



**VGreen**  
Evo™

# **VGREEN EVO™ VARIABLE SPEED MOTOR**

**INSTALLATION MANUAL  
AND USER GUIDE**

# VGREEN EVO™ VARIABLE SPEED MOTOR

## INSTALLATION MANUAL AND USER GUIDE

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Safety is emphasized throughout this Installation Manual and User Guide. These are safety alert symbols and signal words. They alert the user to potential personal injury hazards. Obey all safety messages to avoid possible injury or death or damage to equipment and other property.

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**⚠ WARNING** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

- Read and follow all instructions carefully.
  - Disconnect and lock out power before installation and maintenance.
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### TABLE OF CONTENTS

<b>1.0 INTRODUCTION</b> .....	3
<b>2.0 QUICK START INSTRUCTION</b> .....	4
<b>3.0 WIRING</b> .....	4
<b>4.0 OPERATING THE VGREEN EVO MOTOR</b> .....	5
4.1 Operating Mode.....	6
4.2 Override Mode.....	7
4.3 Pause Mode.....	8
4.4 Schedule Check Mode.....	9
4.5 Schedule Set Mode.....	10-15
<b>5.0 PRIMING</b> .....	15
<b>6.0 FREEZE PROTECTION</b> .....	15
<b>7.0 CARE AND MAINTENANCE</b> .....	15
<b>8.0 FAULT STATUS, MANUAL RESTART AND POWER OUTAGES</b> .....	16
<b>9.0 TROUBLESHOOTING GUIDE</b> .....	17

## 1.0 INTRODUCTION

The VGreen Evo™ motor is a cost-effective variable speed replacement pool pump motor designed to provide pool owners with maximum savings over traditional single speed motors. The variable speed design allows the motor to be programmed at the optimal settings for the pool allowing for energy savings. The VGreen Evo motor offers ease of installation with direct drop-in replacement for all applications and features an easy to program user interface to allow for a simplified user experience, making it the perfect choice for your next pool installation or motor replacement.

### VGreen Evo Motor Features:

- Freeze Protection
- Sealed Ball Bearings
- TEFC Design
- Rotation: CCWPE
- Single Phase
- 50/60 Hz
- Variable Speed Operation (600 -3450 RPM)
- 303 Stainless Steel Shaft
- Class F Insulation
- 50°C Ambient
- Dual Voltage 230/115 VAC, Auto-Voltage Detect Enabled Device



### Benefits:

- New simplified user interface allows for easier programming and motor setup with the push of one button
- IPX5 moisture intrusion rating provides enhanced protection against moisture
- Lightweight, compact design, and rotatable mains wiring compartment allows for ease of installation
- Available in both square flange and C-Face mounting configurations to allow for replacement versatility
- UV and rainproof enclosure helps to protect against harsh weather conditions to extend motor life

## 2.0 QUICK START INSTRUCTION

When power is applied to the VGreen Evo™ motor for the first time it will automatically run the programmed default schedule. This feature ensures that the VGreen Evo motor will re-start in the event of a power outage.

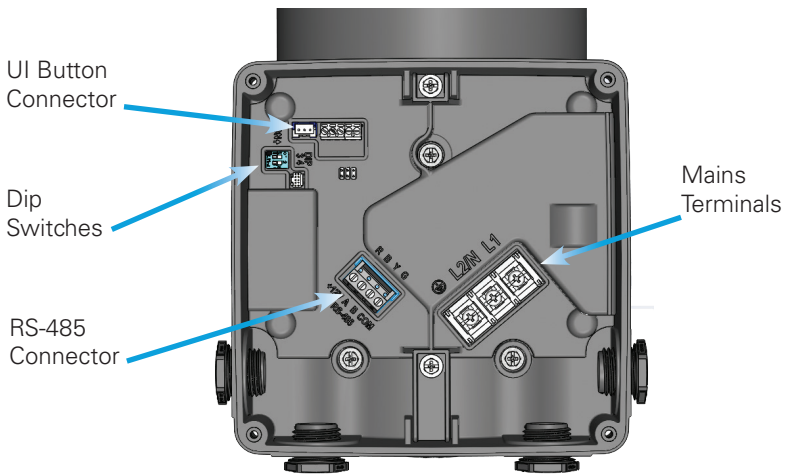
Refer to section 4.5 Schedule Set Mode - to view the default operating schedule, or to set the VGreen Evo at one of the other operating schedules.

## 3.0 WIRING

### **⚠ WARNING SHOCK HAZARD**

The VGreen Evo motor must be wired according to the locally adopted version of the NEC. A licensed, qualified electrician should complete the wiring for this product. The motor is designed to operate with 230/115 VAC single phase power, and is equipped with auto-voltage detection.

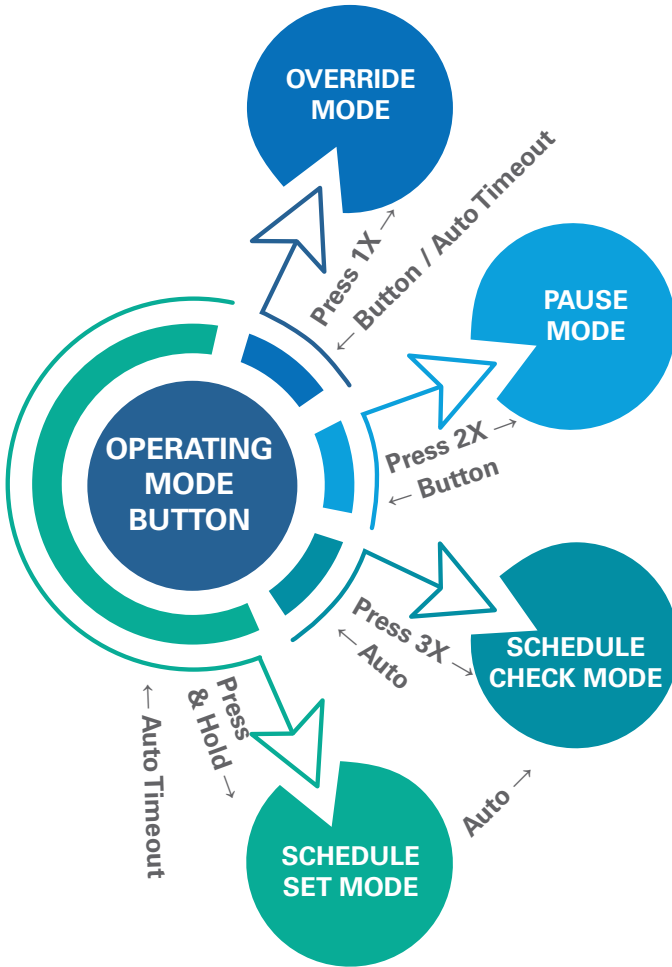
The VGreen Evo motor is designed to handle a direct wire connection, the wire insulation should be stripped to a length of approximately 0.33". The terminal block is capable of handling solid or stranded wire up to 12 AWG in size. The screw for the mains connections should be properly tightened to a torque value of 10 in-lb.



**VGreen Evo™ motor**

## 4.0 OPERATING THE VGREEN EVO™ MOTOR

The VGreen Evo™ motor is equipped with 5 different modes that can all be reached by a series of button presses on the user interface as outlined in sections 4.1 through 4.5.

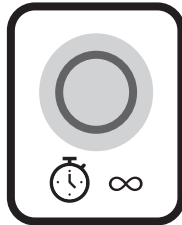


**NOTE:** The user can only reach each mode from operating mode, with the exception of moving from schedule set mode to schedule check mode.

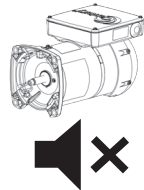
## 4.1 OPERATING MODE

**Operating Mode** will automatically start once power is applied to the motor and will run the preset or user defined schedule. To turn the motor off power must be disconnected. The below illustrations show the different scenarios possible during **Operating Mode**:

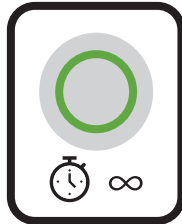
While the power is off, the light will be off and the motor will NOT be running:



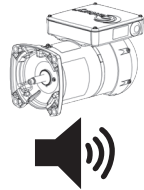
**NOT RUNNING**  
**RUNNING (any speed)**  
**RUNNING (high speed)**



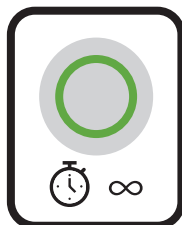
While in **Operating Mode (during Priming)** light will be on continuously and motor will be running:



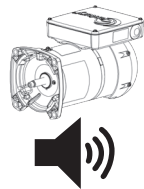
**NOT RUNNING**  
**RUNNING (any speed)**  
**RUNNING (high speed)**



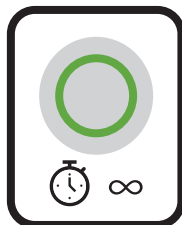
While in **Operating Mode (during Schedule @ Running RPM)** the light will be on continuously, the motor will be running:



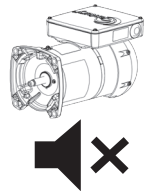
**NOT RUNNING**  
**RUNNING (any speed)**  
**RUNNING (high speed)**



While in **Operating Mode (during Schedule @ 0 RPM)** the light will be on continuously, the motor will NOT be running:



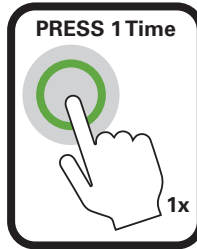
**NOT RUNNING**  
**RUNNING (any speed)**  
**RUNNING (high speed)**



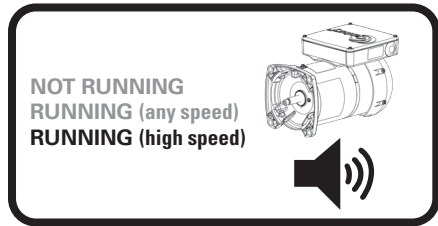
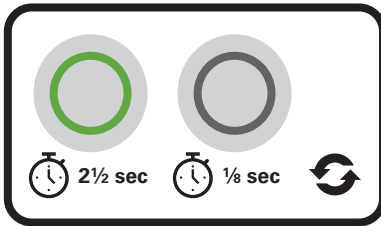
## 4.2 OVERRIDE MODE

The VGreen Evo™ motor is equipped with an **Override Mode**, which can be engaged to temporarily run at 3450 RPM OR high speed if the motor is currently operating at less than 3450 RPM. If the motor is operating at 3450 RPM there will be no change in motor speed. Follow the illustrations below to operate **Override Mode**:

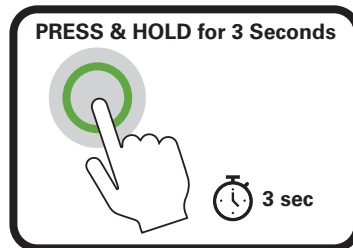
To enter **Override Mode**  
PRESS button 1 time:



While in **Override Mode** light will blink slowly:



To exit **Override Mode**  
PRESS and HOLD button  
for 3 seconds then  
release:



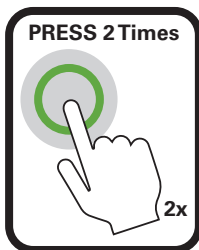
Automatic timeout of **Override Mode**:



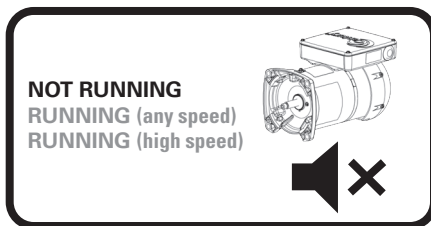
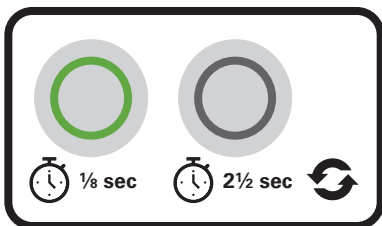
### 4.3 PAUSE MODE

The VGreen Evo™ motor is equipped with a **Pause Mode** that will allow the user to temporarily stop the VGreen Evo motor for maintenance work without disrupting the 24 hour schedule (i.e., for backwashing the filter). If the VGreen Evo motor is currently running, the user can follow the below illustrations to operate **Pause Mode**:

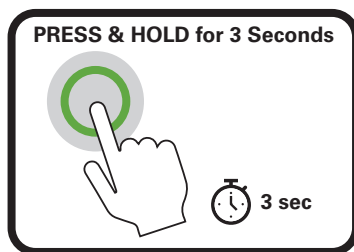
To enter **Pause Mode**  
PRESS button 2 times:



While in **Pause Mode** light will blink slowly:



To exit **Pause Mode** PRESS  
and HOLD button for 3  
seconds then release:



There is NO automatic timeout of **Pause Mode**:

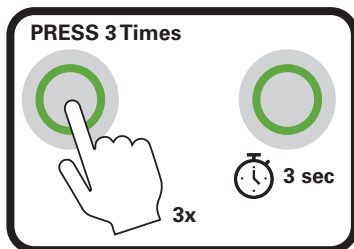




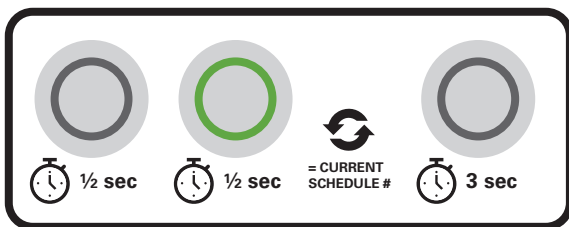
## 4.4 SCHEDULE CHECK MODE

The VGreen Evo™ motor is equipped with a **Schedule Check Mode** that will allow the user to check which of the 8 available schedules the motor is currently operating. The user can follow the below illustrations to operate **Schedule Check Mode**:

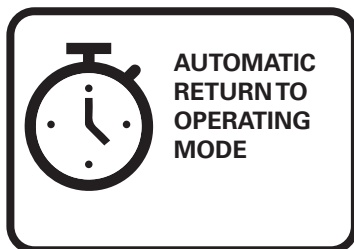
To enter **Schedule Check Mode** PRESS button 3 times. After pressing the button 3 times, the light will turn on for 3 seconds then turn off:



Once the light turns back on, begin counting. The light will blink 1-8 times depending upon the set schedule. Then, the light will turn off for 3 seconds:



Once the light blinking sequence is complete the light will turn off and the motor will automatically return to **Operating Mode**:



**NOTE:** You can enter **Schedule Check Mode** while the motor is in **Operating Mode**.

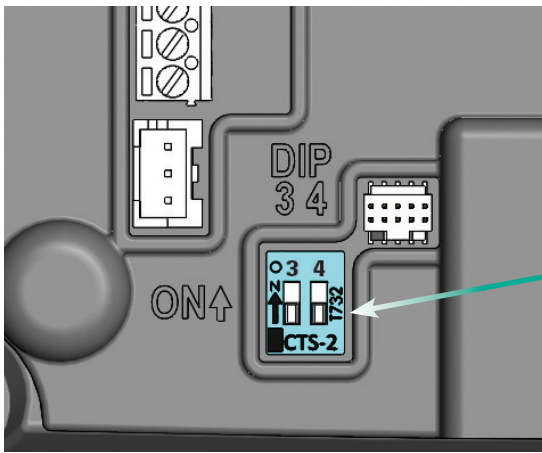
## 4.5 SCHEDULE SET MODE

The VGreen Evo™ motor is equipped with two sets of energy efficient operating schedules: Schedule Set A and Schedule Set B. Schedule Set B is California Energy Commission 2021 Compliant.

The 8 pre-programmed operating schedules for the Schedule Set A can be seen in the table below.

To select this set of schedules the dip switch positions must be set to, #3 OFF, #4 OFF.

SCHEDULE SET A				
SCHEDULE	PRIME (WHEN MOTOR STARTS FROM A STOPPED POSITION)			
		HOURS 0-2	HOURS 2-4	HOURS 4-6
Schedule 1 (Factory Default)	3 minute prime @ 3450 RPM	3450 RPM	2750 RPM	
Schedule 2	3 minute prime @ 3450 RPM	3450 RPM	2850 RPM	
Schedule 3	3 minute prime @ 3450 RPM	3450 RPM		1750
Schedule 4	3 minute prime @ 3450 RPM	3250 RPM	1150	
Schedule 5	3 minute prime @ 3450 RPM	1725		
Schedule 6	None	WATER FEATURE ONLY (1100 RPM)		
Schedule 7	None	WATER FEATURE ONLY (1725 RPM)		
Schedule 8	None	WATER FEATURE ONLY (3450 RPM)		



Dip switch positions set to, #3 OFF, #4 OFF.

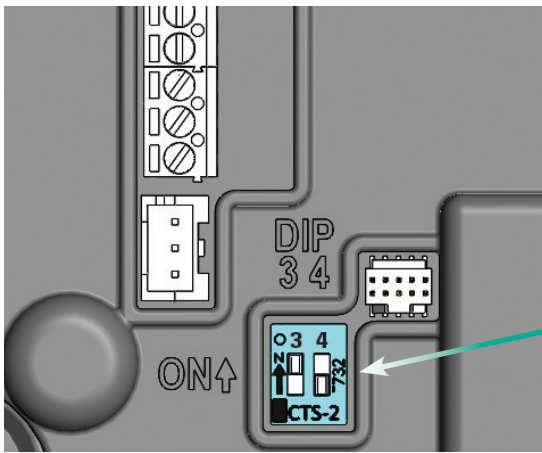
24 HOURS				
TIME				
HOURS 6-8	HOURS 8-10	HOURS 10-12	HOURS 12-18	HOURS 18-24
1750 RPM		1150 RPM	0 RPM	
1850 RPM		1250 RPM	0 RPM	
RPM	1150 RPM		0 RPM	
RPM		3250 RPM	0 RPM	
RPM				
FOR USE WITH CONNECTED POOL PUMP TIMER				
FOR USE WITH CONNECTED POOL PUMP TIMER				
FOR USE WITH CONNECTED POOL PUMP TIMER				

## 4.5 SCHEDULE SET MODE - CONTINUED

The 8 pre-programmed operating schedules for Schedule Set B: California Energy Commission 2021 Compliant Schedules can be seen in the table below.

To select this set of schedules the dip switch positions must be set to, #3 ON, #4 OFF.

SCHEDULE SET B: CALIFORNIA ENERGY COMMISSION 2021 COMPLIANT SCHEDULES				
SCHEDULE	PRIME (WHEN MOTOR STARTS FROM A STOPPED POSITION)			
		HOURS 0-2	HOURS 2-4	HOURS 4-6
Schedule 1 (Factory Default)	3 minute prime @ 3450 RPM	3450 RPM	2850 RPM	
Schedule 2	3 minute prime @ 3450 RPM	3350 RPM	2750 RPM	
Schedule 3	3 minute prime @ 3450 RPM	3250 RPM	2650 RPM	
Schedule 4	3 minute prime @ 3450 RPM	3150 RPM		2550
Schedule 5	3 minute prime @ 3450 RPM	3050 RPM		2450
Schedule 6	3 minute prime @ 3450 RPM	2950 RPM		2350
Schedule 7	3 minute prime @ 3450 RPM	3450 RPM	2850 RPM	
Schedule 8	3 minute prime @ 3450 RPM	2950 RPM		



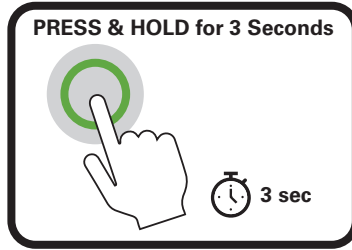
Dip switch positions set to, #3 ON, #4 OFF.

24 HOURS				
TIME				
HOURS 6-8	HOURS 8-10	HOURS 10-12	HOURS 12-18	HOURS 18-24
2250 RPM		1550 RPM		0 RPM
2150 RPM		1450 RPM		0 RPM
1950 RPM		1350 RPM		0 RPM
RPM	1850 RPM		1250 RPM	0 RPM
RPM	1750 RPM		1150 RPM	0 RPM
RPM	1650 RPM		1050 RPM	0 RPM
2250 RPM		1550 RPM		
2350 RPM		1650 RPM		1050 RPM

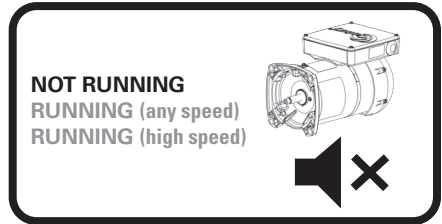
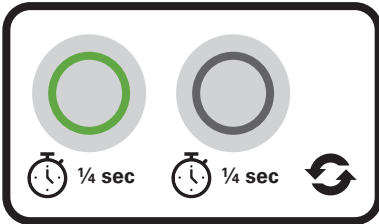
Once you have the dip switches in the proper position, the user can then select which of the 8 pre-programmed operating schedules they would like the VGreen Evo™ motor to run in by entering **Schedule Set Mode**.

The user can follow the below illustrations to operate **Schedule Set Mode**:

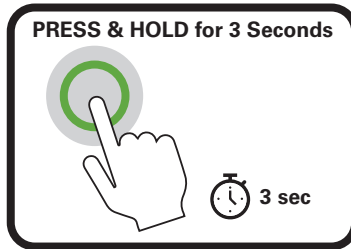
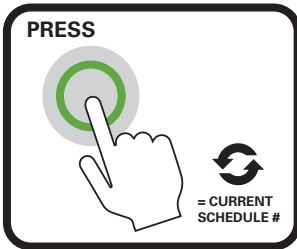
To enter **Schedule Set Mode** PRESS and HOLD button for 3 seconds then release:



While in **Schedule Set Mode** light will blink quickly:



To set the desired schedule, PRESS the button the number of times as the schedule number. For example, to set schedule 8 PRESS the button 8 times and then PRESS and HOLD for 3 seconds, then release:



**NOTE:** To confirm the newly set schedule, the motor will automatically go into **Schedule Check Mode**. Refer to section 4.4 for more information on **Schedule Check Mode**. If at any time the motor does not enter **Schedule Check Mode** after inputting the desired schedule, repeat the steps above.

Automatic exiting of **Schedule Set Mode**:



**NOTE:** The motor start time begins when power is initially applied to the motor. If the user changes the schedule and does not cycle power to the motor, the start time of the new schedule will remain the same as the previous schedule.

## 5.0 PRIMING

The VGreen Evo™ motor will always run the priming sequence when starting from the stopped position, except when a schedule is selected that does not include a priming sequence. The prime setting is 3450 RPM for 3 minutes.

## 6.0 FREEZE PROTECTION

In the event that the outside air temperature drops below 39°F, the VGreen Evo motor will automatically turn on and circulate the pool water. The Freeze Protection will run according to the following conditions (utilizing the factory default settings):

Freeze Protection Turn On Temperature = 39°F

Freeze Protection Duration = 1 Hour

Freeze Protection Speed = 1725 RPM

Once this one hour period has elapsed, the VGreen Evo motor will check the ambient temperature again. If the temperature is still below the set threshold, the VGreen Evo motor will run for an additional 1 hour.

If the temperature is above the threshold, the VGreen Evo motor will automatically return to the 24-hour based schedule.

## 7.0 CARE AND MAINTENANCE

The VGreen Evo motor is both reliable and robust in harsh environments. However, general care and maintenance should be followed to ensure optimum reliability of this product. It is recommended to always install a new mechanical shaft seal when installing a new replacement motor, and follow these monthly care and maintenance steps.

**1. Check for leaks and low water levels** – Inspect equipment and plumbing for water leaks around the equipment pad. A water or air leak may be present if:

- Moisture is present around the base of the pump
- Water is leaking from any plumbing or other equipment
- Air bubbles are present in the pump basket or pool returns

Contact a qualified pool service professional to repair any leaks and prevent your pump running dry which could lead to water damage and bearing failure.

**2. Clear debris and ensure proper ventilation** – Clean the fan inlet on the back of the VGreen Evo motor and keep the surrounding area free of large debris such as leaves, branches, mulch, plastic bags, chemical storage, etc.

**3. Clear pump basket and impeller** – Regularly clear pump basket and impeller to ensure proper operation of pump filtration system.

**4. Clean/Backwash filter** – Regularly clean/backwash filter to ensure proper operation of pump and filtration system.

## 8.0 FAULT STATUS, MANUAL RESTART AND POWER OUTAGES

The table below illustrates possible faults that can occur with the VGreen Evo™ motor. If the VGreen Evo motor does not restart automatically disconnect power to the motor for approximately 3 minutes, then reapply power to the motor. If this does not correct the situation, contact your local Pool Service Professional.

In the event of a power outage or if power is cycled, the motor will start operating at hour one of the previously set schedule.

For example, when installed with a mechanical time clock the off/on trippers will restart the schedule daily when the on tripper applies power. If you wish to operate at another schedule or reset the current schedule, refer to section 4.5

### Schedule Set Mode.

# OF FLASHES	ERROR CONDITION	ERROR RESET CONDITION
1	Input voltage too high or low	Ensure input voltage is in the correct range.
2	VGreen Evo motor current too high	Cycle power to the VGreen Evo motor.
3	Internal temperature too high	Wait for temperature of the motor to cool down. Ensure VGreen Evo motor is clear of obstructions that limit proper ventilation.
4	VGreen Evo motor stalled	Check pump impeller and VGreen Evo motor fan for obstructions, then cycle power to motor.
5	Internal VGreen Evo motor failure	Cycle power to VGreen Evo motor. If problem persists, contact your local pool service professional.
6	Communication lost	Check low voltage connections between VGreen Evo motor and application board (3-wire harness).



## 9.0 TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSES	POTENTIAL SOLUTIONS
<b>VGREEN EVO™ MOTOR FAILS TO START</b>	Mains voltage is not present	Replace fuse, reset breaker/GFI. Tighten mains wire connections.
	VGreen Evo motor shaft is locked	Check if the VGreen Evo motor can be rotated by hand and remove any blockage.
	VGreen Evo motor shaft is damaged	Replace VGreen Evo motor.
<b>VGREEN EVO MOTOR RUNS THEN STOPS</b>	Over temperature FAULT	Check that back of VGreen Evo motor is free from dirt and debris. Use compressed air to clean.
	Over current FAULT	VGreen Evo motor will automatically restart after 6 minutes.
<b>VGREEN EVO MOTOR IS NOISY</b>	Debris in contact with fan	Check that back of VGreen Evo motor is free from dirt and debris. Use compressed air to clean.
	Debris in strainer basket	Clean strainer basket.
	Loose mounting	Check that mounting bolts of VGreen Evo motor and pump are tight.
<b>VGREEN EVO MOTOR RUNS, BUT NO FLOW</b>	Impeller is loose	Check that VGreen Evo motor is spinning by looking at fan on back of VGreen Evo motor. If so, check that pump impeller is correctly installed.
	Air leak	Check plumbing connections and verify they are tight.
	Clogged or restricted plumbing	Check for blockage in strainer or suction side piping.
Check for blockage in discharge piping including partially closed valve or dirty pool filter.		







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For more information on the VGreen Evo™ motor, scan the QR code.

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