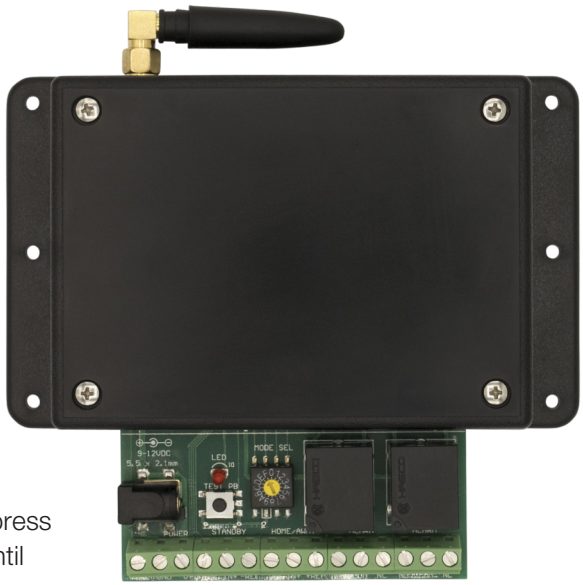


API-Alarm Panel Interface

The All-Purpose Interface (API) is a device that can wirelessly interface to various accessories to complement the performance of the LDS system, reduce nuisance alarms, and improve the customer's experience and satisfaction with the system. It should be placed within 100' of the control panel to maximize signal strength. A few of the common adaptations and applications are described below.

POLD+ if you were to wire up a POLD sensor to the API (and it is polarized) the Sensor would have its black wire going to GND and its red wire going to POLD+. When the POLD+ goes to GND level, it trips.

To reset the alarm: First make sure that the sensor is completely dry. Then press and hold the TEST button on the API for 3 seconds. The LED will go dark until the button is released and will stay lit until the alarm condition is cleared at the control panel.

The opto isolators used for HOME/AWAY and STANDBY have non-committed inputs for maximum flexibility.

The input voltage is not to exceed 12 volts.

The IN+ would need to go to the positive input potential through a switch or wire.

The IN- would need to go to the negative or GND potential through a switch or wire.

Each opto-isolator has its own IN+ and IN- and they can be wired for high going signals, or GND (low) going signals.

The +REF and -REF signals are used as the voltage references for the optos. +REF usually reads 12VDC, while -REF is GND.

If (for example) you want the STANDBY to activate when its signal is grounded, then you would wire up the IN+ of STANDBY to the +REF and the IN- goes through a switch or relay to GND. If connecting to an alarm panel, make sure that the GND's are the same potential by connecting its GND to the API GND or -REF pins.

If (for example) you wanted to hook up an Alarm Panel that goes to 12 volts when in AWAY mode. Then wire the Alarm Panel GND and HOME/AWAY IN- to the API GND or -REF and wire the HOME/AWAY IN+ to the 12 volt AWAY trigger signal. (HOME mode is when the AWAY mode is not activated.)

Here are the valid MODE SEL combinations:

0 - H/A DIS	STBY DIS	POLD DIS
1 - H/A ENA	STBY DIS	POLD DIS
2 - H/A DIS	STBY ENA	POLD DIS
3 - H/A ENA	STBY ENA	POLD DIS
4 - H/A DIS	STBY DIS	POLD ENA
5 - H/A ENA	STBY DIS	POLD ENA
6 - H/A DIS	STBY ENA	POLD ENA
7 - H/A ENA	STBY ENA	POLD ENA

8 - F is presently unused

API-Alarm Panel Interface (continued)

These settings will selectively create events that the API can generate and transmit to the control panel. DIS means that function is disabled and the system will ignore any activity on those input lines. ENA means that function will transmit and the panel will respond to input activity on those lines.

The LED will flash briefly during data transmissions and glow solid when the ALARM is active.

The RELAYS both operate together (as of rev 1.00) when an ALARM condition is transmitted. When the panel releases the ALARM, the RELAYS will deactivate.

ATTENTION: Putting the leak defense system in standby means water flowing into the home is NOT monitored. A leak will go undetected in standby mode.

DIAL POSITIONS:

F: Triggers on Water Off command (alarm or user requested).
Ideal for connecting to circ pump switches and solid state relays

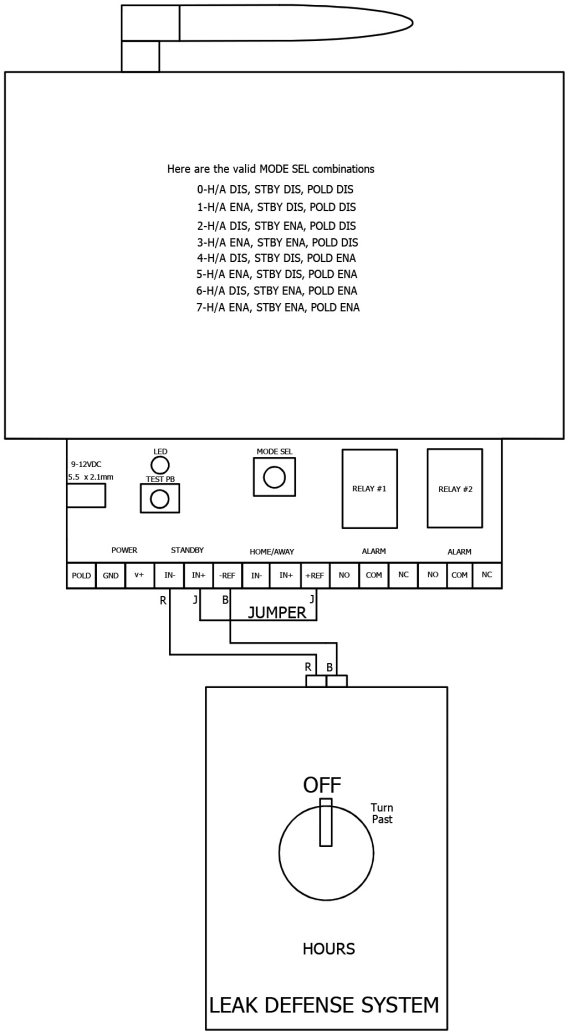
7: Triggers on Alarm Only
Ideal for connecting to alarm panels

Connecting a Four-Hour Timer to the LDS API

This accessory is typically installed outdoors for a gardener or landscaper to remotely and manually put the LDS in standby (ignore water flow) mode for the length of time the timer is rotated to.

- Connect the red wire from the timer to IN- (below STANDBY) on the API.
- Connect the black wire from the timer to –REF on the API.
- Place a jumper from IN+ (below STANDBY) to +REF.
- The yellow arrow dial on the API should face 2.
- When the timer is activated you should see the Leak Defense control panel switch from Home or Away to Standby. When the timer runs out, the Leak Defense should go back to the original state of Home or Away.

NOTE: This applies a 12-volt signal across the terminals IN- and IN+ (below standby), when the timer is active.



SEE FIGURE 2 DIAGRAM

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LDS-3 Connecting POL and SS relays to API

This application is typical for when a 240VAC (up to 50amp) well pump or pressure pump is wanting to be disconnected when a leak is detected with a POL or when the LDS valve closes upon suspected water leak.

For terminals 1 and 2 of solid-state relay #1, break a hot leg of the well pump wire and connect one side of the broken wire to terminal 1 and the other to terminal 2. For terminals 1 and 2 of solid-state relay #2, break the other hot leg of the well pump wire and connect one side of the split wire to terminal 1 and the other to terminal 2.

On the API place a jumper between +REF and NO on either of the API relays.

Wire the solid-state relay input terminals in series as follows.

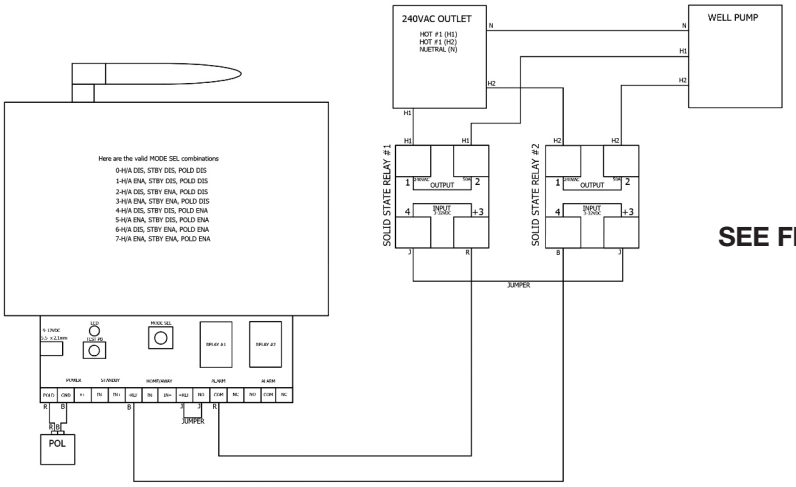
Take COM of the same API relay and run a wire to terminal 3 of solid-state relay #1. Then take terminal 4 of solid-state relay #1 and connect it to 3 of solid-state relay #2, with a jumper wire. Then take terminal 4 of solid-state relay #2 and run a wire back to –REF on the API.

The POLD and GND terminals of the API get connected to the two wires of the POL sensor. No connection necessary for wireless POLD sensor.

NOTE 1: The yellow arrow dial, located toward the center of the API circuit board, needs to be facing 4 to enable the POL sensor.

NOTE 2: To test the POL sensor, take a moist paper towel and touch the 2 metal screws. The Leak Defense System will go into alarm and the solid-state relays should turn off the well pump. Push the reset button on the API before pressing reset on the Leak Defense control panel.

NOTE 3: When alarm is active, a 6-volt signal is being applied across each of the solid-state relay's terminal 3 and 4, from the API. Which causes the normally-closed solid-state relay to open and shut off the pump.



SEE FIGURE 3 DIAGRAM

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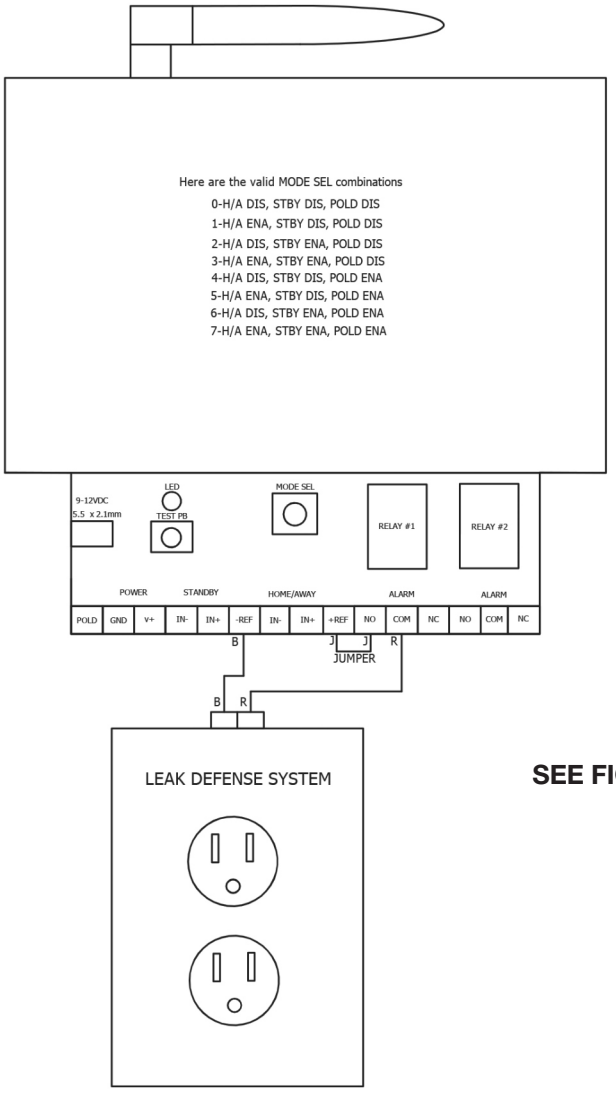
Recirculation Pump Switch to API

This wiring application is typical when a customer desires their hot-water recirculation pump to shut off during a leak, so the pump doesn't continue to push water making the leak worse, or alternatively to save the pump from burn out due to pumping with no water in the system.

On the API, place the provided jumper wire between +REF and the NO terminal of one of the relays on the API. Connect the red wire from the recirculation pump switch to COM of the same API relay. Finally, connect the black wire from the recirculation pump switch to -REF or GND on the API.

NOTE 1: This applies a 12-volt signal to the switch inside the recirculation pump switch, to open a normally-closed switch, shutting off power to the recirculation pump.



SEE FIGURE 5 DIAGRAM

Wiring Instructions for a PAM-1 Relay (Irrigation Control Interface Wiring)

- Connect the blue wire from the PAM-1 to IN- (below STANDBY) on the API.
- Connect the orange wire from the PAM-1 to –REF on the API.
- Place a jumper wire from IN+ (below STANDBY) to +REF on the API.
- Connect the red wire from the PAM-1 to the MV/P (master valve/ pump) terminal on the irrigation controller.
- Connect the white wire from the PAM-1 to COM on the irrigation controller.
- The yellow arrow dial on the API should face 2.
- When irrigation starts, you should see the Leak Defense System control panel switch from Home or Away to Standby. When irrigation stops, the Leak Defense System should go back to Home or Away.

NOTE: This applies a 12-volt signal across the IN- and IN+ (below STANDBY) terminals on the API, while the irrigation system is running. You may be able to start irrigation manually to test that this connection is functioning properly.

SEE FIGURE 6 DIAGRAM

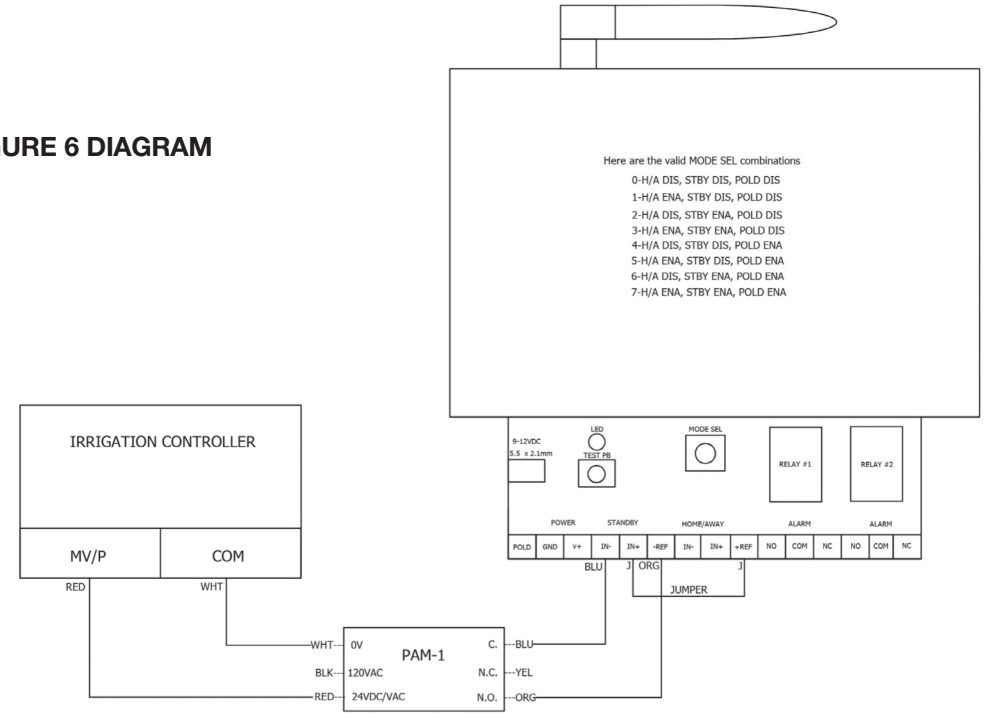


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Figure 2
Connecting a
Four-Hour Timer
to the LDS API

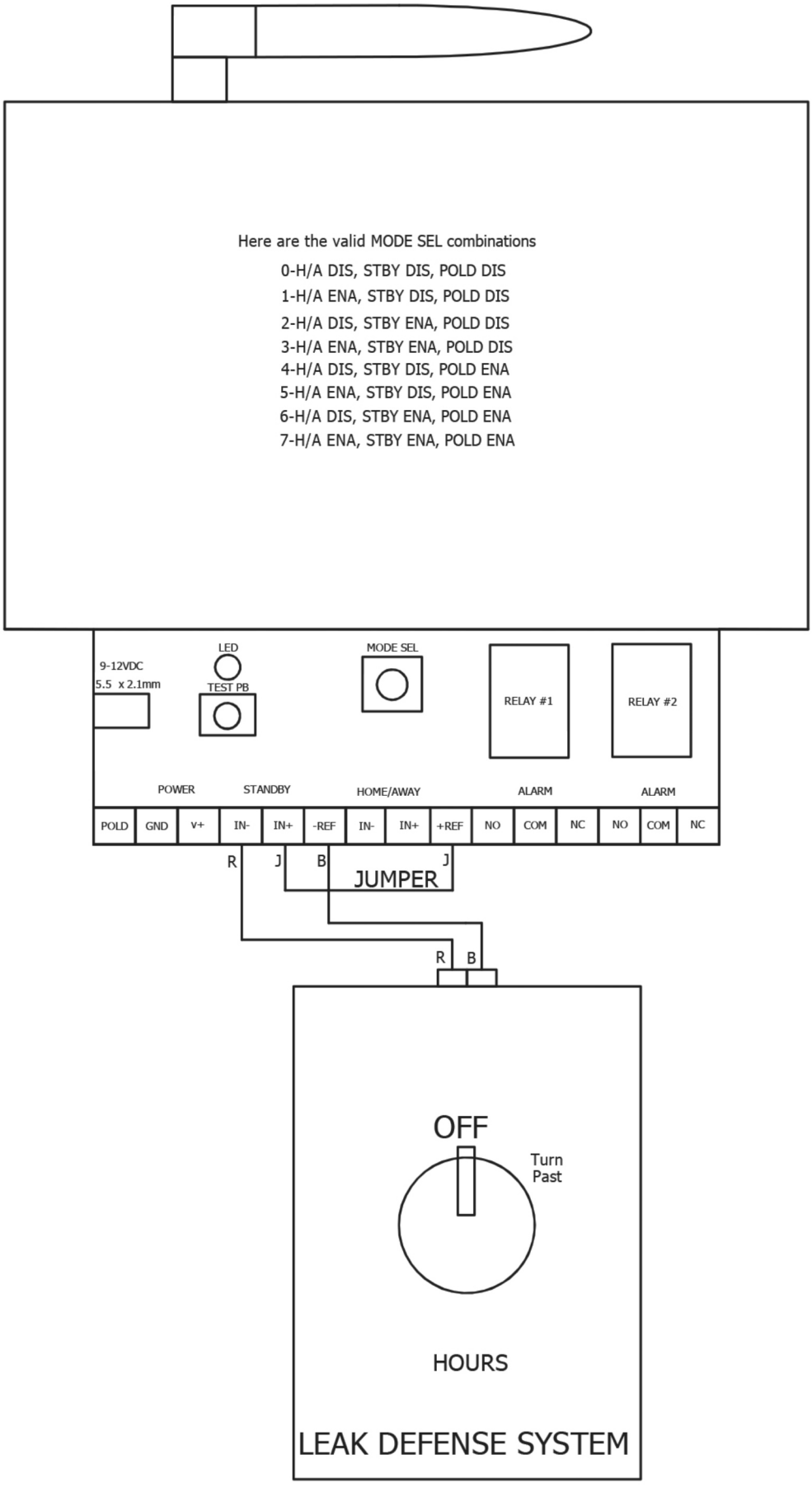

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Figure 3
Connecting
SS Relays to API

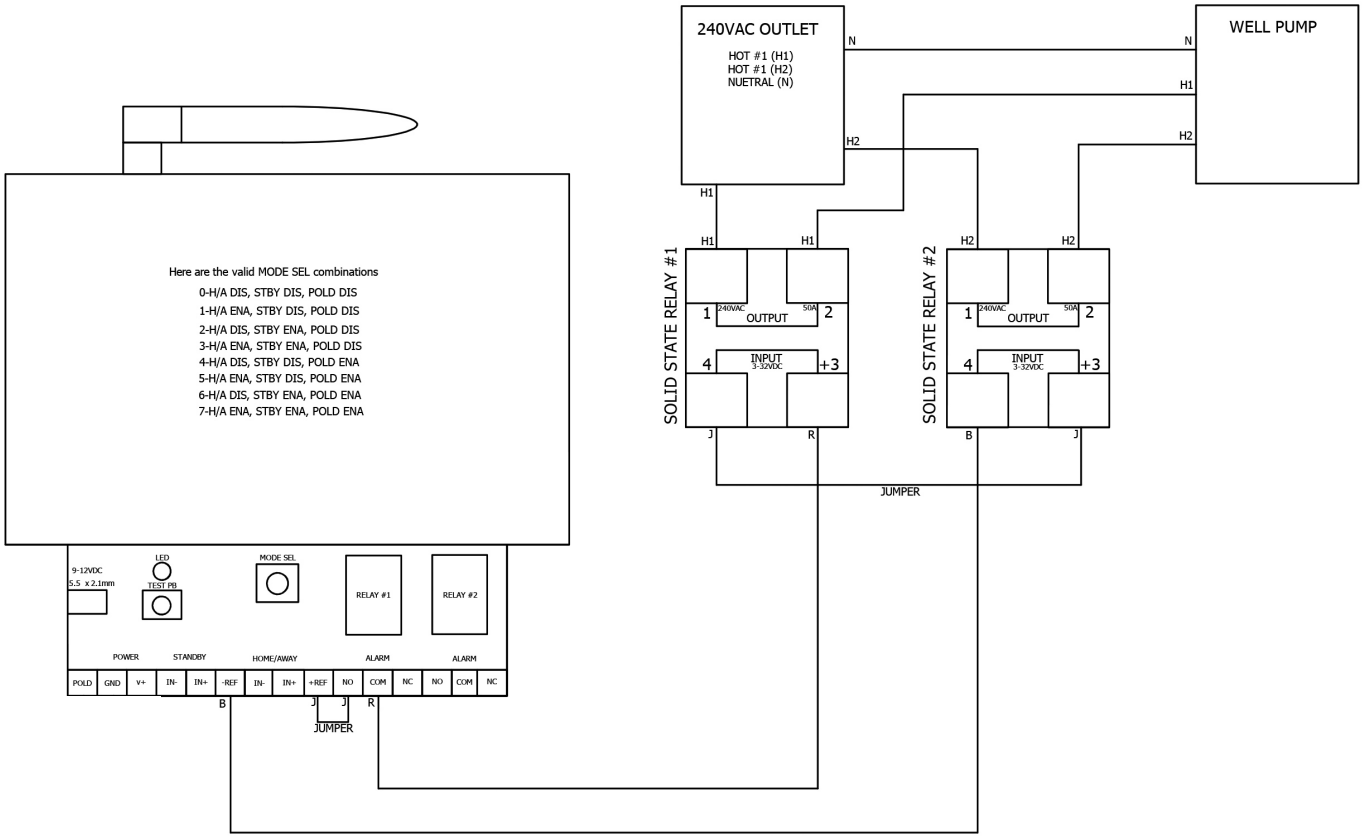

Figure 4
Connecting
External Sensors
to API

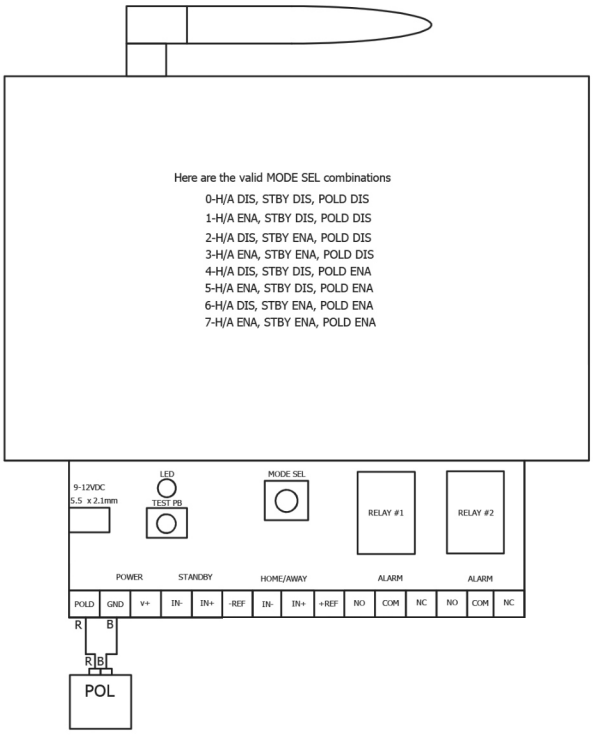

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Figure 5
Connecting a
Recirculation Pump
Switch to API

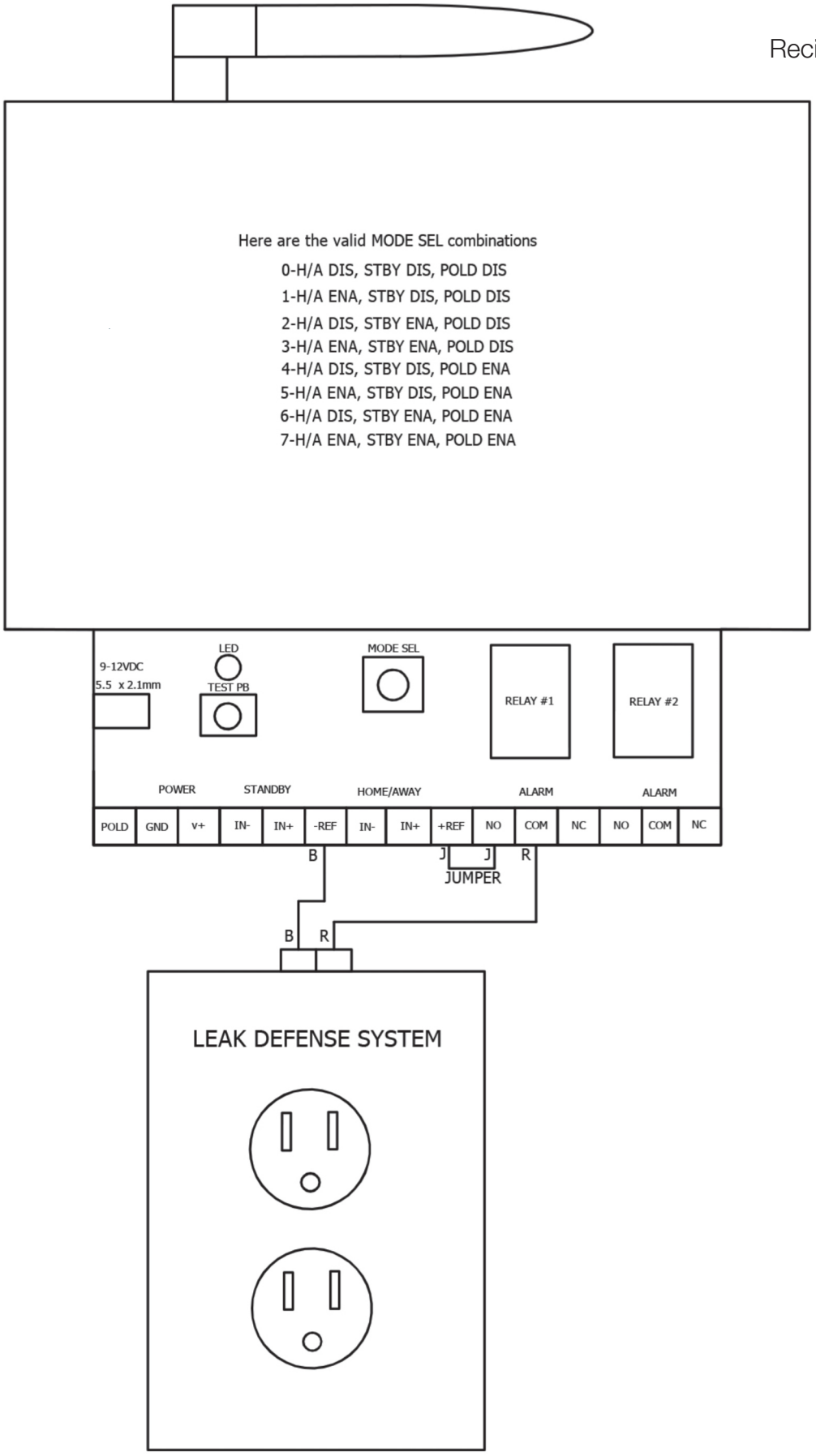

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Figure 6
Wiring Instructions for
a PAM-1 Relay

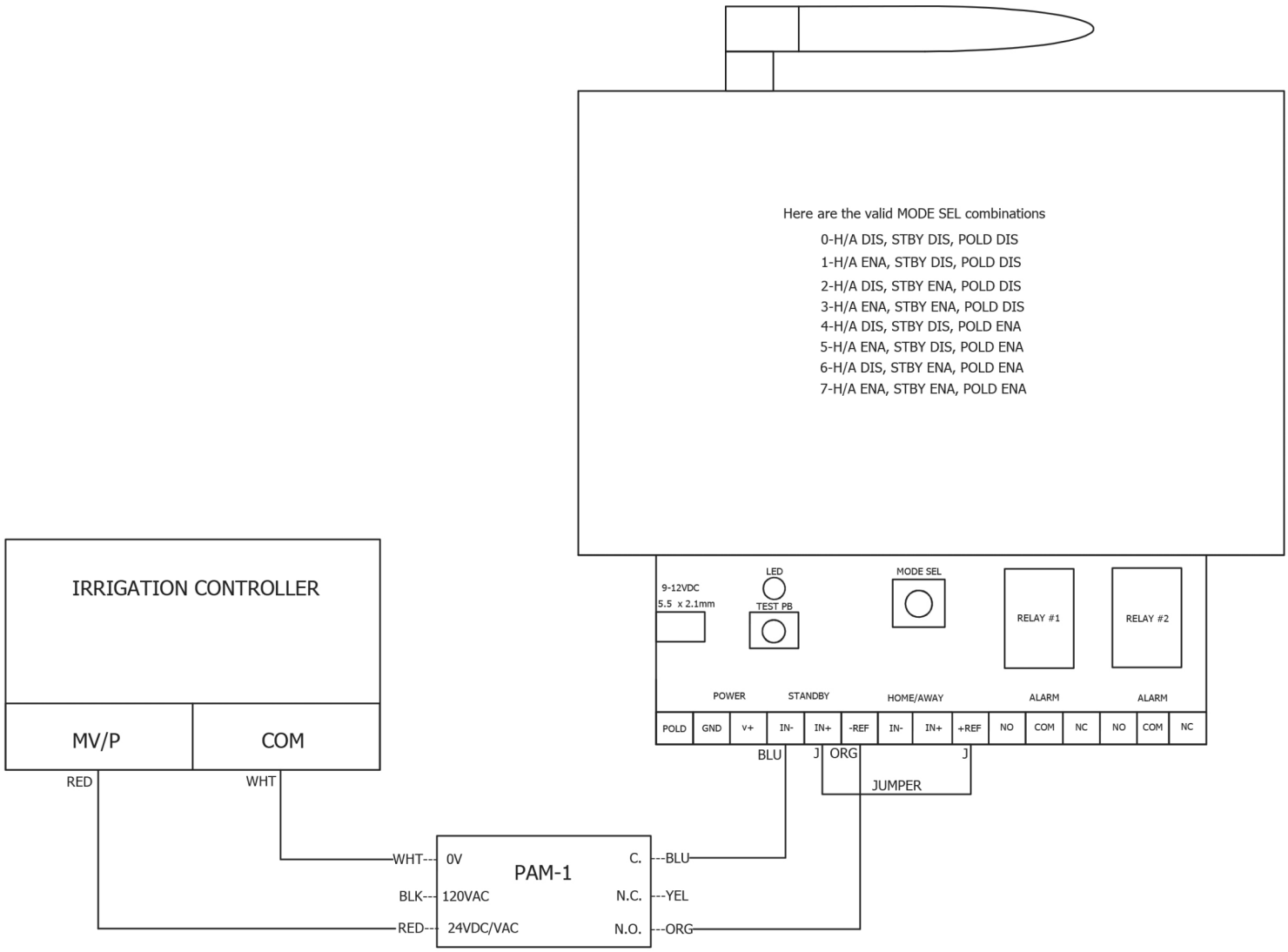

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Figure 7
Zone Loops from
Security System to API

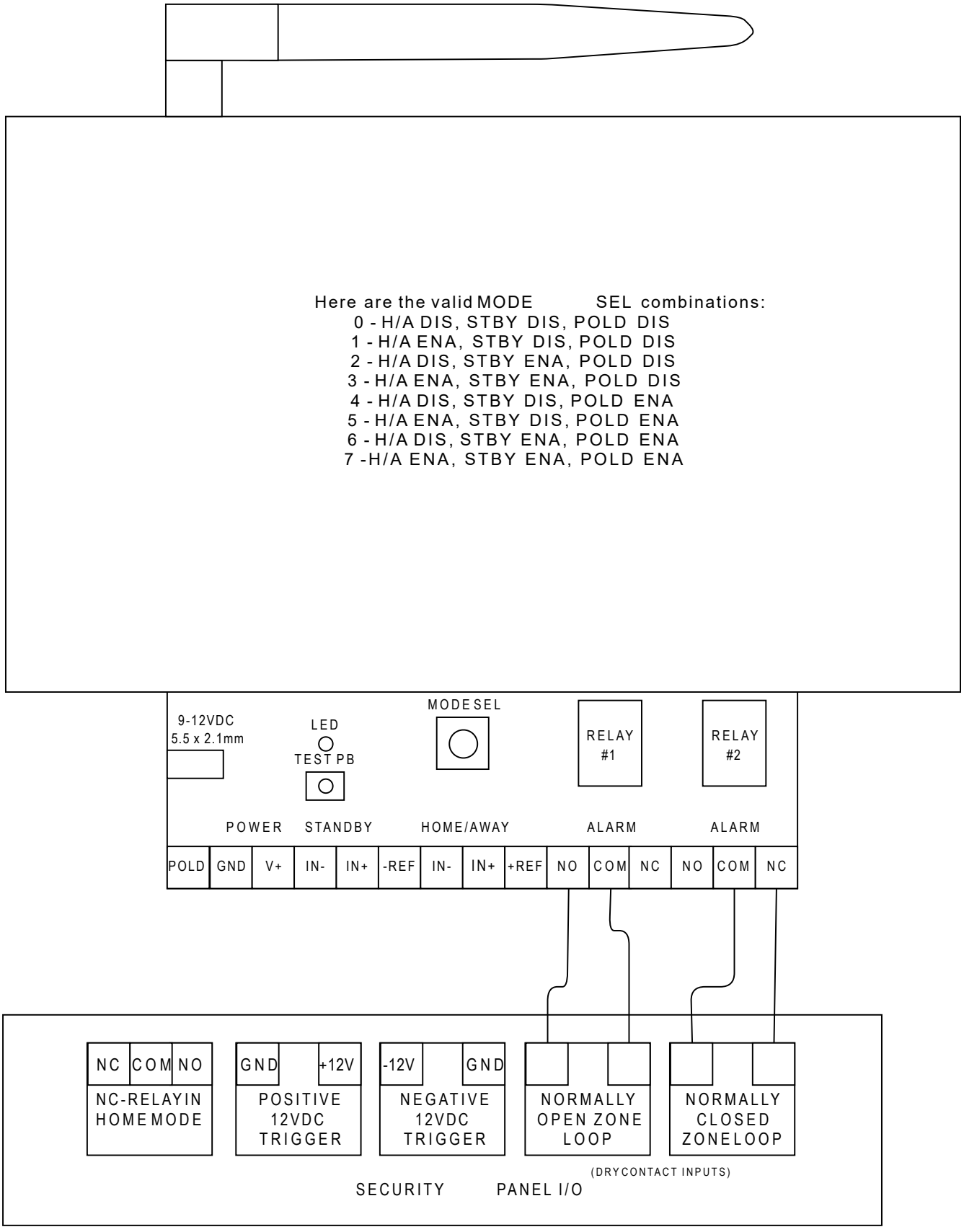

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Figure 8
Relay trigger from
Security System to API

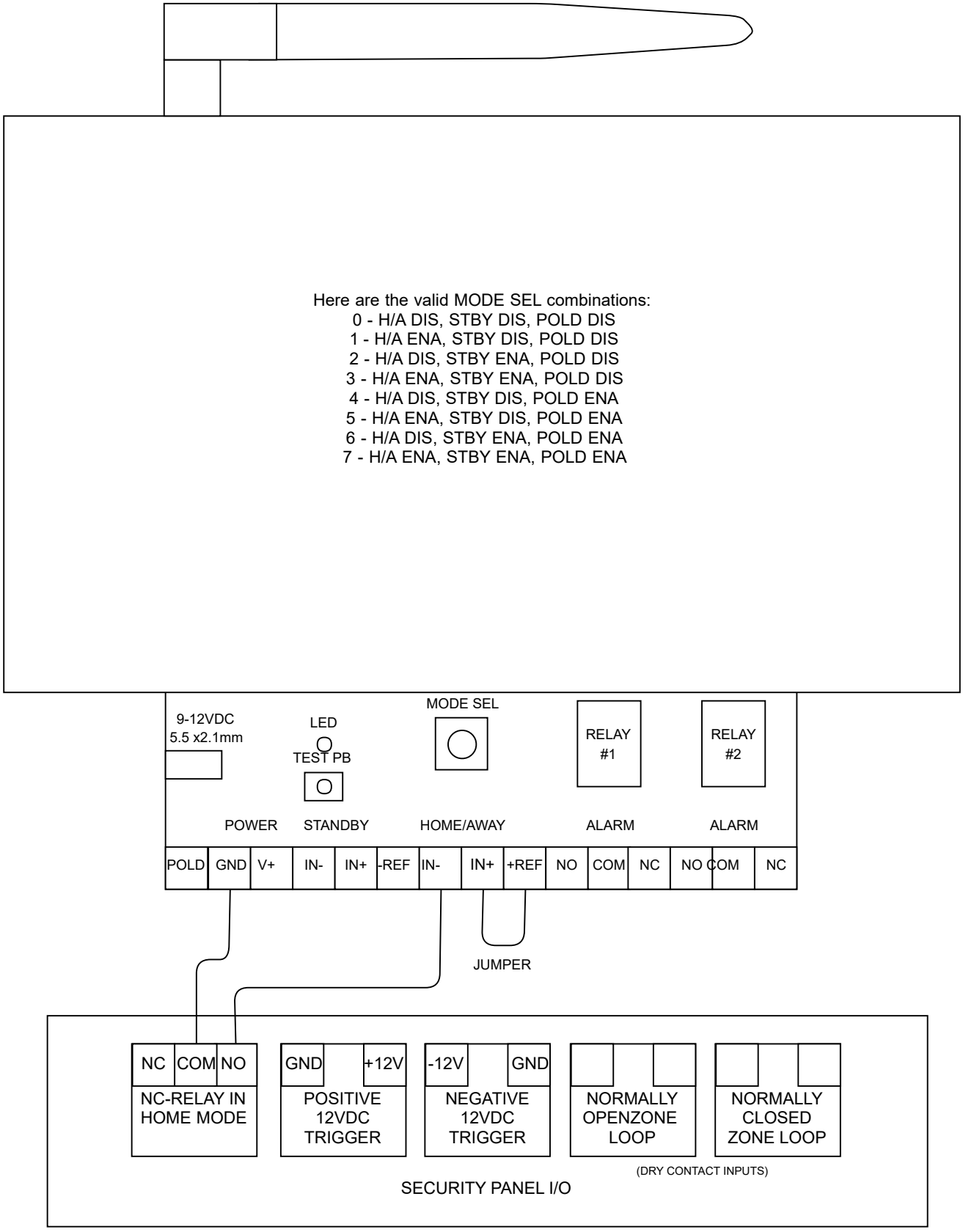

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Figure 9
Positive trigger from
Security System to API

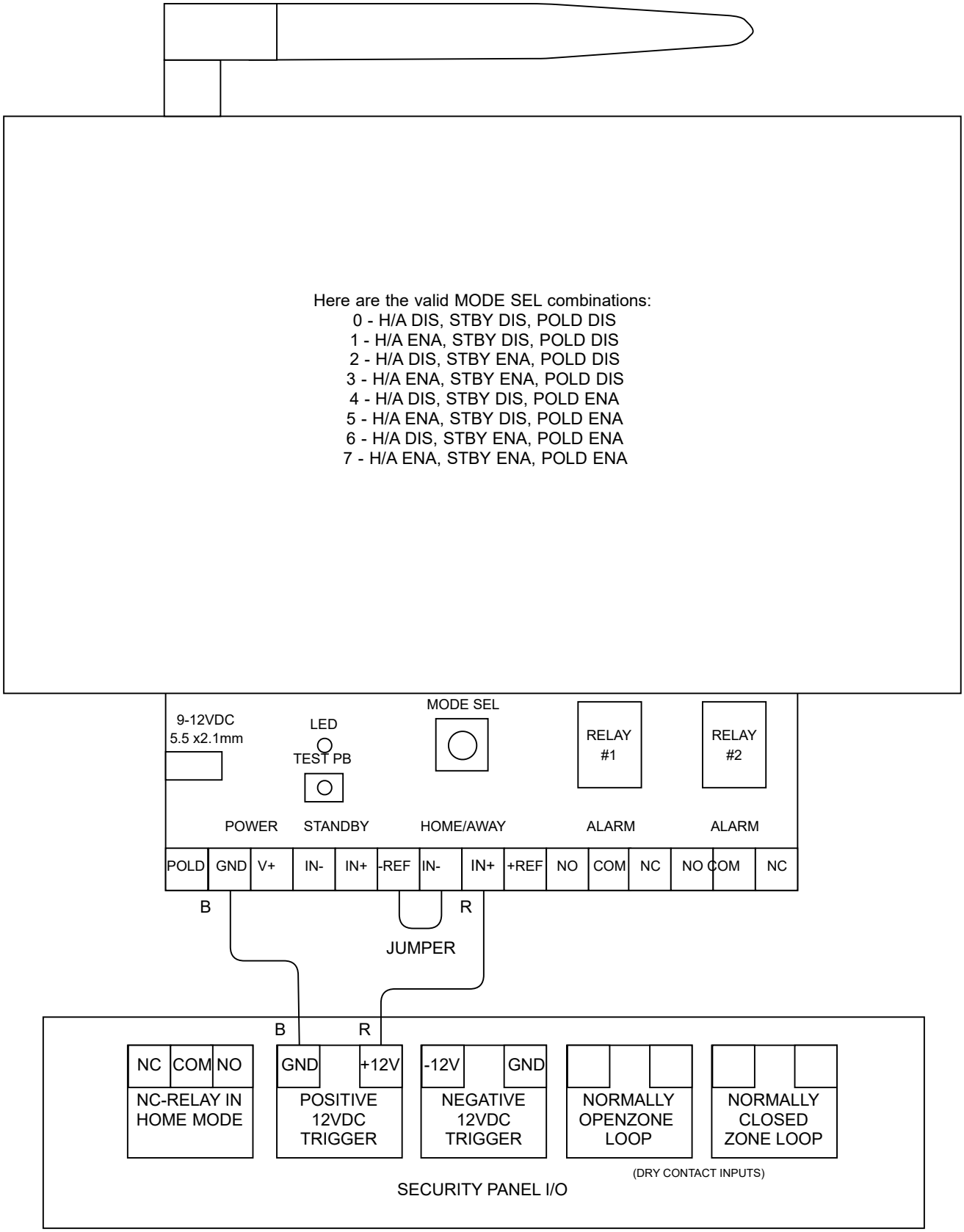

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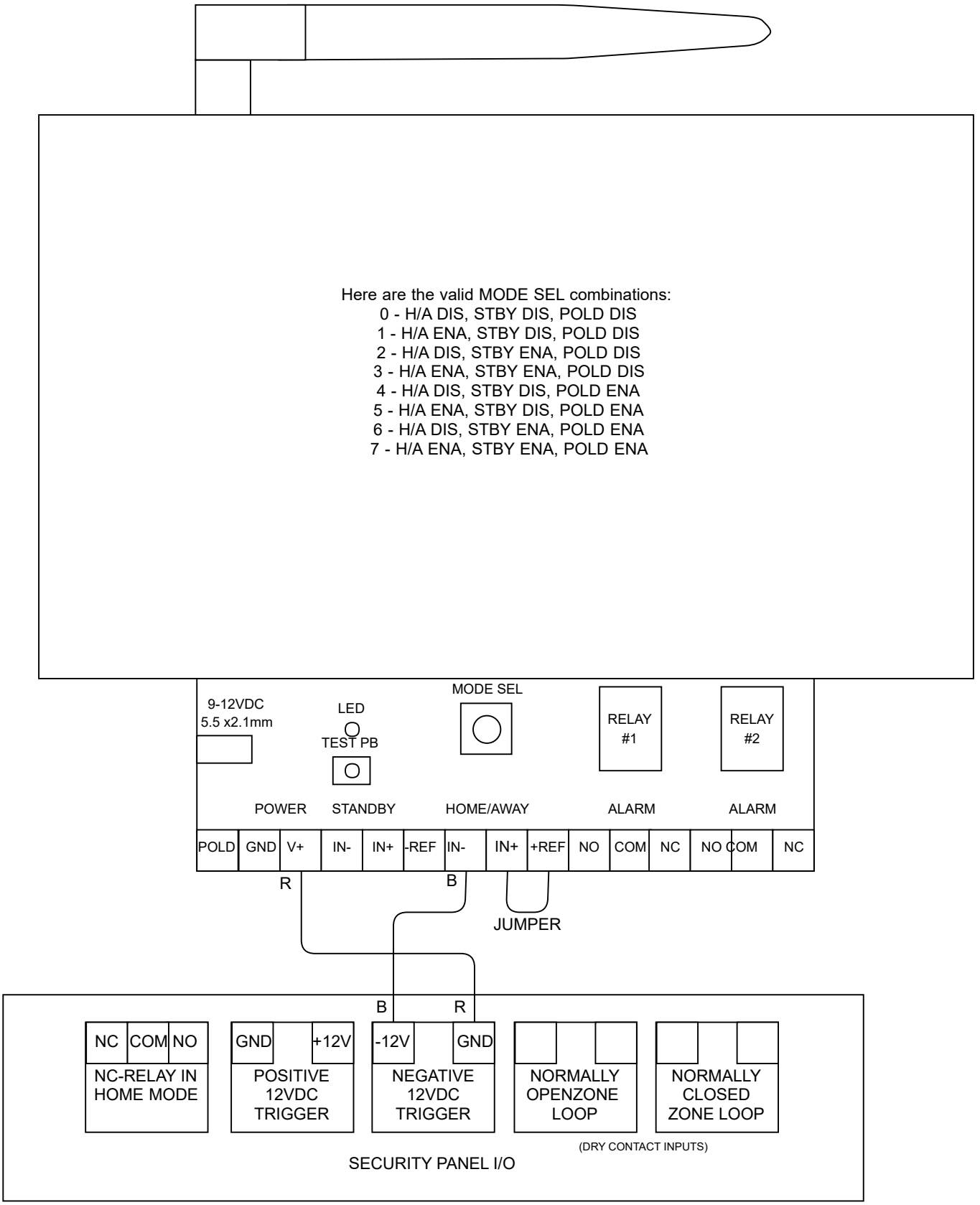
Figure 10
Negative Trigger from
Security System to API



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