Type the two-digit year and press **ENTER**.
4. Enter the quantity under the Silo.
5. To delete an entry, change the quantity to zero for both feed bins and press **ENTER**. Exit the menu and the entry disappears when you enter the menu again.

If you have installed load cells and connected feed bin scales to your Farm Premium, it automatically maintains feed inventory, including delivery dates and feed consumption data. You can monitor your fill system and maintain approximate feed inventory using the Digital Inputs. In this case, you need to enter your own delivery dates.

This information transfers to the *HISTORY > Water & Feed* menus daily, and optionally as often as selected (by the minute) in History View.

5.2.1 Feed Inventory Help | Set Definitions

SYSTEM PARAMETERS

FEED INVENTORY	
Total Feed In Silo-1	0
Total Feed In Silo-2	0
Total Feed In Silo-3	0
Total Feed In Silo-4	0
Active Feed Bin	F.BIN1

- **Total Feed in Bin-1-4:** Manually change or correct the amount of feed in the bins.
- **Active Silo**: Select the required silo for use. It is possible to select all.

5.3 Time & Date

This menu sets the current time and date for the controller.

TIME & DATE	
Current Time	09:19
Date	10-Mar-08
Day of the Week ▶	SUNDAY

- **Current Time:** Enter the current time in 24 hour.
- **Date:** Enter the date in day-month-year format.
- **Day of the Week:** Select the day of the week from the drop down menu.

5.4 Growth Day & Flock

This menu defines the number of growth days and flock number.

Growth Day & Group	
Current Growth Day	27
Group No.	1
New Group	NO

- **Current Growth Day:** Enter current growth day, if necessary. It is possible to enter negative growth days up to -2. If you reset the growth day for a new flock using this tool, your old history data does not clear. Use New Flock function to clear out old history in preparation for new birds.
- **Flock No.:** The controller automatically increments the flock number each time you choose New Flock. You can edit the flock number. Since this field accepts six digits, some producers enter a flock number that is made of the day, month and year the birds arrived.
- **New Flock:** Use the new flock function on arrival of a new set of birds to set the growth day back to 1, 0, -1, or -2, and to clear out old history data.

5.5 Alarm Setting

This menu defines the various alarm settings.

MANAGEMENT

1. BIRD INVENTORY
2. FEED INVENTORY
3. TIME & DATE
4. GROWTH DAY & GROUP
5. ALARM SETTING
6. ALARM RESET
7. FAIL SAFE SETTING
8. PASSWORD
9. RELAY CURRENT

ALARM SETTING	
Global Alarm Delay (sec)	1
Alarm Reminder (min., 0-Disable)	30
SENSOR ALARM	
Sensor Low Temp. Range	32.0
Sensor High Temp. Range	122.0
Sensor Alarm-Diff From Lo. Alarm	1.0
Sensor Alarm-Diff From Hi. Alarm	1.0
ALARM	
Alarm Test At Time: (hh:mm)	12:00
Day Of Alarm Test: ▶	DAILY
Alarm Test Duration (sec)	0
AUGER OVERTIME ALARM	
Auger Overtime Delay (minute)	15

NOTE: *See Fail Safe Setting, page 46.*

- **Global Alarm Delay (sec):** Alarms without a separate alarm delay, use this global delay before signaling the alarm.
- **Alarm Reminder (min., 0-Disable):** Set a reminder after a period of time in minutes if the situation has not yet been corrected.

Sensor Alarm

- **Sensor Low Temperature Range:** Sets the minimum reading a sensor can have to be considered a valid sensor reading. Sensor readings below this are rejected. This generates a sensor out of range alarm. This does not apply to the special Circuit Breaker Sensor or Outside Temperature Sensor.
- **Sensor High Temperature Range:** Sets the maximum reading a sensor may have to be considered a valid sensor reading. Sensor readings above this reading are rejected. This generates a sensor out of range alarm. This does not apply to the special Circuit Breaker Sensor or Outside Temperature Sensor.
- **Sensor Alarm-Differential from Low Alarm:** Individual sensor (or zone) alarm if any active sensor reads this much or more below the Control | Temperature Curve | Low Alarm Temperature.
- **Sensor Alarm-Differential from High Alarm:** Individual active growth area sensors alarm if they read this much or more above the Control | Temperature Curve | High Alarm Temperature.

Alarm

- **Alarm Test at Time:** Schedule an alarm test at a particular time.
- **Day of Alarm Test:** Choose **Daily** or a particular **day** of the week for the scheduled alarm.
- **Alarm Test Duration (sec):** Choose a specific duration for the Alarm Test.

Auger Overtime Alarm

- **Auger Overtime Delay (minute):** Set the maximum auger run time for your cross fill system. If you have a monitor connected to the digital inputs programmed as Feeder-1 Overtime or Feeder-2 Overtime the Farm Premium sends an alarm after this delay.
- **Feeder Off During Overtime:** Choose whether to shut the feed systems off after a feeder overtime alarm. Options:
  - **No:** All augers and feeders remain on.
  - **All:** Al augers and feeders shut down.
  - **Related:** Only the specific auger from which the alarm originated and it feeders shut down.

NOTE: *If you choose All or Related, the feed system turns off, and does not resume until activating Reset Alarm in the Management Menu.*

Auger Empty Alarm

- Condition Detection Delay (sec): Farm Premium sends an alarm when the current goes to the level set in the following parameter after this delay.
- Below Nominal Current (%): Send an alarm when the nominal current drops to the level set here.

NOTE: *This alarm is operative only if 1) Current Sense Relays are installed and calibrated 2) augers have been calibrated.*

5.5.1 Alarm Setting Help | Set Definitions

SYSTEM PARAMETERS	
ALARM SETTING	
Advanced Alarms	YES

- **Advanced Alarms:** When selecting YES, the following additional alarms appear on the ALARM SETTINGS screen (press MENU and then ENTER to reenter the screen):

Water on Demand Alarms

- **High/Low Pressure Diff (PSI)**: Sends an alarm when the difference between the current WOD pressure and the defined pressure reaches these levels. 0 means that the alarm is disabled.
- **Shutdown Pressure Diff (PSI)**: Shuts down the Water on Demand system when the pressure reaches this level.
    - Shutdown pressure must be equal to or higher than the High/Low Pressure Difference.
    - However, to disable this alarm set it to 0 (zero), even if the High/Low Pressure is above 0.

Feed Alarms

- **Allow Feed Alarm From/To:** Set a starting time from which the controller can send feed shortage alarms.
- **Silo 1/2/3/4 Low Feed Alarm Limit:** Alarm if feed in Bin 1/2 is below this limit and time is between From and To limits.

Water Overflow Alarms

- **Overflow According to Light Table:** Change overflow alarm level when the lights are off.
- **First Day Curve for Overflow:** Overflow on the FIRST day applies to the first day operation. You can define a first day at which to start increasing the overflow limit automatically. Days prior to the 'First Day' use the First Day overflow limit; days following the first day have an incremental curve toward the LAST DAY OVERFLOW parameter setting.
- **Overflow at First Day:** Number of gallons/liters per minute that generate an overflow alarm on the first day.
- **Last Day Curve For Overflow:** Set the last day for the overflow curve.
- **Overflow on Last Day:** Overflow (Gallons/Liters) on the last day sets the maximum overflow limit will be continued after that day.
- **Overflow At Dark:** Select overflow limit. When it is dark, controller checks every minute.
- **Overflow Alarm Delay:** Define delay time before the controller generates an overflow alarm.
- **Extra Delay At Light Start:** When the first light appears, define the amount of minutes before the controller begins to operate according to the set overflow for that day.
- **Fogger Water Overflow:** Define the water overflow for foggers (per minute).

Water Shortage Alarms

- **Allow Water Shortage Alarm From/To:** Set the period for which the controller generates water shortage alarms.
- **Shortage During Lights Off:** Select whether water shortage alarm should be disabled when all lights are out.
- **Quantity for Shortage:** Minimum flow rate that must be maintained or a water shortage alarm is generated.
- **Shortage Alarm Delay:** Minimum period of time that the shortage must extend through before generating an alarm.

Bird Scales Alarms

- **Allow Bird Scale Alarms From/To:** Set time frame for which the controller begins and ends generating alarms for the bird scale.

Auxiliary Alarms

Assign auxiliary alarms in the Install menu. Note that digital sensors, auxiliary alarm input with related relay must always match their relay status.

- **Related Relay For Aux Alarm 1/2/3/4**: Relay for Auxiliary Alarm 1/2/3/4.

- **AUX. Alarm Delay (sec):** Separate from the **Global Alarm Delay**. If there is a dry contact, the alarm is sent after the defined **AUX. Alarm Delay**.

Circuit Breaker Alarm

- **Temperature for Circuit Breaker Alarm:** Set circuit breaker alarm temperature.

CO2 Sensor Alarm

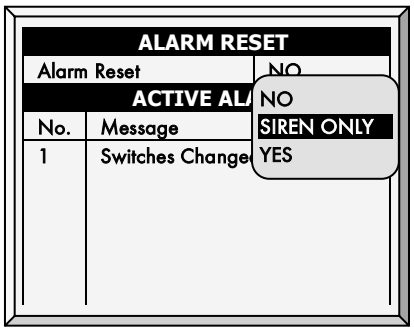
- CO2 High Level: Set the maximum allowed CO2 level above which an alarm is sent. The alarm ceases when the humidity drops below this level. If the user acknowledges the alarm, the alarm messages temporarily cease (for the reminder time).

Humidity Sensor Alarm

- Humidity High Level Alarm: Set the maximum allowed humidity level above which an alarm is sent. The alarm ceases when the humidity drops below this level. If the user acknowledges the alarm, the alarm messages temporarily cease (for the reminder time).

5.6 Alarm Reset

This menu functions as an alarm and siren reset.



- Alarm Reset:
  - **NO:** Does not reset alarms
  - **SIREN ONLY:** Resets only the siren; alarms remain
  - **YES:** Resets alarms

  Select **YES** to reset the alarm function:
- Clears the alarm relay for all current alarms. The alarms may remain valid, but the unit does not register new alarms. If a new alarm occurs, or an existing alarm clears and reoccurs, the alarm relay signals again (after any appropriate delay).
- To restore normal operation after an emergency pressure or feed overrun incident. If the controller experiences a high-pressure alarm for too long, it enters emergency pressure operation by opening all known air sources. Curtains open to preset amounts as set in Static Pressure Help | Set (page 23). If you select SIREN ONLY, the alarm relay returns to the no alarm condition, but the emergency pressure status continues.
- To restore normal operation after a feed overrun situation that calls for turning off the feeding system. If the feed monitor senses the cross auger runs too long, it trips a feed overrun alarm and optionally turns off the feed system. If you select SIREN ONLY, the alarm relay returns to the no alarm condition, but the feed overrun status continues.
-

5.7 Fail Safe Setting

When there is a problem, the fail-safe function activates a backup system immediately to ensure that adequate ventilation continues. Commonly a standard relay is held normally closed by software. When

the controller powers off or one of these alarms occurs, the fail-safe triggers causing the backup to take over.

FAIL SAFE SETTING	
Alarm Type	Select
High Temp.	✓
Low Temp.	-
Low Static Pressure	✓
High Static Pressure	✓
Avg. Temperature Fail	-
AUX.	-

The Farm Premium has six options besides controller failure or power off to activate the fail-safe relay. Check the additional settings to apply by using the '+/-' key:

- **High/Low Temperature:** Select to trigger fail-safe when the temperature is exceptionally high/low.
- **Low/High Static Pressure:** Select to trigger fail-safe when the static pressure is exceptionally low/high.
- **Avg. Temperature Fail:** Select to trigger fail-safe when all sensors in house fail.
- **AUX:** Select to trigger fail-safe when auxiliary dry contact occurs.

5.8 Password

PASSWORD	
Owner Password	____
User-1 Password	____
User-2 Password	____
User-3 Password	____
User-4 Password	____
User-5 Password	____
Visitor Password	

The owner can set new passwords for himself, all users and the Visitor. The owner cannot see user passwords once entered or changed by the users. The users can access the controller and make changes to all controller settings and their own password. A user can see and change his password only. The visitor can access the controller, but cannot make changes. Each time someone accesses the controller with a password, an event is recorded in the **HISTORY | Table of Events**.

NOTE: If your controller uses passwords, the controller also requires a password entry to acknowledge switch position changes. If the switch change is not acknowledged the controller signals an alarm.

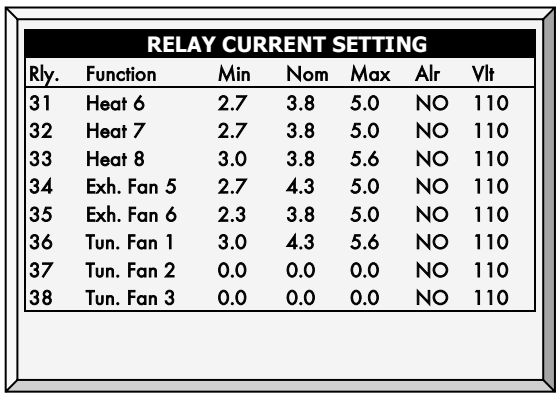
5.9 Relay Current

➲ **The Relay Current feature supports single phase electricity only.**

This menu configures the relay current sense parameters. You can configure:

- the minimum and maximum amperage flowing to the relays
- the relay current alarm
- voltage type

NOTE: Configuring the amperage is not required. The Farm Premium controller automatically configures default settings.



RELAY CURRENT SETTING

Rly.	Function	Min	Nom	Max	Alr	Vlt
31	Heat 6	2.7	3.8	5.0	NO	110
32	Heat 7	2.7	3.8	5.0	NO	110
33	Heat 8	3.0	3.8	5.6	NO	110
34	Exh. Fan 5	2.7	4.3	5.0	NO	110
35	Exh. Fan 6	2.3	3.8	5.0	NO	110
36	Tun. Fan 1	3.0	4.3	5.6	NO	110
37	Tun. Fan 2	0.0	0.0	0.0	NO	110
38	Tun. Fan 3	0.0	0.0	0.0	NO	110

NOTE: Calibrate the relay before configuring these parameters. Refer to Current Sense Relay Calibration, page 71. Relays that are not calibrated (or if the relay is not a Current Sense relay) do not display amperage readings (see relays 37 and 38 in the above figure).

To configure the relay current:

1. Using the arrow buttons, select a minimum or maximum amperage setting.
2. Configure the parameter as required.

NOTE: The minimum amperage must be greater than the default minimum and the maximum amperage must be less than the default maximum. For example, relay 35's amperage must be more than 2.3 and less than 5.0 amps.
The Nom amperage is the parameter set when calibrating the relay (refer to page 71).

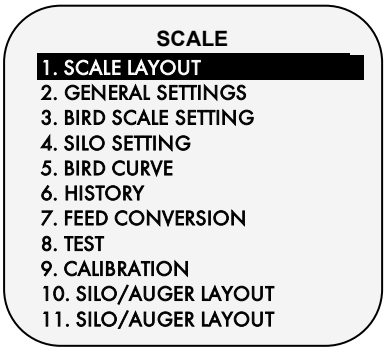
3. Configure the alarm:
   - No: Alarms are not sent in the event of low or high current
   - Yes: Alarms are sent in the event of low or high current
   - No at zero: The controller sends an alarm if the current is low or high, but not if power is cut off entirely.
4. Configure the voltage: Select 110 or 220 volts.

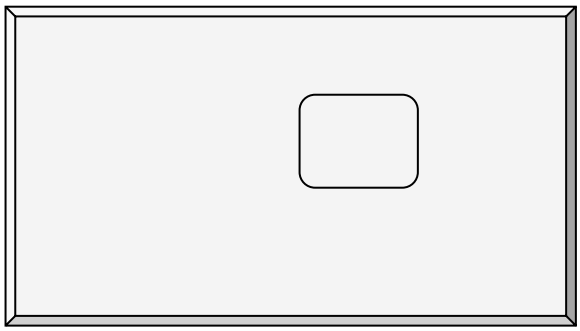
6 Scale Menu

- Scale Layout, page 49
- General Settings, page 49
- Bird Scale Setting, page 50
- Feed Bin Setting, page 51
- Bird Curve, page 52
- History, page 52
- Feed Conversion, page 53
- Test, page 53
- Calibration, page 53

6.1 Scale Layout

Use Scale Layout to define the scales or feed bins connected to the controller.

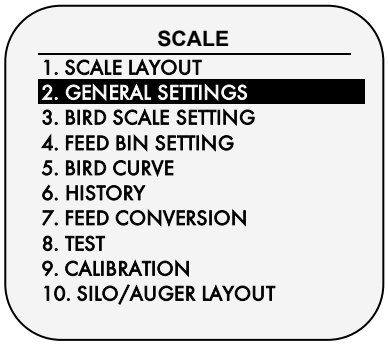


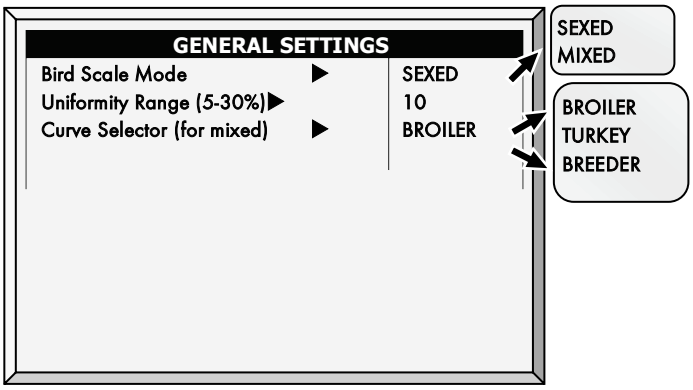


Define weighing device attached to each channel of the scale option card. I t is possible to program either bird scale and/or silo scale.

6.2 General Settings

This menu sets general weighing parameters.





- **Bird Scale Mode:** Select the weighing method:

- SEXED: Considers all birds to be the same sex or 'unisex' as in mixed broilers. It computes its own reference weight or acceptable range from the weighed birds.
- MIXED: Considers the flock to be mixed males and females, with the goal of identifying each bird weight as male or female, which is, classifying it according to a pre-programmed pair of expected weight curves.

- **Uniformity Range (5-30%):** Controller classifies bird weights within this percentage of the average as uniform. Default is 10%.
- **Curve Selector (for mixed):** There are three standard pairs of pre-programmed weight curves. If you use the mixed weighing method, edit the curves to match your expected growth profile (**BROILER**, **TURKEY**, or **BREEDER**).

6.2.1 General Settings Help | Set Definitions

*While viewing the **General Settings** menu: Press **HELP**, select SET, and press **ENTER.***

BIRD CURVE	
Factory Default Curve	No

- **Factory Default Curve:** Select **YES** to return bird curves to the factory default settings.

6.3 Bird Scale Setting

There are two different weighing options available; the option can be selected in the previous section SCALE | General Settings.

SCALE
1. SCALE LAYOUT
2. GENERAL SETTINGS
3. BIRD SCALE SETTING
4. FEED BIN SETTING
5. BIRD CURVE
6. HISTORY
7. FEED CONVERSION
8. TEST
9. CALIBRATION
10. SILO/AUGER LAYOUT

BIRD SCALE SETTING - SEXED	
Start Time	18:00
End Time	19:00
Range – (0 – 100%)	30
Reference Weight 1	0.13
Reference Weight 2	0.11

BIRD SCALE SETTING - MIXED	
Start Time	18:00
End Time	19:00
Male Range	
Upper	20
Lower	10
Female Range	
Upper	20
Lower	10

- **Start Time:** Set the hour you would like the scale to begin weighing
- **End Time:** Set the hour you would like the scale to stop weighing

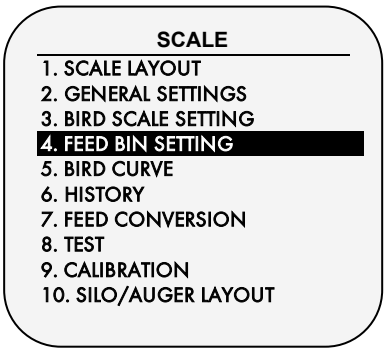
- **Start Time:** Set the hour you would like the scale to begin weighing
- **End Time:** Set the hour you would like the scale to stop weighing

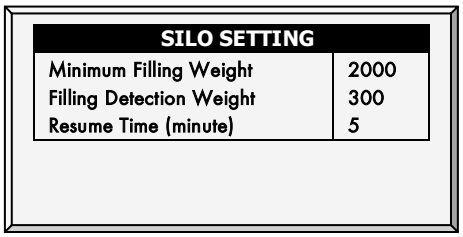
- **Upper Range:** Band above reference weight
- **Lower Range:** Band below reference weight
- **Reference Weight 1:** Starting out weight for scale 1
- **Reference Weight 2:** Starting out weight for scale 2
- **Male Range:** Band above and below male reference weight
- **Female Range:** Band above and below female reference weight

6.4 Silo Setting

These settings help you monitor your feed bin through weighing. There are two events that take place, emptying (feeding) and filling (loading).

NOTE: *Feed Bin-1 and/or 2 MUST be defined in **Scale Layout** for the following parameters to be functional.*





- **Minimum Filling Weight** (Default: 2000 Kg): Define weight required to be filled during loading in order to be recorded in History – Feed; History – ; Scale – Feed Conversion
- **Filling Detection Weight** (Default: 300 Kg): Define the weight you want your controller to detect a filling in order to stop augers.
- **Resume Time (minute)** (Default: 5 min.): Once loading is completed, define the time you want your controller to count down for the augurs to resume normal operation.

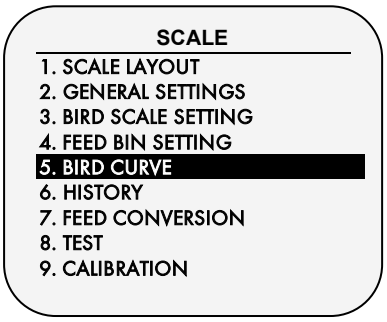
The following is a typical scenario that will help in understanding how to define the Feed Bin Settings:

A loading truck will come to fill the bin. Define the **Filling Detection Weight** to stop the augers from operating during a loading event (Default: 300 Kg). Next, a **Minimum Filling Weight** needs to be defined in order to have the filling event recorded in the **Feed Inventory** (Default: 2000 Kg). Once the loading of the feed is finished, the timer begins to count down for the augers to resume to normal operation (**Resume Time**, Default: 5 minutes) and for the filling event to be recorded as completed. Define the **Minimum Emptying Weight** for the feeding event to be recorded in the following three locations:

- History: Feed
- History: Table of Events
- Scale: Feed Conversion

6.5 Bird Curve

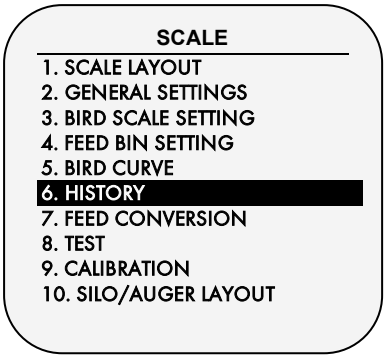
This screen displays data according to growth day for **BROILERS, TURKEYS, or BREEDERS,** previously set in SCALE | General Settings.

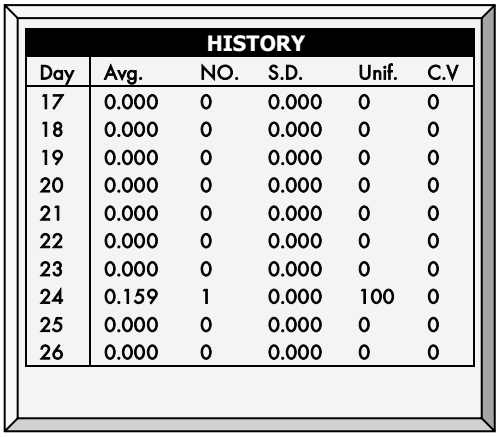


Edit the growth days and weights for the bird curves to fit individual preference.

6.6 History

The scale history shows bird weight statistics. You can review daily data for each scale, or separately. The unit records up to two-bird scale data; if you have more than one scale-1 or one scale-2, their data is combined.





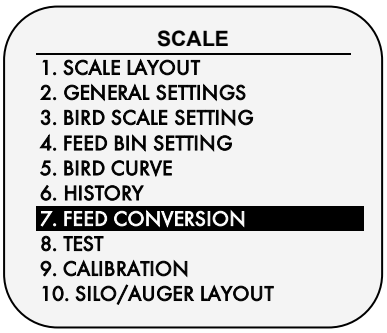
HISTORY

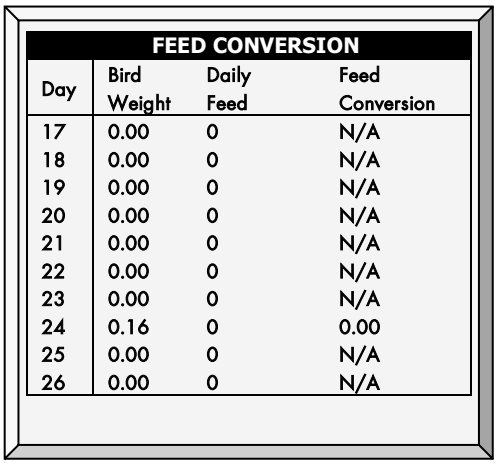
Day	Avg.	NO.	S.D.	Unif.	C.V
17	0.000	0	0.000	0	0
18	0.000	0	0.000	0	0
19	0.000	0	0.000	0	0
20	0.000	0	0.000	0	0
21	0.000	0	0.000	0	0
22	0.000	0	0.000	0	0
23	0.000	0	0.000	0	0
24	0.159	1	0.000	100	0
25	0.000	0	0.000	0	0
26	0.000	0	0.000	0	0

- If you selected **SEXED** weighing, the history includes average data for the combined scales, and on the next screens separate data for each scale.
- If you select **MIXED** weighing, the history includes average data for all birds, and separate male and female data for Scale 1 and for Scale 2.
    - Use the arrow keys to scroll to the separated scale data, or up and down for data that is off screen.
    - The average and the number of weights are the usual definition. The Standard Deviation is the usual biased estimator (see a suitable textbook on statistical measurements). The Uniformity is the industry standard 10% uniformity (number of birds per 100 within 10% of the average weight), and the Coefficient of Variation or C.V. is the normalized standard deviation (standard deviation divided by average times 100 %.)

6.7 Feed Conversion

This screen displays the amount of feed converted into the bird's weight.





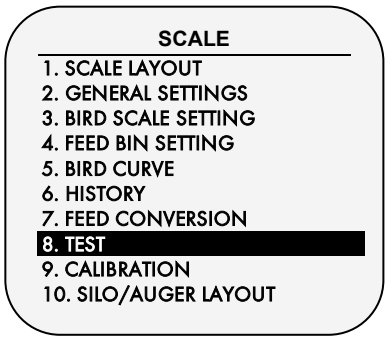
FEED CONVERSION

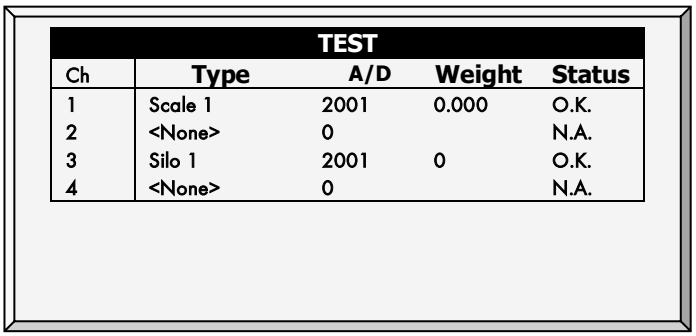
Day	Bird Weight	Daily Feed	Feed Conversion
17	0.00	0	N/A
18	0.00	0	N/A
19	0.00	0	N/A
20	0.00	0	N/A
21	0.00	0	N/A
22	0.00	0	N/A
23	0.00	0	N/A
24	0.16	0	0.00
25	0.00	0	N/A
26	0.00	0	N/A

6.8 Test

This section is a real time table to show the status of all scales connected to the controller.

1. In *Scale* > *Scale Layout* (refer to page 49), select the required scale types.
2. In *Scale* > *Test*, test the scales as required.



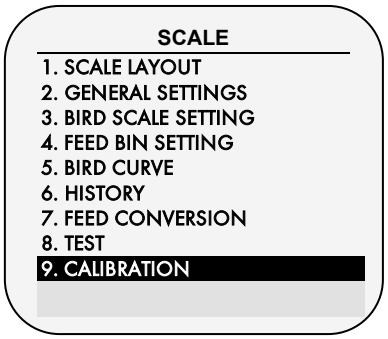


TEST

Ch	Type	A/D	Weight	Status
1	Scale 1	2001	0.000	O.K.
2	<None>	0		N.A.
3	Silo 1	2001	0	O.K.
4	<None>	0		N.A.

Make sure that all statuses are O.K. If any of them show a different status, the scale is not installed properly. Unused positions can also show O.K.

6.9 Calibration

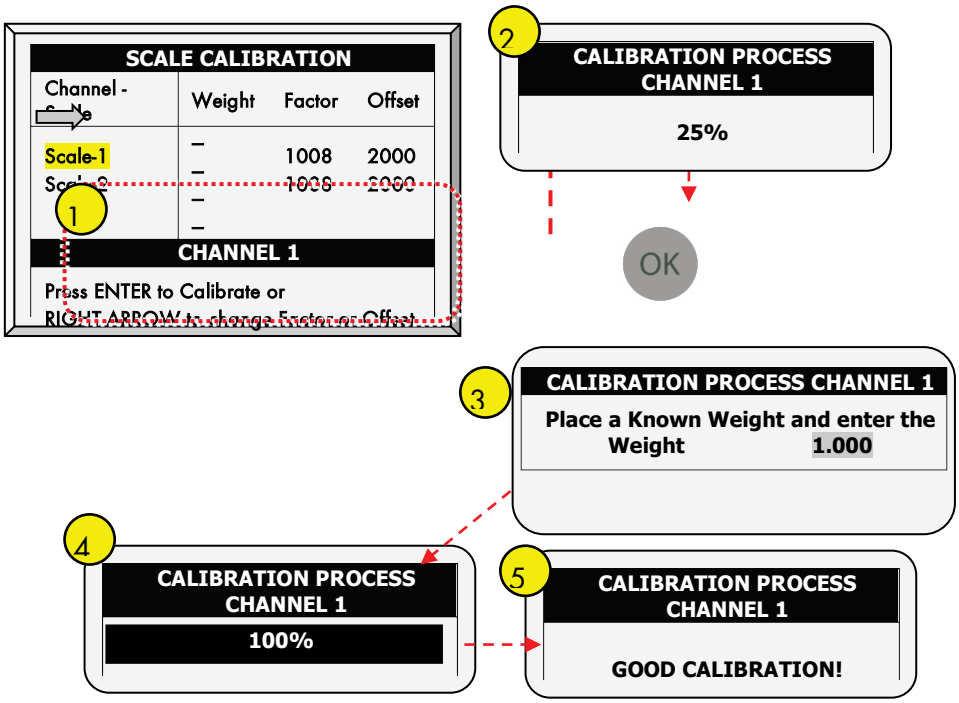


This menu calibrates the scales connected to the controller.

CAUTION *Do not use scales while calibrating.*

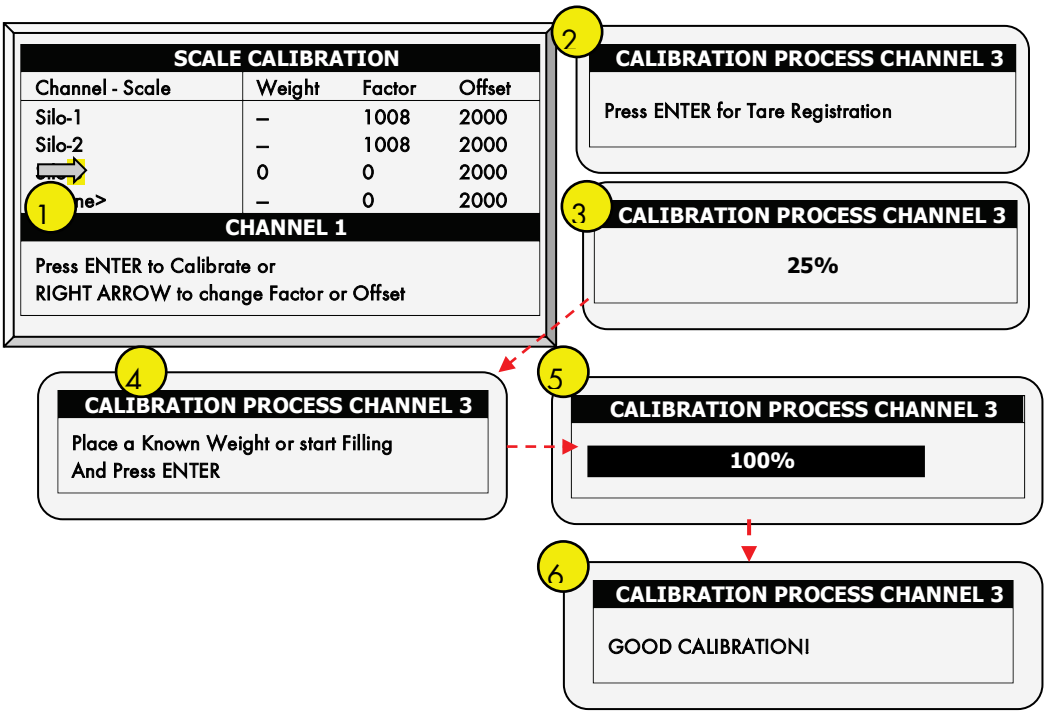
6.9.1 Scale Calibration

1. Follow instructions on the bottom section of the screen.
2. Wait until the progress bar displayed shows 100%.
3. Place a known weight on the scale and enter its weight.
4. Wait until the calibration progress bar reaches 100%.
5. Ensure **"Good Calibration."**



6.9.2 Silo Calibration

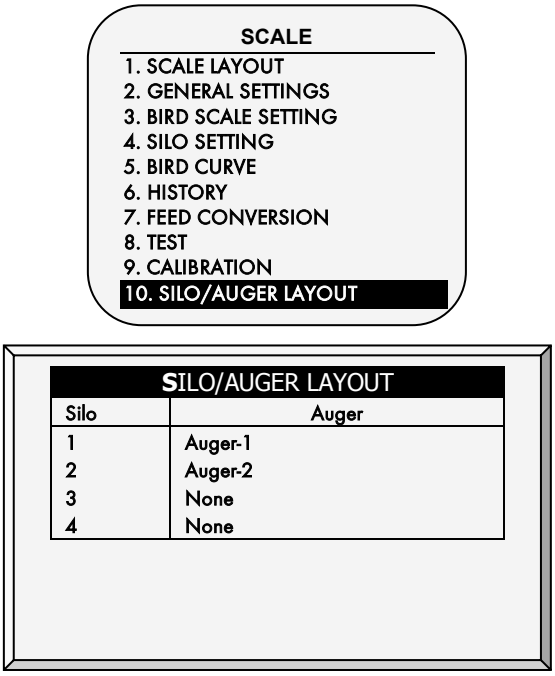
1. Follow instructions on the bottom section of the screens.
2. Wait until the progress bar displayed shows 100%.
3. Place a known weight or start filling the feed bin.
4. Wait until the calibration progress bar reaches 100%.
5. Ensure **"Good Calibration."**



6.10 Silo / Auger Layout

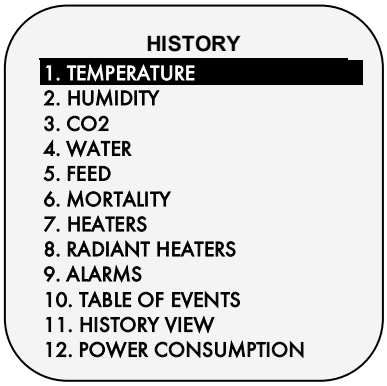
This menu maps augers to a specific silo. Map up to four augers to four silos (one each).

NOTE: Only Broilers/Layers mode supports this function.



7 History Menu

- Temperature
- Water
- Heaters
- Table of Events
- Humidity
- Feed
- Radiant Heaters
- Power Consumption
- CO2
- Mortality
- Alarms
-



7.1 Temperature

The temperature history menu stores minimum, average and maximum temperatures by growth day. The average is weighted, so if most of the day has been warm the average is closer to the maximum than the minimum.

7.2 Humidity

The humidity history menu stores minimum, average and maximum inside humidity by growth day. The average is weighted, so if most of the day has been humid the average is closer to the maximum than the minimum.

NOTE: This feature requires installing a humidity sensor.

7.3 CO2

The CO2 history menu stores minimum, average and maximum inside CO2 levels by growth day. The average is weighed, so if most of the day has seen high CO2 levels the average is closer to the maximum than the minimum.

7.4 Water

The water menu records daily water consumption and shows the daily differential change from the previous day in percent. You must have the water monitor digital inputs connected. You can monitor up to two drinking water meters, total drinking water, total water, cool pad, fogger, and cold pad flush consumption.

7.5 Feed

The feed menu records daily feed consumption and shows the daily differential change from the previous day in percent for two silo systems. You must have a silo weighing system installed for the feed system, or monitor the auger system.

The feed data can be based on one of the following inputs. If more than one input is installed, priority is according to the order of the bulleted list.

- **Feed Bin**: If feed bins (load cells) are installed, feed consumption data of each bin is based on the feed bin weight.
- **Current Sense**: If Current Sense Relays for Augers are installed and calibrated (refer to Calibration, page 71), feed consumption data of each auger is based on the current sense, calculation method settings, and actual auger run-time. The run-time is calculated based on the measured current, when the actual current is higher than the nominal value (refer to Relay Current, page 47).
- **Feed Count**: If a feed count sensor is installed feed consumption for each feed count input is based on the feed count method settings (refer to Digital Sensors, page 77).

7.6 Mortality

The mortality history menu maintains daily summaries of mortality cull and total dead. It also shows the percentage dead and gives an updated count of bird inventory. The history is maintained separately for male, female and total. Use the left and right arrow keys to switch to the next screen.

7.7 Heaters

The Farm Premium maintains daily total run times of each heater. The table fills several screens; to view the off screen data, use the arrow keys to scroll. The data is in hours:minutes format.

7.8 Radiant Heaters

The Farm Premium maintains daily total run times of each radiant heater, including separate data for low level and high-level heaters. The table fills several screens; to view the off screen data, use the arrow keys to scroll. The data is in hours:minutes format.

7.9 Alarms

The alarm history records the growth day and time of each alarm. Alarms that are currently activate show as flashing in the screen. The alarm history does not erase with the New Flock function under Management, Growth Date & Flock. The last 250 alarms are saved, and as the table fills, new alarms push out the oldest alarms.

7.10 Table of Events

The Farm Premium records significant events with growth day and time stamp. The Table of Events is 1000 events long, and does not erase with the New Flock function under Management, Growth Date & Flock. New events push out the oldest events.

Typical events recorded are switch changes, entry into tunnel, natural or minimum ventilation, alarm resets, ventilation mode changes, etc. The Table of Events is an excellent tool to determine whether your

controller is going in and out of tunnel due to marginal settings as well as finding and identifying problems

NOTE: Go to Table 6, page 84 to view all the available events.

7.11 Power Consumption

This menu displays the daily power consumption (in Kwh) of the heaters, fans, lights and other equipment and the change from the previous day.

NOTE: Current sense relays are required for this function to be enabled.

NOTE: The Relay Current feature supports single phase electricity only.

8 Test menu

The test menu screen shows internal information in order to verify that the Farm Premium is operating correctly. Moreover, it can help find broken wires or any other problems related to it.

- Switches & Relays, page 59
- Switches & Relays Extension, page 60
- Alarm, page 60
- Analog Sensors, page 60
- Digital Sensors, page 61
- Analog Output, page 61
- Static Pressure, page 61
- Communication, page 62
- Hardware Checklist, page 62
- Emergency Status, page 62

8.1 Switches & Relays

This menu displays a screen of identified switches and relays installed in the controller. Use this option to determine faulty hardware.

The Farm Premium supports a maximum of:

- 20 relays: Farm Premium-P
- 30 relays: Farm Premium-P XL
- 40 relays: Farm Premium/Farm Premium XL
- 50 relays: Farm Premium XL 50
- Up to 40 extra relays using a Farm Premium Extension

The following screen illustrates a system having 80 switches and relays.

TEST

1. SWITCHES & RELAYS
2. ALARM
3. ANALOG SENSORS
4. DIGITAL SENSORS
5. ANALOG OUTPUT
6. STATIC PRESSURE
7. COMMUNICATION
8. HARDWARE CHECKLIST
9. EMERGENCY STATUS

SWITCHES & RELAYS

01	02	03	04	05	06	07	08	09	10
Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut
11	12	13	14	15	16	17	18	19	20
Off	Off	Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut
21	22	23	24	25	26	27	28	29	30
Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut
31	32	33	34	35	36	37	38	39	40
On	Aut	On	Aut	Aut	Aut	Aut	Aut	Aut	Aut
41	42	43	44	45	46	47	48	49	50
Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut	Aut
51	52	53	54	55	56	57	58	59	60
Off	Off	Aut	Aut	Aut	Aut	Aut	–	–	–
61	62	63	64	65	66	67	68	69	70
–	–	–	–	–	–	–	–	–	-
71	72	73	74	75	76	77	78	79	80

8.2 Alarm

Press Enter to toggle the Alarm Relay. ON indicates Alarm, OFF indicates No Alarm. Note that the alarm relay is powered for the 'NO ALARM' condition to provide automatic **Power Fail Alarm** in case of power failure to the Farm Premium. That is, the Normally Open side is closed during NO ALARM.

ALARM TEST

Relay Alarm: ON

Press ENTER For On/Off

8.3 Analog Sensors

ANALOG SENSORS

In.	Sensor	A/D	Value
1	Temp. Sensor 1	457	82.4
2	Temp. Sensor 2	1023	—
3	Temp. Sensor 3	461	81.5
4	Temp. Sensor 4	1023	—
5	Temp. Sensor 5	0	—
6	Temp. Sensor 6	0	—
7	Potentiometer 1	1023	—
8	<none>	0	—
9	<none>	0	—
10	<none>	0	—
11	<none>	0	—

Observe the converter readings for analog sensors with this menu. The readings can vary from 0 to 1023. The values displayed in the 'Value' column indicate that the analog sensor is either operating or not connected according to the following:

- If a very large value is shown (such a four digit number) or a small value is shown (such as a one digit number): sensor is **not connected**.
- If the unit displays a 3-digit number, usually beginning with the digit '4: sensor is **operating**.

8.4 Digital Sensors

DIGITAL SENSORS							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0	0	0	0	0	0	0	0

Observe the state of the 8 digital sensors. A '1' indication implies a shorted input, a '0' an open input. The digital sensors operate with dry contact inputs such as the Arad Water Meter, or micro-switches.

Applying a short/open input to each channel can be done and observing the response on the display is available.

8.5 Analog Output

This selection controls light dimmers and variable speed fans. Select the desired 'Output Function' from the menu list and insert the approximate output voltages.

Analog Output	
Output	0-10V
1	0.0
2	0.0
3	0.0

8.6 Static Pressure

Observe the converter readings for the static pressure sensor. The nominal 'zero' pressure reading is 130. Remove the air hoses from the brass connectors on the left side outside of the controller to check this reading.

STATIC PRESSURE	
A/D Counts	126

8.7 Communication

This menu facilitates testing on communication networks. A multiplexer in loop back mode is used to test the communication. The Farm Premium follows its' own communication to check for failed hardware. Follow the instructions displayed on the screen.

To perform this test you must short RX with TX on the non-priority channel of the multiplexer

PRESS ENTER TO CONFIRM

8.8 Hardware Checklist

Check the installed hardware that has been identified by the Plug and Play system. The system detects all cards except Communication. The standard optional Communication card provides lightning protection, and does not have local computerized intelligence to identify itself to the system. Note that if a card is missing, turn the power OFF and then ON for a card rescan.

HARDWARE CHECKLISTE		
Description	Found	Relays
Analog Input	✓	
Digital Input	✓	
Analog Output	▪	
Scales	✓	
Static Pressure	✓	
Alarm	✓	
N.C. Emergency Card	1	5
N.O. Switch Card	7	35
N.C. Switch Card	0	0
Vent Board/Curtain Card	0	0

8.9 Emergency Status

This option views the status of emergency cards if installed.

EMERGENCY STATUS	
Emergency Card 1 Temp.	28.4
Emergency Card 2 Temp.	27.7
Set Temperature	24.7
Battery 1 Level	GOOD
Battery 2 Level	GOOD
Min. Vent Cycle On (sec)	57
Min. Vent Cycle Off (sec)	243

- Emergency card sensor temperature
- Current set or target temperature
- Backup battery level
- Minimum ventilation cycle timer ON/OFF time

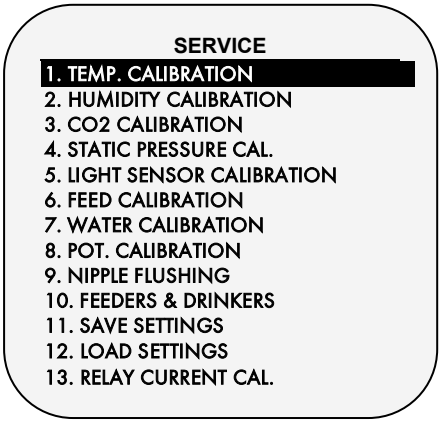
9 Service Menu

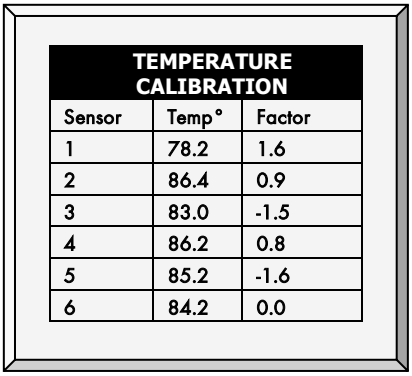
The Service Menu items calibrate various Farm Premium functions.

- Temperature Calibration, page 63
- CO2 Sensor, page 64
- Light Sensor Calibration, page 66
- Water Calibration, page 67
- Nipple Flushing, page 67
- Save Settings, page 69
- Current Sense Relay Calibration, page 71
- Humidity Calibration, page 64
- Static Pressure Calibration, page 64
- Feed Calibration, page 66
- Potentiometer Calibration, page 67
- Feeders & Drinkers, page 68
- Load Settings, page 70

9.1 Temperature Calibration

The Farm Premium temperature sensors are typically accurate to approximately 0.5° F within the range of temperatures for poultry production. Calibrate them in this menu by adding/subtracting a constant correction factor to each sensor. Adjust the sensor of your choice with the left/right arrow keys.





TEMPERATURE CALIBRATION

Sensor	Temp°	Factor
1	78.2	1.6
2	86.4	0.9
3	83.0	-1.5
4	86.2	0.8
5	85.2	-1.6
6	84.2	0.0

Calibrating against infrared or in air temperature sensors generally results in less accuracy than the basic sensors have without calibration.

To calibrate the unit:

1. Obtain an accurate reference sensors and a pail of water at the approximate temperature desired.

2. Stir the reference sensor together with the Farm Premium sensor vigorously in the bucket of water. Keep hands off the sensor itself, so that it responds accurately to the water temperature. Stirring is necessary to preclude stratification within the bucket of water.

3. Call out the accurate reading to a second person standing at the Farm premium. Walkie-talkie radios may be a good idea.

4. The individual at the controller should double-check that you are calibrating the correct sensor. You might warm/cool the sensor temporarily to see which sensor changes temperature appropriately.

5. Once you determine the correct temperature and allow approximately one minute for stabilization in the water, adjust the sensor reading at the controller.

6. Offset the factor using the left/right arrow keys.

9.2 Humidity Calibration

To calibrate the humidity level, obtain a suitable humidity test kit, and use the procedures described there. They are commonly available via the Internet.

HUMIDITY CALIBRATION		
Sensor	Humidity°	Factor
In	58.9	2.3
Out	N/A	–

Press Left/Right Arrows to Calibrate

- Adjust the Farm Premium reading as needed using the left/right arrow keys.

9.3 CO2 Sensor

To calibrate the CO2 level, obtain a suitable test kit and use the procedures described in the kit. Ensure that the house is well ventilated.

CO2 SENSOR CALIBRATION	
	Value
PPM at 4 mA/1 VDC	26
PPM at 20 mA/5 VDC	3000
Factor (PPM)	22

C02 (ppm): 482

- **Ppm at 4 mA / 1 VDC:** Parts per million for 4 mA or 1 VDC
- **Ppm at 20 mA / 5 VDC**: Parts per million for 20 mA or 5 VDC
- **Factor (ppm)**: (-/+) ppm shift from the current reading
- **CO2 (ppm)**: Current CO2 readings

1. In *Installation* > *Analog Sensor*, define an analog sensor as a CO2 sensor ().

2. In *Service* > CO2 *Calibration,* adjust the Farm Premium reading as needed using the left/right arrow keys.

3. In *Manage* > *Alarm Setting*, Set the CO2 Sensor Alarm.

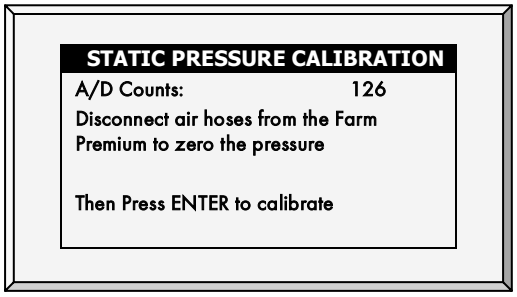
9.4 Static Pressure Calibration

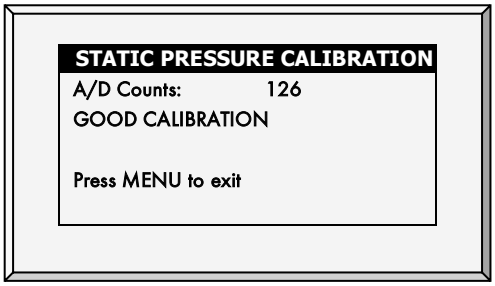
The Static Pressure should be 0 when there is no ventilation and the house is closed. When the controller reads 130 A/D counts, this is 0 static pressure. Check for blocked air hoses or wind interference for inaccurate readings.

NOTE: Allow Farm Premium to run for a few hours so that the temperature in the box becomes stable and only then may you calibrate.

There are two ways of calibrating the sensor to 0:

- **Software calibration**: 130 ± 40
- **Hardware calibration**: Adjust trimmer



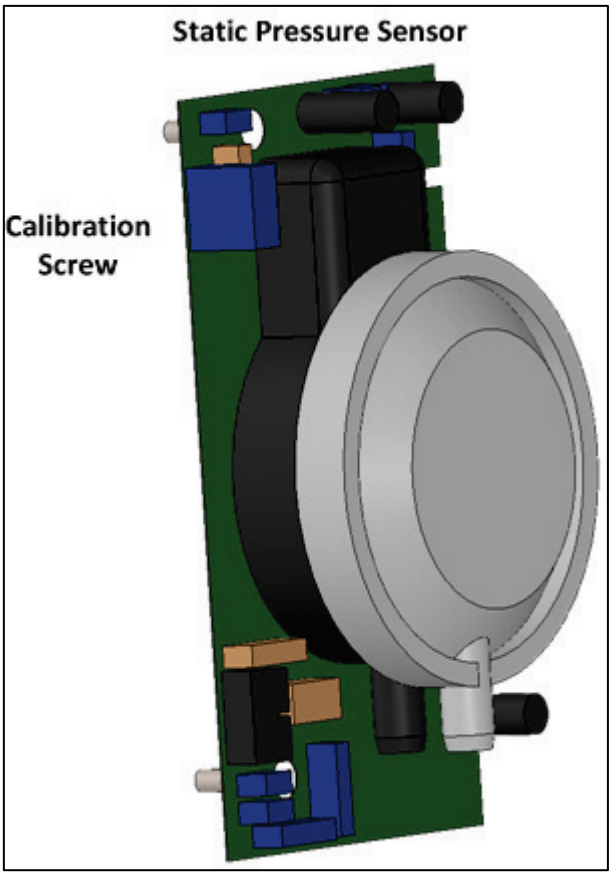


NOTE: A/D Counts of 130 ± 40 is considered a good calibration.

Calibrate the static pressure physically using the calibration screw on the sensor card prior to completing the software calibration.

- **Hardware Calibration:** With air hoses removed, adjust the zero pressure reading to approximately 130 by turning the calibration screw with a small jewelers screwdriver.
- **Software Calibration**: After hardware calibration, follow the procedure given by the controller.

The calibration procedure adjusts the zero pressure reading. The static pressure sensor is located inside the controller in the upper left hand corner to the left of the power supply.



9.5 Light Sensor Calibration

Installing a light sensor enables turning off the lights when there is sufficient outside light.

To calibrate the light sensor:

1. Go to *Install* > *Analog Sensors* (page 77).
2. Define one sensor as a light sensor.
3. Go to *Device* > *Light* (page 33).
4. Press Help, highlight Set, and press **Enter**.
5. Scroll down to Light Sensor Active and set to Yes.
6. Place the sensor in the required location.
7. Go to *Service* > *Light Sensor Calibration*.
8. When the outside light is bright enough, press **Enter**

9.6 Feed Calibration

The Farm Premium can use feed bin scales or less expensive digital monitoring devices to keep track of your feed. This menu calibrates the digital monitoring devices.

To calibrate the digital monitoring device:

1. Select the feed counting method. Your digital monitoring device may generate a dry contact pulse for each quantity of feed, or it may simply indicate that the feed is running.
2. Enter the quantity of feed per pulse in case you use a dry contact pulse. Otherwise, enter the amount of feed delivered per minute of auger operation.
3. Select one of the following:
   - Pulse: Weight per pulse
   - Time: Weight per minute
   - Current Sense: Motor run time when the auger contains feed
4. Enter quantity - weight per minute.

FEED CALIBRATION				
Feed	1	2	3	4
Method	TIME	TIME	TIME	TIME
Factor	2.203	2.203	2.203	2.203

Method Pulse: Weight per Pulse
Method Time: Weight per Minute
Method Current Sense: Weight per Minute

9.7 Water Calibration

The Farm Premium supports up to four dry contact pulse output water meters. Enter the quantity of water per pulse for your water meters.

WATER CALIBRATION			
Water 1	-	Water Per Pulse	Time
Water 2	-	Water Per Pulse	Time
Cool Pad	-	Water Per Pulse	2.203
Fogger	-	Water Per Pulse	2.203

9.8 Potentiometer Calibration

Use this screen to calibrate the ventilation potentiometer control. Potentiometer calibration is required before ventilation can be controlled via a potentiometer.

POTENTIOMETER CALIBRATION				
Pot	Device	Close	Current	Open
1	Vent 1	152	0	1000
2	Vent 2	152	187	1000

➲ **Before calibrating the potentiometers:**

- Disable the static pressure unit in *Install* > *Setup* (page 74).
- Define at least one relay as vent/inlet/tunnel in *Install* > *Relay Outlet* (page 75).
- Define at least one analog sensor as a potentiometer in *Install* > *Analog Sensor* (page 77).

1. Select a potentiometer number.
2. Press **Enter**.

The device relay closes and then opens. As this takes place, the numbers in the Close, Current, and Open columns change. After a few minutes, the process completes and a "Good Calibration" message appears.

NOTE: After potentiometer calibration, the times displayed in the Vent/Curtain Setup screen change. Refer to Vent/Curtain Setup, page 79 for details.

9.9 Nipple Flushing

To use this selection, program the water solenoids using the following relay codes:

- **111 Water Main:** The control's supplementary for the usual water line
- **112 Water By Pass:** The control's supplementary to bypass the water pressure regulator
- **113 Water line 1 through 122 Water line 10:** Individual water line supplementary to select the line to flush

During normal operation, only relay 111 water main is active. During flushing relay, code 112 is active together with each of the individual water line relays in turn.

NOTE: Configure up to five flush times.

- Set start time/duration of water flushing (water lines as defined by relay layout)

NIPPLE FLUSHING		
Start Time	On Time (min)	Status
06:00	2	AUTO
15:40	1	AUTO
00:00	0	AUTO
00:00	0	AUTO
00:00	0	AUTO

9.9.1 Nipple Flushing Help | Set Definitions

? *While viewing the **Nipple Flushing menu**: Press **HELP**, select SET, and press **ENTER.***

FLUSH ORDER							
Line:	1	2	3	4	–	–	–
Order:	1	2	3	4	–	–	–

FLUSHING DAYS							
Day:	Sun	Mon	TUE	WED	THU	FRI	SAT
Flush:	▪	√	√	▪	▪	▪	▪

- **Flush Order:** Set flushing according to line/order
- **Flushing Days:** Set flushing per day using '+/-' key

9.10 Feeders & Drinkers

This selection enables inserting relevant information regarding feeder and drinker lines.

FEEDERS AND DRINKERS			
Day	Window Pos (%)	Feeder-Line Lift (inch)	Drinker-Line Lift (inch)
15	90	0.0	14.0
20	50	15.0	3.0
0	0	0.0	0.0
0	0	0.0	0.0
0	0	0.0	0.0
0	0	0.0	0.0
0	0	0.0	0.0

- **Day:** Insert day number.
- **Window Pos (%):** Insert the percentage of window's position.
- **Feeder-Line Lift (Inch):** Define the specific feed line lift, measured in inches.
- **Drinker-Line Lift (Inch):** Define the specific drinker line lift, measured in inches.

9.10.1 Feeders & Drinkers Help | Set Definitions

? *While viewing the **Feeders & Drinkers menu**: Press **HELP**, select SET, and press **ENTER***

FEEDERS AND DRINKERS	
Adjust At Time	12:00
FEEDER WINDOW	
Stop Feed Before Adjust (Min.)	60
Time From Close To Open (sec)	15
FEED LINE	
Movement Time Per 10 inch (sec)	0
DRINKERS LINE	
Movement Time Per 10 inch (sec)	0

- **Adjust at time:** Set the desired time to adjustment.

FEEDER WINDOW

- **Stop feed before adjust (min):** Set how many minutes to stop before adjustment.
- **Time from close to open (sec):** Set how many seconds are needed from stop to open the feeder's window.

FEED LINE

- **Movement time per 10 inch (sec):** Set a number of seconds needed to move the feed line in 10 inches.

DRINKERS LINE

- **Movement time per 10 inch (sec):** Set a number of seconds needed to move the drinkers' line in 10 inches.

9.11 Save Settings

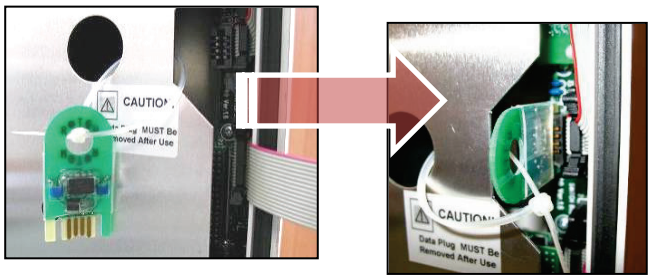
The method used to save the controller's settings to an external memory device is dependent on the hardware employed.

NOTE: *If both a data plug and SD card are inserted, the data plug takes priority and that option appears on the screen.*

- Saving to a Data Plug
- Saving to an SD Card

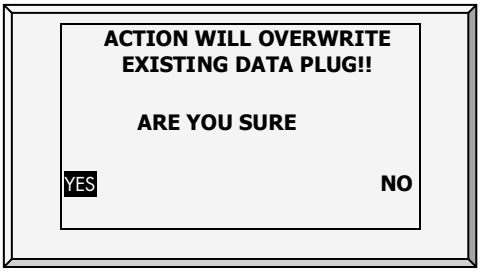
9.12 Saving to a Data Plug

This menu enables the user to save his program settings to the supplied data plug and transport them to another controller for quick programming.



1. **Insert** data plug as shown.

2. **Save** controller settings.



9.12.1 Saving to an SD Card

This menu enables the user to save the program settings to an SD card and transport them to another controller.

NOTE: If both a data plug and SD card are inserted, the data plug takes priority and that option appears on the screen.

➲ **Verify that the SD card is in place.**

➲ **The SD card must have at least 20K of free space.**

To save settings:

1. Go to Service > Save Settings.
2. In the screen that appears, select **YES** and press **Enter**.
3. Select the required settings and press **Enter**.
4. Wait for the settings to download.

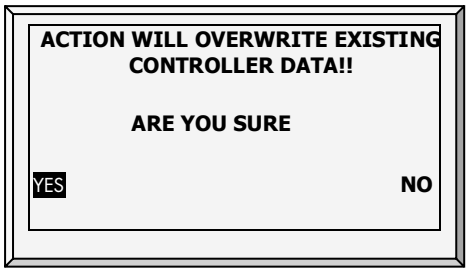
9.13 Load Settings

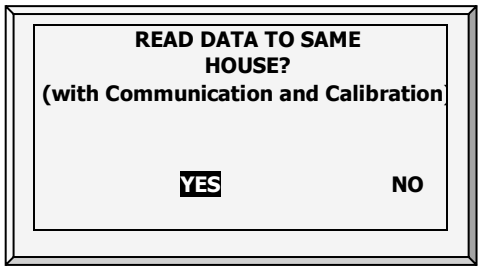
This menu enables reading a saved program from a data plug into the controller quickly and reliably rather than configuring the settings manually.

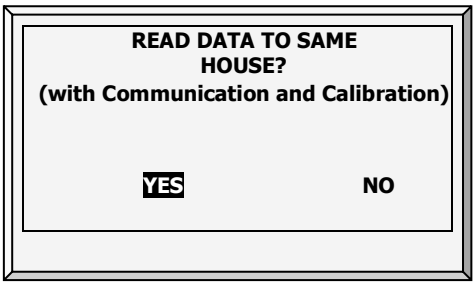
9.14 Loading from a Data Plug

➲ **Verify that the program data is identical to the relay layout of the controller.**

- Follow the instructions given on the screen.







9.14.1 Loading from an SD Card

This menu enables the user to load settings saved on an SD card into a controller.

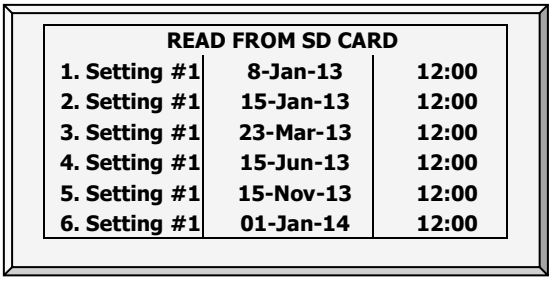
NOTE: *If both a data plug and SD card are inserted, the data plug takes priority and that option appears on the screen.*

➲ Verify that the SD card is in place.

➲ The SD card must have at least 20K of free space.

To load settings:

1. Go to Service > Load Settings.
2. In the screen that appears, select **YES** and press **Enter**.
3. Select the required settings and press **Enter**.
4. Wait for the settings to upload.



READ FROM SD CARD

1. Setting #1	8-Jan-13	12:00
2. Setting #1	15-Jan-13	12:00
3. Setting #1	23-Mar-13	12:00
4. Setting #1	15-Jun-13	12:00
5. Setting #1	15-Nov-13	12:00
6. Setting #1	01-Jan-14	12:00

9.15 Current Sense Relay Calibration

NOTE: *The Current Sense relays supports **single phase electricity** only.*

This menu calibrates the amount of current that passes through Current Sense relays. Calibration enables configuring the minimum and maximum permissible currents.

To calibrate the current sense relay:

1. Define the relay (refer to Relay Layout, page 75).
2. Select *Service* > *Relay Current Cal*. The following screen appears.

RELAY CURRENT CALIBRATION

Relay	Function	Measure	Current ON
31	Heat 6	Start	0.0
32	Heat 7	Start	0.0
33	Heat 8	Start	0.0
34	Exh. Fan 5	Start	0.0
35	Exh. Fan 6	Start	0.0

WarningIII
The selected equipment will be turned ON now for current reading adjustment WAIT till operation completion for 15 sec
Verify that the relay switch is AUTO

3. Select a relay and click **Enter**.

NOTE: The relay must be set to Auto.

4. Repeat for each current sense relay.

RELAY CURRENT CALIBRATION

Relay	Function	Measure	Current ON
31	Heat 6	Done	0.2
32	Heat 7	Done	0.2
33	Heat 8	Done	0.2
34	Exh. Fan 5	Done	3.8
35	Exh. Fan 6	Done	4.3

WarningIII
The selected equipment will be turned ON now for current reading adjustment WAIT till operation completion for 15 sec
Verify that the relay switch is AUTO

5. To set the minimum and maximum voltages, alarms and 110/220 voltage, refer to Relay Current, page 47.

9.16 Wind Direction Calibration

Use this screen to calibrate a wind direction sensor.

➲ **Define an analog output sensor as wind direction.**

WIND DIRECTION CALIBRATION

	Direction	Calibration
Wind Direction	6	14.50

9.17 WOD Calibration

➲ **Define an analog output sensor as WOD.**

WATER ON DEMAND CALIBRATION		
	Volt	Pressure - PSI
WOD 1st Calib.	2.50	14.50
WOD 2nd Calib.	7.50	43.50

READ ME

Enter output voltage for first point.
Enter water meter measure pressure.
Repeat this for second point.

1. In *Installation* > *Setup*, set the Length Unit.
    - Metric = Bar
    - Non Metric = PSI
2. In *Service* > *WOD Calibration*:
    a. Enter the first voltage and check pressure data points.
    b. Repeat for second data points.
3. Set the Help Definitions (optional)

9.17.1 WOD Calibration Help | Set Definitions

This parameter reduces the water pressure a user-defined factor.

SYSTEM PARAMETERS	
WATER ON DEMAND	
Pressure Reducer Factor	50.00

1. In *Install* > *Setup*, define the Pressure unit.
2. In *Service* > *WOD Calibration* > Help, define the reduction factor. Water pressure is reduced by 1/50 (bar or PSI). The factor is accurate to two decimal points.

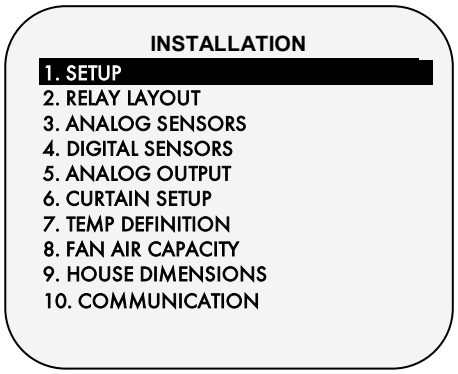
10 Install Menu

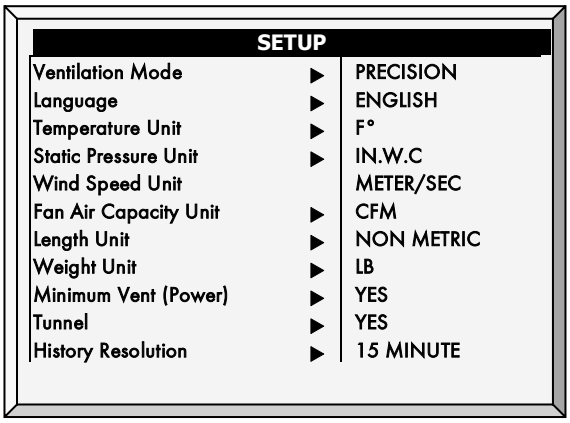
The Install Menu items are used when installing input and output devices, as well as configuring critical parameters needed to run your controller properly.

- Setup, page 74
- Relay Layout, page 75
- Analog Sensors, page 77
- Digital Sensors, page 77
- Analog Output, page 78
- Curtain Setup, page 79
- Temperature Definition, page 81
- Fan Air Capacity, page 81
- House Dimensions, page 82
- Communication, page 82

10.1 Setup

To set the VENTILATION MODE, perform a cold start. During the cold start, select the Ventilation Mode.





Set the following:

• Temperature Unit	Celsius / Fahrenheit
• Static Pressure Unit	Milibar / Inches of WC (Water Column) / Pascal / cm of WC / mm of WC / none
• Wind Speed Unit	Km Per Hour / Mile per Hour / Meter per Sec / Feet per Sec
• Fan Air Capacity Unit	Cubic feet per minute (CFM) / Cubic meter per hour (M3/H)
• Length Unit	Meter / Feet
• Weight Unit	Pounds (LB) / Kilograms (KG)
• Growing Zones	1/2/3/4
• Minimum Vent (Power)	YES (power) / NO

- **Tunnel** YES / NO
- **History Resolution** 1 minute / 5 minute / 10 minute / 15 minute / 30 minute / 1 hour / 2 hours

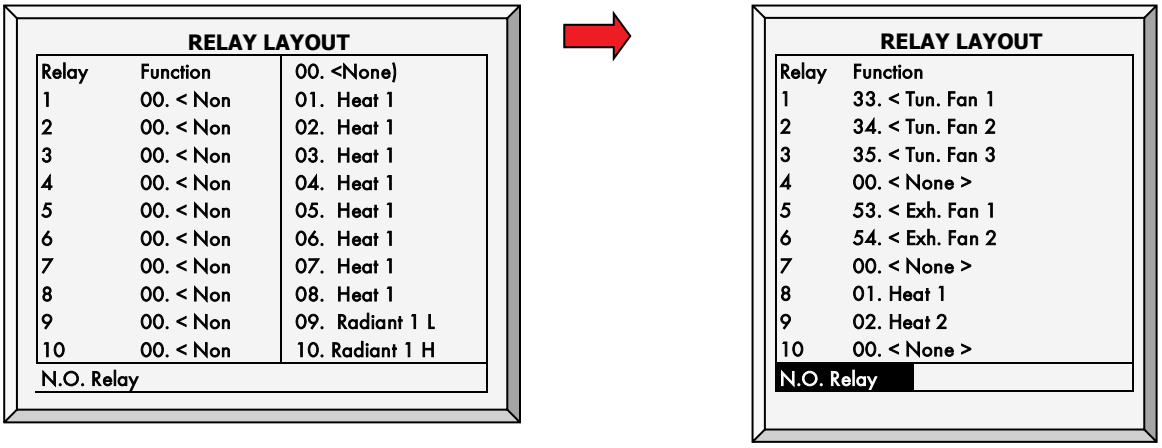
10.2 Relay Layout

Use this menu to define the devices connected to the controller. There are (up to) 40 available relays.

1. Select the requested choice from the menu list by using the up/down cursor keys (refer to Output Function List, page 75).

2. If the required code is 100 and above, use the '+/-' keys before selecting and then press a 2 digit number. For example 135 would be +/-35.

3. To duplicate relays use the 'As Relay # X' where 'X' stands for a relay number defined already in the system.



- Enter relays according to equipment installation (I/O list of technician) using up/down arrow keys.
- If you have installed Current Sense relays, Farm Premium defines them automatically. Current sense relays transmit to the user's PC the amount of the current being passed to the relay and send alarms when the current is too low or too high. In addition, you can view the daily electricity consumption in History. Refer to Current Sense Relay Calibration, page 71 for calibration instructions.

*NOTE: The Current Sense Relays support **single phase electricity** only.*

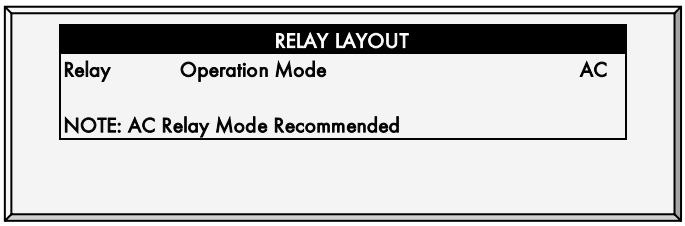
10.2.1 Output Function List

	Relay Name	Quantity Supported
1.	Heaters	16
2.	Radiant Heaters Low	16
3.	Radiant Heaters High	16
4.	Radiant Heaters Ignite	16
5.	Tunnel Fan	30
6.	Exhaust Fan	20
7.	Stir Fan	15

	Relay Name	Quantity Supported
8.	Cooling Pad	4
9.	Fogger	4
10.	Vent Open	4
11.	Vent Close	4
12.	Tunnel Open	4
13.	Tunnel Close	4
14.	Attic Open	1
15.	Attic Close	1
16	Vent Speed	1
17.	Light	4
18.	Water	4
19.	Feeder	4
20.	Auger	4
21.	Extra System	4
22.	Alarm (N.C.)	1
23.	Fail Safe (N.C.)	1
24.	Feeder Win Open	1
25.	Feeder Win Close	1
26.	Feeder Line Up	1
27.	Feeder Line Down	1
28.	Drink Line Up	1
29.	Drink Line Down	1
30.	Water Main	1
31.	Water Bypass	1
32.	Water Line	10
33.	WOD	4
34.	AS Relay	8
35.	AS Analog Output	8

10.2.2 Relay Layout – Help | Set Definitions

? *While viewing the **Relay Layout menu**: Press **HELP**, select SET, and press **ENTER**.*



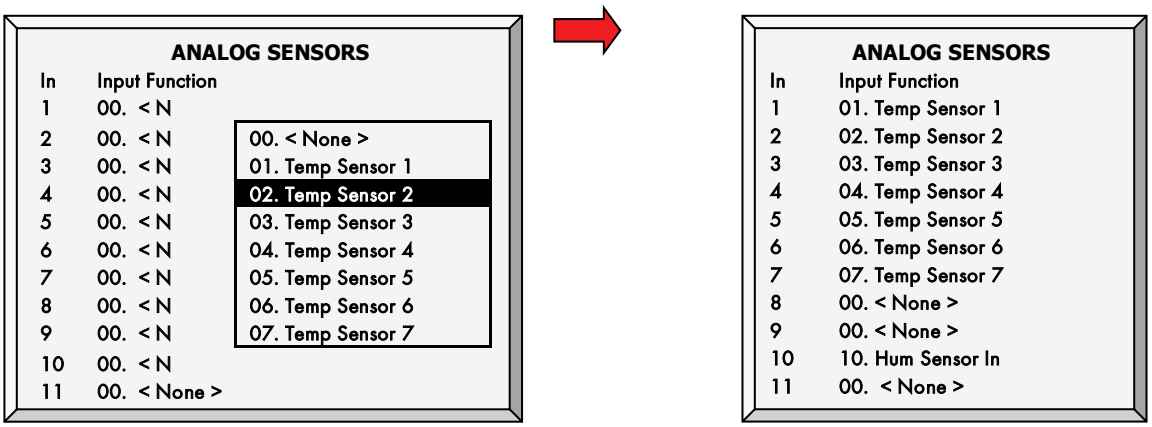
- Define relay operation mode: DC or AC.

NOTE: AC mode produces less heat in the controller box.

10.3 Analog Sensors

➲ **Install analog input cards.**

This selection enables the user to install the analog sensors. The Farm Premium regards temperature, humidity, and CO2 sensors and circuit breaker as 'Analog sensors. These sensors measure a continuous range rather than just on or off.



- Enter temperature / humidity sensors wired to each input (setup according to technician).

NOTE: If sensor numbers duplicate, the sensors average.

10.4 Digital Sensors

➲ **Install digital input cards.**

This option enables configuring the installed digital sensors. These sensors monitor both water and feed consumption if the building is equipped accordingly. Digital inputs include on/off and pulsing inputs such as auxiliary alarms, pulsing water meters and feed.

DIGITAL SENSORS

In	Input Function		
1	<	00.	None
2	<	01.	Water Meter 1
3	<	02	Water Meter 2
4	<	03.	Water Meter 3
5	<	04	Water Meter 4
6	<	05.	Cool Pad Water Meter
7	<	06.	Fogger Water Meter
8	<	07	Feed Count 1
		08.	Feed Count 2
		09	Auger – 1 Overtime

DIGITAL SENSORS

In	Input Function
1	03. Water Meter
2	02. < None >
3	03. < None >
4	04. < None >
5	05. < None >
6	06. < None >
7	07. < None >
8	08. < None >

- Enter sensors wired to each input (setup according to technician).
- Farm Premium automatically numbers the sensors according to their function.
    - You cannot define more than the permitted number of any particular sensor. For example, you can define one function as Cool Pad Water Meter, not two.

10.5 Analog Output

➲ **Install analog output cards.**

This selection controls light dimmers and variable speed fans. Select the desired 'Output Function' from the menu list and insert the approximate output voltages.

NOTE: *Enter sensors wired to each input (setup according to technician)*

ANALOG OUTPUT

Out No.	Output Function	Min V.Out	Max V. Out
1	Light Dimmer	05.	Light Dimmer 1
2	Light Dimmer	06.	Light Dimmer 2
3	< None >	07.	Light Dimmer 3
4	< None >	08.	Light Dimmer 4
5	< None >	09.	Var. Stir Fan 1
6	< None >	10.	Var. Stir Fan 1
7	< None >		
8	< None >		

ANALOG OUTPUT

Out No.	Output Function	Min V.Out	Max V. Out
1	Light Dimmer	0.0	10.0
2	Light Dimmer	0.0	10.0
3	< None >	0.0	10.0
4	< None >	0.0	10.0
5	< None >	0.0	10.0
6	< None >	0.0	10.0
7	< None >	0.0	10.0
8	< None >	0.0	10.0

- Enter sensors wired to each Input (setup according to technician).
- The above is an example of an analog output configuration.

10.5.1 Analog Output – Help | Set Definitions

⍰ *While viewing the **Analog Output menu**: Press **HELP**, select SET, and press **ENTER**.*

RELAY LAYOUT

Max Fan Speed Output (Volt)	8.5

- **Max Fan Speed Output (Volt)**: This parameter works as an override to the Maximum Voltage Output.

10.6 Vent/Curtain Setup

➲ **In Installation > Setup, define Static Pressure unit as None.**

Use this screen to define the ventilation opening and closing mechanism.

- Using Time to Calibrate
- Using a Potentiometer to Calibrate
- Vent/Curtain Help | Set Definitions

If you map a curtain or vent to a potentiometer, Farm Premium uses that method (and not time).

10.6.1 Using Time to Calibrate

Enter the number of seconds to open and close from limit to limit for each of the Vents and Curtains in your installation. The Farm Premium then calculates the percentage of open and closed time and adjusts the static pressure methods accordingly.

VENT/CURTAIN SETUP

Curtain	Pot	Open (sec)	Close (sec)
~ Tunnel 1	NONE	60	60
~ Vent 1	NONE	60	60
Vent 2	NONE	60	60
Attic 1	NONE	60	60

Set full open/full close time (in seconds) for Curtains, Tunnel, 1st & 2nd Vent, and Attic Vent.

NOTE: Default is set at 60.

NOTE: The ~ symbol designates an analog output device.

10.6.2 Using a Potentiometer to Calibrate

Each vent can be mapped to a potentiometer. Potentiometer feedback enables precise positioning on each specific device opening value. In this screen, assign a potentiometer to a device.

VENT/CURTAIN SETUP

Curtain	Pot	Open (sec)	Close (sec)
~ Tunnel 1	POT 1	60	60
~ Vent 1	POT 2	60	60
Vent 2	NONE	60	60
Attic 1	NONE	60	60

1. Map the analog sensors as potentiometers as required (Analog Sensors, page 77)
2. Map the vent/tunnel to a potentiometer in this screen.

NOTE: The number of the devices that you can map equals the number of potentiometer relays.

NOTE: The ~ symbol designates an analog output device.

3. Calibrate the potentiometer (Potentiometer Calibration, page 67).
4. Set the help parameters as required.

NOTE: *After calibrating the potentiometer, the times shown here change to reflect the calibration process.*

In the event that the potentiometer fails (meaning there is no value change during the curtains/vents/inlets movement):

- Alarm message is transmitted
- The specific curtain/vent/inlet mapped to the failed potentiometer starts operating by time calculation, using the times calculated by the calibration process. However, if required you can enter new opening and closing times.

10.6.3 VENT/CURTAIN HELP | SET DEFINITIONS

These parameters enable maintaining an accurate curtain position when using time to calibrate.

? *While viewing the **Vent/Curtain** menu: Press **HELP**, select SET, and press **ENTER.***

SYSTEM PARAMETERS	
CURTAIN CALIBRATION	
From Time	0:00
To Time	0:00
Number of Steps	0
Power Vents Calibration	NO
Proximity to Edge %	10
Close Below This Temp. (out)	0.0

- **From/To Time**: Time period in which calibration is enabled
- **Number of Steps**: number of steps for automatic calibration: Set calibration point for curtain after desired amount of curtain opening/closing (steps). During calibration, if the curtain is open more than 50% it opens to 100%, calibrates, and returns to the previous position. If the curtain is open less than 50% it closes to 0%, calibrates, and returns to the previous position. Default: 99.
- **Power Vents Calibration**: This parameter enables automatic calibration of air inlets when recovering from a power outage. In many installations the backup system, such as Munters' FBU-27, may have opened the air sources. When the Farm Premium takes over control again, the air inlets are incorrectly positioned. The calibration at power up feature synchronizes the actual position and the controller.
- **Proximity to Edge %**: Curtain will open or close based on this proximity to the edge. For example, when set to 10%, the curtain closes when the opening is less than 10% and opens completely when the opening is greater than 90%.
- **Close Below This Temp. (out)**: Curtains close when the outside temperature reaches this point.

➲ **This parameter requires defining a temperature sensor as an outside sensor (refer to Temperature Definition).**

NOTE: *The Proximity to Edge % parameter takes priority over the Close Below This Temp parameter. Meaning, if the outside temperature mandates closing the curtain, the curtains will still open if they are within the proximity defined in the Proximity to Edge parameter.*

10.7 Temperature Definition

This menu assigns specific temperature sensors for various brood setups and for heater zones. Moreover, assigning sensors to particular devices is possible. Note that if the sensors selection remains blank, the default value is assigned.

Choose 1 to 18 temperature sensors for each item listed by using the '+/-' keys. The house, brooding and tunnel sensors cause the current average to apply to devices when no specific sensor is assigned to them. The current average substitutes for either failed or missing sensors.

TEMPERATURE DEFINITION

Function	Temp. Sensor
	1 2 3 4 5 6 7 8 9
FULL HOUSE	√√√▪ ▪ ▪ ▪ ▪
TUNNEL SETTING	▪ ▪ ▪ ▪ ▪ ▪ ▪ ▪
ATTIC	▪ ▪ ▪ √ ▪ ▪ ▪
OUTSIDE	▪ ▪ ▪ ▪ √ ▪ ▪

- Press **+/- key** to add/remove ✓ to assign temperature sensors to corresponding function.

NOTE: *If you are using two (2) input analog cards, the screen displays Temp. Sensor(s) 1-18 (refer to above screen capture).*

NOTE: *When an attic sensor is not installed, the attic vent is disabled.*

Assign Temperature Sensors as required in **Install | Temp Definition**. Devices that do not accept temperature sensors, such as Exhaust Fans, Tunnel Fans, Feed and Light do not appear.

Note that Exhaust Fans and Tunnel Fans do not appear because the Ventilation Levels defined in **Device | Levels of Ventilation** control their operation. Stir Fans appear even though the **Device | Stir Fan Levels** apply to them because they simultaneously operate according **Device | Stir Fan Programs** where specific sensor assignments are required in Program B and recommended in Program C.

10.8 Fan Air Capacity

This option enables defining the capacity of fans air. Insert fan air capacity for both the exhaust and tunnel fans. The units are as chosen in **INSTALL | SETUP.**

FAN AIR CAPACITY

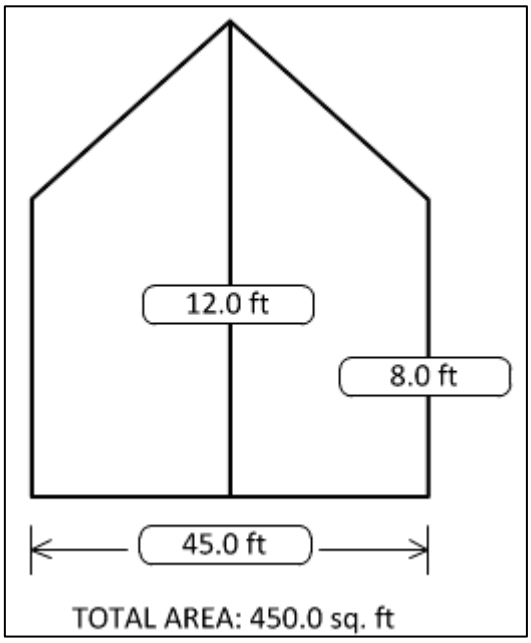
Fan	CFM
Tun. Fan 1	24600
Tun. Fan 2	24600
Tun. Fan 3	29400
Tun. Fan 4	29400
Tun. Fan 5	29400
Tun. Fan 6	29400
Tun. Fan 7	29400
Tun. Fan 8	29400
Tun. Fan 9	29400
Tun. Fan 10	29400

- Define air capacity for exhaust/tunnel fans (default setting shown above).

NOTE: *This information enables the display of air capacity for each level in the Levels of Ventilation table (Precision ONLY).*

10.9 House Dimensions

The selection allows the user to set its' house dimensions. Set it according to actual house size. These dimensions are used for calculating the wind chill factor (the chilling effect of the wind that can significantly lower the temperature).

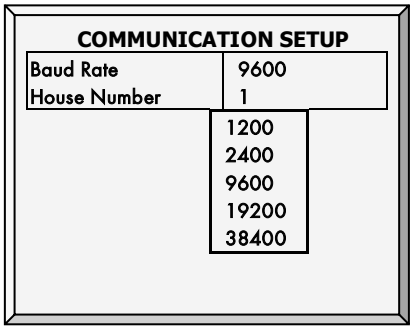


- Define height, width, and length of house (Controller calculates total area).

NOTE: *This information enables the calculation of the Wind Chill factor displayed in Hot Screen Key = 2 (Tunnel mode ONLY).*

10.10 Communication

This menu defines the communication baud rate.



- **Baud rate:** This parameter is a measure of the communication speed for local or remote communications to a PC. The default is 9600 represents a data rate of approximately 1000 characters per second. If the connection fails at this speed, try a lower speed.
- **House number:** Each controller on a network must have a unique number so Munters' communications software can distinguish individual controllers. Note that these numbers are from 1 to 64.

11 Appendix A: Output Data

Table 1: Sensor Readings

Sensor	Definition
Temp	Displayed with the specific sensor number
Out T.	Outside temperature
Press.	Pressure
Hum. In	Inside humidity
Hum. Out	Outside humidity
Weight	Average weight
Weights	Number of weights
E. Tmp1	Temperature related to emergency card 1
E. Tmp2	Temperature related to emergency card 2
Breaker	Circuit breaker

Table 2: Output List (Active)

Output	Definition
Alarm	Can be either active or not. Note that this always appears last.
Heat	Indicates operating heat number.
Heat. Hi	Indicates operating heat high number.
Tun. Fan	Indicates operating tunnel fan number.
Exh. Fan	Indicates operating exhaust fan number.
Stir	Indicates operating stir fan number.
Cool P.	Indicates operating cool pad number.
Fogger	Indicates operating fogger number.
Inlet	
Tunnel	
Curt.	Mentions opening percentage
Ext. Sys	Indicates operating external system number.
Light	Note that these mention output percentage
Water	Indicates operating water number.
Feed	Indicates operating feed number.

Auger	Indicates operating auger number.
Rad. Lo	Indicates operating radiant heat low number.
Rad. Hi	Indicates operating radiant heat high number.

Table 3: Status Readings

Status	Definition
Time	Specific time
Day	Growth day
Set	Target temperature
Offset	Temperature Curve HELP | SET parameter
House mode	Control Mode HELP| SET parameter
Level	Level number
Tunnel, Natural, Min. Vent	The controller's state
Fan Off	How long the cycle ends its' operation
Fan On	How long the cycle begins its' operation
Curve off	Occurs when located in low curve temperature or when the Control Mode HELP | SET 'Temperature Curve' parameter is set to OFF.
Hum. Treat	Indicates when occurs
Cool flush	Indicates when occurs
Nip. Flush	Indicates when occurs

Table 4: Events

Event	Event Explanation
Power Off	Appears when power is off.
Power On	Appears when power is on.
Cold Start	Appears when cold start is done.
Change level to vent	Changes according to a specific stage
Backup set reminder	HELP | SET: 'Set Temp. Change remainder (diff)' parameter
Alarm on	Appears when the alarm is on.
Change in setting	
Change in switches	
New flock	Appears when new flock is being updated.
Reset alarm	Appears when reset alarm is done.

Event	Event Explanation
System message #	For Munters' technicians only.
Alarm card fail	Appears when the alarm card fails
Digital card fail	Appears when the digital card fails
Memory restore	Appears when the system does restore cause by noises.
Minimum ventilation	Appears when minimum ventilation occurs.
Natural ventilation	Appears when entering natural ventilation.
Tunnel ventilation	Appears when entering tunnel ventilation.
Alarm test	Appears when alarm test is done.
Precision mode	
Standard mode	
Changed growth day	Appears when changing the growth day occurs.
MinV L.P Alarm Dis.	Appears when minimum low pressure alarm is being disabled.
MinV L.P Alarm Ena	Appears when minimum low pressure alarm is being enabled.
Tun. L.P Alarm Dis.	Appears when tunnel low pressure alarm is being disabled.
Tun L.P Alarm Ena.	Appears when tunnel low pressure alarm is being enabled.
Visitor Log in	Appears when the visitor logs in with his password.
User #1-5 log in	Appears when the user logs in with his password.
Owner log in	Appears when the owner logs in with his password.
Change Visitor pass	Appears when the visitor changed his password.
Change User #1-5 pass	Appears when the user changed his password.
Change Owner pass	Appears when the owner changed his password.
Data read from plug	Appears when data is being read from plug.
System recover	Appears when the system tries to recover itself, in cases such as noises.
System lock	Appears when either using the correct password, or when using hot key '9,' or automatically after 5 minutes.
Empty house mode	Appears when setting at a specific time.

12 Appendix B: Device Setup Summary

The following section summarizes how to setup up different devices in Farm Premium.

- Stir Fans
- Attic Ventilation
- Heaters Control

12.1 Stir Fans

Stir fans mix the air, to maintain a uniform temperature throughout the house. It does this by mixing (recycling) warmer air with the rest of the house (back down across the floor).

1. In *Installation* > *Relay Layout* and/or *Installation* > *Analog Output*, define relays as stir fans.
2. In *Device* > *Temp & Timer Settings*, define the parameters as required.
3. In *Device* > *Temp & Timer Settings* > *Help*, define the Stir Fan parameters as required.
4. In *Installation* > *Temperature Definition*, map a temperature sensor to a stir fan.

12.2 Attic Ventilation

Attic fans maximize the amount of fresh air in cold weather by utilizing warm air found near the ceiling. Air entering via the attic inlets tends to become warmer and drier than the outside air.

NOTE: *Munters recommends operating the attic vents at static pressures lower than the vent inlets.*

1. In *Installation* > *Relay Layout*, define relays as attic open and attic close.
2. In *Installation* > *Temperature Definition*, map a temperature sensor to the attic.
3. In *Installation* > *Vent/Curtain Setup*, define the parameters.
4. In *Installation* > *Vent/Curtain Setup*, define the attic parameters as required.
5. In *Device* > *Temp & Timer Settings*, define the parameters as required.
6. In *Device* > *Temp & Timer Settings* > *Help*, define the Stir Fan parameters as required.

12.3 Heaters Control

Regular and Radiant Heaters Control is based on the following settings:

1. In *Installation* > *Relays* select the heating devices.
2. In *Installation* > *Temperature Definitions* map a temperature sensor to each heating device.

NOTE: *If a heater shares the same temperature sensor with a brood sensor, Farm Premium assigns the heater automatically to Brood Area and operates accordingly.*

3. At *Control* > *Temp. & Timer Settings* define the heating parameters as required.
   - On Temp specifies the Heater On temperature (always below or equal to set temperature)
   - Off Temp specifies the Heater Off temperature (could be higher than the Set temperature.)

4. In *Device* > *Temp & Timer Settings* > *Help* define the Non-Brood Area Difference Below Heat and Radiant Heater Specs as required.

Notes:

- When regular heater is activated, the low pressure alarm is disabled since heaters produce positive static pressure.
- Heater Off Temperature must be at least 0.5° F higher than the Heater On Temperature.
- Heater On Temperature must be equal or less than the Set Temperature.

13 Warranty

Warranty and technical assistance

Munters products are designed and built to provide reliable and satisfactory performance but cannot be guaranteed free of faults; although they are reliable products they can develop unforeseeable defects and the user must take this into account and arrange adequate emergency or alarm systems if failure to operate could cause damage to the articles for which the Munters plant was required: if this is not done, the user is fully responsible for the damage which they could suffer.

Munters extends this limited warranty to the first purchaser and guarantees its products to be free from defects originating in manufacture or materials for one year from the date of delivery, provided that suitable transport, storage, installation and maintenance terms are complied with. The warranty does not apply if the products have been repaired without express authorisation from Munters, or repaired in such a way that, in Munters' judgement, their performance and reliability have been impaired, or incorrectly installed, or subjected to improper use. The user accepts total responsibility for incorrect use of the products.

The warranty on products from outside suppliers fitted to Farm Premiums, (for example sensors, analog inputs, cables, etc.) is limited to the conditions stated by the supplier: all claims must be made in writing within eight days of the discovery of the defect and within 12 months of the delivery of the defective product. Munters has thirty days from the date of receipt in which to take action, and has the right to examine the product at the customer's premises or at its own plant (carriage cost to be borne by the customer).

Munters at its sole discretion has the option of replacing or repairing, free of charge, products which it considers defective, and will arrange for their despatch back to the customer carriage paid. In the case of faulty parts of small commercial value which are widely available (such as bolts, etc.) for urgent despatch, where the cost of carriage would exceed the value of the parts, Munters may authorise the customer exclusively to purchase the replacement parts locally; Munters will reimburse the value of the product at its cost price.

Munters will not be liable for costs incurred in demounting the defective part, or the time required to travel to site and the associated travel costs. No agent, employee or dealer is authorised to give any further guarantees or to accept any other liability on Munters' behalf in connection with other Munters products, except in writing with the signature of one of the Company's Managers.

WARNING! In the interests of improving the quality of its products and services, Munters reserves the right at any time and without prior notice to alter the specifications in this manual.

The liability of the manufacturer Munters ceases in the event of:

- dismantling the safety devices;
- use of unauthorised materials;
- inadequate maintenance;
- use of non-original spare parts and accessories.

Barring specific contractual terms, the following are directly at the user's expense:

- preparing installation sites;
- providing an electricity supply (including the protective equipotential bonding (PE) conductor, in accordance with CEI EN 60204-1, paragraph 8.2), for correctly connecting the equipment to the mains electricity supply;
- providing ancillary services appropriate to the requirements of the plant on the basis of the information supplied with regard to installation;
- tools and consumables required for fitting and installation;
- lubricants necessary for commissioning and maintenance.

It is mandatory to purchase and use only original spare parts or those recommended by the manufacturer.
Dismantling and assembly must be performed by qualified technicians and according to the manufacturer's instructions.

The use of non-original spare parts or incorrect assembly exonerates the manufacturer from all liability.

Requests for technical assistance and spare parts can be made directly to the nearest Munters office. A full list of contact details can be found on the back page of this manual.

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