ÆssenseGrows

GUARDIAN GROW MANAGER

(GUARDIAN/GGM)

ALERT HELP

REVISION 4.2.2

AESSENSEGROWS.COM
1281 Reamwood Avenue. Sunnyvale. CA 94089

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Objective

Guardian Grow Manager (Guardian) Alert Help is designed to give users and service teams a better understanding of the alarm content and how to quickly troubleshoot the cause of the alarm, and solve it effectively.

Notifications in Guardian

Notifications or alerts can be sent to account holders to notify them when the system is not operating properly, or conditions have deviated from target values. Additionally, users can view and search all of the system-defined notifications on the "**Notifications**" page by giving search criteria such as device name, notification type and start/end date. Currently, there are 19 types of notifications (fig. 1) which can be divided into six categories:

1) **Fatal (Critical Device Event):** It covers all alerts that need to be handled immediately, such as "Device is offline" due to a power outage and "Water pressure is very high." It will be sent out repeatedly every 5 minutes until the problem is resolved or a user clicks the "stop sending" link inside the email and SMS (Short Message Service).
2) **Sensor Data out of Range**: Based on the Grow Plan settings, a notification will be generated if the sensor reading exceeds the alarm thresholds; for example if the pH reading is lower than the low alarm set in the Grow Plan. These notifications can be set for specific elements of the Grow Plan, such as CO2, Water Pressure and Water Valve. This category includes Water Pump, Water

Pressure, Water Valve, Water Level, Light, Bottle Weight, EC, pH, CO2, Temperature, Humidity, Water Temperature, Doser Pump and Reading Frozen.

3) **Control Board Issue**: This covers all alerts generated from the hardware of sub-control boards, sensors and actuators that are connected to the device. It contains the following boards: ABC, ARM, ACC, WSE, ASE, SMC, ASD, SMART_RELAY, AERIX, WG, WG_X, LFP, DCR, HVR, EBL, etc. It also includes the following sensors and actuators: Air Temperature, Humidity, Weight, Water Level, CO2, pH, EC, Water Temperature, Water Pump, Fan, Stepper Driver, Water Drain Valve, Water Pressure, etc.
4) **System Event**: This only covers system-level events occurring in the Guardian server, such as "Server startup" when the Guardian/GGM Linux server restarts after a power outage.
5) **Task Reminder**: Notifies users with an assigned task in the calendar function, such as a reminder to calibrate sensors.
6) **Other**: it covers miscellaneous alerts not in the above 5 categories.

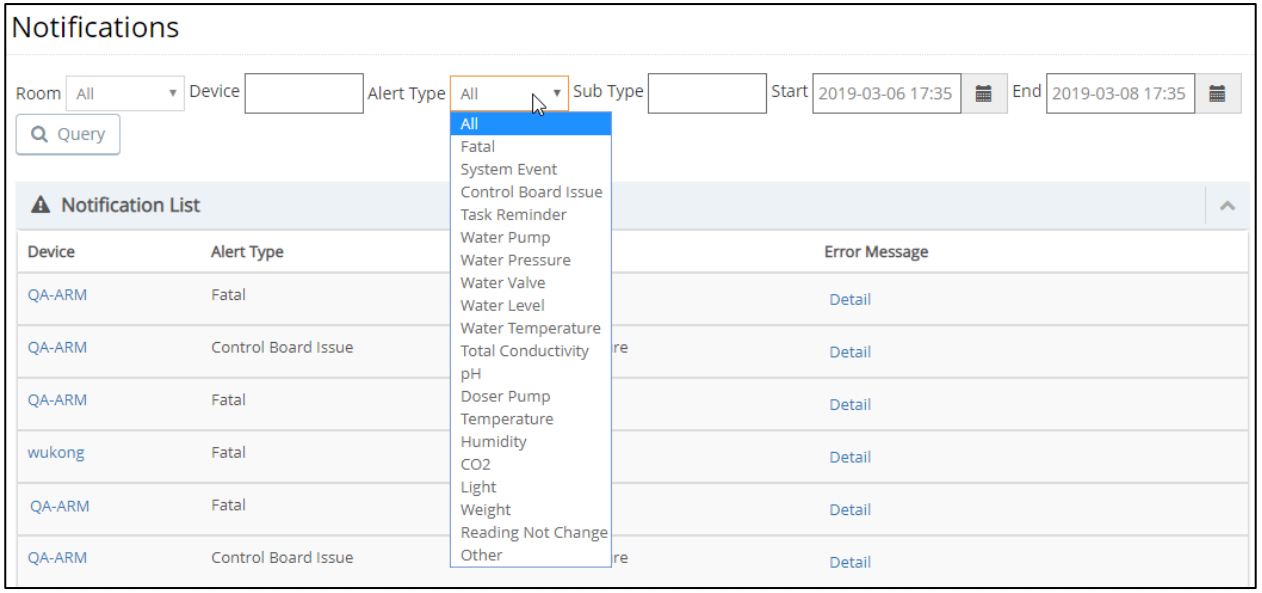


Figure 1: Notifications page

Alert Settings in the Guardian

For the notifications above to be sent (via email or SMS) to Guardian users, specifications must be set on the Alert Settings page to designate each account user (fig. 2). This feature is only available for Administrators. The Guardian Administrator can decide who will receive specific types of alerts through email or SMS or both. Users must first have been given permissions to the devices and room(s) desired (see Manage Room Access section pg. 23 of Guardian (GGM) User Manual).

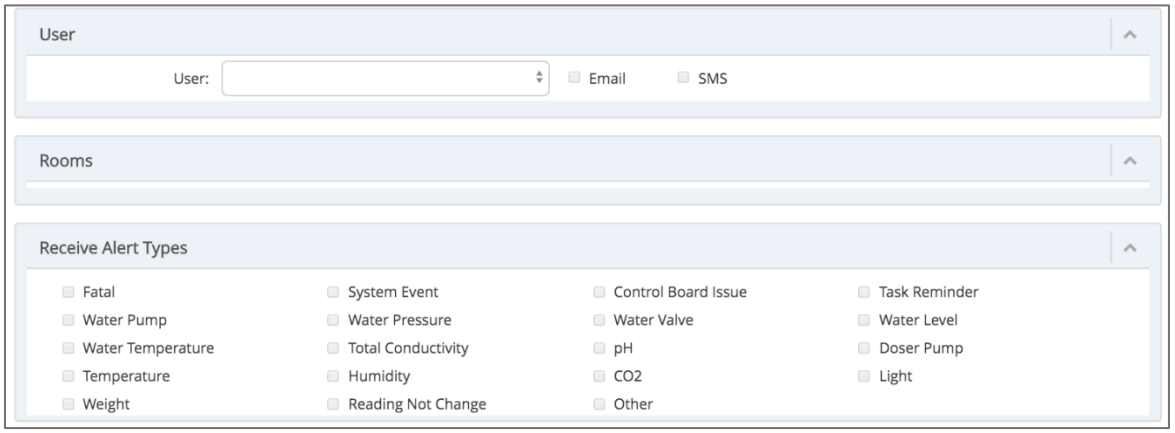


Figure 2: Designating alerts to user account

In addition to designating users receiving primary notifications, all notifications can be set to have an escalated alert (fig. 3). If the selected alerts are not handled by a user in 30 minutes (this value is configurable in Configurations -> General page, fig. 4), an escalation message will be sent out, only once, to the assigned receivers.

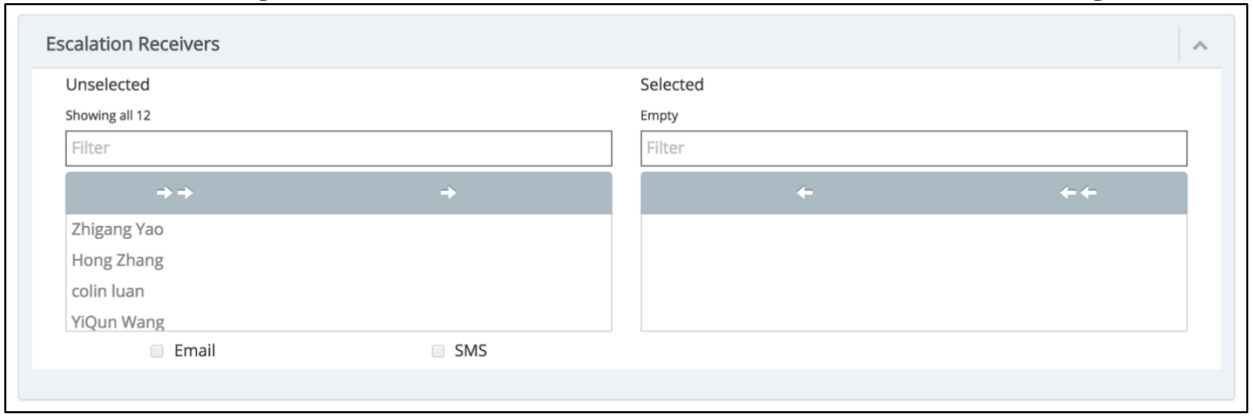


Figure 3: Designating escalation receivers

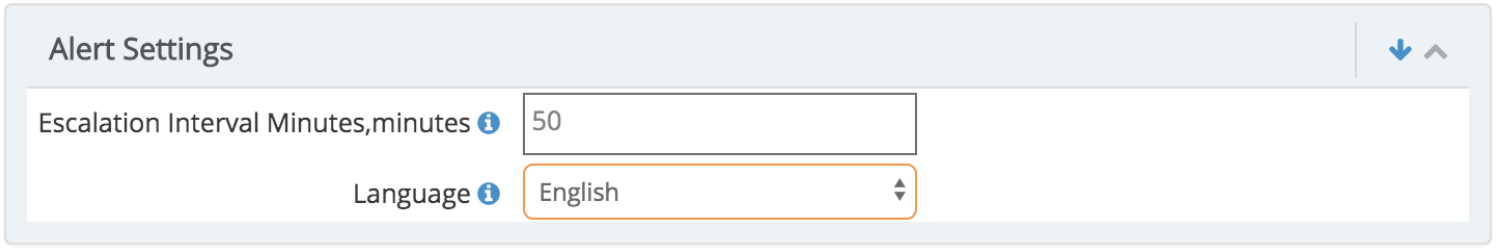


Figure 4: Escalation interval and language

And user can view all alert settings by clicking the "**Overall**" button (fig. 5).

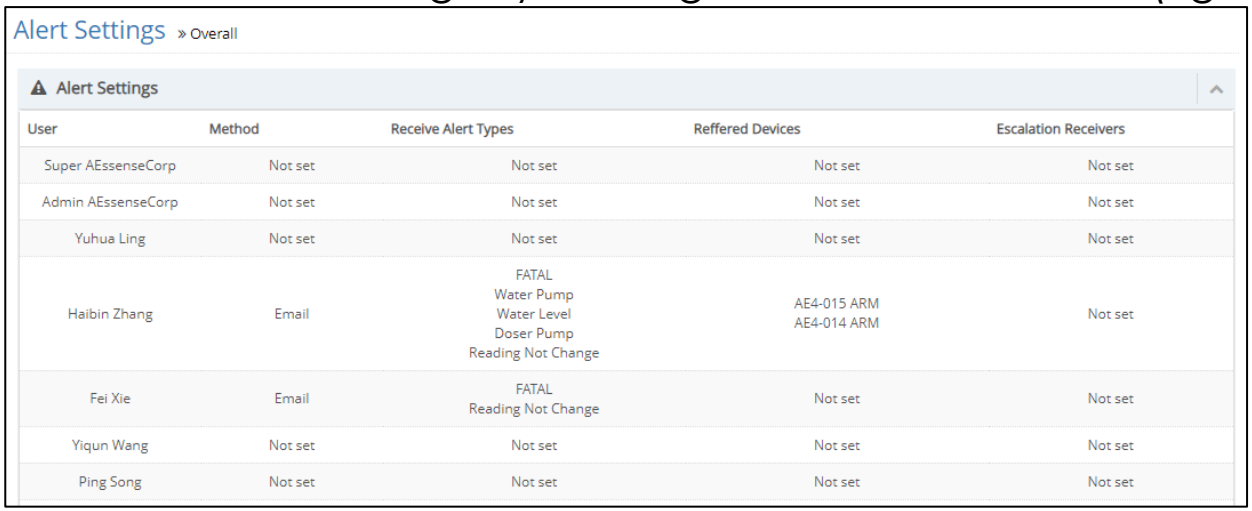
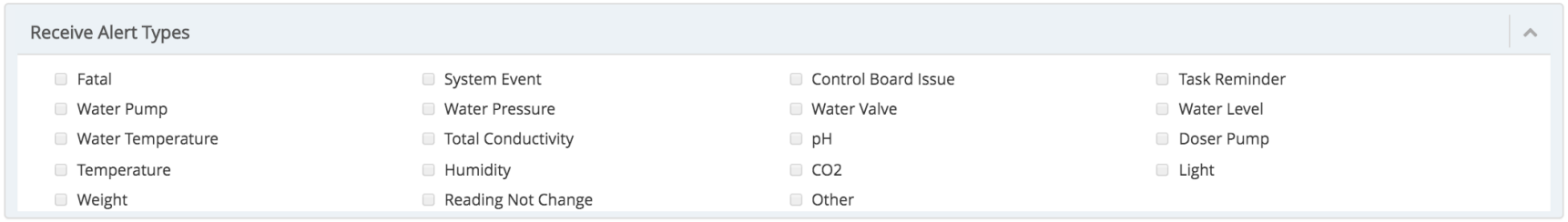


Figure 5: Alert setting overview

Alert types

In the Guardian Alert Settings page, the system administrator can select what types of alerts should be sent to an account or multiple accounts through email or SMS. In addition, all alerts will be listed on the Notification page. The following Alert types are supported in the Guardian:



1. **Fatal (Critical Device Event):** Fatal alerts need to be handled immediately. The alert will be sent out repeatedly every 5 minutes until the problem is resolved. If the receiver needs time to solve the problem and does not want to receive this alert during the repair time, he or she may stop receiving the email or SMS by clicking on the link provided inside the email and SMS.
2. **Water Pump, Water Pressure, Water Valve, Water Level, Light, Weight, EC, pH, CO2, Temperature, Humidity, Water Temperature, Doser Pump:** They cover all non-fatal alerts related to the corresponding sensors and actuators. Whether an alert should be generated or not is configurable and the escalation logic is applicable.
3. **Reading Frozen:** This alert will be generated whenever a sensor reading has not changed after running a corresponding actuator for a period of time. The run times are configurable for different sensors.
4. **Control Board Issue, System Event, Task Reminder, Other**: Please refer to Notifications.

Alerts description and solution

1. Fatal (Critical Device Event)

Alert Detail in Notifications Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Device Offline	Device Offline	⚠ Offline	1.Check if PDU is powered, green button on PDU must be depressed 2. Check if the WIFI AP or Router is working. 3. For AEssenseGrows Service team only: use utility to check the parameters of PDU's configuration via Bluetooth or com port.
Water pressure is very low, grow plan has been paused	Water pressure is very low. Grow plan has been paused. Please check and resolve the problem(irrigation pump or filter) ASAP and resume grow plan manually	Water pressure is very low, grow plan has been paused	1. Check if the irrigation pump is working. The irrigation pump might be idle because the water pressure is very low 2. Check if the pressure parameter "Fault alarm" is reasonable. 3. Check if the filter needs to be cleaned.
Water pressure is very high, grow plan has been paused	Water pressure is very high. Grow plan has been paused. Please check and resolve the problem(irrigation pump) ASAP and	Water pressure is very high, grow plan has been paused	1. Check if the pressure parameter "High high alarm" reasonable. 2. Check if the ball valve is opened. 3. Check if the solenoid valve can be opened.

	resume grow plan manually		
Water supply failure, water controller has been changed to manual mode	Water supply failure. Water controller has been changed to manual mode. Please check and resolve the problem(water valve or water return pump) ASAP and change the water controller to automatic manually	Water supply failure, water controller has been changed to manual mode	Automatic water fill is malfunctioning. 1. Check if the fresh water supply is functioning properly. 2. Check if the inlet valve can be manually opened in Guardian. An audible "click" will occur if valve is opened. 3. Check if the handle of the valve is at open state. 4. Check if the water level sensor is reading normal.
Water pressure is very low on pump {0}, system has switched to use pump {1}	Water pressure is very low on pump {0}. System has switched to use pump {1}. Please update Water Pump Mode back to auto in Device Configurations after problem has been resolved	Water pressure is very low on pump {0}, system has switched to use pump {1}	For AE2.1 or AE4DD: Guardian has automatically switch irrigation pump from a malfunctioning one to the other one by checking the water pressure value. Please check and fix the problem according to water pressure section.
Water pressure is very high on pump {0}, system has switched to	Water pressure is very high on pump {0}. System has switched to use pump {1}. Please update Water Pump Mode back to auto in Device	Water pressure is very high on pump {0}, system has switched to use pump {1}	For AE2.1 or AE4DD: Guardian has automatically switch irrigation pump from a malfunctioning one to the other one by checking the water pressure value. Please check and fix the problem according to water pressure section.

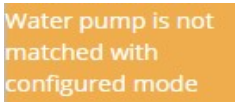
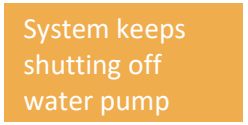
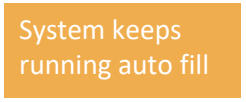
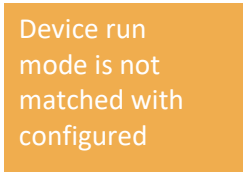
use pump {1}	Configurations after problem has been resolved		
Water return overflow fault	Water return overflow fault. Grow plan has been paused. Please check and resolve the problem(water return pump) ASAP and resume grow plan manually	Water return overflow fault	**Note**: Grow Plan (GP) is paused 1. Check whether water return pump is working or not.
EC dosing failed and has been switched to manual	EC dosing failed and has been switched to manual, please check and switch back to auto once problem has been resolved	EC dosing failed and has been switched to manual	Please refer to Electrical Conductivity (EC) also know as nutrition) EC section to fix EC dosing issues.

2. Sensor Data out of Range

2.1 Water Pump

Alert Detail in Notifications Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Water pressure has kept a high value for a long time	Water pump keeps high value for a long time	Water Pressure	1. Check if the parameter of pump in the Grow Plan is set to "always on" and water pump is in Auto mode. 2. Check if the water pump is in manual mode, and the pump is turned on. 2. Is the "Pump Override" button - red button on Power Distribution Unit (PDU) pressed? 3. Check whether the pipe is blocked (The ball valve or solenoid valve closed)? Because the water pressure gauge is installed between water pump and water valve, if the pump is on but valve is off, the pressure will be very high. 4. check if the pressure parameter is reasonable (in Configurations page, under Water Pump) 5. check if the water pressure sensor reading is normal
Water pump is not running because water level is too low	Water pump is not running because water level is too low	Water Level	1. Check if water level is on automatic or manual in Grow Plan 2. Check if the Reverse Osmosis (RO) water supply is working. 3. Check if the water level sensor is working.

Water pump has kept not running for a long time	Irrigation pump has not run for longer than expected. Please check the irrigation pump and filters	Water pump has kept not running for a long time.	1. Check if the irrigation pump is working. Manually turn on pump in Guardian or engage pump with pump override button on PDU. 2. Check if the water level is too low. 3. Check if the pressure parameter on the Configurations page is reasonable. 4. Check if the filter needs to be cleaned.
Water pressure is high because solenoid valve is broken	Water pressure is high because solenoid valve is broken	Water pressure is high because solenoid valve is broken	**Note**: Water pressure is too high at Nth level (this is for Farm 54 – a customer) 1. Check if the solenoid cannot be opened. 2. Check ball valves on daughter tubs. 3. Are parameters in Grow Plan reasonable? 4. Check water pressure sensor.
Water pressure is high because irrigation valve is broken	Water pressure is high because irrigation valve is broken	Water pressure is high because irrigation valve is broken	**Note**: Water pressure is too high at Nth level (this is for AE2.1) 1. Check if the valve cannot be opened. Because the water pressure gauge is installed between water pump and water valve, if the pump is on but the valve is off, the pressure will be very high.
Water pressure is high because irrigation loop valve is broken	Water pressure is high because irrigation loop valve is broken	Water pressure is high because irrigation loop valve is broken	1. Check if the solenoid valve cannot be opened.
Pump Override	Pump Override	Pump Override	1.Check if the "Pump Override" button pressed. 2. Check if the ABC board's hardware revision is older than REV.5 by clicking on the info icon

			next to the device name on the devices page.
Water pump is not matched with configured mode.	Water pump is not matched with configured mode		Specific to the AE2.1 when the pump selection in the configuration page is different from the real hardware connections. For example, Pump #1 is selected in configuration, but Pump #2 is connected to the system.
System keeps shutting off water pump	System keeps shutting off water pump		1. Please check the target water level to make sure it allows enough water to be pumped out of the reservoir. 2. Check whether roots are blocking the return pipe.
System keeps running auto fill	System keeps running auto fill		1. Check whether roots are blocking the return pipe. 2. Consider increasing irrigation pump rest time.
Device run mode is not matched with configured mode	Device run mode is not matched with configured mode		Special for JTU (specific customer) project when the configuration is different from the real hardware connections.

2.2 Water Pressure

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Water Pressure Sensor low. Reading: XX, low alarm: XX, high alarm:XX	Water Pressure Sensor low. Reading: XX, low alarm: XX, high alarm:XX		1. Check if the irrigation pump is working. 2. Check if the filter needs to be cleaned. 3. Check if the water pressure sensor is normal. 4. Check if water pressure parameters in Configurations are reasonable.
Water Pressure Sensor high. Reading: XX, low alarm: XX, high alarm: XX	Water Pressure Sensor high. Reading: XX, low alarm: XX, high alarm: XX		1. Check if the handle of the valve is at the open position. 2. Check if the pipe is blocked. 3. Check if the water pressure sensor is normal. 4. Check pressure release valve(s).
Water Pressure Sensor higher. Reading: XX, low alarm: XX, high alarm: XX (**Note**: Configuration: Water Pump High High Alarm)	Water Pressure Sensor high. Reading: XX, low alarm: XX, high alarm: XX (**Note**: Configuration: Water Pump High High Alarm)		1. Check if the handle of the valve is at the open position (if not certain, please contact AEssenseGrows service team). 2. Check if the pipe is blocked by roots. 3. Check if the water pressure sensor is normal (please contact AEssenseGrows service team). 4. Check pressure release valve(s) (If not certain, please contact AEssenseGrows service team)

Water Pressure Sensor lower. Reading: XX, low alarm: XX, high alarm: XX (**Note**: Configuration: Water Pump Fault Alarm)	Water Pressure Sensor lower. Reading: XX, low alarm: XX, high alarm: XX (**Note**: Configuration: Water Pump Fault Alarm)	Water Pressure↓	1. Check if the irrigation pump is working. 2. Check if the filter needs to be cleaned. 3. Check if the water pressure sensor is normal (please contact AEssenseGrows service team). 4. Check if water pressure parameters in Configurations are reasonable.

2.3 Water Valve

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Water Valve cannot run (caused by EC dosing error)	Water valve cannot run(caused by EC dosing error)	Water valve cannot run(caused by EC dosing error)	During EC (Electrical Conductivity - nutrition) and pH dosing time, water valve cannot be turned on, so that the nutrient ratio follows the grow plan settings. Please refer to EC section to make sure EC dosing is running properly and wait till it is done.
Water valve has kept running for a long time	Water valve has kept running for a long time	Water valve has kept running for a long time	1. Check if the Reverse Osmosis (RO) water supply is normal. 2. Check if the inlet valve can be on/off by manual in Guardian. 3. Check if the handle of the valve is at the open position. 4. Check if the water level sensor is normal.

2.4 Water Level

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Water Level Sensor low(reading: XX, low alarm: XX, high alarm: XX)	Water Level Sensor low(reading: XX, low alarm: XX, high alarm: XX)	Water Level↓	1. Check if the RO water supply is normal. 2. Check if the water level sensor is normal. 3. Check if water return is slowed from sock filters clogged or tub drains are blocked. 4. Check if Guardian has not triggered the water inlet valve due to in dosing process.
Water Level Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Water Level Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Water Level↑	1. If drain pump is installed and water level is under auto control, please change auto to manual and try to drain the water manually to make sure drain pump works as expected. 2. Check if water drain is enabled in configurations 3. Check if the water level sensor is normal. 4. Check if solenoid valve is closing properly.
Water level is less than minimum value	Water level is less than minimum value and EC/pH dosing will work incorrectly, please fill water as soon as possible	Water level is less than minimum value	To protect irrigation pump, a minimum water level is required. This parameter is adjustable in Configurations.

2.5 Light

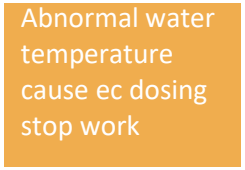
Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Lights are off during daytime	Lights are off during daytime	Lights are off during daytime	1. Check if the light parameter in the Configurations page is set. 2. Check if the light level parameter is reasonable. 3. Check if the light off is caused by irrigation is not working for a long time. 4. Please go to the Device page and see whether the light is cooling down. If you think the cooling down time is too long, this setting can be adjusted in Configurations. 5. Check if the power supply or related hardware board is not working. 6. Check if light sensor in ASE/ASD is blocked.
Lights are on during night	Lights are on during night	Lights are on during night	1. Check Light toggle is in AUT (Automatic) position in Sensor Readings tab of Device page. 2. Check if the related hardware is working. 3. Check if the light parameter is reasonable. 4. Check if there are other light sources around.
Light turned off because the temperature was too high	Light turned off because the temperature was too high	Light turned off because the temperature was too high	Please try to lower the temperature and keep eyes on lights. When the temperature gets lower, Guardian will turn on the lights according to daytime setting in grow plan.

2.6 Weight

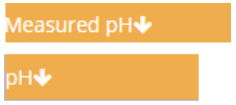
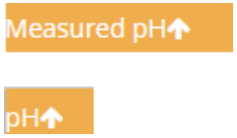
Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Weight#XX Sensor low(reading: XX, low alarm: XX)	Weight is lower than the low setting		1. Check if the bottle is empty. 2. Check if the scale sensor reading is normal. 3. Check if the scale sensor calibration data is normal. 4. Check if the scale sensor hardware is damaged.

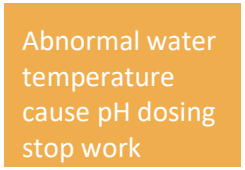
2.7 EC

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Total Conductivity Sensor low(reading: XX, low alarm: XX, high alarm: XX)	Total Conductivity Sensor low(reading: XX, low alarm: XX, high alarm: XX)		1. Check if the sensor reading is normal. 2. Check if the sensor calibration data is normal. 3. Check if the sensor is cleaned correctly. 4. Check if the EC (nutrient) dosing is normal. 5. Check if dosing is set to AUT (Automatic) in Sensor Readings tab on Device page 6. Check if the WSE hardware is damaged.
Total conductivity Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Total conductivity Sensor high(reading: XX, low alarm: XX, high alarm: XX)		1. Check if the sensor reading is normal. 2. Check if the sensor calibration data is normal. 3. Check if the sensor is cleaned correctly. 4. Check if the EC dosing is normal. 5. Check if water level is low 6. Check if the WSE hardware is damaged.

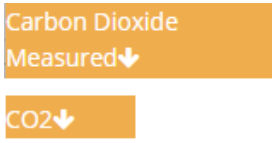
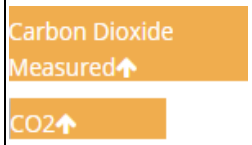
Abnormal water temperature cause ec dosing stop work	EC (nutrient) dosing stop working, please check water temperature sensor		Please refer to water temperature to make sure water temperature is working properly.

2.8 pH

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Measured pH Sensor low(reading: XX, low alarm: XX, high alarm: XX)	Measured pH Sensor low(reading: XX, low alarm: XX, high alarm: XX)		1. Check if the pH low alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the sensor is cleaned correctly. 5. Check if the sensor is expired. 6. Check if the pH+ adjust is normal. 7. Check if the WSE hardware damaged.
Measured pH Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Measured pH Sensor high(reading: XX, low alarm: XX, high alarm: XX)		1. Check if the CO2 high alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the sensor is cleaned correctly. 5. Check if the sensor is expired. 6. Check if the pH- adjust is normal. 7. Check if the WSE hardware damaged.

Abnormal water temperature cause pH dosing stop work	pH dosing stop working, please check water temperature sensor		Please refer to water temperature to make sure water temperature is working properly.

2.9 CO_2

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Carbon Dioxide Measured Sensor low(reading: XX, low alarm: XX< high alarm: XX)	Carbon Dioxide Measured Sensor low(reading: XX, low alarm: XX< high alarm: XX)		1. Check if the CO_2 low alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the CO_2 bottle is empty. 5. Check if the CO_2 valve is opened. 6. Check if the CO_2 alarm parameter is reasonable. 7. Check if the ASE/ASD hardware damaged.
Carbon Dioxide Measured Sensor high(reading: XX, low alarm: XX< high alarm: XX)	Carbon Dioxide Measured Sensor high(reading: XX, low alarm: XX< high alarm: XX)		1. Check if the CO_2 high alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the CO_2 alarm parameter is reasonable. 5. Check if the CO_2 valve is closed. 6. Check if the ASE/ASD hardware damaged.

2.10 Temperature

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Temperature Sensor low(reading: XX, low alarm: XX, high alarm: XX)	Temperature Sensor low(reading: XX, low alarm: XX, high alarm: XX)		1. Check if the air temperature low alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the ASE/ASD hardware damaged.
Temperature Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Temperature Sensor high(reading: XX, low alarm: XX, high alarm: XX)		1. Check if the air temperature high alarm setting in grow plan is reasonable. 2. Check if the sensor reading are normal. 3. Check if the sensor calibration data is normal. 4. Check if the ASE/ASD hardware damaged.

2.11 Humidity

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Relative Humidity Sensor low(reading: XX, low alarm: XX, high alarm: XX)	Relative Humidity Sensor low(reading: XX, low alarm: XX, high alarm: XX)		1. Check if the humidity low alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the ASE/ASD hardware damaged.

Relative Humidity Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Relative Humidity Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Relative Humidity↑	1. Check if the humidity high alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the ASE/ASD hardware damaged.

2.12 Water Temperature

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Water Temperature Sensor low(reading: XX, low alarm: XX, high alarm: XX)	Water temperature is lower than the low setting	Water Temperature↓	1. Check if the temperature low alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the sensor is damaged. 5. Check if the WSE hardware damaged.
Water Temperature Sensor high(reading: XX, low alarm: XX, high alarm: XX)	Water temperature is higher than the high setting	Water Temperature↑	1. Check if the temperature high low alarm setting in grow plan is reasonable. 2. Check if the sensor reading is normal. 3. Check if the sensor calibration data is normal. 4. Check if the sensor is damaged. 5. Check if the WSE hardware damaged.
Water temperature is abnormal	Water temperature is abnormal, please check water temperature sensor	Water temperature is abnormal	(**Note**: water temperature is <0 and >40 Celsius) 1. Check if the sensor reading are normal. 2. Check if the sensor calibration data is normal. 3. Check if the sensor is damaged. 4. Check if the WSE hardware damaged.

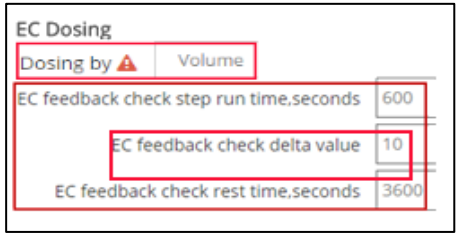
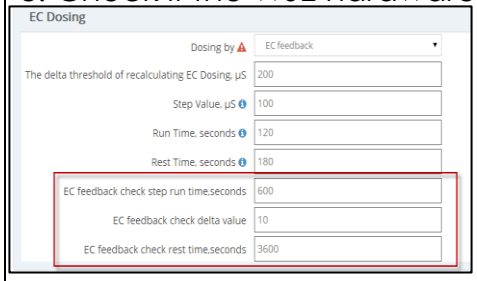
			5. Check room temperature and consider whether a water chiller needs to be installed if the temperature is too high.

2.13 Doser Pump

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Doser pump id skip (**Note**: The order for peristaltic pumps is wrong)	Doser pump id skip		1. At least one of the SMC is not working, need to disconnect all and then connect one by one to debug beginning with SMC closest to PDU. 2. Check if the connection cable has shortcut issue. 3. Check if the SMC board is damaged. 4. Go to Devices page, click on "I" icon to retrieve SMC board's Hardware (HW) version information and make sure it is not older than REV 5. 5. For AEssenseGrows Service team: check HW board, whether 24V power supply is shortcut.

2.14 Reading Frozen

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Carbon Dioxide Measure Sensor value not change, the CO_2 bottle might be empty	Carbon Dioxide Measure Sensor value not change, the CO2 bottle might be empty		1. Check if the sensor reading is normal. 2. Check if the sensor calibration data is normal. 3. Check if the CO_2 bottle is empty. 4. Check if the CO_2 valve is opened. 5. Check if the CO_2 parameter is reasonable (run time and change of value in Configurations page). 6. Check if the room has air leakage.
Doser Pump #X Sensor value not change (**Note**: pH reading has no changes. Doser pump #5, 6 is used for pH dosing, Dosing by EC feedback can tell which pump according to EC or pH changes)	Doser Pump #X Sensor value not change		1. Check if the parameter setting is reasonable. 2. Check if the pH+ and pH- bottle is empty. 3. Check if the dosing hose is blocked. 4. Check if the SMC is working. 5. Check if the sensor reading is normal. 6. Check if the sensor calibration data is normal. 7. Check if the sensor is cleaned correctly. 8. Check if the sensor is expired. 9. Check if the WSE hardware damaged.

Total Conductivity Sensor value Frozen (**Note**: it is for dosing by volume)	Total Conductivity Sensor value Frozen	Total Conductivity	1. Check if the parameter setting is reasonable. 2. Check if the dosing bottles are empty. 3. Check if the dosing hose is blocked. 4. Check if the SMC is working. 5. Check if the sensor reading is normal. 6. Check if the sensor calibration data is normal. 7. Check if the sensor is cleaned correctly. 8. Check if the WSE hardware damaged. 
Doser Pump #X Sensor value Frozen (**Note**: X is 1 ~ 4. EC reading has no changes even though the peristaltic pump is running)	Doser Pump #X Sensor value Frozen	Doser Pump	1. Check if the parameter setting is reasonable. 2. Check if the dosing bottles are empty. 3. Check if the dosing hose is blocked. 4. Check if the SMC is working. 5. Check if the sensor reading is normal. 6. Check if the sensor calibration data is normal. 7. Check if the sensor is cleaned correctly. 8. Check if the WSE hardware damaged. 

3. Control Board Issue

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
XX is offline	XX is offline	Icon with the name of the connected module	**Note**: XX is the name of the connected control module. 1. Check if the module is powered on. 2. Check if the offline component connects to the Power Distribution Unit (PDU) properly: both ends of the communication cable are screwed up tightly, the cable is not broken by swapping it with a working one. 3. Check if the module is working and get the firmware version by click on "I" icon next to the device name in the Devices page. 4. Replace it by a new one and ship the old one back to AEssenseGrows.
XX Bus Error	XX bus error	Icon with the name of the connected module	1. If XX is LED lights, the error will be "led bus error, pls open all leds or check hardware if damaged". 2. Power cycle this module. 3. Replace this module.
PDU Return water(left) overflow	PDU Return water(left) overflow		Note: AE2.1 only 1. Check water return pump is working. 2. Check water return pipes on the left side are not clogged.
PDU Return water(right) overflow	PDU Return water(right) overflow		Note: AE2.1 only 1. Check water return pump is working. 2. Check water return pipes on the right side are not clogged.

XX Sensor is not connected	XX sensor is not connected	Icon with sensor name	1. Check if the sensor is connected normally. 2. Replace a good sensor to see if the previous sensor is damaged. 3. If it is EC (nutrition), pH or Water Temperature, check if the WSE module damaged by replace the WSE module.
Firmware upgrade failed	Firmware upgrade failed	Icon with the name of the connected module	1. Check if the connection cable is normal. 2. Reboot Power Distribution Unit (PDU) and give a try again. 3. Replace the failed module.
XX Sensor overrange	XX Sensor overrange	Icon with sensor name	1. Check if the sensor calibration data is normal. 2. Check if the sensor hardware damaged.
Relay output voltage feedback error.	Relay output voltage feedback error.		1. Power cycle the relay 2. Replace it by a working one to make sure it is not damaged.
XX Output feedback error	XX Output feedback error	Icon with sensor name	1. Reconnect the sensor 2. Replace it by a working one to make sure it is not damaged.
SN duplicated	SN duplicated	SN duplicated	1. Reprogram the SN through AESutility – only exists in old version (please contact AEssenseGrows service team). 2. Replace the SMC module with a new one.

4. Task Reminder

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Not displayed in the list. **Note**: Email will be sent, task is added in calendar	Clean and calibrate sensors of the device XX	None	Please follow the manual instruction to calibrate the sensors.
Not displayed in the list. **Note**: Email will be sent.	Grow plan on the device XX will finish soon	None	Please allocate resources for the coming harvest.
Reservoir change in XX minutes on XX	Reservoir change in XX minutes on XX	None	Please keep monitoring water usage during the cleanup time.

5. System Event

Alert Detail in Notification Page	Alert Detail in SMS and Email	Alert info in Device Page	Resolution
Server start up	Guardian (GGM) server is restarted	None	No action required, just keep tracking sever events.
Server shutdown	GGM server is stopped	None	Just need to make sure it is not stopped on purpose