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Author
Michael Ginsburg

SOFTWARE RELEASE NOTE: Rotem Trio R8.5.30

Summary

This release includes following features:

- Rotem Trio (modular concept)
- Expansion 70 Relays & Switches
- Winch Card Switch/Relay
- Fans in manual mode (Switch override) (Appendix B)
- Heaters in manual mode (Switch override) (Appendix C)
- Support for up to 16 heat zones (Appendix D)
- Low/High heater support (Appendix E)
- Light in special control modes (Appendix F)
- Timer humidity control (Appendix G)
- Support for up to 16 temperature sensors (Appendix H)
- Vents auto calibration - Number of steps per device (Appendix I)
- Test alarm duration (Appendix J)
- Ventilation test - Extra and Tunnel (Appendix K)
- Service Light (Appendix L)
- RLED over communication (Appendix M)
- Card Attribute (Appendix N)
- Support for tunnel door in basic ventilation (Appendix O)
- Feed program in manual mode (Appendix P)
- Light in Manual modes (Appendix Q)
- WOD (water on demand) (Appendix R)
- Flushing Drinker lines (Appendix S)
- Up to 15 days in tabs for cooling pad (9920) (Appendix T)
- Stop by humidity level - per cooling pad (9921) (Appendix T)
- Support for Fogger Device (4411) (Appendix U)
- LCD programmable sleep mode (Appendix V)
- Battery backup for Display board for Alarm Notification
- Bird weight history chart
- Emergency high pressure mode
- Support for up to 30 fans
- Support for 2 stir fans
- Support for 4th silo weighing (8490)

- Support for 20 points at temperature curve (9917)
- Zone/Central heaters target at dashboard tile
- Displaying the weight value on RSU display according to the selected method
- Improvement on:
    - History records order (8722)
    - Dimming the lights to dark after power cycling (8947)
    - Water overflow alarm during dimming (9785)
    - Showing properties for air inlet devices (10020)
    - Showing sensors average in pre-heat mode (10022)
    - Showing Service Light percentage after manual stop (10234)
    - As Analog Output function for associated relay (10002)
    - Indication of "no battery" in display card (Ver. 1.1.0) (6467)
    - Backup file selection after SW version upgrade (9067)
    - Arab UI fixes (10464)

Release specification

Product Name	Rotem Trio
Software Version	Trio 8.5.30
Supported Hardware	Rotem Trio Main CPU, Trio UI CPU
Communicator-2 Trio Software	Communicator-2 Trio 1.1.13
Release Date	22-Jun-25
Supported Languages	English, Italian, Danish, Swedish, German, Spanish, Portuguese, Russian, Chinese, Korean, Japanese, Thai, Hebrew, Arab, Turkish, Vietnamese, Polish

SW Update Issues

- The SW version rollback is not supported
- The update package performs the SW upgrade for both Trio Main CPU, Trio UI CPU
- The update is available online while connected to WEB
- USB Disk should be used for the offline updates
- It's recommended to use USB update method in case of poor Internet quality
- The special proceedings should be performed for the smooth transition to version R5/ (see Appendix A)
- **R8 Version download file size is 1.2 GB (takes around 2 minutes within 100 Mbit Internet connection)**

Notes

- There is a known anomalies list (see below), which will be fixed within future versions

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Known Anomalies – TBD

Description	Workaround
Ventilation & Control	
The light turns off, if there is one row in the light table	Define at least two rows in the light table
WOD might keeping boosting the pressure after Lights turn Off	Will be fixed in Ver. R9
Settings & Backup	
When the user upgrades the Trio SW version or loads a backup file, the history information of Animal Management, the current number of animals, the growth day and animals weight are not saved	Keep the history record at other media
Test & Calibration & Devices	
Silo in Dashboard might show the Triangle symbol.	Silo is weighing properly.
History	
Management	
When changing House Mode and growth day together, the Growth Day keeps the value of a previous House Mode	Change the house mode, save, and then change the growth day

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Functionality by Version

	Rotem Trio Poultry		
Functionality	8.5.30	8.2.11	
Control/Ventilation			
Temperature Curve Set	V	V	
Support for 20 points at temperature curve	V	X	
Min/Max Ventilation Set	V	V	
Minimum Ventilation Level at Extra/Tunnel mode	V	V	
Support for tunnel door in basic ventilation	V	X	
Air Quality (RH%, CO2, NH3)	V	V	
Air Quality Automatic treatment by Heat or by fans according to the outside temp	V	V	
Air Quality by Zone Heaters	V	V	
Static Pressure Inlet/Tunnel	V	V	
Heaters	V	V	
Cooling	V	V	
Cooling Pad - Up to 15 days in tabs	V	X	
Cooling Pad - Stop by humidity level per each device	V	X	
Fogger	V	X	
Timers	V	V	
Timers control by outside temperature	V	V	
Timers control by humidity	V	V	
Ventilation levels	V	V	
Inlet & Curtain Levels	V	V	
Inlet & Curtain Levels Disable per level	V	V	
Min/Max ventilation control by Outside temperature	V	V	
Ventilation control by Wind Chill factor	V	V	
Ventilation control by THI	V	V	
Minimum Ventilation fan rotation	V	V	
Cycling Extra/Tunnel fans	V	V	
Brooding	V	V	
Pre-heat with negative days	V	V	
Separate zone\central heating system	V	V	
Heaters ignition time support	V	V	
Heating in special house modes	V	V	
Low/High Heaters	V	V	
Emergency high pressure mode	V	X	
Ventilation types			
Minimum	V	V	
Transitional	V	V	
Tunnel	V	V	
Basic Stir	V	V	

	Rotem Trio Poultry		
Functionality	R8.5.30	8.2.11	
Other Functions			
Water management	V	V	
Feeding management	V	V	
Feed Batch Weighing	V	V	
Lighting	V	V	
Lighting in special house modes	V	V	
Service Light	V	X	
WOD (water on demand)	V	X	
Flushing Drinker lines	V	X	
System			
Sequential deployment of output device at Power up	V	V	
Support for Rotem Trio modular concept	V	V	
Support for Expansion 70 Switches/Relays	V	V	
Support for Winch Switch/Relay Cards	V	X	
Support for Switch/Relay Cards attributes	V	X	
Support for Fans manual mode Switch override	V	V	
Support for Heaters manual mode Switch override	V	V	
Support for Light in Manual modes	V	X	
Support for Feed program in manual mode	V	X	
LCD programmable sleep mode	V	X	
Management			
Alarm Settings	V	V	
Alarm Test	V	V	
Alarm Test duration	V	V	
Alarm Reset	V	V	
CO2 Emergency Threshold	V	X	
Water Alarm according to light program	V	V	
Batch Management	V	V	
Separate Male/Female Management	V	V	
Bird Curve Settings	V	V	
Silo Management	V	V	
Load/Save settings	V	V	
Access control	V	V	

	Rotem Trio Poultry		
Functionality	R8.5.30	R8.2.11	
History			
Temperature	V	V	
Humidity	V	V	
Water	V	V	
Cooling Water	V	V	
Water/Feed Conversion	V	V	
Feed	V	V	
Heaters	V	V	
Alarms	V	V	
Events	V	V	
Last 24 Hrs	V	V	
CO2	V	V	
Ammonia	V	V	
Bird Weighing	V	V	
Silo Weighing	V	V	
Feed Batch Weighing	V	V	
Mortality	V	V	
Power Consumption	V	V	
Gas Consumption	V	V	
Measurement & Calibration & Test			
Temperature	V	V	
Humidity	V	V	
CO2	V	V	
Ammonia	V	V	
Static Pressure	V	V	
Water	V	V	
Bird Weighing	V	V	
Silo Weighing directly with load cell	V	V	
Electronic Feed Batch Weighing	V	V	
Mechanic Feed Batch Weighing	V	V	
Potentiometer	V	V	
Outside Temperature measurement sharing between controllers at the farm	V	V	
Power Meter	V	V	
Gas Meter	V	V	
Lux meter (Light Intensity)	V	V	
Sensors testing & troubleshooting	V	V	

	Rotem Trio Poultry		
Functionality	R8.5.30	R8.2.11	
Installation			
Setup	V	V	
Relay Layout	V	V	
Relay Expansion 10	V	V	
Relay Expansion Disable Mode	V	V	
Analog Sensors	V	V	
Digital Sensors	V	V	
Analog/Digital Sensors Disable Option	V	V	
Analog Output	V	V	
Vent\Curtain Setup	V	V	
Vents auto calibration - Number of steps per device	V	V	
Temp Definition	V	V	
Temp Sensor Location	V	V	
Scales (Bird/Silo)	V	V	
RSU-2 Remote Scale Units	V	V	
RLED-2 Light Dimmer Over Communication	V	X	
Device Properties	V	V	

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Devices by Version

Devices/Sensors Total No per Room/House	Rotem Trio Poultry – R8.5							Rotem Trio Poultry – R8.2.11						
	Output				Measurements			Output				Measurements		
	Total	Relay	0-10V	Comm	Anal.	Dig.	Comm	Total	Relay	0-10V	Comm	Anal.	Dig.	Comm
Cooling	4	4						2	2					
Foggers	4	4						NA	NA					
Heaters	16	16	16					16	16	16				
Inlets	4	4	4					4	4	4				
Outlets	1	NA	1					1	NA	1				
Tunnel Doors/Curtains	4	4	4					4	4	4				
Fans Exhaust/Tunnel	30	30	16					20	20	16				
Stir Fan	2	2	2					1	1	1				
Lights	4	4	4					4	4	4				
Timer	5	5						5	5					
Auger	2	2						2	2					
Feeder	4	4						4	4					
As Relay	70	70	NA					70	70	NA				
As Analog Output	16	NA	16					16	NA	16				
Alarm	1	1						1	1					
Temperature Sensors					16							16		
Humidity Sensors IN					2							2		
Humidity Sensors OUT					1							1		
CO2 Sensors					1							1		
Ammonia Sensors					1							1		
Pressure Sensors					1							1		
Potentiometers					4							4		
Bird Weighing					4							4		
Silo Weighing					4							3		
Feed Weighing					1							1		
Lux Meter (light intensity)					1							1		
Water Meters						4							4	
Aux. Input						4							4	
Auger Sensor						2							2	
Feeder Active Sensor						4							4	
Power Meter						2							2	
Gas Meter						3							3	
Feed Weighing by Pulse						2							2	
RSU-2 Remote Scale Unit							2							2
RLED-2 Light DImmer							2							NA
Analog Input Card							1							1
Digital Input Card							1							1

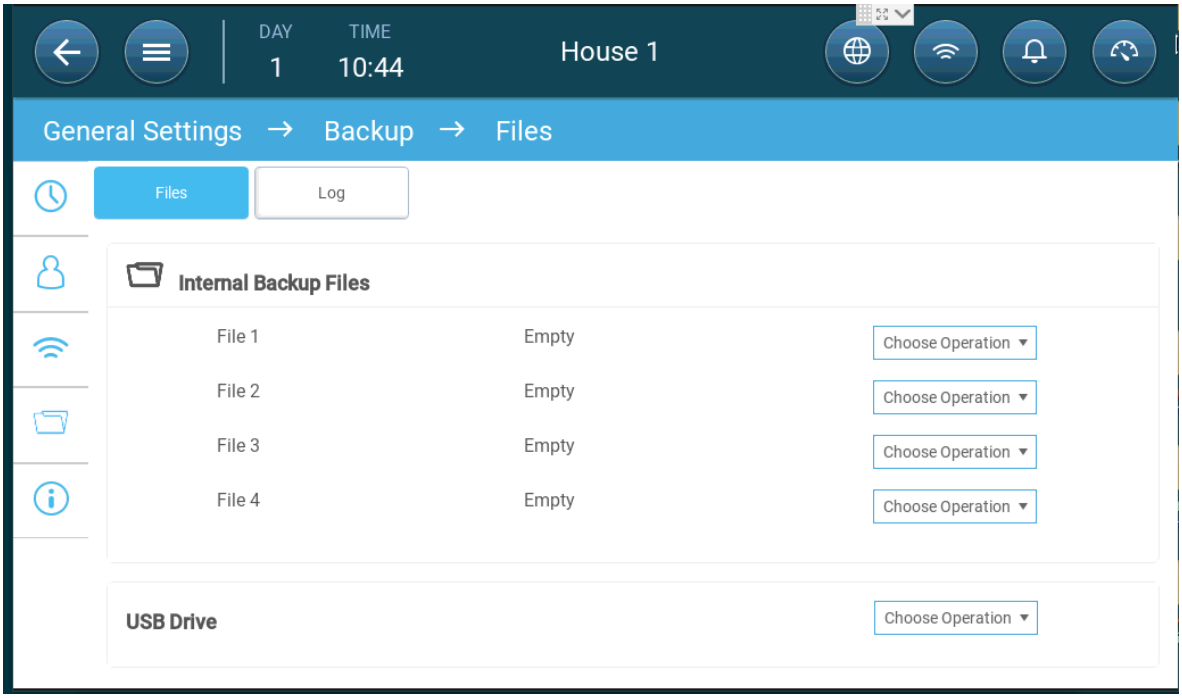
Appendix A: Upgrade to Version R8

1. Creating Backup file prior updating to Version R8

Before updating your trio controller from previous version to R8, please make sure to save a backup file to an external USB flash drive, so you can use it to load your setting to the controller once the upgrade to R8 is done.

<u>Backup file saved to one of the internal backup Slots in the Trio, will not be transferred on to R8.</u>

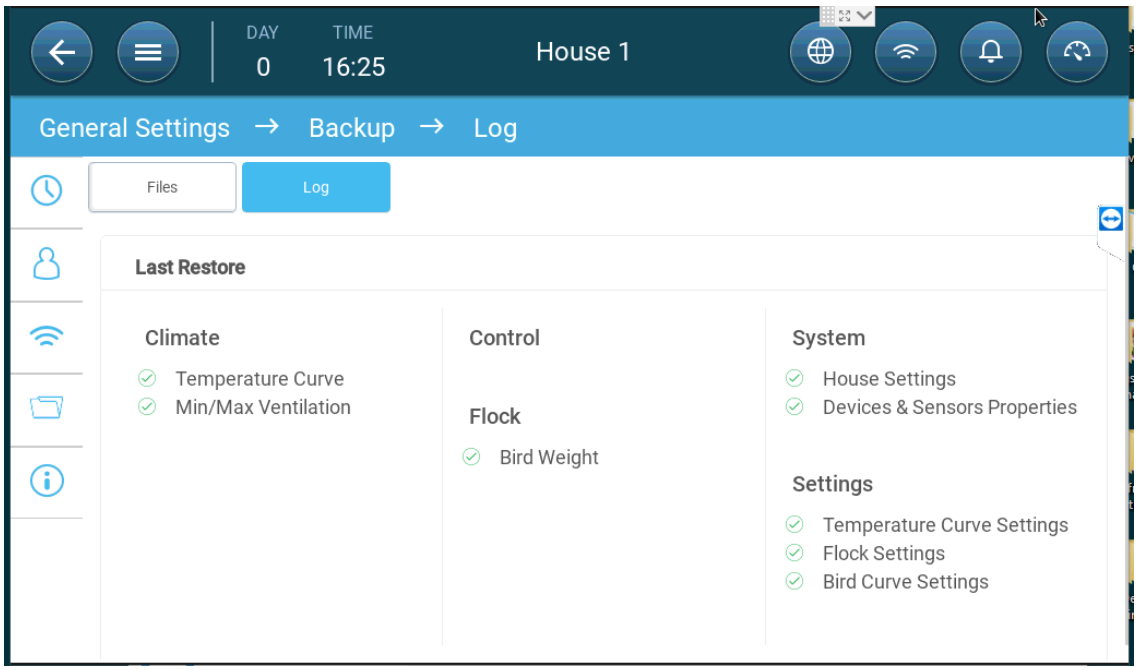
Please note, the USB backup file section will be provided only when the USB flash drive is inserted into the Trio



2. Restoring Backup file to Controller upgraded to Version R8

Use the same backup file on an external USB flash drive to restore previous versions controller settings.

The user should verify the list of loaded tables at the 'LOG' Tab.



Trio Backup file – Exclusions in upgrade to R8.5 from R8.2

The following tables will not be restored, please make sure to manually record your settings/date before upgrading to R8.5:

- Heaters
- Timers
- Special House modes
- Relay Installation
- Analog Output Installation
- Sensor Installation
- Vent/Curtain Installation
- Temp. sensor definition

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Appendix B: Manual Fan Operation

Relay-controlled fans can run in manual operation. Manual operation means that the relay toggle switch is set to ON and that fan works continually. The controller software does not change or affect the fan output.

- When set to ON, the following features are affected:
  - Fan capacity is defined according to the fan being defined as ON. However, if the Ventilation by Weight is employed Trio calculates the minimum output independently of this relay.
  - If the fans are in cycle mode the controller ignores the cycle and runs the fans continually. However the vents will go to minimum position during the scheduled cycle off time.
  - Vents in static pressure mode respond accordingly to the change in pressure.
  - Fan rotation is disabled for any fan running in manual operation. Air capacity is calculated as if rotation is disabled.
- When set to OFF, the following features are affected:
  - Insufficient air supply:
    - If ventilation is operating in minimum ventilation mode
    - One or more fans in the ventilation combination is set to OFF
    - Trio generates an "Insufficient Air Supply" Alarm. The alarm remains active until it is reset, even if the fan relay is turned on.
  - When minimum ventilation is defined as Min Ventilation Trio calculates the minimum output independently of this relay. Trio generates an "Insufficient Air Supply" alarm in this situation.
  - If all fans are OFF, no "Low Static Pressure Alarm" is generated.
  - Vents in static pressure mode do not close below the minimum position.
  - Vents in position mode do not close below the minimum position.
  - Level transition operates normally. If all fans are set to Off, the temperature determines when the controller transitions to the next level
  - Fan rotation is disabled for any fan running in manual operation.

Appendix C: Heaters in Manual mode

Automatic Operation

When a heater toggle switch is set to Automatic, heating works according to the parameter defined in the heating functions. The heaters operate according to the heating set points, the heating bands, cycle times, tuning and other parameters (functions detailed in the following sections).

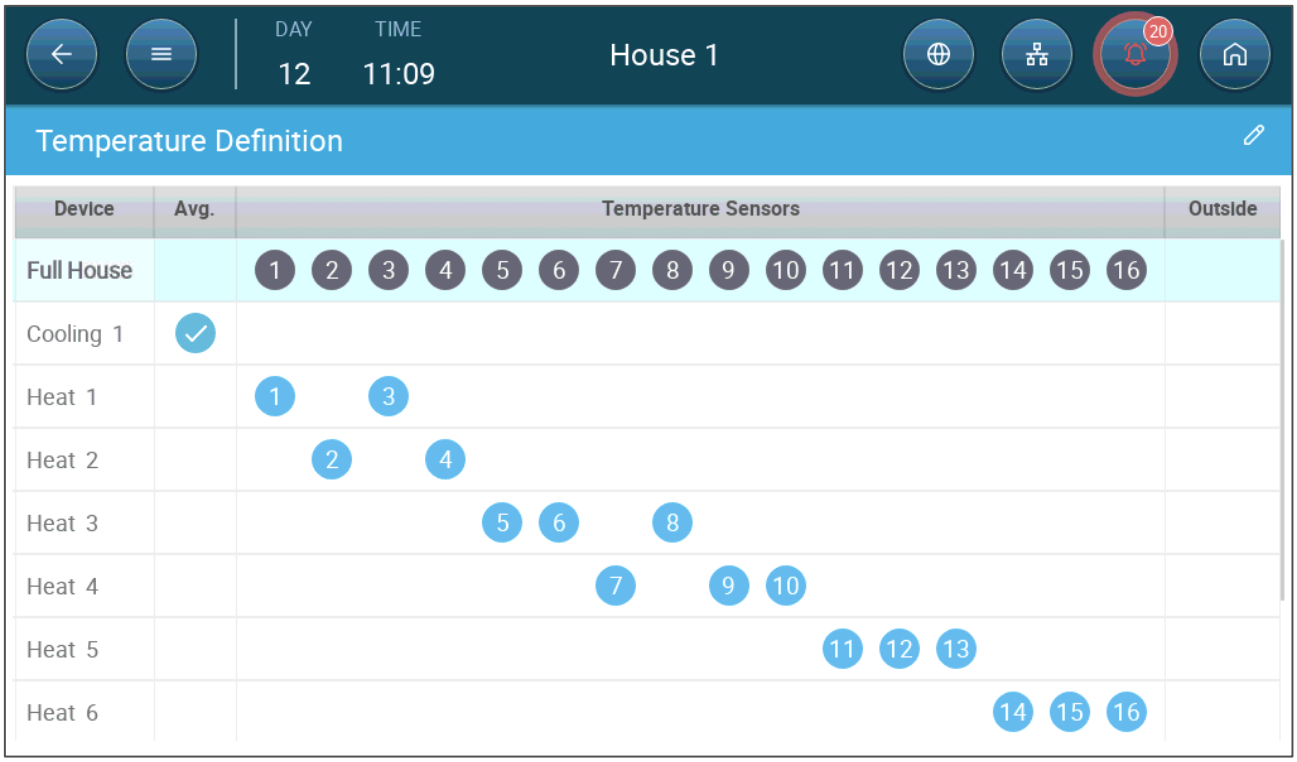
Manual Operation

Relay-controlled heaters can run in manual operation. Manual operation means that the relay toggle switch is set to ON. When set to On, heating output is 100%. In this mode, there is no software control over heating.

Appendix D: Support for up to 16 heat zones

A zone is an area in the poultry house. Each zone heater can be mapped to specific temperature sensor(s) and operates according to that sensor's data output. The heat set point in the temperature curve is the same for all zones. Once a zone's heater is activated, it will work to maintain the temperature. All zone heaters work independently.

Trio Rotem supports up to 16 zones.

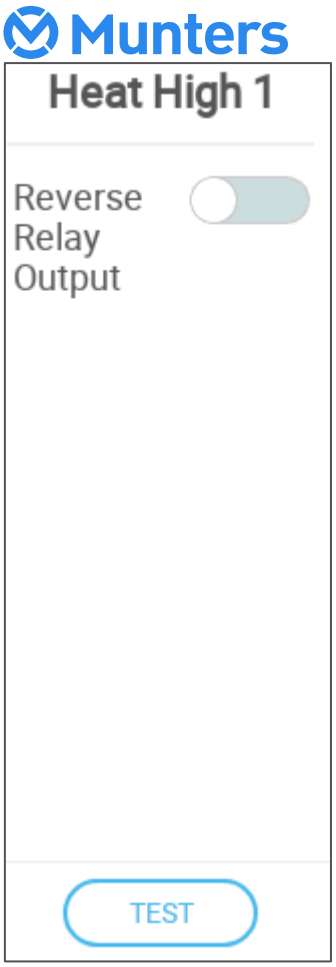


Appendix E: Low/High heater support

Defining the High Heaters

High heaters work in conjunction with relay heaters. High heater 1 works with heater 1, high heater 3 works with heater 3, and so on. If there is no corresponding heater to a high heater, the latter does not function.

➲ **Define up to sixteen relays as high heaters.**



How do Second Stage heaters work

Second stage heating (high heating) provides additional heat beyond the main heating system. Alternatively, second stage heating employs 2-stage heater (low/high fire). The second stage heating operates when the outside weather is so cold that the standard heaters cannot maintain the required temperature.

The second stage heater works in tandem with the primary heater. There must be a primary heater defined for the second stage heater to operate. For example if there is one primary heater and two secondary heaters, heater #1 and high heater #1 work together; the second secondary heater will not operate.

How do the Heaters and High Heaters Work Together?

When heating is defined as Zone, heaters and high heaters can work together or independently, depending on how their toggle switches are set. The following examples use Heater 1 and High Heater 1 as models.

- Auto Running: The current temperature is below the heat temperature.
- Auto Not operating: The current temperature is above the heat temperature.

- On: The heater operates continually, independent of the target temperature.
- Off: The heater is shut down.
- : Both heaters are off
- : The heater is operating
- : Either the heater and the high heater is operating or the high heater is operating alone

Heater 1 Toggle Switch	Heater Status	High Heater Toggle Switch	Heater Status	Icon Displayed
Auto	Running	Auto	Running	
Auto	Running	Auto	Not running	
Auto	Running	On	Runs continually	
Auto	Running	Off	Not operating	
Auto	Not operating	Auto	Not operating	
Auto	Not operating	On	Runs continually	
Auto	Not operating	Off	Not operating	
On	Runs continually	Auto	On	
On	Runs continually	Auto	Not operating	
On	Runs continually	On	Runs continually	
On	Runs continually	Off	Not operating	
Off	Not operating	Auto	On	
Off	Not operating	Auto	Not operating	
Off	Not operating	Manual	On	
Off	Not operating	Off	Off	

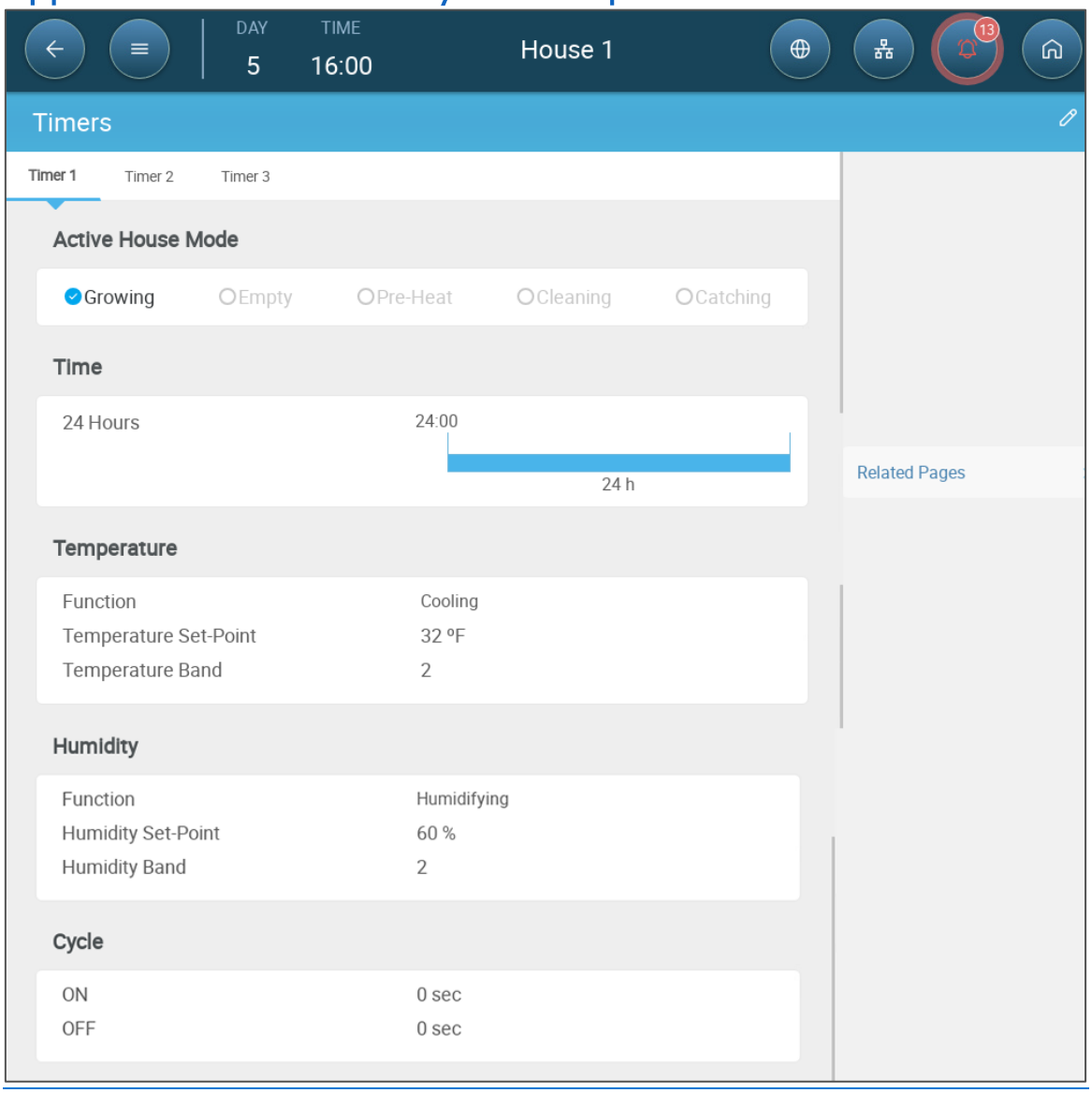
Appendix F: Light in Special Control Modes

Manual Mode

If the light relay is set to ON, lighting remains on continually, regardless of the programming. Trio defines this time as a light period. This definition affects the following:

- Water Alarm: Water alarms can be limited to light periods. If one or more relay is set to ON, this management parameter is effectively disabled.
- Water Pressure: If the water pressure is managed according to the light program, the controller must maintain the pressure during the light period if the lights are manually turned ON.

Appendix G: Timer Humidity and Temperature Control



- **Temperature**: This function enables controlling devices according to temperature. If enabled, define:
  - Function: Define the timer control mode:
    - Cooling: The timer operates when the temperature rises above the set point plus the band and continues to operate until the temperature drops below the set point.
    - Heating: The timer operates when the temperature drops below the set point minus the band and continues to operate until the temperature rises above the set point.
  - Temperature Set-Point: Define the target temperature. Range -40.0 to +193.0° F. Default 32.0° F
  - Temperature Band: The temperature band defines the range in which the timer operates. Range 0 to 10° F. Default 2° F.
- **Humidity**: This function enables controlling devices according to humidity. If enabled, define:
  - Function: Define the timer control mode:
    - Dehumidify: The timer operates when the humidity rises above the humidity set point plus the band and continues to operate until the humidity drops to the set point.
    - Humidify: The timer operates when the humidity drops below the set point minus the band and continues to operate until the humidity rises to the set point.
  - Humidity Set-Point: Define the target humidity. Range: 0 – 100%. Default: 60%.
  - Humidity Band: The humidity band defines the range in which the timer operates. Range 0 to 10%. Default 2%

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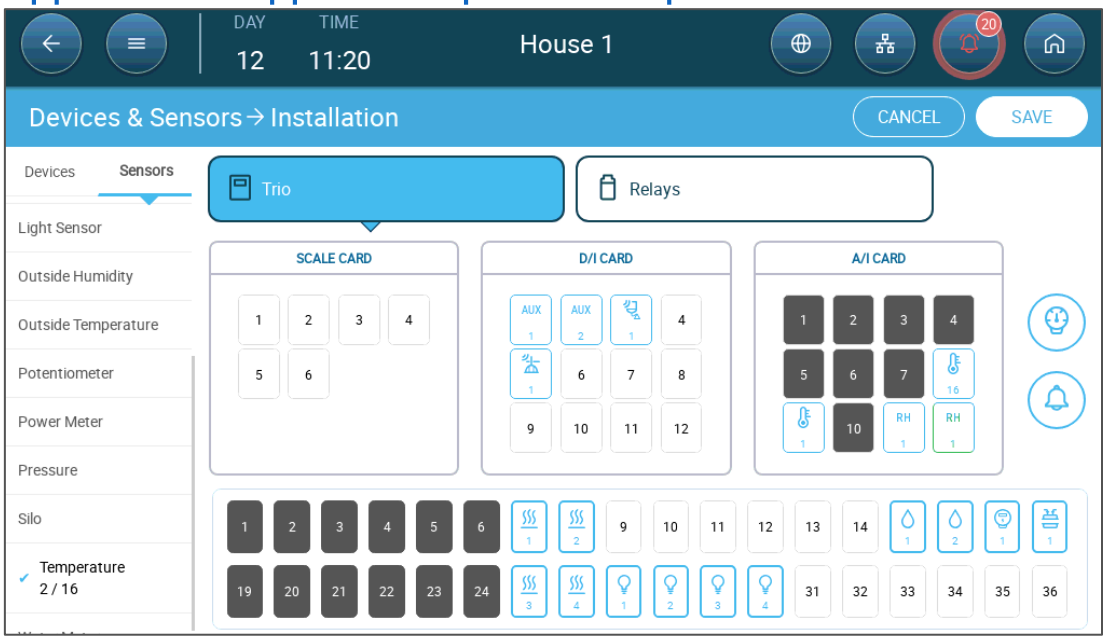
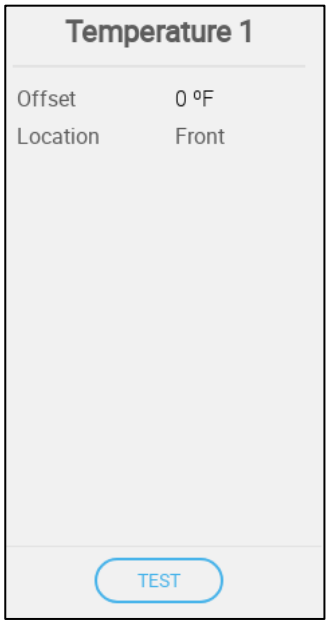
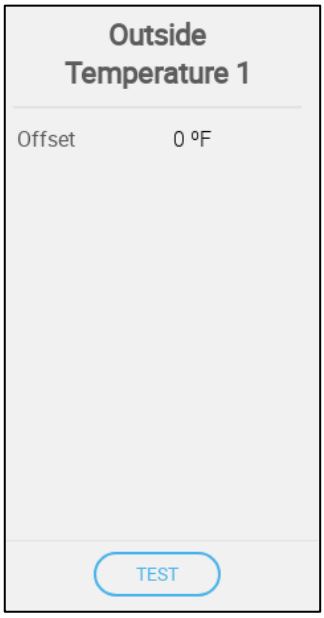
Appendix H: Support for Up to 16 Temperature Sensors



Defining the Temperature Sensors

➲ Define up to 16 analog input ports as temperature sensors (and one port as an outside temperature sensor).





- Define:
  - Offset: This is an optional correction for the temperature sensor. Range: -10° C to +10° C
  - Enabled: enable/disable the sensor.
  - Location: Designate the area in the room where the sensor is located (front/back/center).
- The temperature reading shows the measured temperature, including the offset.

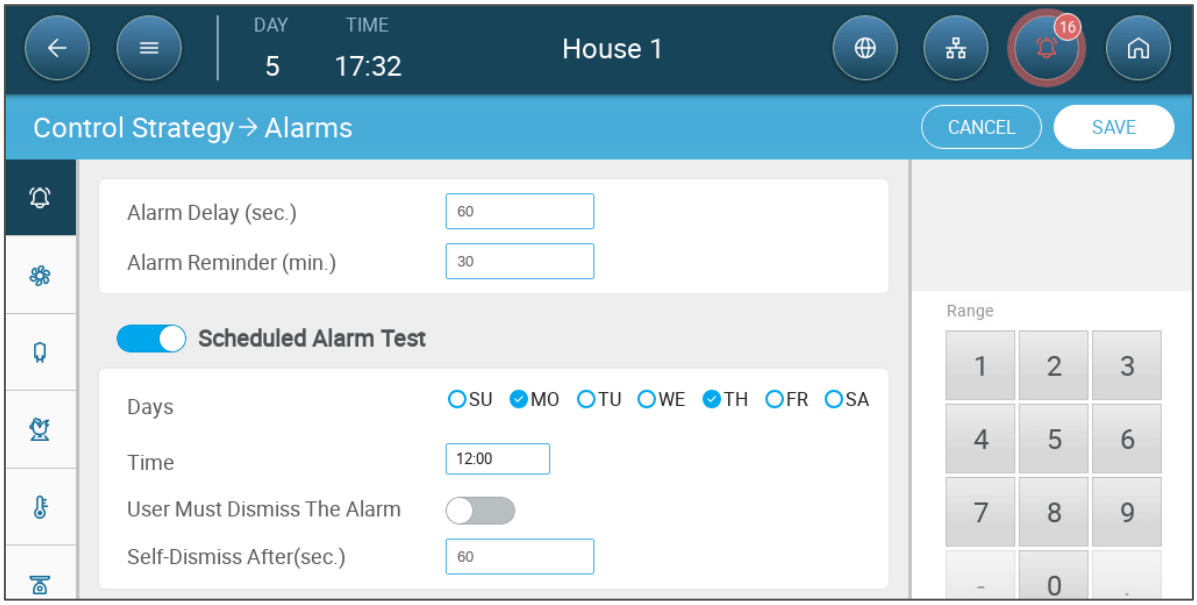
Appendix I: Vents Auto Calibration – Number of Steps per Device

- Number of Movements: Define the number of movements (meaning when the opening changes from idle to open or to close) after which the inlets or tunnel door auto calibrates. The movement can be automatic or manual. Range: 5 – 99. Default: 99

Appendix J: Test Alarm Duration

Scheduled tests can be performed once a day only.

1. On the Alarm Screen, enable Scheduled Alarm Test.

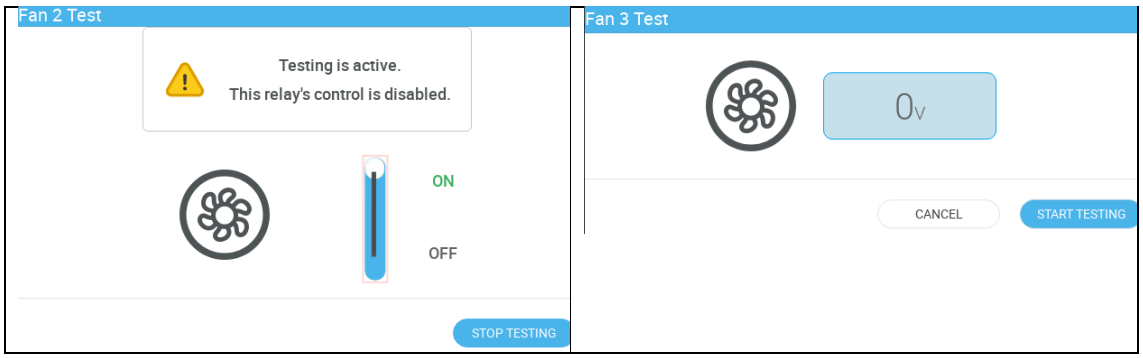


2. Define:
   - The day(s) and time at which the test is performed.
   - User Must Dismiss The Alarm:
     - When enabled, the user must acknowledge the alarm. The alarm remains active until the acknowledged.
     - When disabled, the alarm stops after a specified amount of time.

Appendix K: Ventilation test – Extra and Tunnel

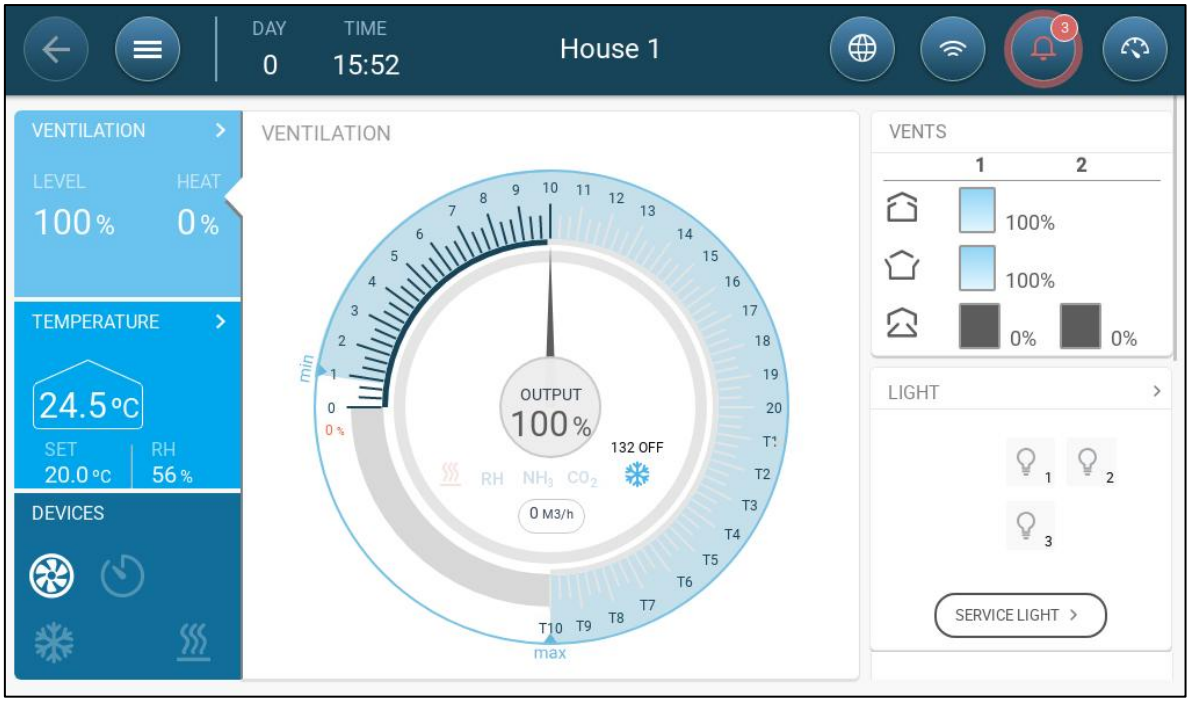
After mapping a device, Trio provides a testing function that enables checking the device's performance.

- Fans: Click Test to test the fan's response. Testing works for fans in Basic, Extra, and Tunnel Mode



Appendix L: Service lights

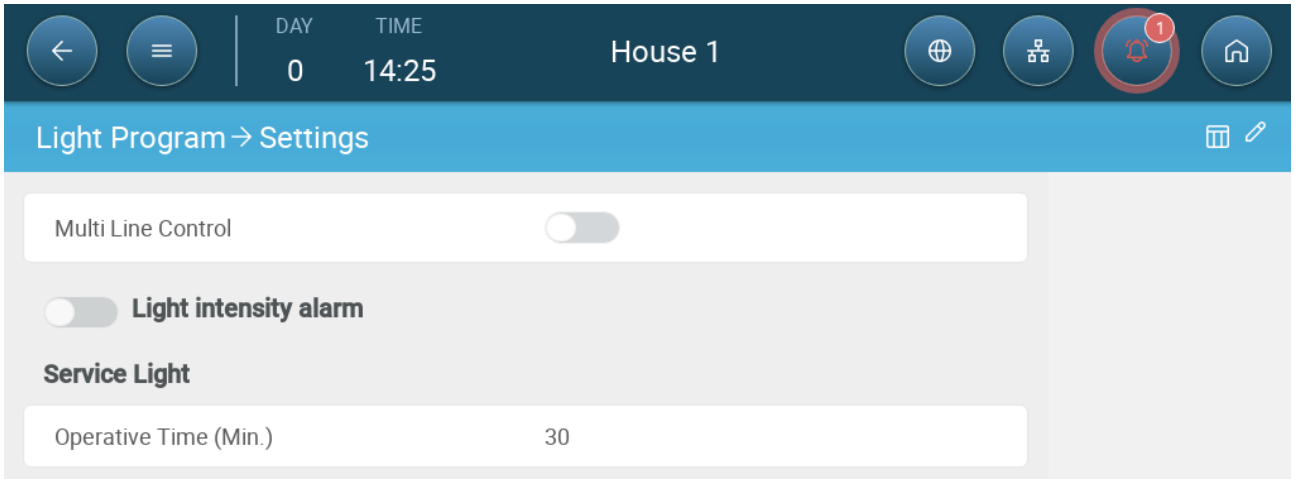
Service lights is a function that turns on the lights for a defined amount of time, temporarily overriding the programming. When the service light icon (which appears on the dashboard) is pressed , all lights are turned on.



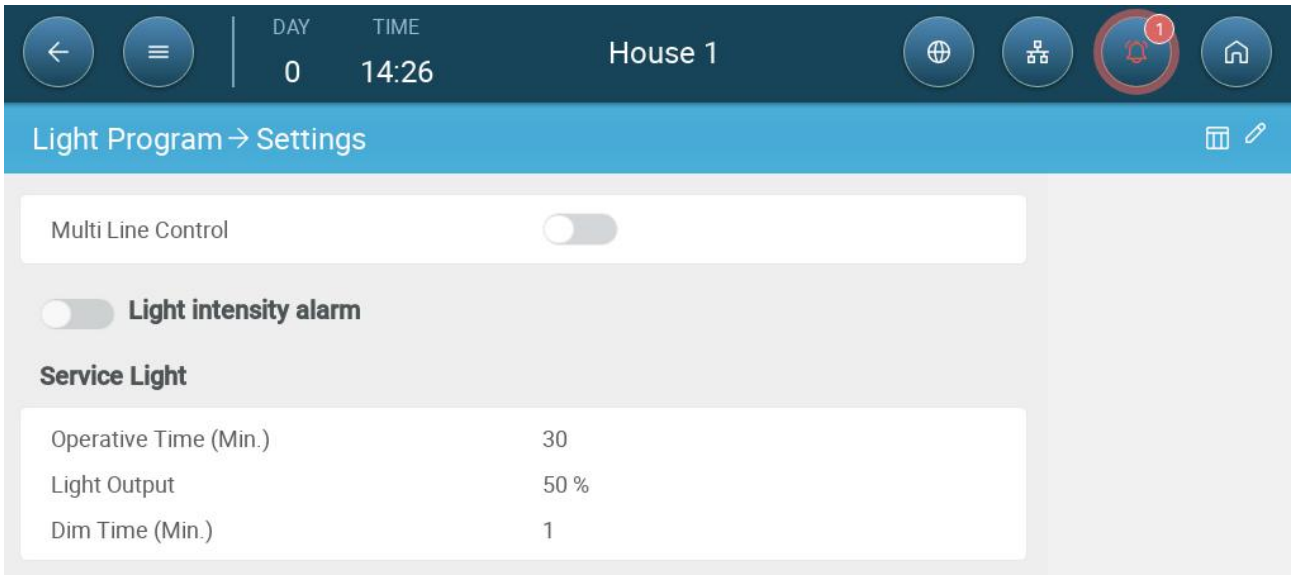
- Turning the lights on:
  - 0 – 10 volt lights: When turned on, the lights gradually rise to the defined brightness. The time required for the lights to fully turn on is user-defined. If the light level is higher according to the programming than the level defined in the Service Light function, the lights remain at their programmed level.
  - On/Off lights: All lines turn on immediately.
- Turning the lights off: Lights turn off when the defined service time expires or the user presses the Turn Off icon.
  - 0 – 10 volt lights: When turned on, the lights gradually return to the defined brightness. The time required for the lights to turn off is user-defined.
  - On/Off lights: All lines turn off immediately.

To define the Service Light functionality:

1. Go to Control › Light › Settings.
2. Define the parameters.
    - On/Off lights:



        - Operative Time (Min.): Define the amount of time (in minutes) that the lights remain on. Range 1 – 120. Default: 30
    - 0 – 10 volt lights:



        - Operative Time (Min.): Define the amount of time (in minutes) that the lights remain on. Range 1 – 120. Default: 30
        - Light Output: Define the lights' output (in percentages). Range: 10 – 100. Default: 50
        - Dim Time (Min.): Define the amount of time that the lights require to power up to light output level and to power down to the programmed level.

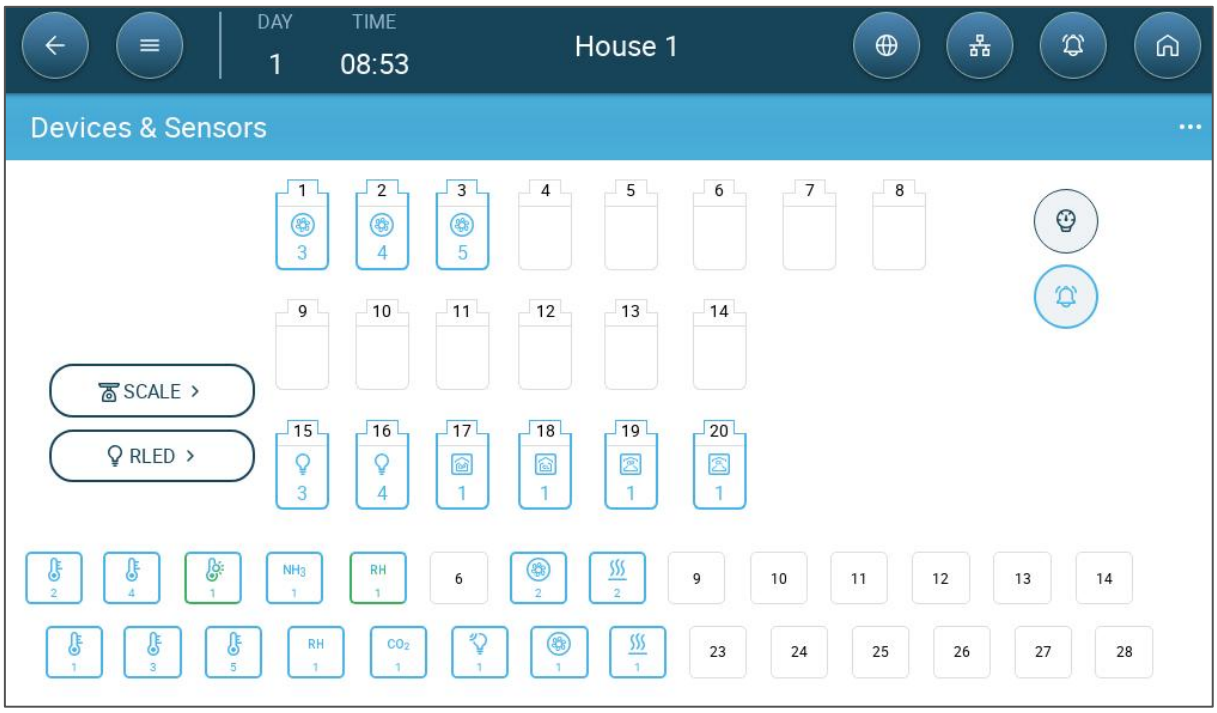
Appendix M: RLED over communication

Trio can be connected to the RLED 2.0 via the Analog Output cards or the ModBus.

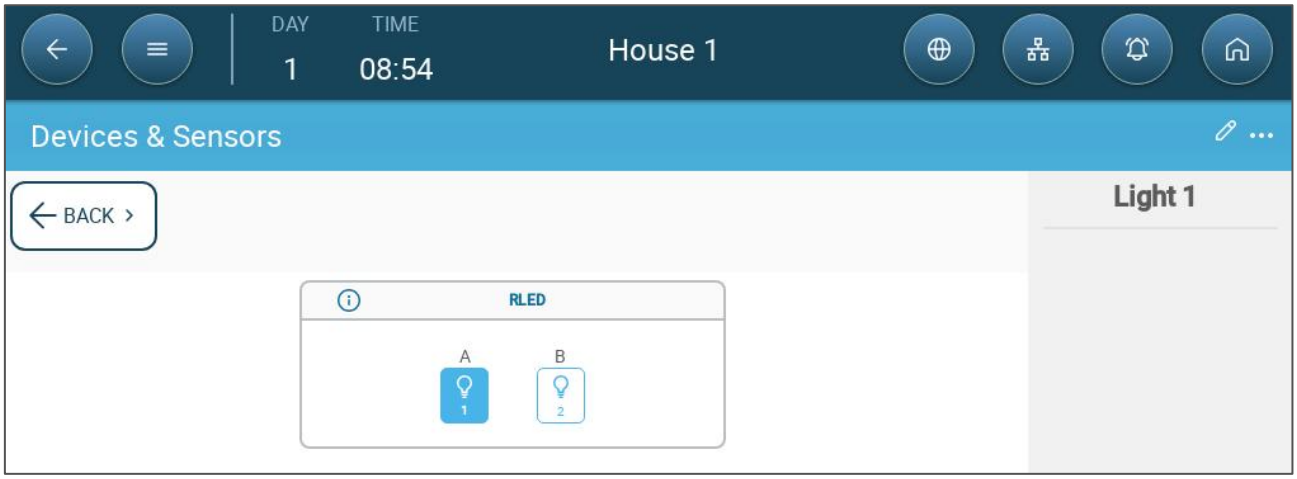
Defining the RLED 2.0

➲ **The RLED icon does not appear unless an RLED 2.0 is connected to a Trio.**

1. Go to Devices & Sensors.



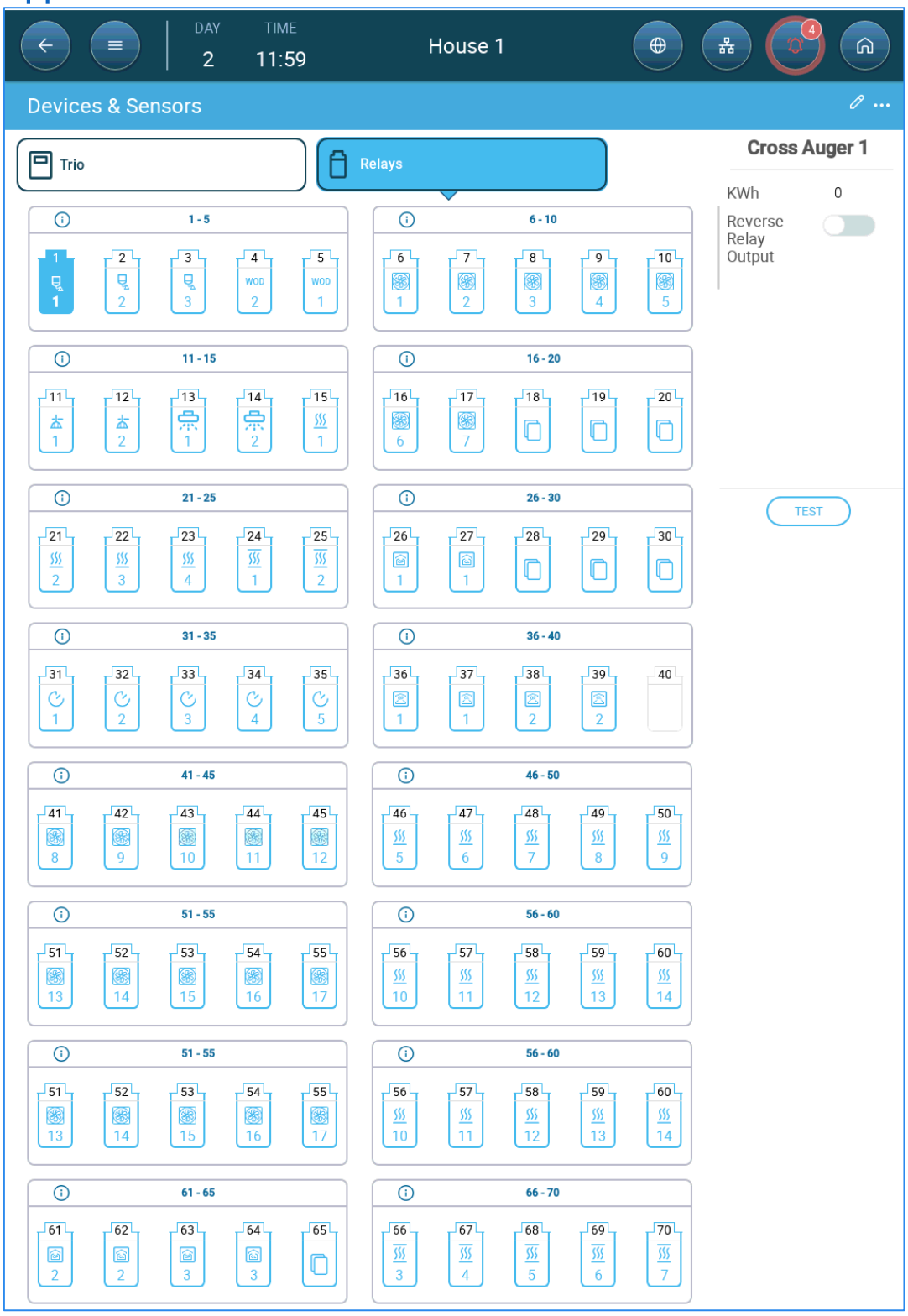
2. Click RLED.

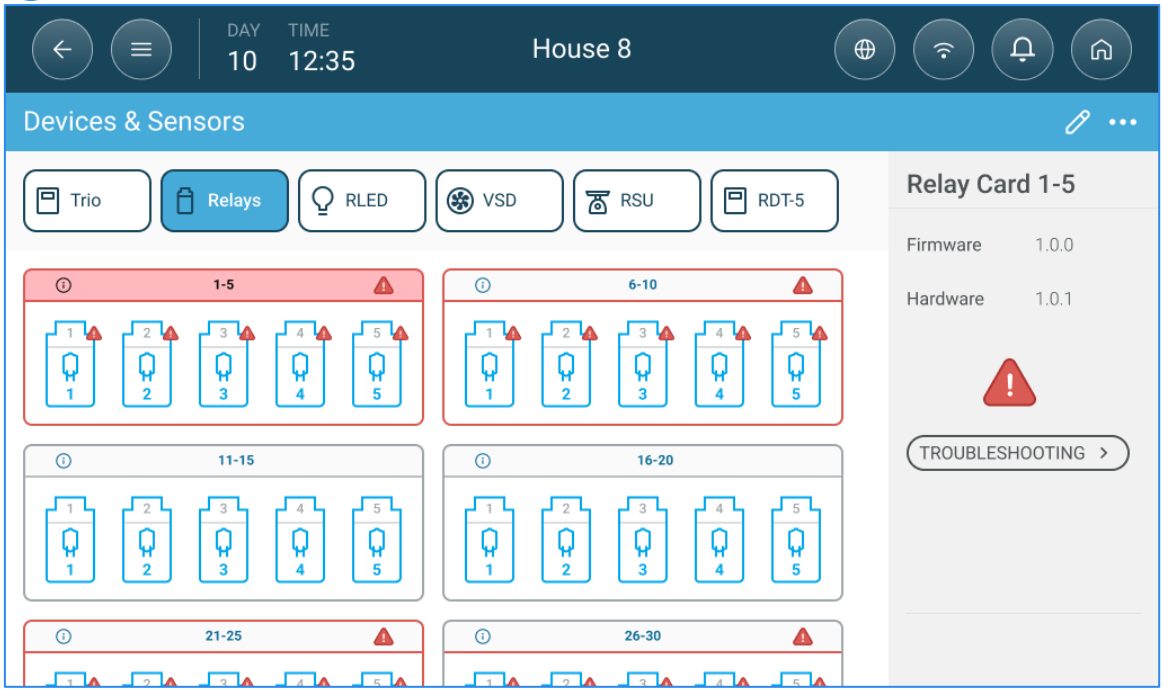


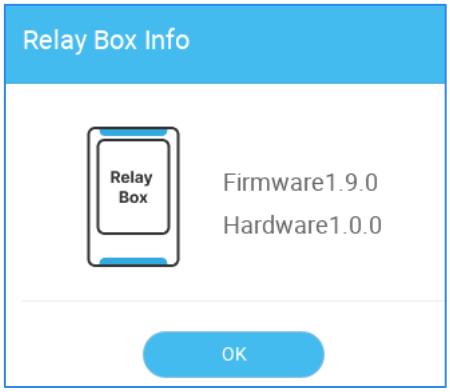
3. Select one RLED 2.0 channel.
4. Select the relays or ports. The RLED 2.0 will control those lights.

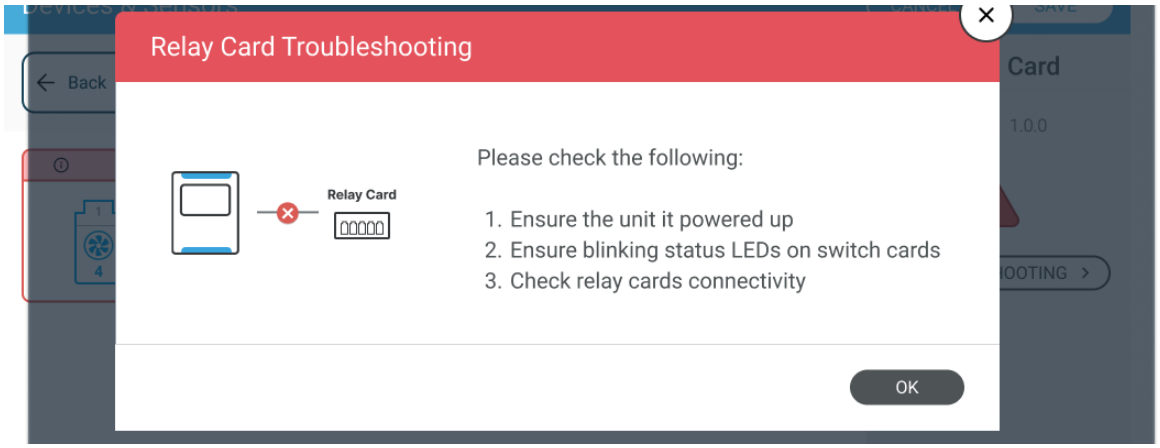
Munters

Appendix N: Card Attribute




DAY
10
TIME
12:35
House 8
Devices & Sensors
Trio
Relays
RLED
VSD
RSU
RDT-5
1-5
6-10
11-15
16-20
21-25
26-30
Relay Card 1-5
Firmware 1.0.0
Hardware 1.0.1
TROUBLESHOOTING


Relay Box Info
Relay Box
Firmware1.9.0
Hardware1.0.0
OK

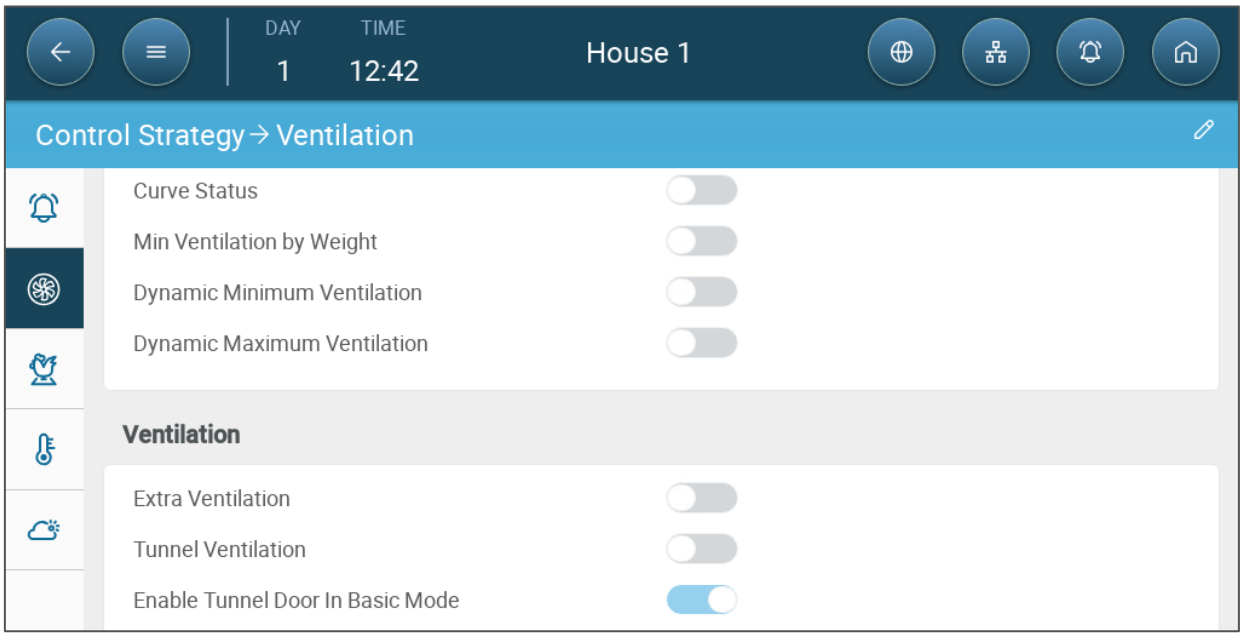

Relay Card Troubleshooting
Relay Card
Please check the following:
1. Ensure the unit it powered up
2. Ensure blinking status LEDs on switch cards
3. Check relay cards connectivity
OK

Appendix O: Support for Tunnel Door in Basic Ventilation

Basic Ventilation

In Version 8.3, Trio enables operating the tunnel doors (curtains) in Basic Ventilation. This function provides extra sources of ventilation in hotter climates.

1. Go to System › Control Strategy › Ventilation.
2. Enable Tunnel Door in Basic Mode.



Appendix P: Feed Program in Manual Mode

Manual Feed Control

➲ Set the toggle switches of the feeder relays On or Off.

- When the Feed Relay is set to ON, feed is transported continually, regardless of the program configuration. Trio records the quantity of feed transported.
- When the Feed Relay is set to OFF, feed transportation ceases. Trio does not record any feed distribution.

Appendix Q: Light in Manual Mode

Manual Control Over Lighting and WOD

➲ Position the toggle switches of the light relays to ON or OFF.

When the light relays' toggle switches (located on the Rotem Trio Expansion) are set to ON or OFF, the controller functions as if it is in light period or dark period, respectively.

- Water pressure is managed as if it is light period (refer to WOD - Light Control)
- The high water usage alarm, if managed by the light program (refer to Water Alarm).

Appendix R: WOD (Water on Demand)

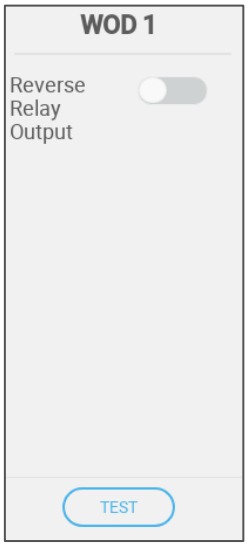
Installation

Water Pressure Devices

Defining the WOD

WOD relays control two pre-set pressure regulators.

➲ **Define up to three relays as WOD relays.**

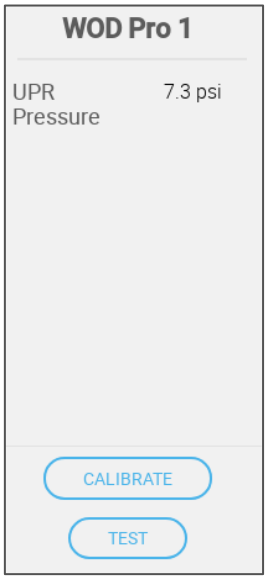


- Reverse Relay Output: Enable this function for Normally Closed Relays.

Defining the WOD Pro

The WOD Pro sensor controls the water pressure and flow in all drink lines.

Define one analog output port as a WOD Pro sensor.



- UPR Pressure: The UPR is a pressure regulator which has an adjustable range between 0 – 58 PSI.

How is Water Pressure Measured

Trio controls water pressure at two levels:

- General pressure: Water on Demand (WOD) relays manage the pressure through two preset pressure regulators. WOD relays activate the pressure regulator, which maintain the pressure at one of three levels (low, medium, high)
- Drinking water: A sensor (WOD Pro) controls the pressure and flow of the water in the nipple lines. The user sets the required pressure of the UPR regulator and Trio maintains it automatically. Using a 0 -10 volt sensor, Trio monitors the drink line pressure and adjusts it accordingly.

Water Program Control

The WOD program can be managed according to:

- Trio's Light program.
- User-defined time schedule.

Water Pressure Units

Trio measures water pressure in either metric or imperial units. Water pressure to the control room is measured in bars or PSI. Water pressure in the actual drinking lines is measured in centimeters-water or inch-water.

To select the units, go to System › General Settings › User.

Setup

The following section details how to set up the WOD, according to the options chosen. Control can be via relays (WOD), a sensor (WOD Pro) or a combination of the two. In addition, Trio controls the program according to time or the light program.

NOTE *Pressure must increase during the growth cycle.*

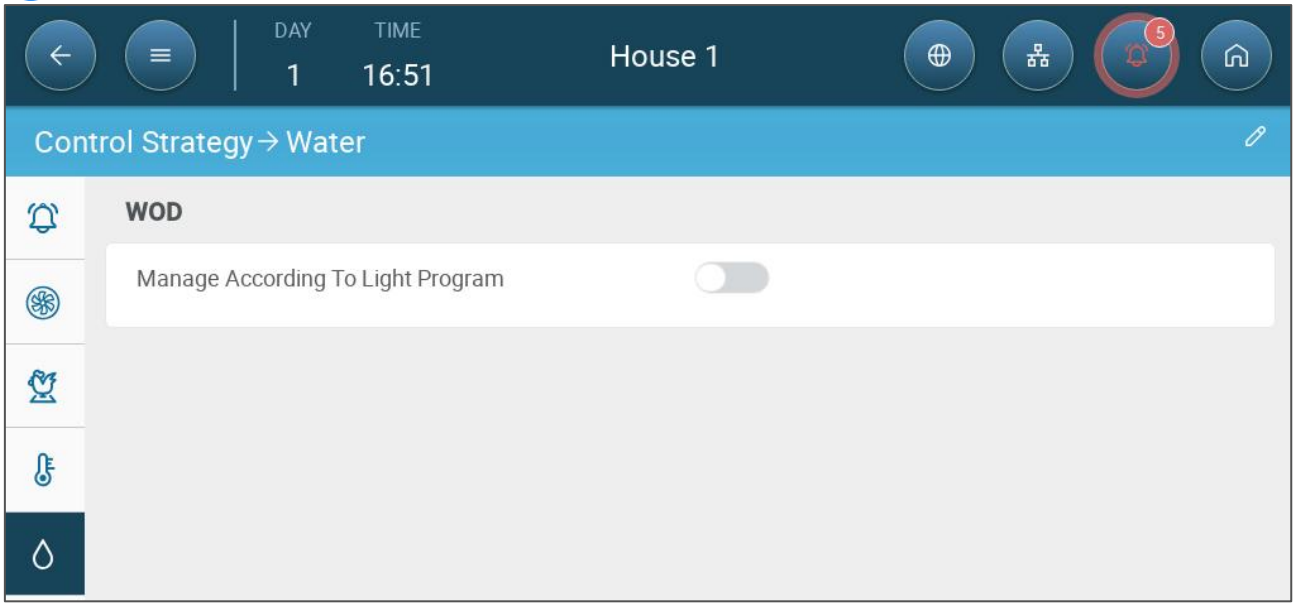
- WOD Relay Control
- WOD Pro 0 – 10 Volt Control
- Relay Control – Manual

WOD Relay Control

➲ **In Devices and Sensors, define 1 – 3 relays as WOD.**

WOD - Time Control

1. Go to System › Control Strategy › Water.

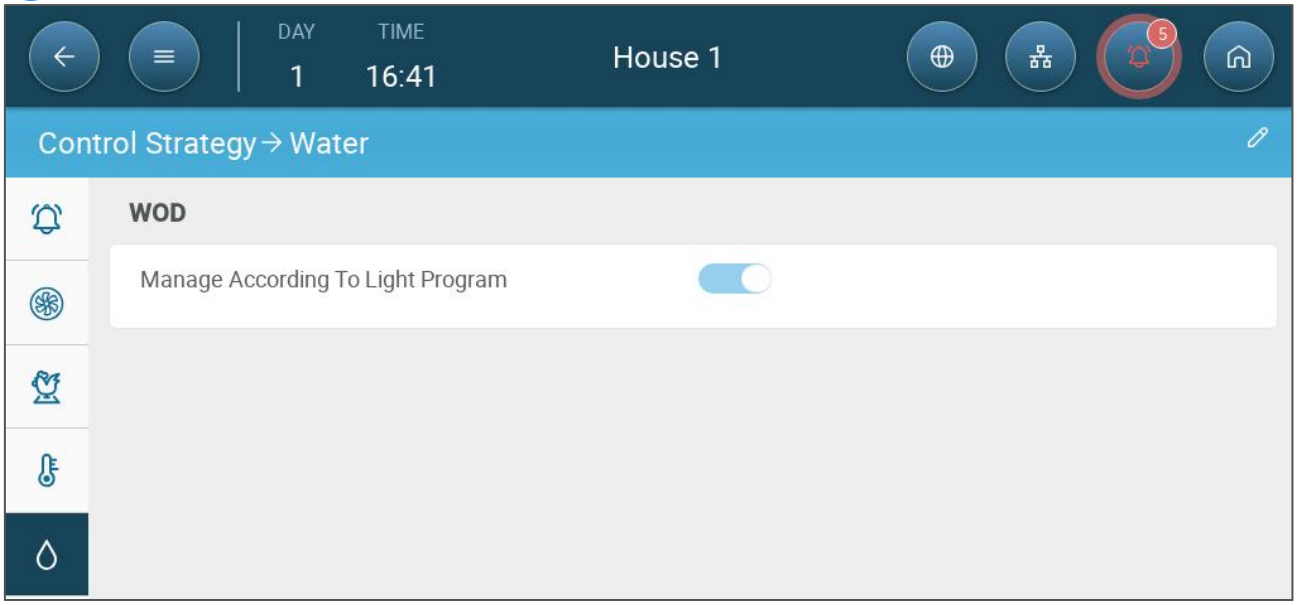


2. Verify that the option is disabled.
3. Go to Control › Water › WOD.

4. Click  .
5. Define the growth day, the start times, and the relays used to control the pressure.
6. Add a tab for each growth day and define the parameters.

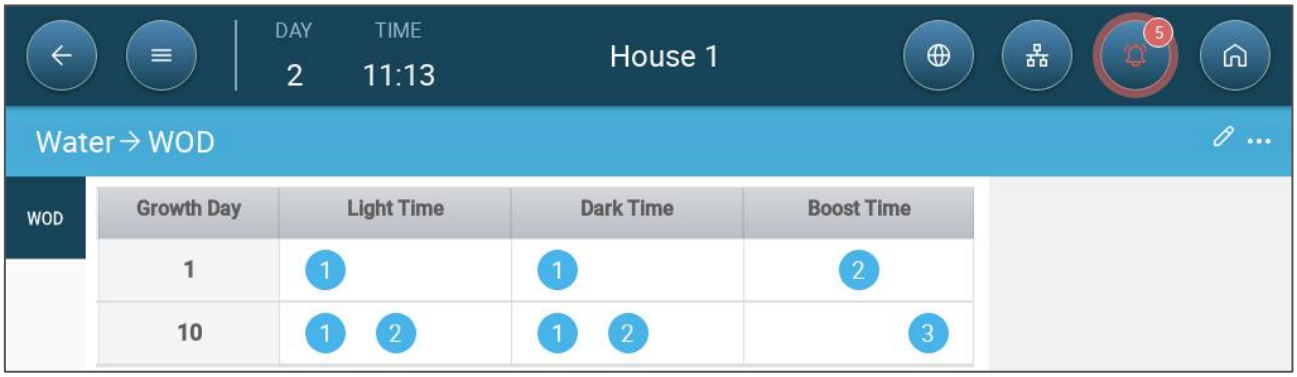
WOD - Light Control

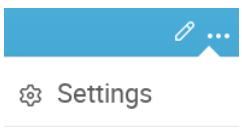
1. Go to System › Control Strategy › Water.



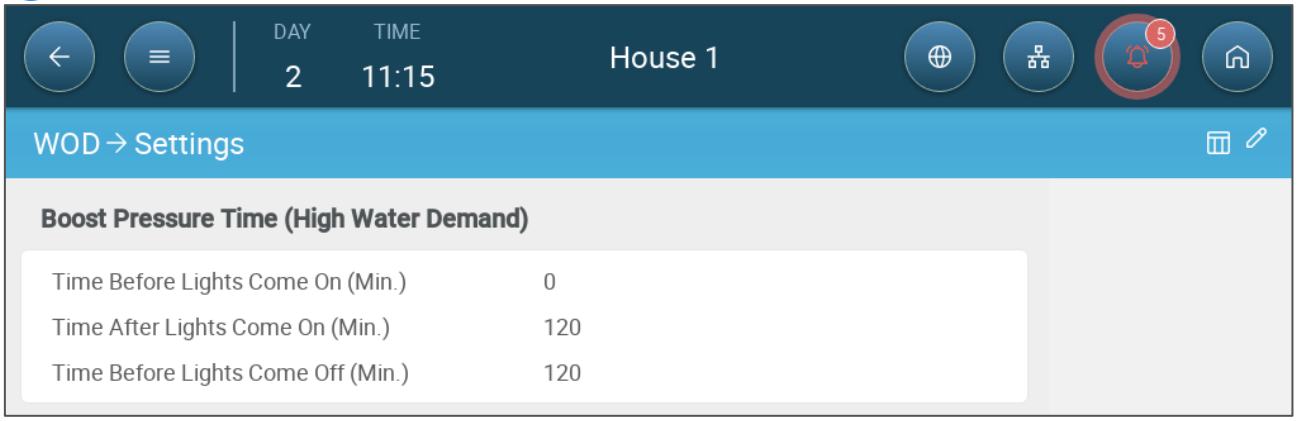
2. Enable **Manage According To Light Program**.
3. Go to Control › Water › WOD.

4. Click  .
5. For each growth day, define the relay(s) used during the following times:
   - Light times: Period when lighting is on.
   - Dark Time: Period when lighting is off.
   - Boost Time: These are the times when water consumption is increased. These periods are defined in the settings.



6. Go to 

.



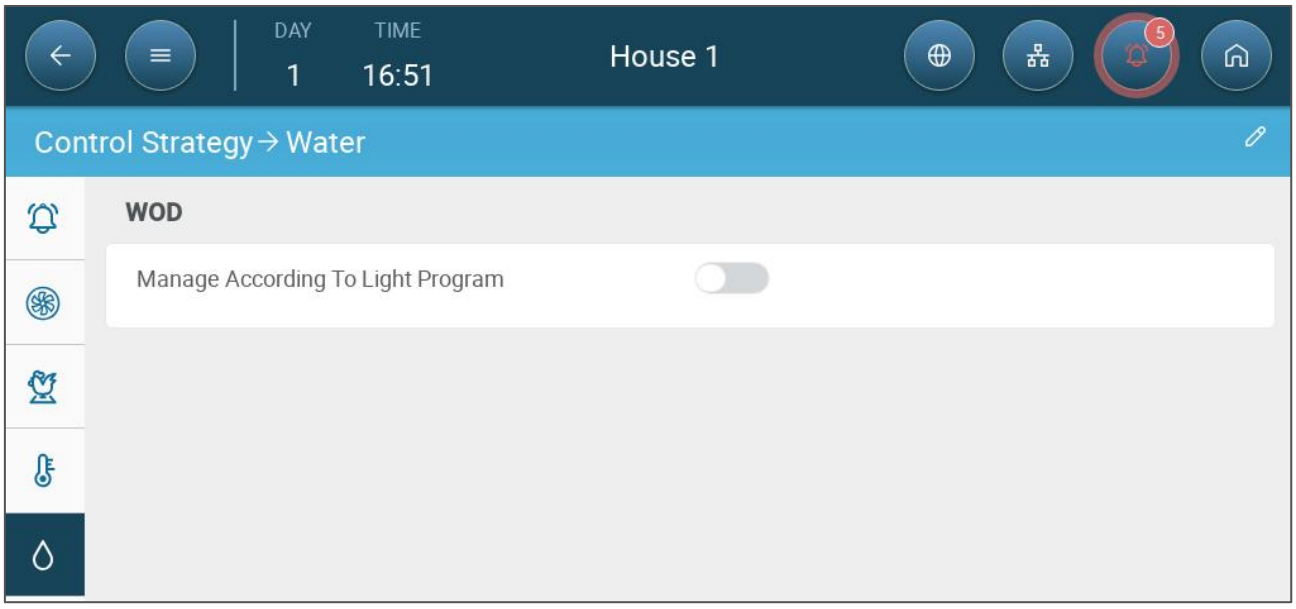
7. Define:
    - Time Before Lights Come On: Define the number of minutes that pressure is increased before the lights come on. Default: 0. Range: 0 – 300.
    - Time After Lights Come On: Define the number of minutes that pressure is increased after the lights come on. Default: 120. Range: 0 – 300.
    - Time Before Lights Come Off: Define the number of minutes that pressure is increased after the lights turn off. Default: 120. Range: 0 – 300.

WOD Pro 0 – 10 Volt Control

➲ In Devices and Sensors, define one analog port as WOD Pro.

WOD Pro - Time Control

1. Go to System › Control Strategy › Water.



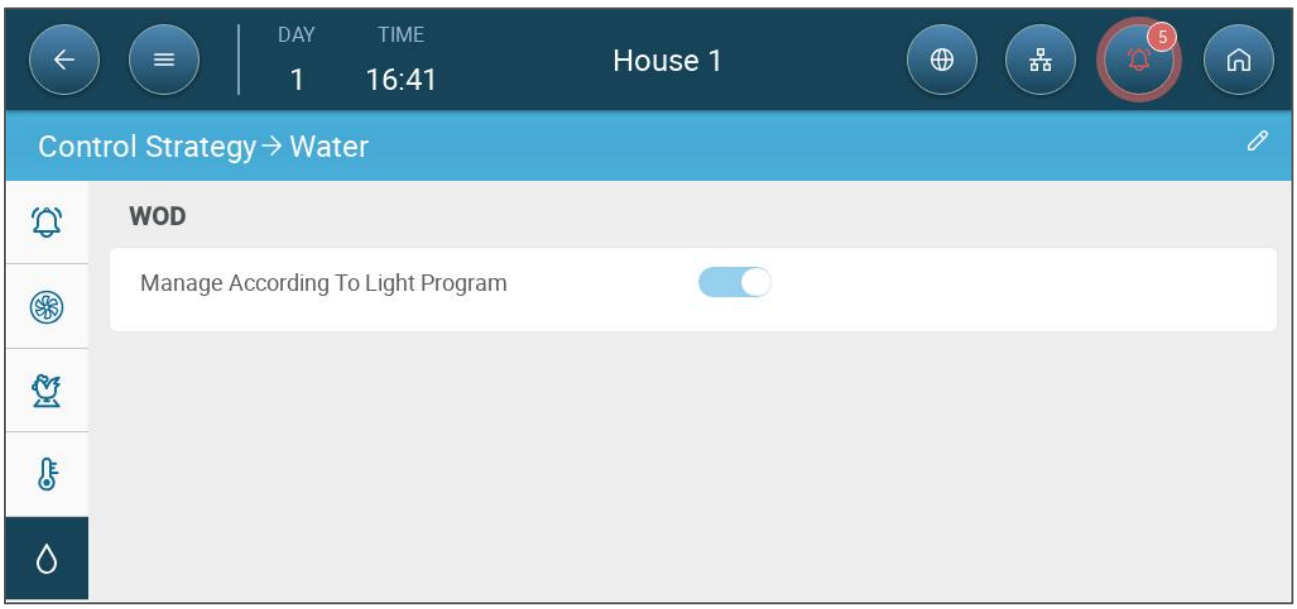
Verify that the option is disabled.

2. Go to Control › Water › WOD.

3. Click .
4. Define the growth day, the start times, and the drinker line pressure.
5. Add a tab for each growth day and define the parameters.

WOD Pro – Light Control

1. Go to System › Control Strategy › Water.

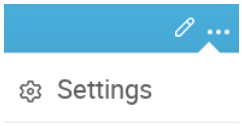


2. Enable **Manage According To Light Program**.
3. Go to Control › Water › WOD.

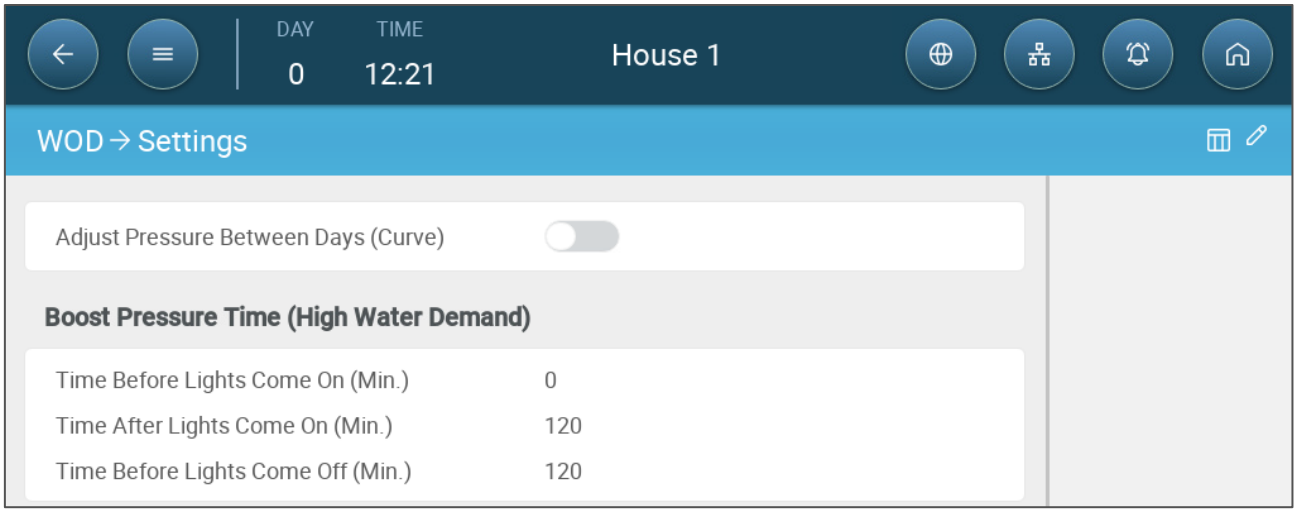
4. Click  .

5. For each growth day, define the drink line pressure for the following times:

- Light times: Period when lighting is on.
- Dark Time: Period when lighting is off.
- Boost Time: These are the times when water consumption is increased. These periods are defined in the settings.

6. Go to 

.



7. Define:

- Time Before Lights Come On: Define the number of minutes that pressure is increased before the lights come on. Default: 0. Range: 0 – 300.

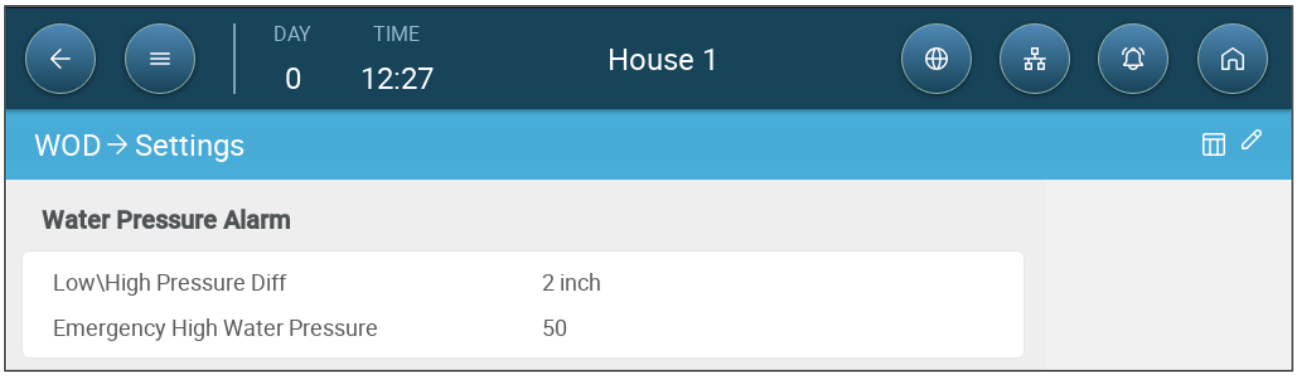
- Time After Lights Come On: Define the number of minutes that pressure is increased after the lights come on. Default: 120. Range: 0 – 300.
- Time Before Lights Come Off: Define the number of minutes that pressure is increased after the lights turn off. Default: 120. Range: 0 – 300.

WOD Pro Pressure Alarms

When employing WOD Pro, Trio can generate water pressure alarms based on the diference between the requested pressure (defined by the WOD Pro) and the pressured measured by the water pressure sensor.

➲ **In Devices and Sensors, define one analog port as Water Pressure.**

1. Go to Control > Water > WOD > Settings.



2. Define:

- Low\High Pressure Diff: Define the difference between the requested and measured pressure to generate a low\high water pressure alarm. The condition must continue for 30 seconds for an alarm to be generated.
- Emergency High Water Pressure: Define the pressure required to generate an alarm.
  - If there is a leak, this leakage is translated into a high pressure signal. An alarm is generated when the pressure is above the defined level for more than five seconds. In the event of an emergency alarm, the pump is shut off.
  - Reset the alarm to exit the emergency state.

Manual Control Over Lighting and WOD

➲ **Position the toggle switches of the light relays to ON or OFF.**

When the light relays' toggle switches (located on the Rotem Trio Expansion) are set to ON or OFF, the controller functions as if it is in light period or dark period, respectively.

- Water pressure is managed as if it is light period (refer to WOD - Light Controland WOD Pro - Light Control).
- The high water usage alarm, if managed by the light program (refer to Water Alarm), must be evaluated according to the boost time settings (refer to WOD Pro 0 – 10 Volt Control).

Appendix S: Flushing the Drinking Lines

Flushing means running clean water, at high pressure, through the drinking lines.
Flushing:

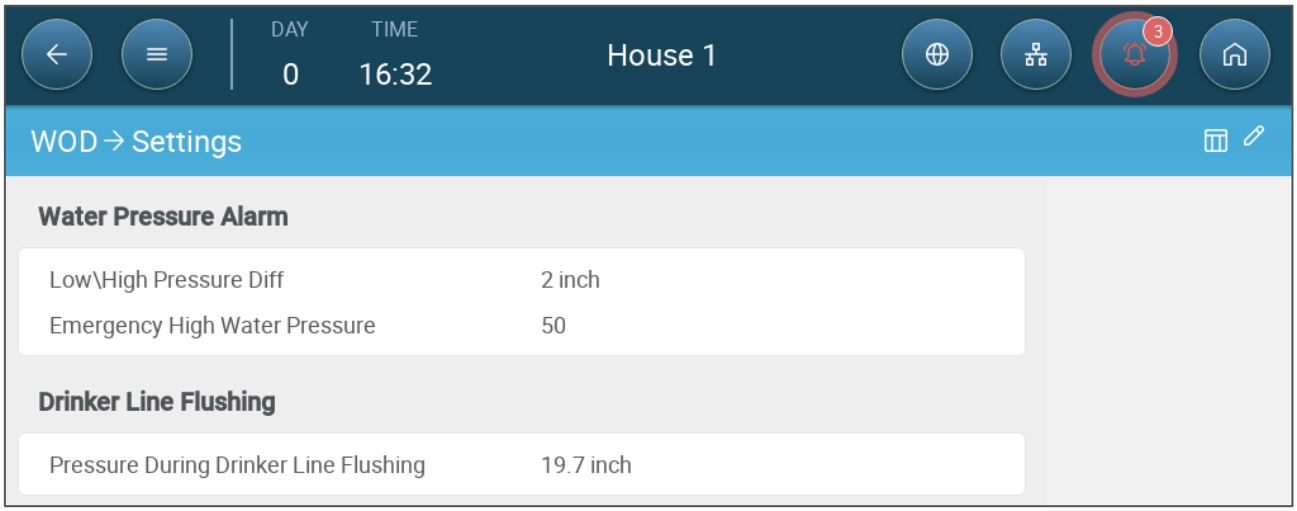
- Keeps the nipple drinkers clear of any blockage
- Keeps the lines clean of contaminants
- Provides cooler water to birds which encourages them to drink more

To flush the drinker lines:

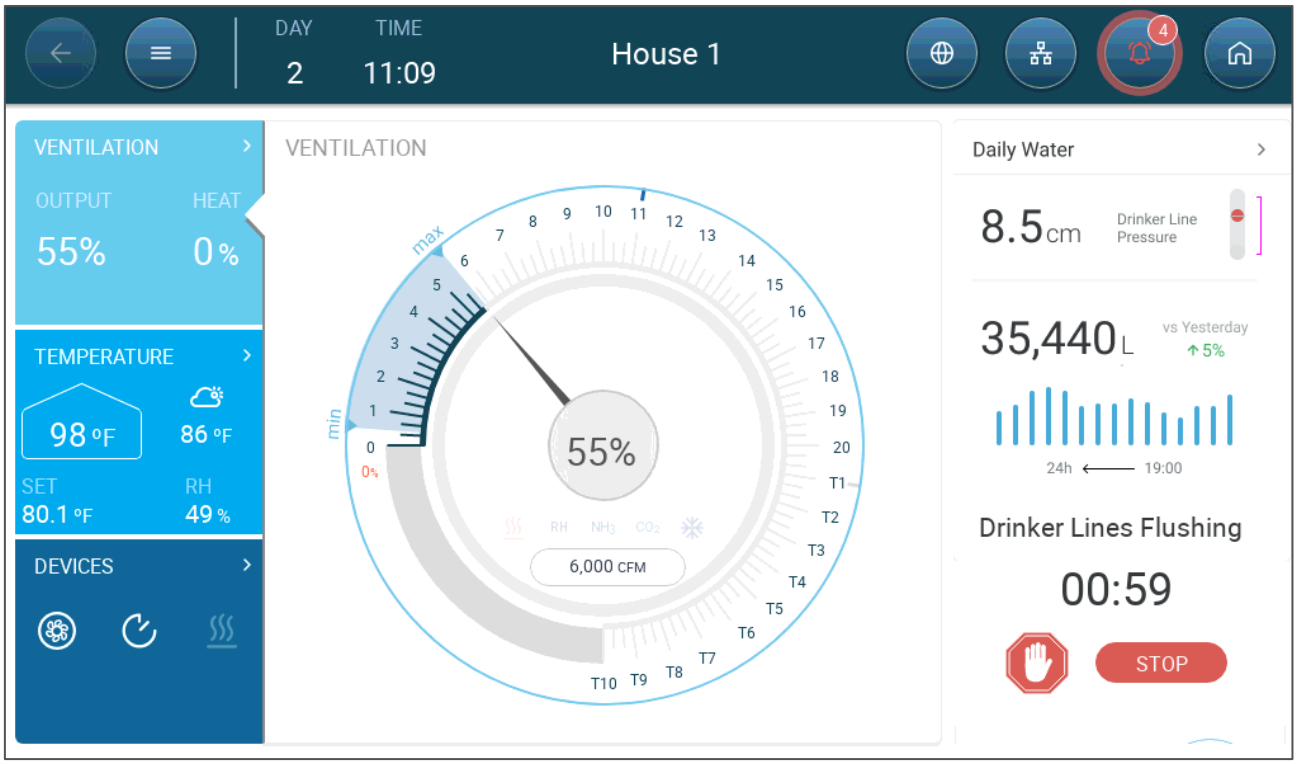
➲ Define WOD relays and WOD Pro analog port as required.
➲ Define Water Meter sensors.
➲ Define Water Pressure meters.

1. Go to Control › Water.

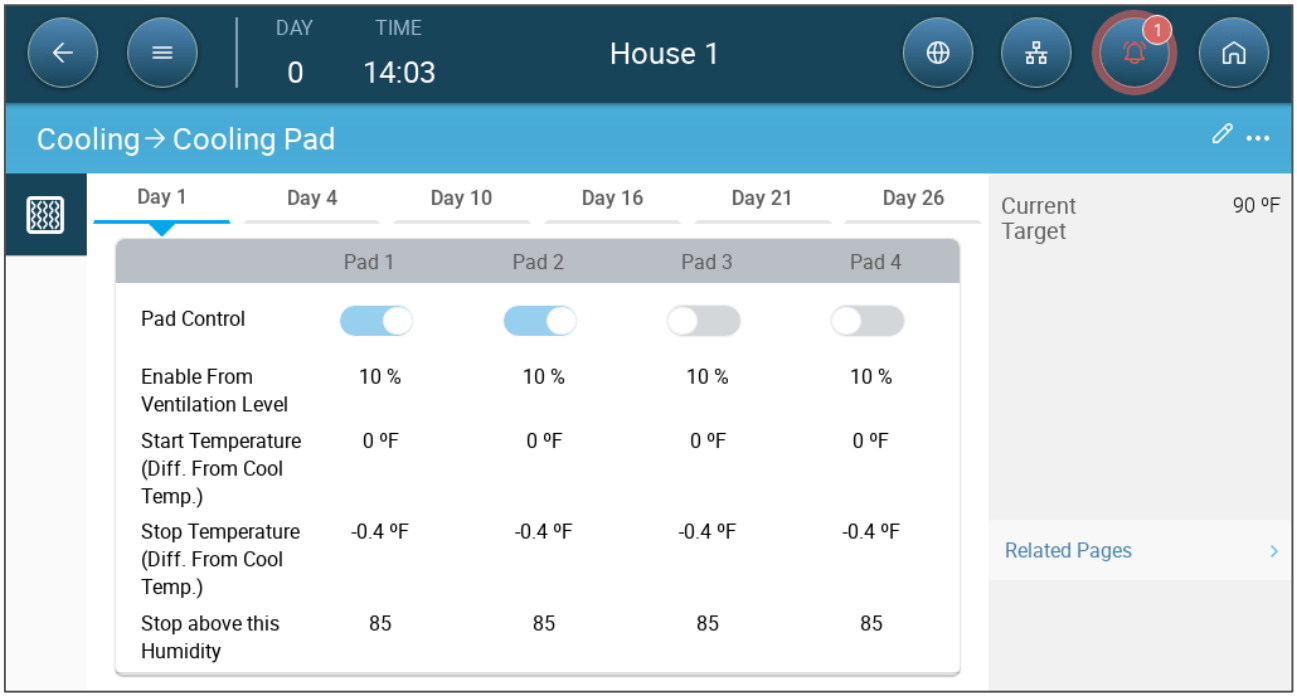
2. Click:
   - Start Drinking Line Flushing to begin the process.
   - to change the amount of time that flushing continues.
3. Go to Control › Water › WOD › Settings (option).



4. Click  .
5. Define the Pressure During Drinker Line Flushing.
    - The Drinker Line Flushing setting is available only when WOD Pro is enabled.
    - When flushing is taking place, a pop up appears on the dashboard.



Appendix T: Up to 15 days in tabs for cooling pad. Stop by humidity level - per cooling pad



- Define:
  - Growth days at which the settings change. Define up to 15 days. The cooling pads run at their current levels until the next defined day.
  - Pad Control: Enable or disable a cooling pad.
  - Enable from Ventilation Level: Select the level (ventilation output) to enable cooling operation. (Default 1).
  - Start Temperature (Diff from Cool Temp.): Sets the temperature differential from the cooling temperature (Temperature Curve) to activate cooling. The calculated temperature to start cooling is adjusted according to the growth-days.
  - Stop Temperature ((Diff from Cool Temp.): Sets the temperature differential from the cooling temperature (Temperature Curve) to stop the cooling pad.
    - Stop cooling pad temperature = Cooling Target ± Stop temperature
  - Stop above this Humidity: Stop cooling when the humidity level reaches the level defined in this parameter. Define the level for each individual cooling pad.
    - An indoor humidity sensor must be installed for this parameter to appear.

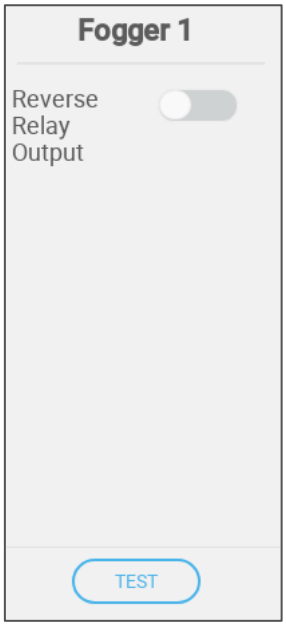
Appendix U: Foggers

Foggers shoot a mist of water into the air to lower the temperature. Foggers are most effective when the humidity is below 60%.

- Foggers operate according to the house temperature, humidity, and bird age.
- A fogger can be mapped to a particular temperature sensor or be controlled by the average temperature.
- The amount of water sprayed should increase as the birds age.
- Foggers run is cycles, with the user defining the on and off times.

Defining the Foggers

➲ Define up to 4 relays as foggers.

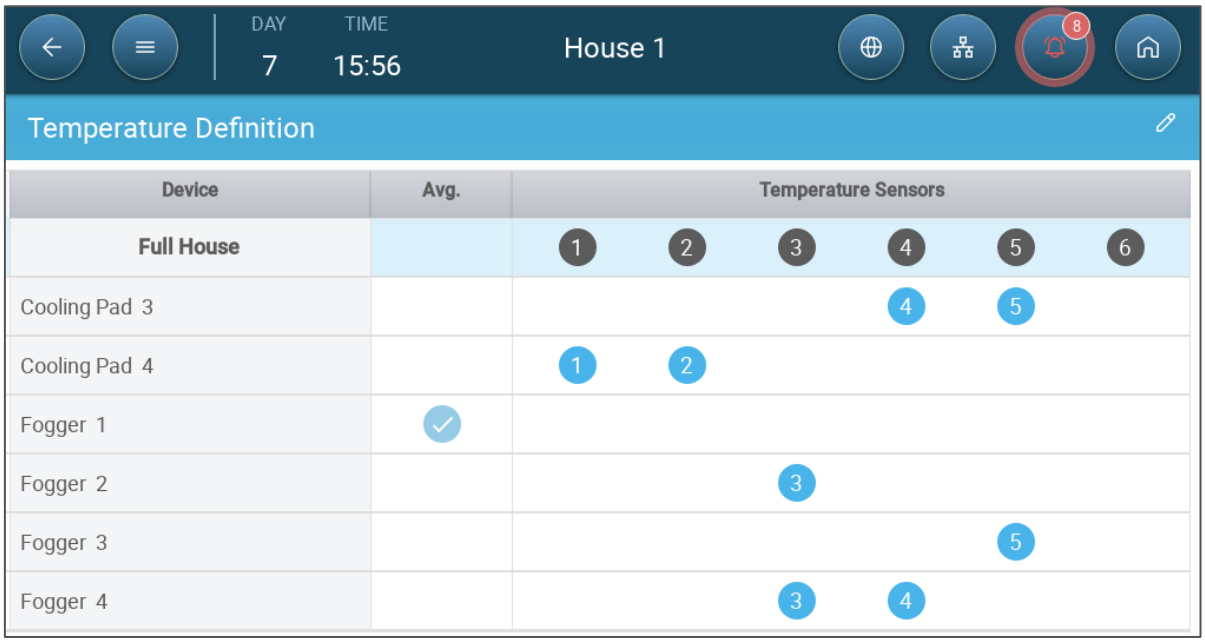


- Define:
  - Reverse Relay Output: Enable this function for Normally Closed Relays.

To configure the foggers:

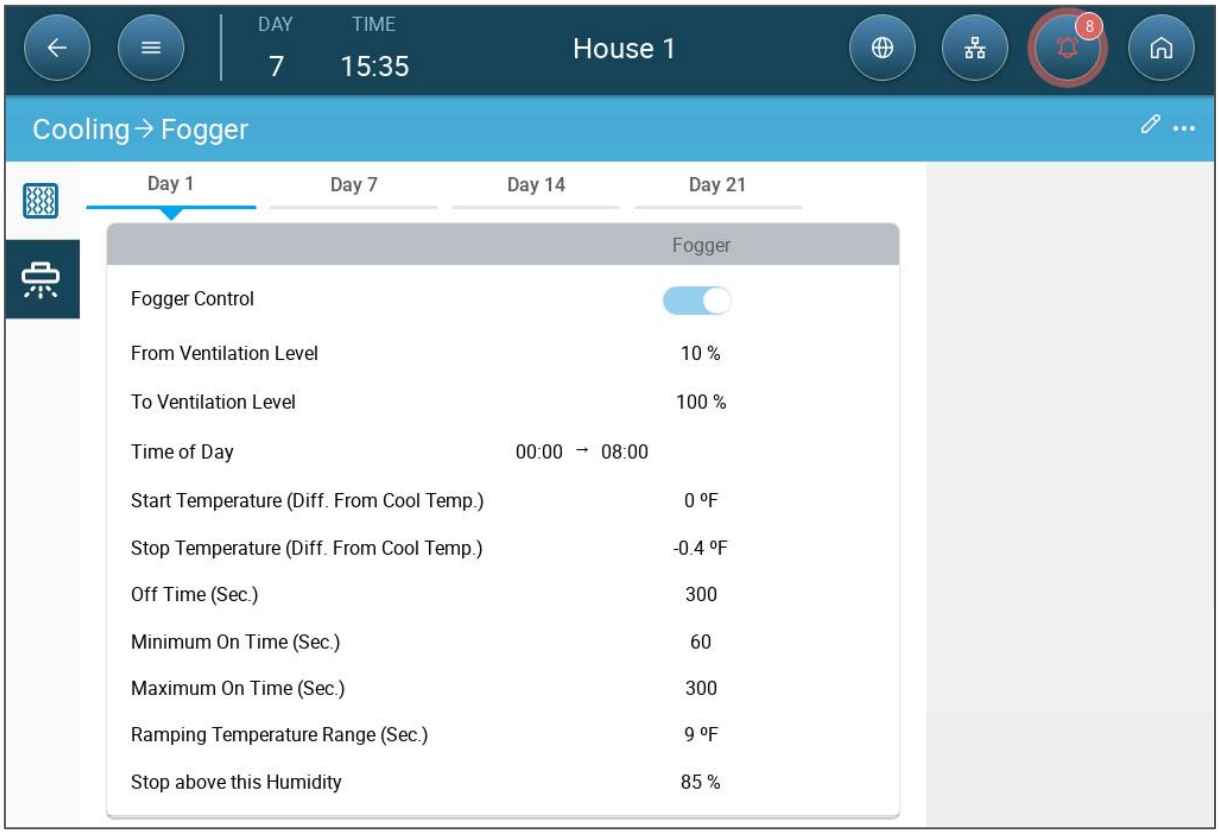
➲ Map at least one fogger in Devices and Sensors

1. Go to System › Temperature Definition.



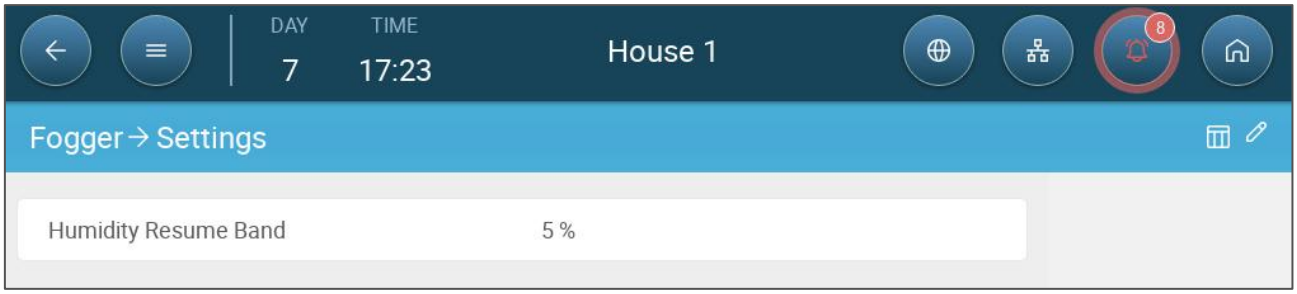
2. Map the fogger(s) to specific temperature sensors or to the average temperature.

3. Go to Climate › Cooling › Foggers  .



4. Define:
    - Growth days at which the settings change. Define up to four days. The foggers run at their current levels until the next defined day.
    - Fogger Control: Enable or disable the foggers (all foggers are enabled or disabled simultaneously).
    - From/To Ventilation Level: Define the minimum and maximum ventilation levels. If Extra or Tunnel Ventilation are enabled, the maximum level can be within these modes. Minimum level is always in Basic ventilation. Default: 10%/100%.
    - Time of Day: Set the time frame during which fogger operation is possible (24H or time frames). Default: 24 hours.
    - Start Temperature (Diff. From Cool Temp.): Define the temperature differential above the cooling temperature (Temperature Curve) above which the fogger starts to operate.
    - Stop Temperature (Diff. From Cool Temp.): Define the temperature differential above the cooling temperature (Temperature Curve) below which the fogger ceases to operate.
    - Off Time (Sec.): Define the time between fogging cycles. Default: 300 seconds. Range: 1 – 3600 seconds.
    - Minimum On Time: Once the temperature rises above the Start Temperature, the fogger operates for at least this amount of time. Default: 60 seconds. Range: 1 – 3600 seconds.
    - Maximum On Time: Once the fogger begins to operate, at a maximum the fogger operates for this amount of time. Trio automatically adjusts the actual on time based on the Ramping Temperature Range.
    - Ramping Temperature Range (Sec.): If the temperature rises, Trio adjust the Maximum On Time based on this parameter
    - Stop above this Humidity: Stop fogging when the humidity level reaches this level. Default: 85%. Range: 0 – 100. .
        - This parameter requires that a humidity sensor be installed. If the humidity sensor readings are invalid, this limit is disabled.
        - Based on this parameter, Trio prevents the foggers from starting an on cycle. Trio does not stop fogging midway through a cycle.

5. Go to Climate › Cooling › Foggers › Settings.



6. Define:

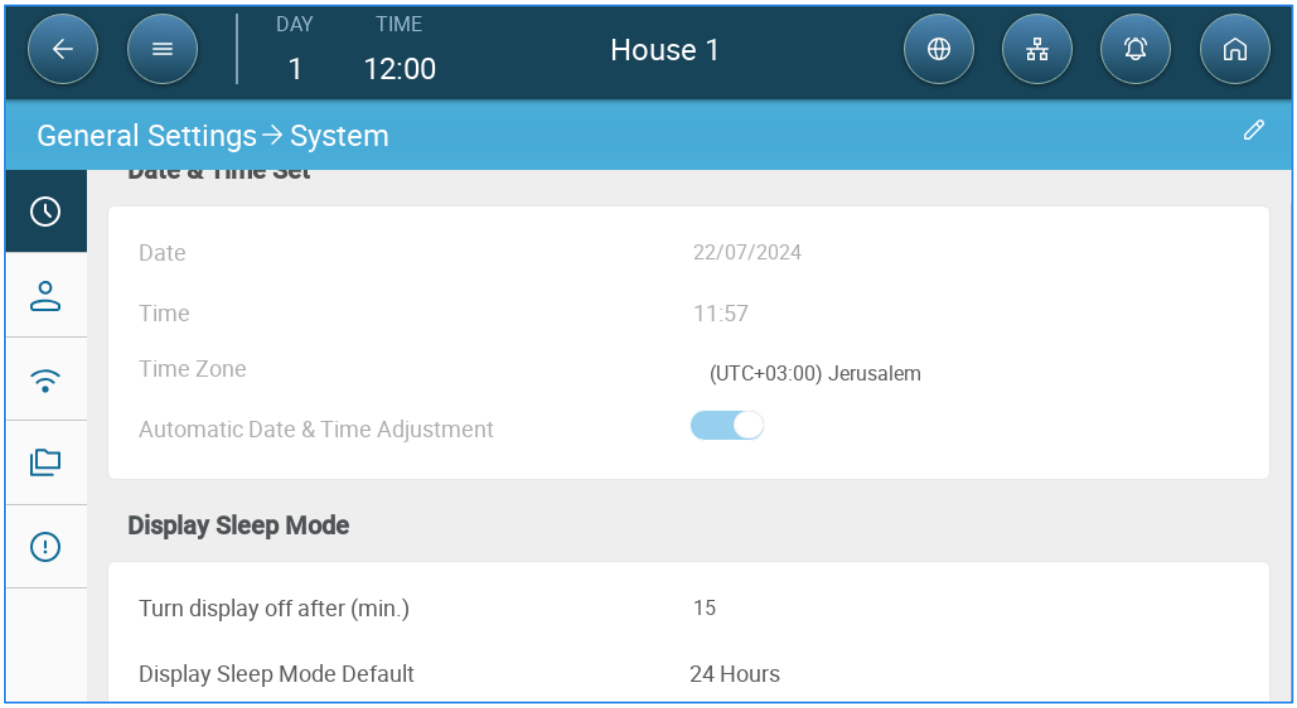
Humidity Resume Band: Before fogging can resume, the humidity must decrease from the [Stop Level] – [Resume Band]. For example, if the Stop Level is 80% and the resume band is 10%, fogging will not resume until the humidity drops to 70%. Default: 5%. Range: 2- 10%.

Appendix V: LCD programmable sleep mode

Defining the Sleep Mode

To extend the life time of the controller display screen's LEDs, the screen dims after a given amount of time has passed since a user touches the screen.

1. Go to System › General Settings › Time & Date  .



2. Click Edit and define:
   - Turn Display Off After: 15, 30, 45 minutes (15 minute default).
   - Display Sleep Mode Default: Choose 24 hours or define the time frame.