PAL™
LIGHTING

CONCRETE/VINYL NICHE BUBBLER

Installation and Operations Manual
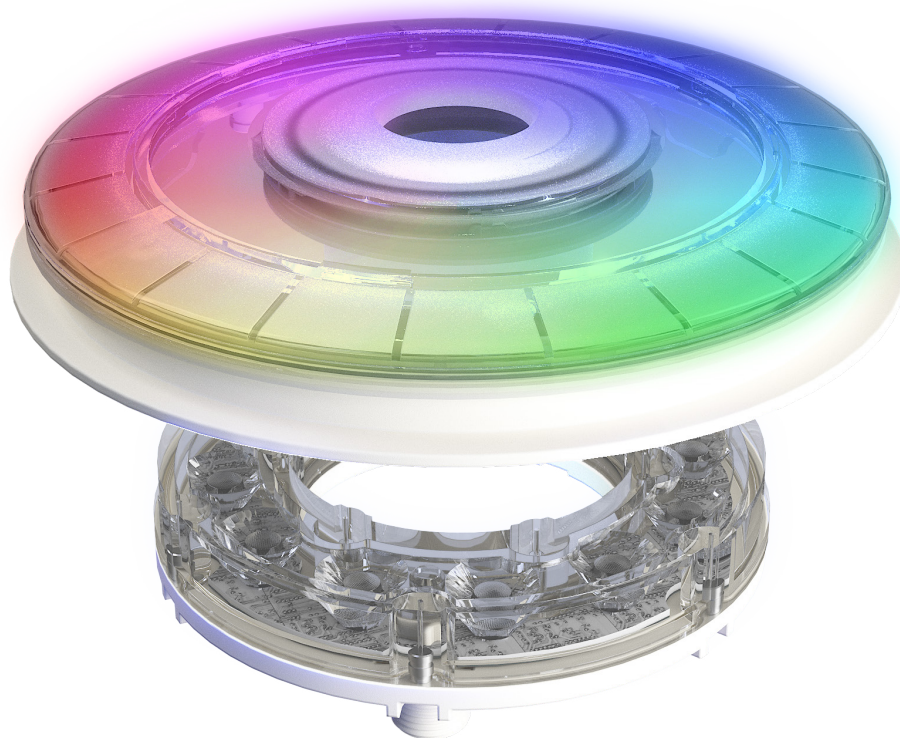
GUNITE/CONCRETE	
64-EGB-CGS-80	Evenglow Multi Color LED Bubbler for Gunite/Concrete Pools with 80ft Cable and Plug
64-EGB-CGS-150	Evenglow Multi Color LED Bubbler for Gunite/Concrete Pools with 150ft Cable and Plug
VINYL LINER/FG	
64-EGB-FVS-80	Evenglow Multi Color LED Bubbler for Vinyl/Fiberglass Pools with 80ft Supply Cable and Plug
64-EGB-FVS-150	Evenglow Multi Color LED Bubbler for Vinyl/Fiberglass Pools with 150ft Supply Cable and Plug

Table of Contents

Section 1. SAFETY INSTRUCTIONS

Improper installation carries the potential for electrical hazards, presenting a risk of severe or even fatal injuries to pool users, installers, or bystanders due to the threat of electrical shock, and may also result in property damage.

> **For your safety, it is imperative that this product be installed and maintained by a licensed and qualified contractor specializing in pool equipment, adhering to local regulations. The individual responsible for maintenance should possess extensive experience in pool equipment installation and upkeep to ensure precise adherence to the instructions outlined in this manual. Prior to installation, thorough comprehension, and compliance with all provided warning notices and instructions are crucial. Failure to do so may lead to property damage, personal injury, or loss of life. Any improper installation and/ or operation may void the product's warranty and pose significant electrical hazards, potentially resulting in severe harm, property damage, or fatality. It is strictly advised not to modify this equipment. Installer, please be aware that this manual contains vital information concerning the installation, operation, and safe utilization of this product, which should be communicated to the equipment's owner/operator.**

Section 2. PREPARATION

This manual provides installation and operational instructions for the PAL Lighting Niche Bubbler.

Read the installation & operational manual before proceeding with the installation. Keep this manual for future reference.

Before starting the installation, check that you have the correct parts below. If any parts are missing, please call technical support at +1 (713)-946-4343.

Keep in mind that the deeper the lens is underwater, the less lighting effect will be above the water. Plume height data should only be used as a reference - actual plume height may vary based upon a variety of factors including but not limited to system plumbing and water conditions. Use the table below to determine the approximate plume height for each lens.

2.1 PACKAGE CONTENTS

PAL Lighting Niche Concrete Bubbler
1 x Plug Cord
1 x ¾" Spout Lens
1 x 1.2" Spout Lens
1 x Bubbler Faceplate
1 x Bubbler Lens
1 x Concrete Seal
1 x Concrete Render Ring
1 x Concrete Render Ring Cap
1 x Donut Light
1 x Donut Light Lens
1 x Concrete Niche
1 x 40mm Pipe Adapter
1 x Plug Conduit Adapter
1 x Wingnut & Seal
6 x M4 Screws
PAL Lighting Niche Vinyl/Fiberglass Bubbler
1 x Plug Cord
1 x ¾" Spout Lens
1 x 1.2" Spout Lens
1 x Lens Gasket
1 x Render Ring
1 x Render Ring Gasket
1 x Vinyl/FG Niche
1 x Niche Gasket
1 x Donut Light
1 x Nut/O-Ring
1 x Niche Nut
1 x 40mm Pipe Adapter
1 x Plug Conduit Adapter
1 x Wingnut & Seal
6 x M4 Screws
6 x M5 CSK Screws

IMPORTANT NOTICE

This is a 24V light, and it requires a compatible 24V transformer for proper operation. Refer to bullet 3.
The PAL WaterSphere is only for gunite/concrete installations. We actively discourage users from using the PAL WaterSphere on a sun shelf.

2.2 PREPARATION WORK

1. Ensure that the pool's electrical system complies with the standards outlined in the current National Electrical Code (NEC).

2. This 24V underwater light must be installed in accordance with the National Electrical Code by a certified electrician or a qualified pool technician.

NOTE: No Bonding Terminal is required on the forming shell since the fixture is an all-plastic construction and complies with NEC article 680 Requirements.

3. This underwater light is designed for use with the 64-PCR Series Drivers.

NOTE: The Junction Box and the low voltage transformer is located at least 4 (four) inches above ground level or eight (8) inches above maximum water level, whichever is higher. The Junction Box must be at least 48 inches from the edge of the pool.

CANADIAN INSTALLATION

Be sure the electrical system of your pool conforms with the following requirements of the Canadian Electrical Code (CEC), CSA C22.1 and all local codes and ordinances. A licensed or certified electrician must install the electrical system to meet or exceed those requirements before the light and (fixture-housing) is installed. Failure to do so could result in death or serious injury to service technician, pool users or others due to electrical shock.

IMPORTANT NOTICE

Section 3. INSTALLATION FOR GUNITE/CONCRETE POOLS
A. Fixing Bubbler Niche to Steel

NOTE: Use PVC solvent cement on all provided fittings.
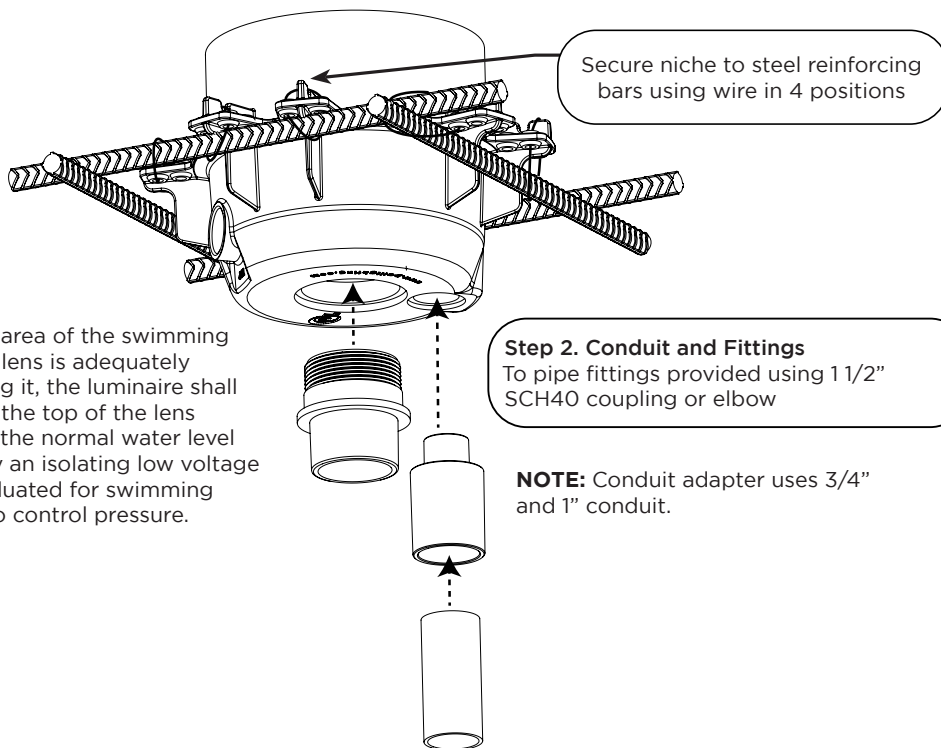
Secure niche to steel reinforcing bars using wire in 4 positions

Except when the luminaire is installed in an area of the swimming pool that is not used for swimming and the lens is adequately gua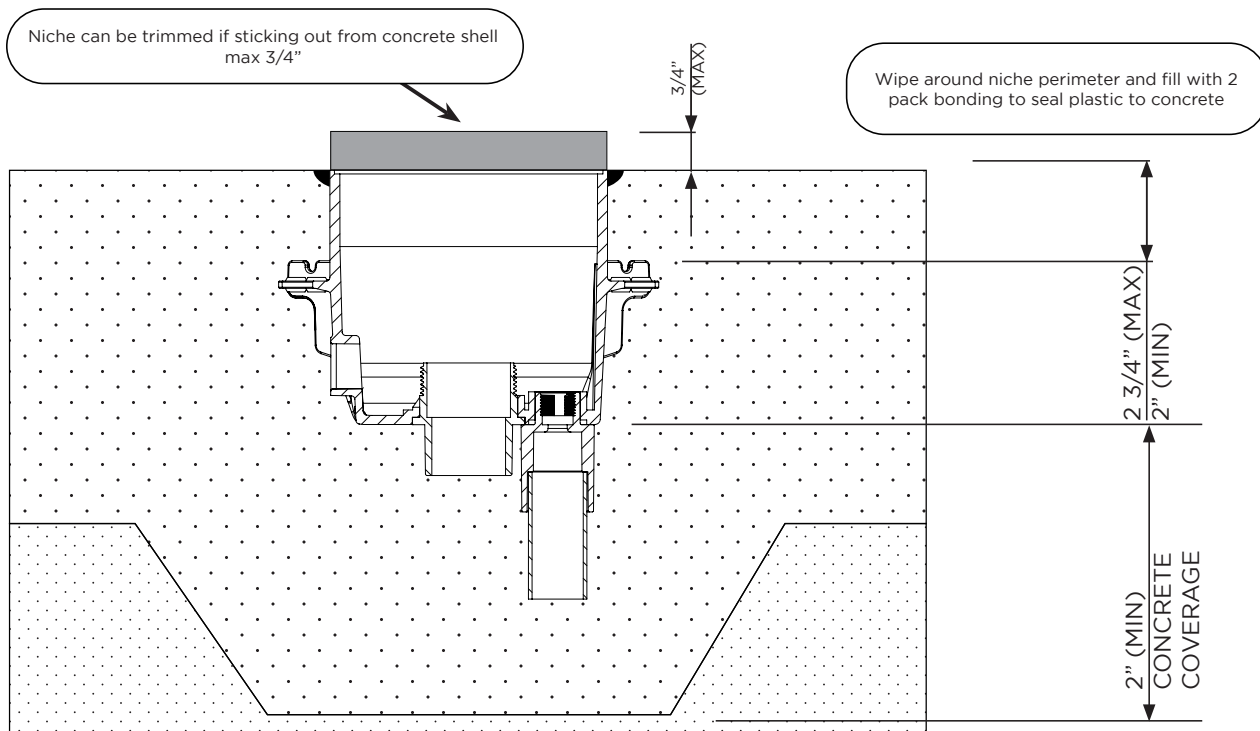rded to keep any person from contacting it, the luminaire shall be installed in or on a wall of the pool, with the top of the lens opening not less than 25mm (1 inch) below the normal water level of the pool. For supply connection, use only an isolating low voltage power supply with ungrounded output, evaluated for swimming pool use. Recommended to install a valve to control pressure.

Step 2. Conduit and Fittings
To pipe fittings provided using 1 1/2" SCH40 coupling or elbow

NOTE: Conduit adapter uses 3/4" and 1" conduit.

B. Concrete Stage

Niche can be trimmed if sticking out from concrete shell max 3/4"

3/4" (MAX)

Wipe around niche perimeter and fill with 2 pack bonding to seal plastic to concrete

2 3/4" (MAX)
2" (MIN)

2" (MIN) CONCRETE COVERAGE

C. Installing Cable

Cable and plug assembly. **N.B. Do not remove protective cap until installation of light.**

1. Remove niche protective cap

2. Draw cable through conduit

3. Tighten cable nut by hand only

Cable Seal

Wing Nut

N.B. Do not remove protective cap until pool finish is applied.

Apply PVC solvent cement to render ring.

Fit rendering to concrete niche. Adjust render ring for flush finish.

N.B. Do not remove protective cap until pool finish is applied

Pool Finish 7/8" (MAX)
1/2" (MIN)

Apply finish to top edge render ring max 7/8"

**NOTE:** Leave sufficient cable length to remove for servicing

D. Installing Luminaire

NOTE: The three machined screws will attach to the light mount and go through the gray plate into the niche to secure the light mount. The fourth pan head screw will secure only the gray gasket plate.

NOTE: The niche may cause the light mount to not align straight up and down. To fix this, turn the light mount to align with the screw hole and attach.

Remove protective caps from plug and light socket by unscrewing.
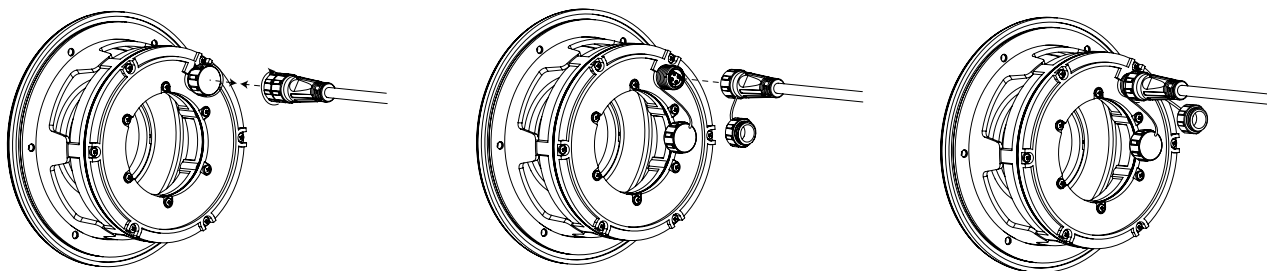
Insert plug into light and secure with screw-on cap.
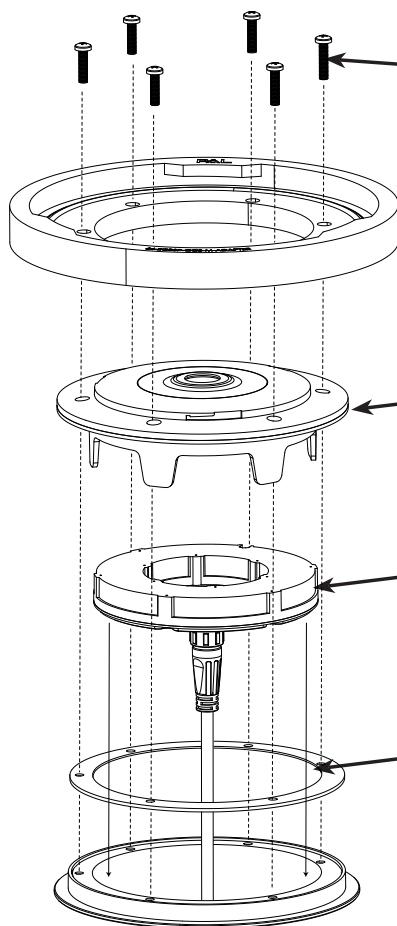
Secure collar to niche using 6 x M4x12mm screws

Optional lens (only available for 600mm and 800mm Spheres)

Install luminaire. Lumaire rests on ribs inside niche.

Install gasket. Gasket is placed inside outer rib of niche.

1. Once the gray face plate and light mount have been attached, pull the attached cable through the light mount and conduit back to a 24v transformer.

NOTE: When wiring into the transformer, there will be a brown and blue terminal for the wires to screw into on the left side.

2. Attach the light to the mounting plate with the thin screws at the 1, 3, and 7 o' clock positions. See Figure 4.

Section 4. INSTALLATION FOR VINYL/FG POOLS

A. Fixing Bubbler Niche to Steel

Step 1. Drill Hole

i. Use a 6 1/2" hole saw in desired location for Bubbler Niche.
ii. The niche may be installed to the Fibreglass using marine grade epoxy or silicone to the bottom of the niche flange.
iii. Use provided gaskets only on vinyl installations. One on top, one on bottom of the vinyl.
iv. Screw nut up firmly. Make sure 'o' ring is installed.

NOTE: Installing conduit on side - must put the nut on first.
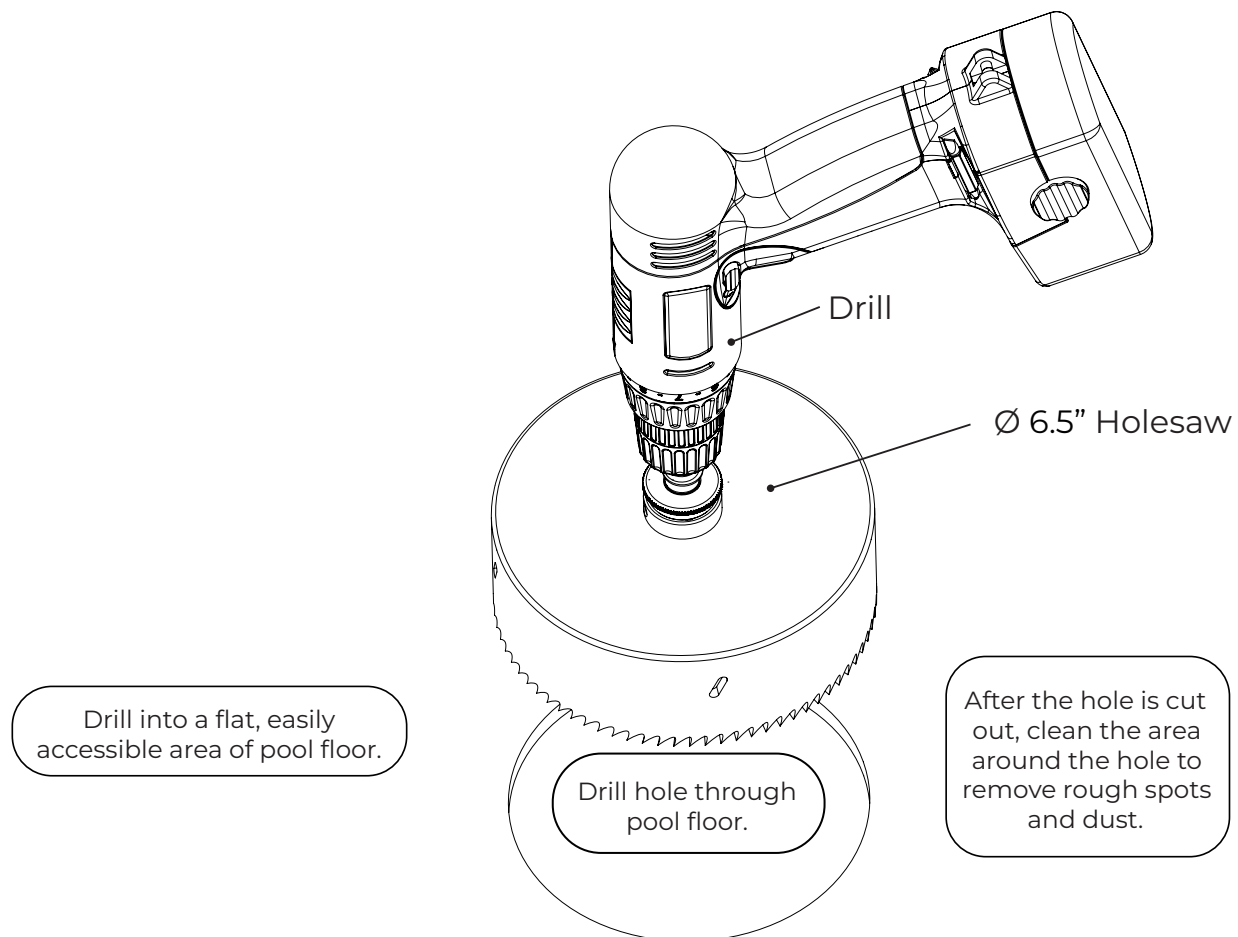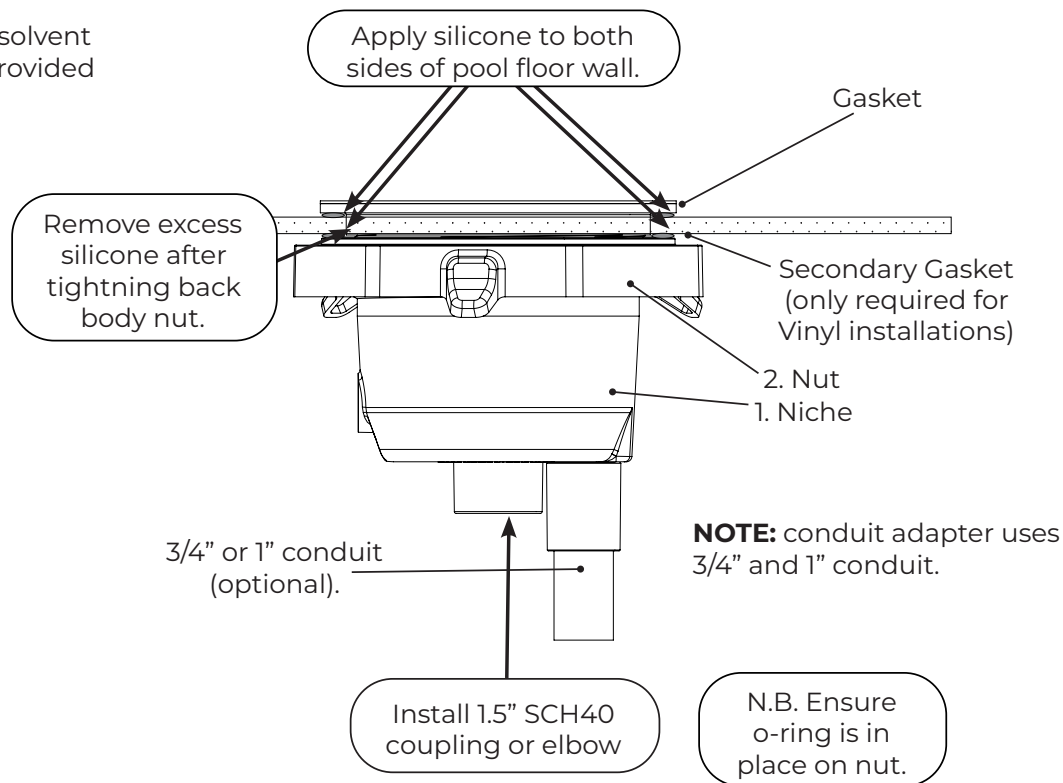
Drill

Ø 6.5" Holesaw

Drill into a flat, easily accessible area of pool floor.

Drill hole through pool floor.

After the hole is cut out, clean the area around the hole to remove rough spots and dust.

NOTE: use PVC solvent cement on all provided fittings.

Apply silicone to both sides of pool floor wall.

Gasket

Remove excess silicone after tightning back body nut.

Secondary Gasket (only required for Vinyl installations)

2. Nut
1. Niche

3/4" or 1" conduit (optional).

NOTE: conduit adapter uses 3/4" and 1" conduit.

Install 1.5" SCH40 coupling or elbow

N.B. Ensure o-ring is in place on nut.

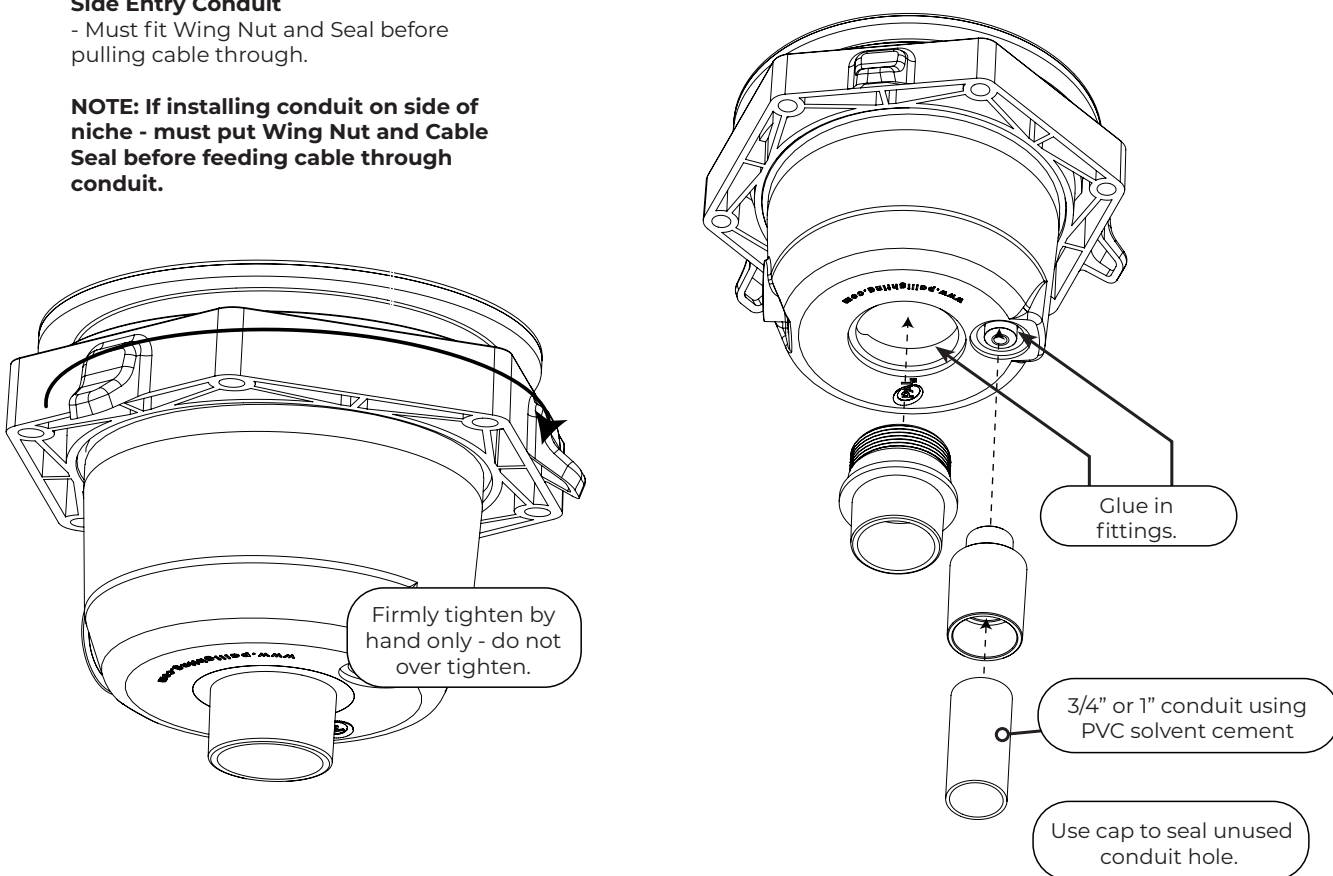Except when the luminaire is installed in an area of the swimming pool that is not used for swimming and the lens is adequately guarded to keep any person from contacting it, the luminaire shall be installed in or on a wall of the pool, with the top of the lens opening not less than 457 mm (18 inches) below the normal water level of the pool. For supply connection, use only an isolating low voltage power supply with ungrounded output, evaluated for swimming pool use.

Side Entry Conduit
- Must fit Wing Nut and Seal before pulling cable through.

NOTE: If installing conduit on side of niche - must put Wing Nut and Cable Seal before feeding cable through conduit.

Firmly tighten by hand only - do not over tighten.

Glue in fittings.

3/4" or 1" conduit using PVC solvent cement

Use cap to seal unused conduit hole.

Step 3. Installing Cable

N.B. Do not remove protective cap until installation of light

2. Tighten cable nut by hand only

Cable and plug assembly

1. Draw cable through conduit

Cable Seal

Wing Nut

NOTE: Leave sufficient cable length to remove for servicing.
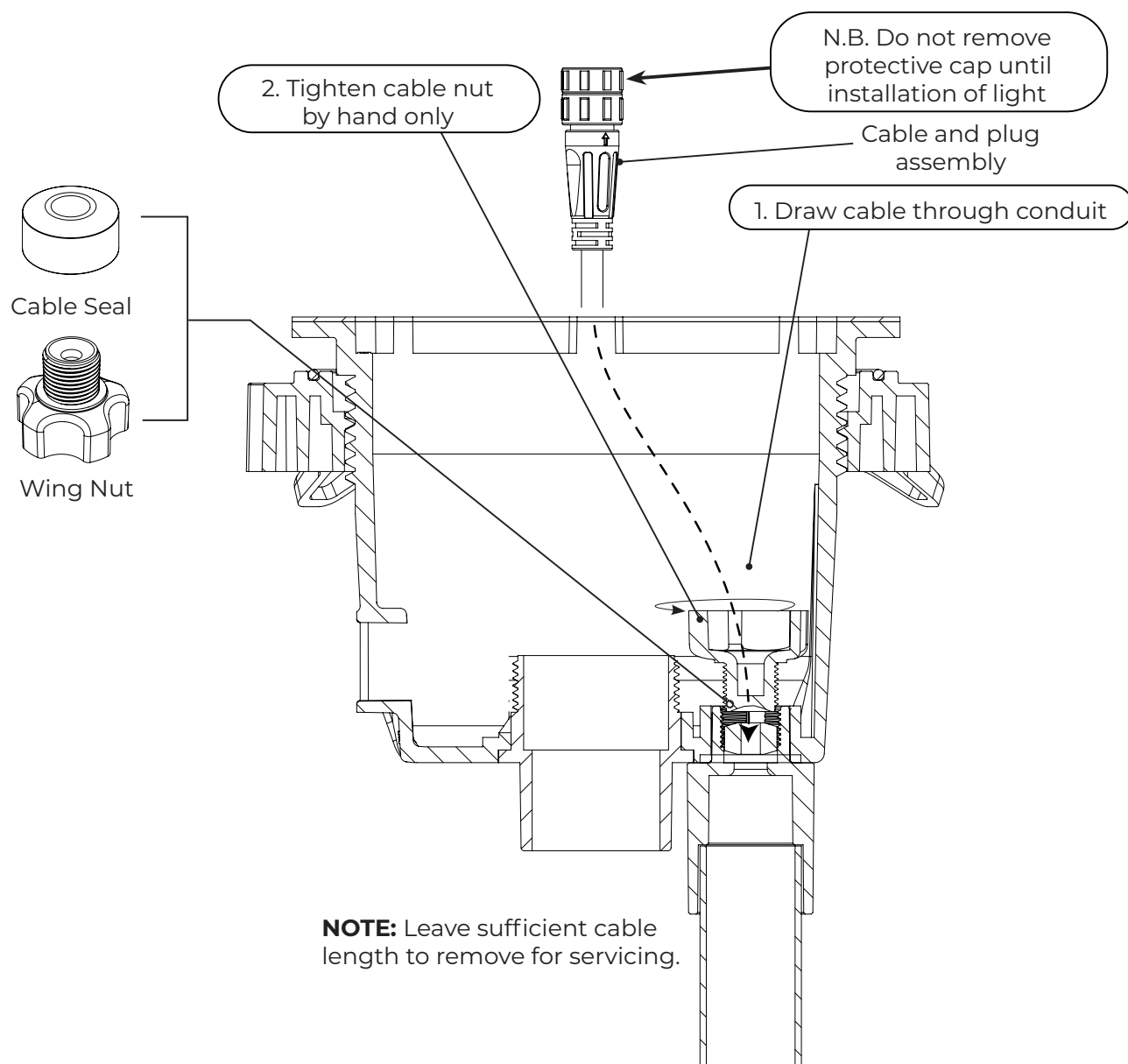
If you wish to install an A&A Snorkel, contact PAL Lighting

Step 4. Installing Luminaire

Remove protective caps from plug and light socket by unscrewing.
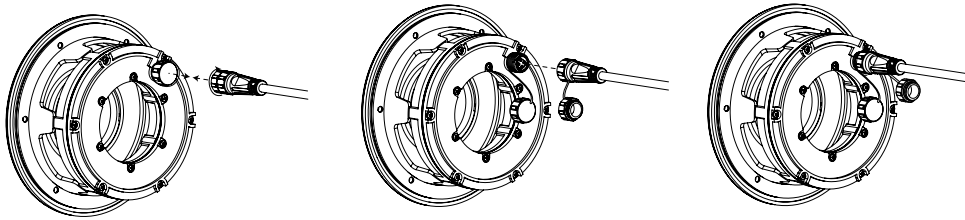
Insert plug into light and secure with screw-on cap.
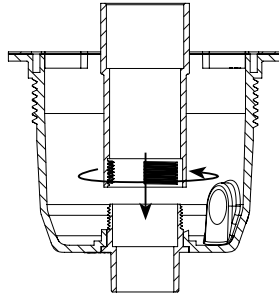
Before installing luminaire screw on internal pipe fitting.

3. Position dress ring onto bubbler and rotate until clicks into position.

2. Secure bubbler in position with 6 x M4 screws.

1. Secure render ring to bucket with 6 x M5 countersunk screws.

Section 5. INSTALLATION FOR GUNITE/CONCRETE POOLS

HARDWARE INSTALLATION INSTRUCTIONS FOR RGB LIGHTING CONTROLLERS

1. The PCR -1Z-SM/PCR-1Z/PCR-2Z Class 2 Power Supply is a weatherproof construction (IP65) and should be mounted on a flat surface using the mounti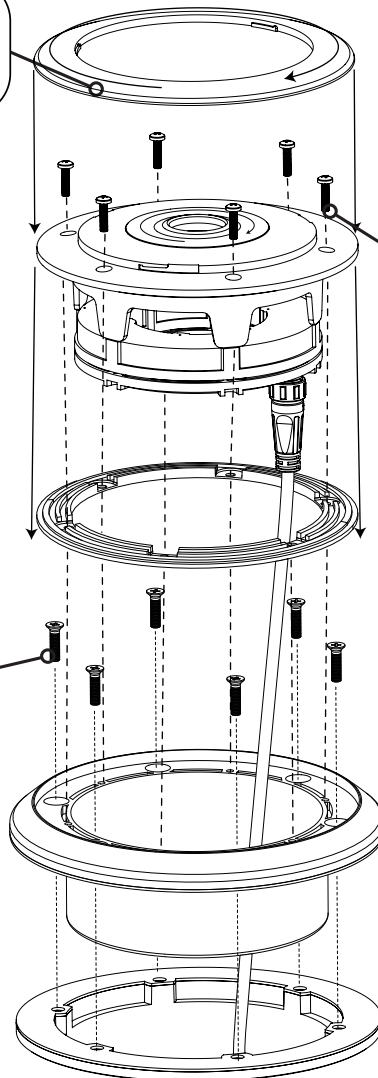ng legs on the enclosure with appropriate fixtures for the mounting substrate and in a suitable position to suit the intended location of the PAL 4 Wire LED Pool Lights and installed to comply with all the requirements of the National Electrical Code (NEC) and all relevant local codes and ordinances.

NOTE: The driver enclosure should be placed a minimum of 5 feet away from the inner pool wall horizontally and should sit no lower than 1 foot above the maximum water level of the pool, measured up to the top of the enclosure.

NOTE: To properly install the enclosure, utilize its mounting legs and the provided screw set. If mounting on a concrete or block wall, mark the hole locations, drill 3/16" holes with a masonry drill, insert the provided Star Plugs into the holes, and secure them using the stainless-steel screws provided.

2. Using the conduit entry on the bottom (bottom-front on PCR-2Z) right hand side of the PCR-1Z-SM/PCR-1Z connect the 100-120V power supply to NEC code requirements.

3. Using the remaining conduit entries at the bottom of the driver, connect the 4-core wire from the PAL 4 WIRE LED LIGHTS. Please ensure the 4 cores are connected to the correct terminals. The enclosure includes 2 output conduit entries designed for connecting to 2 PAL-LED 4 Wire Pool Lights.

4. The Lighting Controller is factory set to operate with the PCZ-2 Transmitter supplied. Simply fit the two batteries included with the PCZ-2 Transmitter. **The PCR-1Z-SM does not operate with the PCZ-2 Transmitter.**

Please refer to the information supplied with the PCZ-2 Transmitter for full operating instructions and features of the system.

INSTALLATION INSTRUCTIONS FOR PCR-1Z-SM / PCR-1Z RGB OUTDOOR DRIVER

Manual Operation Button   **Code Setting Button**   **LED Indicator**

NOTE
Use the 2 x Mounting legs to fasten the enclosure to wall with appropriate fixtures for the mounting substrate

Module Config   Manual   Code Setting

WiFi

BLUE   GREY   Z1   RED   WHITE

E
EARTH   A
ACTIVE   N
NEUTRAL

Module DIP Sw

S1	S2	S3	MODE
-	-	-	Jandy
-	ON	-	Pentair
ON	-	-	Hayward
ON	ON	-	PAL
-	-	ON	Astral

NOTE
Do not use side knock-outs

Wi-Fi Connector
Wi-Fi module attaches to lid of enclosure and connects to PCB as shown.

1/2" PVC Conduit

To 110-240v Power Supply

All PCR-1Z drivers are supplied with 1x PCZ-2 Hand Held Transmitter & Wall Holder

UL1241 - Wiring J Box must be used inline

PAL 4 Wire LED Light

PAL 4 Wire LED Light

INSTALLATION INSTRUCTIONS FOR PCR-2Z RGB OUTDOOR DRIVER

Other Config Switches

Z2 Terminal Blocks
Zone 2 lights can be connected to Z2 terminal blocks
for separate operation to Zone 1

**To 110-240v
Power Supply**

PAL 4 Wire LED Light

UL1241 - Wiring J Box must be used inline
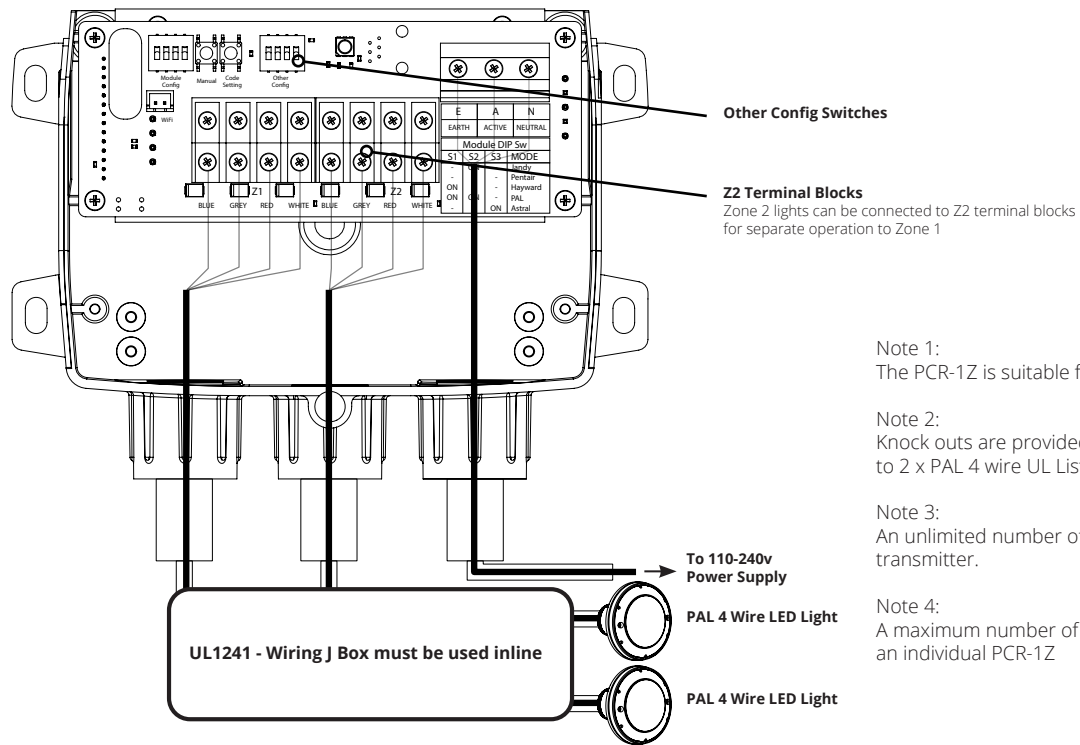
PAL 4 Wire LED Light

Note 1:
The PCR-1Z is suitable for PAL 4 wire lights.

Note 2:
Knock outs are provided in the enclosure to connect up
to 2 x PAL 4 wire UL Listed Pool Lights.

Note 3:
An unlimited number of drivers can be controlled by one
transmitter.

Note 4:
A maximum number of 4 x Transmitters can be coded to
an individual PCR-1Z

## CLONING SETTINGS (PCR-1Z & PCR-2Z AUTOMATION AND PCR-1Z-SM)

Code Setting Switches
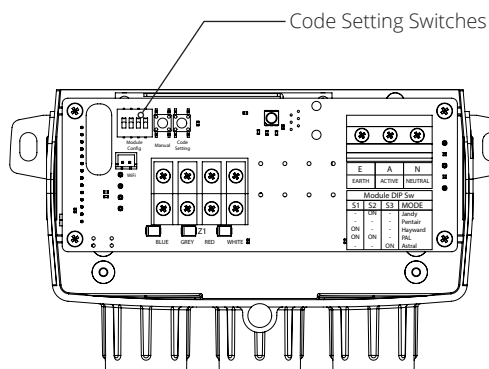
Switch 1	Switch 2	Switch 3	Switch 4	Mode
OFF	ON	OFF	ON	JANDY
OFF	OFF	OFF	ON	PENTAIR
ON	OFF	OFF	ON	HAYWARD
ON	ON	OFF	ON	PAL
OFF	OFF	ON	ON	ASTRAL

Note:
- Must turn off power before making DIP switch selection.
- When synching PAL lights to other OEM lights, static colors will match but color change mode timing may vary.
- If the PAL Lights are to be used with Automation, do not use the handheld remote control and disconnect the WiFi module from the board if so equipped.
- If the Automation does not turn the PAL lights on or off and there is power to the driver, press the Z1 button one time to turn on the PAL Driver.
- Note that the PAL features of infinite color selection and dimmability are not available while in Cloned mode.

ZONE SETTINGS - PCR-2Z ONLY

Other Config Switches
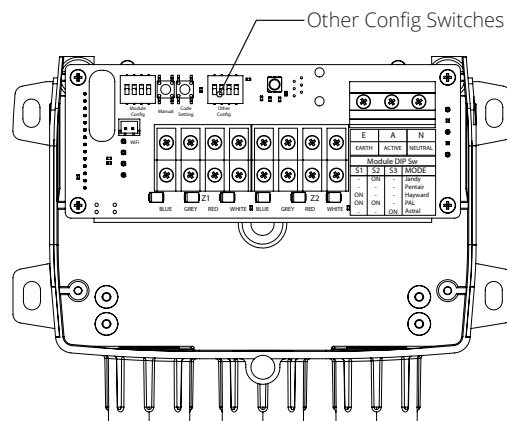
Switch 3	Switch 4	Mode
OFF	OFF	6000K
ON	OFF	5000K
OFF	ON	4000K
ON	ON	3000K

Other Config Operation
- Must turn off power before making DIP switch selection.
- Dip Switch 2: Toggles between 1 and 2 zone operation
- Dip Switch 1: When in single zone mode, this switch selects whether the driver operates entirely as Z1 or Z2 on the remote.
- Dip Switches 3 & 4 change the approximate color temperature of mixed white lights.

Switch 1	Operation
ON	Zone 2
OFF	Zone 1

Switch 2	Operation
ON	Single Zone Operation
OFF	Two Zone Operation

PAL TOUCH PCZ-2 TRANSMITTER HAND HELD REMOTE

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110

DEPTH - 20mm

ON/OFF

COLOR WHEEL
Can select any color from the color wheel.
Can select Brightness (B) on any selected color

OPERATIONAL RED LED
Flashes when any remote operation is initiated

BRIGHTNESS (UP/DOWN)
5 Brightness Settings (100%, 80%, 60%, 40%, 20%)

ZONE (UP/DOWN)
Zone selection (not applicable to single zone controllers)

MODE SELECTION (UP/DOWN)
1. White - Can change Brightness (B) [Default]
2. Color Change - Can change Brightness (B) & Speed (S)
        Red, Amber, Green, Aqua, Blue, Purple, White with initial setting of 2 second delay. This time can be
        increased to 4, 6, 8 or 10 Sec by pressing (S -)
3. Disco - Can change Brightness (B)
4. White Gradual Change - Can change Brightness (B) & Speed (S)
5. Blue Gradual Change - Can change Brightness (B) & Speed (S)
6. Green Gradual Change - Can change Brightness (B) & Speed (S)
7. Red Gradual Change - Can change Brightness (B) & Speed (S)

FEATURES
1. Matching Code - Apply power to the receiver. Then press Z_1 once within 5 seconds. The output light will flash white 3 times if matching is successful.
2. Clearing Code - Apply power to the receiver. Hold down Z_1 for 3 seconds. The output light will flash 6 times if clearing the code is successful.
After successfully clearing the existing code a new code will have to be applied by following the matching code procedure above.
3. 1 Transmitter (PCZ-2) can operate an unlimited number of Receivers (PCR-1Z)
4. 1 Receiver (PCR-1Z) can be controlled by a maximum of 4 Transmitters (PCZ-2)
5. Touching the color wheel will reset any Mode selection.
6. Memory Feature - Remembers color selection after being switched off.
7. Once the transmitter and receiver are successfully coded the receiver will remember the code if powered off.

AUTOMATION DEDICATED LIGHT OUTPUT RELAY FOR CLONE MODE

Terminal connections apply to PCR-1Z-SM, PCR-1Z and PCR-2Z versions.

Connect Wiring as per NEC code requirements

Wi-Fi not needed for clone mode. Disconnect if not in use.

FROM SUPPLY

UL1241 - Wiring J Box must be used inline

PAL 4 Wire LED Light

PAL 4 Wire LED Light

Module Config

Manual

Code Setting

WiFi

E	A	N
EARTH	ACTIVE	NEUTRAL

	Module DIP Sw		
S1	S2	S3	MODE
-	-	-	Jandy
-	ON	-	Pentair
ON	-	-	Hayward
ON	ON	-	PAL
-	-	ON	Astral

BLUE   GREY   RED   WHITE   Z1

Section 6. TROUBLESHOOTING

Remote control is unresponsive — bubbler is not reacting to commands

1. **Check the red light**: When pressing buttons, a red light should appear in the center of the color wheel.
   a. If not, check that the batteries are fresh and properly installed.
2. **Resync the remote**:
   a. Open the driver and verify DIP switches 1, 2, and 4 are in the UP position.
   b. Press the Code Setting button — LED 3 will blink once.
   c. Then, tap Z1 on the remote 3 times.
   d. If successful, the LED will blink 3 times, and control will be restored.
3. **If issues persist, there may be a short**

Bubbler Lights are not dimming

1. **Check DIP Switches**: Ensure switches 1, 2, and 4 are in the UP position.
2. **Disconnect the Remote**:
   a. Press the Code Setting button once (like a doorbell).
   b. Then hold Z1 on the remote.
   c. The driver will blink 5 times, indicating the remote has been disconnected.
   d. You'll now need to reconnect the remote.
3. **Soft Reset**:
   a. Press down firmly on the DIP switches (like squashing a bug).
   b. While holding them, press and hold the Code Setting button for 3 seconds. Release the Code Setting button, then the DIP switches.
   c. Try syncing the remote again.

Bubbler Lights are not coming on

1. **Verify Power Input**
   a. Confirm the driver is receiving 120V power.
   b. Check that no breakers or GFCIs are tripped.
2. **Test with MANUAL Button**
   a. ress the MANUAL button on the driver.
   b. If LED 3 turns on, the driver is working — proceed to troubleshoot the lights.
   c. If LED 3 does not turn on, continue with the steps below.
3. **Check Internal Driver Indicators**
   a. Blue LED (behind the board): Confirms the transformer is powered.
   b. Red LEDs (bottom left of the board): Confirms the board is receiving proper power.
   c. Inspect for damage: Look for any charring or signs of a power surge inside the driver.
4. **Isolate Potential Shorts**
   a. If the transformer is working but LED 3 still doesn't activate when pressing MANUAL:
   b. Disconnect all connected lights.
   c. Try the MANUAL button again.

   A short light can prevent the driver from powering up properly.

Bubbler Lights are blinking

1. For systems with multiple lights, blinking may indicate a faulty fixture.
    a. Disconnect one white wire at a time from the driver.
    b. When LED 3 stops blinking, you've identified the faulty light.

Bubbler Lights are not synced

1. **Identify the Out-of-Sync Color**
    a. Observe the lights and determine which color (Red, Green, or Blue) is not matching across all fixtures.
    b. Use this to trace the issue back to a specific wire.
2. **Check Driver Wire Connections**
    If the issue is with:
    a. Green color → inspect the GREY wire at the driver.
    b. Red color → inspect the RED wire.
    c. Blue color → inspect the BLUE wire.
    Make sure each wire is securely connected, not loose, and free of corrosion.
3. **Inspect Wiring Integrity**
    a. Check if any wire was nicked or cut during stripping at the driver connection point or near the light head.
    b. Damaged conductors can cause signal issues and syncing problems.
4. **Examine the Light Head Connection**
    a. Look for corrosion or brown burn marks at the light head where it connects to the cable.
    b. This often indicates the nut was not properly tightened, allowing water intrusion at the back of the light, which can cause a short.

System is not syncing with Automation

1. **Intellicenter Compatibility**
    a. If using an Intellicenter system, verify the version:
    i. Version 2.0 is not compatible with our lights unless an Intellicenter-programmed board is installed.
    b. Upgrading may be necessary for full sync functionality.
2. **Check DIP Switch Configuration**
    a. Confirm your DIP switch settings match the required configuration for your specific automation system.
    b. Incorrect settings can prevent lights from syncing properly.
3. **Perform a Soft Reset**
    To reset the driver and DIP switches:
    a. Place your finger firmly on the DIP switches (press as if squashing a bug). While holding them, press and hold the Code Setting button for 3 seconds.
    b. Release the Code Setting button first, then release the DIP switches.
    c. Check to see if the lights have synced.

PAL BUBBLER WINTERIZATION RECOMMENDATIONS

Ensure the water level is at least 4 inches above or below the light, based on the specific winterization requirements of the pool. Always consult a local swimming pool professional to determine the correct procedure for your region. Never drain water from the pool without first checking local groundwater levels, as this may cause structural damage.

NOTE: If water is trapped in conduit, damage may occur from freezing expansion.

Section 7. REPLACEMENT PARTS
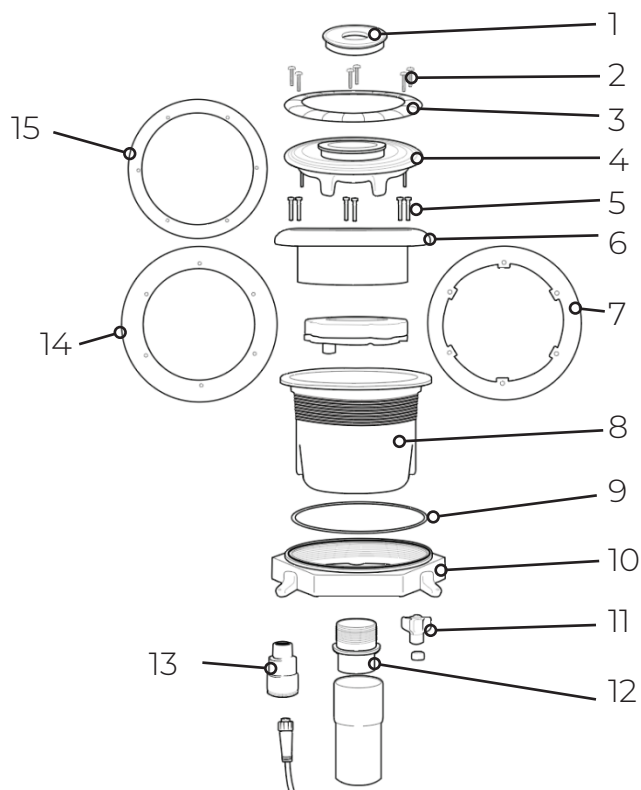
Replacement Parts Vinyl/FG Bubbler		
Item	Part Number	Description
1	64-EGB-SPOUT-0.75	Spout Lens ¾"
	64-EGB-SPOUT-1.2	Spout Lens 1.2"
2	64-EGB-FVS-SCREWS	M4 Screws
3	64-EGB-FACEPLATE	Bubbler Faceplate
4	64-EGB-LENS	Bubbler Lens
5	64-EGB-FVS-SCREWS	M5 CSK Screws
6	64-EGB-FVS-CR	Vinyl/FG Render Ring
7	64-EGB-FVS-CGN	Niche Gasket
8	64-EGB-FVS-N	Vinyl/FG Niche
9	64-EGB-FVS-BOS	Nut/O-Ring
10	64-EGB-FVS-NUT	Niche Nut
11	64-EGB-WNS	Niche Wingnut & Seal
12	64-EGB-SPOUTPF	40mm Pipe Adapter
13	64-EGB-CA	Plug Conduit Adapter
14	64-EGB-FVS-CRFR	Render Ring Gasket
15	64-EGB-FVS-BLS	Lens Gasket

NOTES

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