SHEET 5 OF 6

Device Install: Lights through Irrigation

Switches, fans, plugs, shades, climate, garage, locks, alarm, cameras, AV, pond, energy, irrigation

Safety and use

This sheet walks through installing and adding the devices in a typical Helix job, from light switches to irrigation. It is for trained installers. It is **not** a license to do electrical, HVAC, locksmith, fire-alarm, or irrigation work without the credentials your state and the job require.

Before any line-voltage work:

1. Turn the **circuit breaker** off. Lock it out if you have a lockout device.
2. Verify the circuit is dead with a proper tester, including the tester's self-check.
3. Identify line, load, travelers, neutral, and ground before you disconnect anything. Photograph the existing bundle (no labels that include secrets).
4. Use a **licensed electrician** wherever the work is in a panel, a new circuit, a 3-way or 4-way that you are not sure of, a heater, a pump, or anything the AHJ or the contract requires.
5. Use a **licensed HVAC** technician for thermostat wiring on a furnace, air handler, or mini-split refrigerant / communication connections when those are in scope.
6. Pond pumps and outdoor water features need **GFCI** protection and bonding (NEC 680 in the U.S.). Irrigation valves are usually low-voltage (24 VAC) but their transformer and any line-voltage pump still need correct protection.
7. After wiring, restore power only when the box is closed or safely staged, then test.
8. Do not send a live garage, lock, heater, siren, or pump command unless you can see the equipment and the customer has said to test it.

Placeholders such as `<HUB-IP>` are used on purpose. Never copy RTSP URLs, PINs, tokens, or real device IDs into these sheets, photos, or tickets.

Items marked **[planned]** are listed in Composer but are not connected in the current code. Items marked **Beta – confirm with Helix support** need a Helix or job decision.

General Composer add, test, and Send-to-tablets steps are in **Sheet 4**. Power and UPS for the hub and PoE switch are in **Sheet 1**.

How to use this sheet

Beta – steps may change Steps that use Zigbee, Z-Wave, Shelly, Hue or Kasa devices are not yet verified on hardware and may change.

Coming soon Adding new Tuya / Smart Life cloud devices is **Coming soon**. Where this sheet mentions Tuya, ask Helix support first.

Each section follows the same order:

1. What you need
2. Safety
3. Wiring and mounting
4. Adding it in Composer
5. Testing
6. Troubleshooting

Do the physical work first (or on the bench), then add the device in Composer, then ▶ Test while you can still see it.

5.1 Light switches and dimmers (single-pole and 3-way)

Helix controls lights through **Shelly** relays and dimmers (local), **Tuya / Smart Life / Treatlife** Wi-Fi switches and dimmers, and **Zigbee** switches, dimmers, and bulbs paired to the hub radio when that radio is installed.

What you need

- The approved switch, dimmer, or in-box relay for this job (Shelly, Tuya/Treatlife, or Zigbee). **Beta – confirm with Helix support** Helix has not published preferred switch or dimmer models. Ask Helix support before you buy.
- A neutral in the box for most smart relays and dimmers. Many older switch loops have no neutral — stop and use a licensed electrician, a different module, or a different location.
- House 2.4 GHz Wi-Fi for Wi-Fi devices, or a working hub Zigbee radio for Zigbee devices.
- Wire nuts, pigtails, and a tester. For 3-way, time to map travelers.

Safety

Treat every switch box as live until you have turned the breaker off and proved it dead. 3-way and 4-way loops can bring a hot in from more than one box — test every conductor. If a dimmer will control LEDs, confirm the module is rated for that LED load and that the bulbs are on the module's compatible list. Do not put a standard dimmer on a fan motor (see 5.2).

Wiring and mounting — single-pole

Typical U.S. colors (always verify; colors are not guaranteed):

Conductor	Common color	Goes to
Line (hot in)	Black	Line / L on the module or switch
Load (to the light)	Black (or red in some boxes)	Load / O / output
Neutral	White	N, with the other neutrals
Ground	Bare or green	Ground screw / ground terminal

1. Breaker off. Confirm dead.
2. Note which wire is line (hot with the breaker on — identify it **before** you start, then power down again) and which is load.

3. Wire the smart switch or in-box relay per the manufacturer's diagram: line, load, neutral, ground. For a relay that stays in the box behind a mechanical switch, use the manufacturer's **SW** (switch input) so the paddle still works if the network is down.
4. Do not share a neutral from a different circuit.
5. Fold the module in the box without pinching, restore the cover, then restore the breaker.

Wiring and mounting — 3-way (and 4-way)

A 3-way circuit has two switches controlling one load. Two **traveler** wires run between the switches. Line may be in one box and the load in the other.

1. Breaker off. Identify, in each box: line or load, the two travelers, neutral (if present), and ground. Label them.
2. Prefer a module that officially supports 3-way (for example a Shelly with a switch input on one end, and a standard 3-way or a detached switch on the other, per that product's diagram). Follow **that** diagram, not a generic guess.
3. Typical pattern (confirm on the sheet that came with the module): the smart relay sits in the box that has line **or** the box that has the load; travelers or a single switch-leg go to the module's switch input; the far 3-way is rewired as a simple switch, or replaced with a compatible companion. **Wrong traveler wiring is a common cause of a light that is stuck on or a switch that does nothing.**
4. If the box has no neutral, or you find a 4-way in the middle, stop and get a licensed electrician or a module rated for that layout.
5. Close the boxes and restore power only when both ends are finished.

Adding it in Composer

1. **Shelly:** Composer → Find Shelly devices (or type the IP) → name, room, dimmable or not → ▶ Test (Sheet 4).
2. **Tuya / Treatlife:** Add device (EZ or AP) or Load Tuya lights if it is already on the Helix account → name, room, icon → ▶ Test.
3. **Zigbee:** Add device → Pair Zigbee device → reset the switch or bulb → name and room.
4. Set dusk-to-dawn only after Home ZIP is set, and only on outdoor or hall lights that should run that way.

Testing

1. Paddle or test button at the wall works (local).
2. Composer ▶ Test turns the light on, then off, and shows live state.
3. The room tile on the kiosk works, including dimming if it is a dimmer.
4. After a power blip, the module comes back to the agreed power-on default (usually **off** for most living-area lights; confirm with the customer).
5. For 3-way: both locations turn the light on and off, and the kiosk still shows the correct state.

Troubleshooting

Symptom	What to do
No power at the light	Breaker, line/load swapped, or a traveler still open. Power down and re-map the box.
Device never appears	2.4 GHz Wi-Fi, correct Tuya account, or Zigbee permit-join window expired. For Shelly, try the IP.
Light flickers or buzzes	Incompatible dimmer/LED combo, or a dimmer on a non-dimmable load.

Symptom	What to do
3-way only works from one end	Travelers or SW input are wrong. Rework from the manufacturer's 3-way diagram.
State is backwards on the kiosk	Invert / "detached" switch setting on a Shelly, or the wrong datapoint on a Tuya device.

5.2 Fans

Ceiling fans are not the same as lights. A lighting dimmer can damage a fan motor.

What you need

A module **rated for a fan** (or a fan/light canopy module with separate outputs), or a Smart Life fan controller that Helix can see as a Tuya device. **Beta – confirm with Helix support** Helix has not approved a fan controller model. A dedicated Helix "fan driver" is not a separate Composer type today — fans are added as a device (often a switch or a Tuya device) and can use the **fan** fixture icon. Treat multi-speed control as **Beta – confirm with Helix support**: only on/off is assumed.

Safety

Breaker off. Support the fan so it cannot fall. Do not put a lighting dimmer on the motor lead. If the fan has a light kit, switch or dim the light on a separate output.

Wiring and mounting

1. Identify the motor lead, the light-kit lead (if any), line, neutral, and ground in the canopy or wall box.
2. Wire a fan-rated controller per its diagram: motor to the fan output, light kit to the light output, line and neutral as marked.
3. Set any dip switches or app settings for a ceiling fan (not a lamp).
4. Reinstall the canopy so the module is not stressed on the downrod.

Adding it in Composer

Add it like a light (Shelly, Tuya, or Zigbee). Name it clearly (`Living Room fan`). Choose the fan icon. If the device only exposes on/off, do not label it as a speed control. If Smart Life shows speeds and they appear as a Tuya device, map and Test those functions, and write down what the kiosk can actually do.

Testing

Local pull chain or wall control still makes sense with the smart module (or is set to a known position). Kiosk on/off works. The light kit, if separate, is a second device or a second channel. Listen for noise or stalling at each speed you claim to support.

Troubleshooting

If the fan hums or stalls, you likely used a dimmer or the wrong load type. If only the light works, the motor lead is on the wrong output.

5.3 Plugs and outlet modules

What you need

A Tuya, Shelly, or Zigbee plug or in-wall outlet. For outdoor or wet locations, a weather-rated enclosure or an outdoor-rated smart plug, on GFCI as required.

Safety

Do not exceed the plug's amp rating. Do not use a cheap indoor plug outdoors. High-draw heaters, dryers, and some tools should not be on a general-purpose smart plug — use a properly rated circuit and device, or do not automate them.

Wiring and mounting

Plug-in modules: just plug them into a grounded receptacle, then plug the lamp or device into the module. In-wall outlets: breaker off, line/neutral/ground (and load if half-switched) per the manufacturer, same caution as section 5.1.

Adding it in Composer

Find Shelly, Add device, or Load Tuya lights / devices. Type **outlet**. Assign a room. Optional dusk-to-dawn for porch plugs that should follow sunset.

Testing

▶ Test, then the real load (lamp, transformer, etc.). Confirm the kiosk state matches. Confirm a power-on default that is safe (usually off).

Troubleshooting

If the plug pairs but the load is dead, the load is bad or over current-protection has tripped. If it drops off Wi-Fi, it may be too far from a 2.4 GHz AP or sitting behind a metal appliance.

5.4 Shades and blinds

Helix supports **Tuya curtain/blind motors** (Composer category for curtain/blinds) and **Shelly cover** controllers. Each room with shades gets a Shades tile: Open / Stop / Close and a position slider.

What you need

The motor or a Shelly cover + a compatible motor, mounting hardware, and (for line-voltage motors) a licensed electrician as required. Charge or connect power as the product requires.

Safety

Keep heads and fingers clear while the shade first runs. Set travel limits **before** you leave. A shade that drives past its limit can damage the tube, the fabric, or the window.

Wiring and mounting

1. Mount the brackets and tube square, per the shade vendor.

2. For a Shelly cover: breaker off, then line, neutral, and the two motor directions to the cover outputs, following the Shelly cover diagram. Set the module to cover/roller mode, not a generic relay.
3. For battery or plug-in Tuya motors: mount, power, and pair to the Helix Tuya account.
4. Set open and close limits in the vendor app or on the motor head first, then add the shade in Composer.

Adding it in Composer

Open **Shades**, add the Tuya motor or the Shelly cover, assign the room, and Send to tablets.

Testing

Open, Stop, and Close from Composer and from the room tile. Confirm the slider matches the real position. Confirm the shade stops on the limits and does not strain. If the direction is reversed, use the product invert/swap setting, then test again.

Troubleshooting

A shade that “opens” when you press Close has the motor leads or direction inverted. A Shelly that only jogs may still be in relay mode instead of cover mode, or the limits were never set.

5.5 Thermostats and mini-splits

What you need

- A supported thermostat: **ecobee** or a **Tuya / Smart Life** thermostat. Other brands in the Composer list (Nest, Honeywell Home, Sensi, and similar) are `[planned]` / not connected — do not install them expecting Helix control.
- A supported mini-split path: **Tuya / Smart Life AC**, or (beta) Midea-protocol units, Gree / Cooper & Hunter, some Daikin BRP adapters, or an **ESPHome dongle** in place of the stock USB stick (Sheet 4).
- For a central thermostat: the existing HVAC control cable (often R, C, Y, G, W / O/B). Many smart thermostats need a **C (common)** wire.

Safety

A wrong thermostat wire can short a transformer or damage a control board. If you are not trained on that equipment, stop and use a licensed HVAC technician. On a mini-split, do not open refrigerant connections. Swapping a USB Wi-Fi stick is a dry, indoor-unit electronics step — power the indoor unit down first and follow the brand’s stick manual. Heaters and heat strips can be dangerous; test setpoints while you are present.

Wiring and mounting — wall thermostat

1. Power down the HVAC equipment (furnace/air-handler switch and/or breaker).
2. Photograph the existing terminal labels. Label each wire.
3. If there is no C wire and the new thermostat needs one, run a new cable or use only a vendor-approved adapter. Do not steal a conductor that is still needed for a stage of heat or cool.
4. Mount the new thermostat, connect the terminals per the vendor and the equipment (conventional vs heat pump).
5. Restore power, complete the vendor setup, then add it in Composer.

Wiring and mounting — mini-split dongle

1. Power the indoor unit off.
2. Remove the stock USB Wi-Fi stick (if any) and fit the ESPHome (or brand) dongle in that USB port only.
3. Join the dongle to 2.4 GHz Wi-Fi, set a DHCP reservation, then power the unit back on.
4. Do not leave both the stock cloud stick and the dongle in service on the same unit.

Adding it in Composer

Heating & cooling → add Thermostat or Mini-split → brand and driver → room and units (°F/°C) → Find / Scan / type ID or IP → Test. For ecobee, enter the API credentials on the hub and use List ecobee. For ESPHome, Scan or type the IP (Sheet 4).

Testing

Mode and setpoint from Composer and from the kiosk Comfort tile change the real unit. Room temperature reads a believable number. After a power blip, the unit returns to a safe state. Do not leave a heat or AC test running unattended.

Troubleshooting

If the HVAC does nothing, you may be missing C, or Y/W/O/B is on the wrong terminal. If a mini-split is “beta” and Scan finds nothing, confirm the dongle’s IP and that you picked the matching driver (Midea vs Gree vs Tuya vs ESPHome). Brands marked “not connected yet” will not control, even if the card looks complete.

5.6 Garage controller

Composer supports **Tuya / Smart Life** garage openers (real control when linked). Other drivers exist as **beta** (untested on some units): Genie / Aladdin Connect, Meross, Shelly plus a reed switch, ratgdo / Konnected GDO blaQ (ESPHome), and a generic relay plus a door sensor.

What you need

The opener interface the job specified, a door-position sensor (unless the unit has one built in), and a safe place to mount a relay or module **in parallel with the wall button**, never in a way that bypasses obstruction sensors.

Safety

Garage doors can kill. Never disable safety eyes or the door’s obstruction test. Stay in the garage for every live open/close test. Every garage action on the kiosk already asks for confirmation; Unlock/Open also needs the kiosk PIN. Do not add a scene that opens a garage. Remote app control still requires Face ID confirm (Sheet 1).

Wiring and mounting

1. Unplug the opener (and lock out if you can) before landing wires on the wall-button terminals.
2. Connect a dry-contact relay (Shelly, ratgdo, or the opener’s own smart unit) **across the wall-button terminals**, following that product’s garage-door diagram — normally a momentary contact, not a maintained on/off (a maintained contact can run the motor without stop).
3. Mount a reed switch or use the module’s arm/tilt sensor so Helix can see open vs closed.
4. Route wiring clear of the chain or belt. Restore power.

Adding it in Composer

Locks & garage → **Add garage door** → pick the driver. For Tuya: Find Tuya devices, then read datapoints if the door state and the trigger need mapping (Auto works on most). For Genie, Meross, or ESPHome: follow the on-screen sign-in or key steps; secrets are stored on the hub only. Set the room and the left-open alert (minutes).

Testing

With the path clear: confirm, enter the PIN, and open or close once. Confirm the kiosk shows the true state (a reed that is mounted backwards will lie). Confirm the obstruction sensors still reverse the door. Confirm a left-open alert if you set one (you can use a short time for the test, then set it back).

Troubleshooting

If the door starts and immediately stops, the contact may be held closed (use momentary / a pulse). If the state is wrong, invert the sensor. If a beta driver fails, fall back only to a path Helix has approved for that house — do not cobble a new cloud account on site without a record in the job file.

5.7 Locks

Helix controls **Tuya / Smart Life Wi-Fi locks** when they are on the Helix Tuya account. In Smart Life, enable **remote / password-free unlock** or the hub cannot unlock. Other lock brands are not a general Helix lock driver today unless they appear as a supported Tuya lock.

What you need

The lock, the correct door prep (bore and backset), fresh batteries or the specified power, and the manufacturer's strike and jigs. Use a locksmith when the door, frame, or fire rating requires one.

Safety

Do not leave a house unlockable. Keep a mechanical key path that works. Test fail-secure vs fail-safe against the door's fire and egress requirements. Unlock on the kiosk always needs the kiosk PIN (five wrong tries lock the pad out for five minutes). Scenes may lock, not unlock.

Wiring and mounting

Follow the lock manufacturer's mechanical and wiring instructions (strike alignment, interior assembly, any doorbell-camera that shares the same device). For a Wi-Fi lock, place it where 2.4 GHz is strong; metal doors and exterior boxes can block signal.

Adding it in Composer

Locks & garage → **Add lock** → Find Tuya devices → name, room, left-unlocked alert. Confirm remote unlock is enabled in Smart Life.

Testing

Lock from the kiosk (one tap). Unlock with the PIN. Confirm the mechanical key and the interior thumbturn still work. Confirm the door latches without slamming. Confirm the left-unlocked banner if you set a short test threshold, then set it back.

Troubleshooting

If lock works and unlock does not, remote unlock is probably off in Smart Life, or the device is on the wrong Tuya account. If the bolt binds, fix the door and strike; do not keep retrying a stalling motor.

5.8 Alarm sensors and sirens (Wi-Fi / Zigbee)

Helix can take **Zigbee, Shelly, and Tuya** door, window, motion, glass-break, smoke/CO, and water sensors, and Zigbee, Shelly, or Tuya sirens. That software exists in Composer and in the kiosk alarm engine.

It is not released as a live, professionally monitored system. Leave sirens not-Live, leave professional monitoring off, and use mock / short tests only, unless Helix has approved a specific trial and the customer is present. Do not replace a listed fire-alarm system with these sensors. Smoke and CO devices used for life safety must meet code; a hobby sensor in the Alarm section is not a fire-system sign-off.

What you need

Sensors and a siren on the approved list for the path you will use (Zigbee radio on the hub, Shelly on the LAN, or Tuya on the Helix account). **Beta – confirm with Helix support** Helix has not published a preferred sensor kit. A UPS on the hub and, for Wi-Fi sensors, on the router and AP (Sheet 1).

Safety

Mount door contacts so a slightly racked door still reports open. Do not drill a fire-rated door or frame in a way that voids the rating. Siren tests are loud — warn everyone in the house and keep the test to a few seconds.

Wiring and mounting

1. **Battery Zigbee / Tuya contacts and PIRs:** mount on the dry, indoor side; align the magnet as the vendor marks; pull any plastic battery tab; then pair.
2. **Hardwired contacts into a Shelly or input module:** power down, land the contact on the input, set the module input to the correct type, and do not mix voltages.
3. **Siren:** follow the vendor. A Shelly that drives a siren must be rated for that load, or must switch a proper siren power supply. Keep wiring neat and serviceable.

Adding it in Composer

Alarm section → add a zone per sensor (type, driver, device, entry delay, which arm modes). Add sirens but leave **Live** off. Save user codes only to the kiosk (Sheet 4). Push to the kiosk only on a test system or an approved trial.

Testing (test mode)

1. Watch the zone go open and close on the Alarm screen as you open the door or window.
2. If you have approval to arm in test mode, arm, then open a zone and confirm the entry delay and the kiosk prompt. Disarm with a normal code. Do not use a live siren or live monitoring.
3. A **Test sirens (3 s)** run stays mock unless the live-test box is ticked. Default to mock.

Troubleshooting

A zone that stays open may have a misaligned magnet or a reversed input. A Zigbee device that will not pair needs a reset and a fresh permit-join, and may be too far from the hub radio (add a mains-powered Zigbee router device if Helix has approved one). If Composer has no Alarm section, this hub build does not include the native alarm — do not improvise.

5.9 Cameras and doorbell

Cameras are assigned to rooms in Composer through each camera's **room** (`devices[].roomId`). The doorbell is configured in **Doorbell & intercom** and still needs its camera assigned to the room where it should appear (for example Front Porch).

What you need

The camera or doorbell, PoE or the vendor's power supply, a reserved IP, and a mount that covers the area you care about. Prefer PoE cameras on the UPS-backed switch (Sheet 1). **Beta – confirm with Helix support** Helix has not published an approved camera or doorbell list. A video path that needs no vendor login is not confirmed.

Safety

Use a ladder safely. Keep exterior penetrations sealed and above water splash. Do not point a camera into a neighbor's private space in a way the customer has not accepted. Never paste live stream URLs into Composer names, tickets, or these sheets. The NVR, if the job has one, is a separate system — do not re-adopt or reset a customer's NVR or network video gear unless the job and Helix say to.

Wiring and mounting

1. Run Ethernet (or the vendor's required cable) to the mount. For PoE, patch to the UPS-backed PoE switch and reserve the IP.
2. Mount solidly, set angle and height, and leave a service loop.
3. On first power, give the camera a fixed/reserved address. Do not leave it on a random DHCP lease.
4. Complete only the minimum vendor setup needed for Helix to receive a stream or a ring event. Prefer the Helix-documented RTSP or ONVIF path when it is available so the customer is not forced through a third-party app for daily use. **Beta – confirm with Helix support** The doorbell setup path for your firmware is not confirmed. Ask Helix support.

Adding it in Composer

1. Discover with ONVIF / LAN scan, or add the camera and set its kiosk camera ID.
2. Save credentials on the hub (masked in the UI).
3. Assign the **room**. Pin to the front page only if the family wants it there.
4. For a doorbell: Doorbell & intercom → choose that camera → Test ring. Confirm tablets show the popup and (if enabled) phones get a ring notification.
5. Send to tablets and confirm the Front Porch (or other) room screen shows the camera tile.

Testing

The room tile opens the camera. Full-screen view returns to the room you started from when you close it. Night image is acceptable. A doorbell ring shows the popup on every registered tablet. Do not print or screenshot a URL that includes a password.

Troubleshooting

A black tile is often the wrong ID, a bad credential, or a camera IP that changed. A doorbell that rings in a vendor app but not on Helix is usually a hook or camera-assignment issue, not the room photo by itself. If `.local` discovery fails, use the reserved IP.

5.10 Audio, TV, and IR

Helix controls **WiiM** and **Sonos** players locally, **Tuya / Smart Life IR blasters** (and macros) for TVs and AV, and an optional **HDMI matrix** (TCP port 23, reserved IP). Some rooms also use network, CEC, or RS-232 control; Composer can note when an IR blaster is still recommended.

What you need

Players on the house LAN (reserved IPs), one IR blaster per TV location that needs IR, line of sight or a hidden IR emitter on the device, and (if used) the HDMI matrix manual for input/output names. Set up WiiM streaming presets in the WiiM Home app first; the kiosk only triggers them.

Safety

Use surge-protected, UPS-backed power for racks when you can. Do not look into IR emitters at close range for long periods. Keep speaker wiring clear of line voltage.

Wiring and mounting

1. Place WiiM / Sonos on Ethernet when you can, otherwise on reliable Wi-Fi, with a DHCP reservation.
2. Mount the IR blaster with a clear path to the TV or the cabinet IR window, or stick the emitter on the IR window.
3. Pair the blaster to the Helix Tuya account (same rule as other Tuya devices).
4. For a matrix: Ethernet to the reserved address, then label inputs and outputs to match Composer.

Adding it in Composer

- **Audio:** add WiiM or Sonos by IP or LAN scan, assign a room.
- **TV & AV remotes (IR):** add the blaster, learn or pick the buttons and macros (power-off should be a discrete off when the remote supports it — Goodnight depends on that).
- **What to watch / matrix:** name the routes the family will use.
- Send to tablets. The room tile shows Listen and Watch when sources exist.

Testing

Play, pause, volume, and now-playing on each room's speaker. TV power, input, and volume from the Watch tile and from a scene. Matrix route if installed. A Goodnight or Movie scene that should power a TV off actually does.

Troubleshooting

WiiM is proxied by the hub because it uses a self-signed certificate — if control fails, check the reserved IP and that the hub can reach it. An IR command that works only at two inches needs a better emitter placement. If the TV toggles on when you wanted off, you used a toggle power instead of discrete off.

5.11 Pond and outdoor heater controllers

Composer **Outdoor** and **My Yard** cover **infrared patio heaters** (timer and a safety auto-off) and **pond pumps** (a daily schedule and an on/off tile). Helix also has a documented **Pond Lite** controller path: a Shelly Plus 1 UL drives the 24 VAC coil of a pump-start relay, with a Class 2 transformer, optional Hand-Off-Auto, and a field GFCI supply.

What you need

- Heater: a Tuya (or otherwise supported) patio-heater controller rated for that heater, plus outdoor-rated wiring and clearances.
- Pond: the Helix Pond Lite assembly or the equivalent Shelly + pump-start relay package for this job, a Class A GFCI, and bonding as required. **Beta – confirm with Helix support** Ask Helix support which pond controller version applies to your job.

Safety

Patio heaters are fire and burn hazards. Keep clearances to roofs, umbrellas, and furniture. The kiosk forces a **maximum run time** (safety auto-off; timers on the kiosk include 30 / 60 / 90 minutes). Do not bypass it.

Ponds and fountains: GFCI and bonding are required in the U.S. (NEC 680). Use a licensed electrician. The Pond Lite assembly is described as **not UL listed as an assembly**, so field use needs AHJ acceptance. Size the breaker and conductors to the pump nameplate. The Shelly does not provide dry-run protection. Never stand in water while testing.

Wiring and mounting

Heater: follow the heater and controller listings. Outdoor-rated boxes, correct gauge, GFCI when required. Mount the heater per the manufacturer's clearances.

Pond Lite v3 (current, from Helix's pond notes):

1. Field GFCI feeds the line terminals of the pump-start relay (example used in those notes: a 25 A pump-start relay, 1 HP at 120 V / 2 HP at 240 V). The relay's load contacts feed the pump.
2. A Class 2 transformer and the Shelly (and an optional HOA switch) live in a companion box and drive **only the 24 VAC coil**. Keep Class 2 wiring separated from line voltage.
3. In the Shelly app, set the input to **Detached** and the power-on default to **OFF**. Pre-pair the Shelly to the Helix account, then find it in Composer.
4. There are 120 V and 240 V versions — use the one that matches the pump.

Adding it in Composer

Outdoor → **Add outdoor heater** or **Add pond pump**, or My Yard → Pond pump. Pick the Tuya or Shelly device, set the heater's max run time, and set the pump schedule. Gates in My Yard always ask for the PIN to open.

Testing

Heater: a short timed run, then confirm auto-off. Pond: with the HOA in Auto, an on command pulls the relay in and the pump starts; Off drops the coil to 0 V; Hand and Off at the HOA work as labeled; trip the GFCI with the pump running and confirm it shuts down. Do not leave a heater on when you leave the site.

Troubleshooting

A pump that does not start with the Shelly on may have no coil voltage, a tripped GFCI, or HOA in Off. A heater that will not show in Composer is usually on the wrong Tuya account or missing its room / Outdoor card.

5.12 Energy monitor

Helix shows solar, home use, and grid flow on the Energy tile from **Tuya energy meters / CT clamps**. In Composer, each meter is marked **Solar** (production), **Grid** (import; negative = export), or **Load** (a circuit).

What you need

A supported Tuya meter or CT kit, and a legal, safe place to clamp CTs (usually in the service or a subpanel). Beta – confirm with Helix support Helix has not approved a meter kit.

Safety

Panel work is for a **licensed electrician**. CTs go on the correct conductors, in the correct direction, with the panel cover off only while that person is working. Do not exceed CT ratings. Do not land CTs on bus bars or lugs they are not designed for.

Wiring and mounting

1. De-energize and lock out if the work requires it, or have the electrician work live only with the PPE and procedures their license requires.
2. Place the solar, grid, and load CTs exactly as the meter vendor diagrams (direction arrows matter).
3. Route the signal leads out of the panel through an approved clamp or knockout. Close the panel before you leave.
4. Pair the meter to the Helix Tuya account.

Adding it in Composer

Energy → add each meter or channel → mark Solar, Grid, or Load → Send to tablets.

Testing

With solar on (daytime) and a known load, the signs should make sense: production up, a turned-on load visible, grid import/export in the right direction. If solar reads negative and the house looks like it is generating at midnight, a CT is backwards or Solar/Grid is swapped.

Troubleshooting

Zero on all channels is often a pair/account issue or a meter that never joined 2.4 GHz. One reversed CT is the usual “backwards” graph.

5.13 Irrigation and sprinklers

This is supported in current Composer and kiosk code, under **My Yard**: sprinkler **zones** can use a **Tuya / Smart Life valve controller** or **Rachio**, with schedules, weather **rain-skip** (a set number of inches or chance of rain), and optional soil-moisture auto-water. It is not a [planned] placeholder. The **preferred hardware kit** and wiring standard are Beta – confirm with Helix support: ask Helix support.

What you need

- A Tuya multi-zone valve controller on the Helix Tuya account, **or** a Rachio controller (API key stored only in the hub secrets file).
- 24 VAC irrigation transformer and zone valves (most residential systems), or the valve box the controller is specified for.
- Home ZIP already set in Composer (rain-skip and weather).
- Optional: Tuya soil-moisture sensors, and a licensed irrigator if the job requires one.

Beta – confirm with Helix support Helix has not named a standard valve controller or Rachio model, or a zone limit. The software allows up to 32 zones; a given controller will have a lower physical limit.

Safety

Most valve wiring is 24 VAC, but the transformer primary is line voltage — treat that part like any other line-voltage device, on a GFCI or a protected receptacle as required. Do not stand in a flooded valve box with live conductors. Shut water off or be ready to stop a zone if a head is blown. Keep master-valve and pump-start circuits on the terminals meant for them; a pump-start landed on a zone terminal can run a pump dry. If this system also starts a well pump, use a licensed electrician or well contractor and a proper pump-start relay (the pond section's pump-start pattern is the right idea; do not improvise).

Wiring and mounting

1. Mount the controller in a dry, serviceable location (or use an outdoor-rated enclosure).
2. Land the 24 VAC transformer on the controller's power terminals.
3. Common (usually white) to the valve common. Each zone wire to that zone's terminal. Master valve / pump-start only on those labeled terminals.
4. In the valve box, use waterproof connectors. Leave a service loop and a labeled map of zones.
5. Restore power and confirm the controller powers up. Pair a Tuya controller to the Helix account, or complete Rachio's own setup, before you open Composer.

Adding it in Composer

1. My Yard → **Find yard devices (Tuya)** to pull valves, sensors, plugs, and gate openers, **or** add a zone and set the driver to **Tuya / Smart Life valve** or **Rachio**.
2. For Rachio, enter the Rachio zone ID and controller ID in the zone row. Put the API key in the hub secrets file, never in Composer.
3. Set a default run time (minutes) per zone.
4. Add a schedule and leave **rain-skip** on unless the customer wants it off. Rain-skip needs the Home ZIP.
5. Optional: add a soil sensor, thresholds, and auto-water to a zone, with a cooldown so it cannot cycle all day.
6. Send to tablets. The family gets a My Yard tile.

Testing

Run each zone for a short time from Composer / My Yard and walk the heads. Confirm the correct heads open, there are no leaks at the box, and Stop ends the run. If rain-skip is on, do not be surprised when a schedule is skipped after rain — that is the feature. Do not leave a zone unattended on a long first test.

Troubleshooting

A zone that does not open is often a reversed common, a cut zone wire, or a bad solenoid (you can usually hear or measure the solenoid when it is energized). If Tuya valves do not appear, the controller is on the wrong account or Find yard devices was not run. If Rachio does nothing, the API key is missing from the hub secrets, or the zone / device IDs are wrong. If rain-skip never fires, Home ZIP / location is not set.

After all devices

1. Walk every room with the wall tablet. Test what the family will actually tap.
2. Run Goodnight and any everyday scenes once, in person.

3. Send to tablets a final time. Export a `.helix.json` backup.
4. Hand the homeowner the kiosk PIN at handoff only, plus a short tour. Do not leave installer tools, a HELIX stick with a live project, or a laptop signed in to Composer.
5. Remind them that the alarm is not a monitored burglar or fire system unless Helix has separately put that in writing for this house.