

# **HOT SHOT**

## **IRRIGATION 810-3T-PLUS TRANSMITTER GUIDE**

*Pg.*

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**ATTENTION:** All Hot Shot units have a designated GROUND Terminal. Hot Shot units must have there ground terminal connected to a proper ground or grounding system as per the NEC (*National Electrical Code*) and or your local and state electrical code guidelines.

**CAUTION:** Never connect any voltage to the HOT SHOT Relay Input terminals. The Hot Shot supplies the voltage needed for sensor switching (use dry relay contacts only). Make sure the pivot's well kill terminals do not have voltage from previously wired configurations.

**ATTENTION:** Depending upon the style of system that your are going to control with the Hot Shot Wireless Controller you may need to supply additional parts. Such as relays, step-down transformers, Murphy switches etc. These items are suggested in the wiring guides that follow in this manual.

## HOW IT WORKS

Think of the HOT SHOT system as a 12-2 control wire going from the pivot to the irrigation pump. When the Hot Shot Transmitter's RELAY Input is activated, a 15 second delay timer is started. After the delay timer has expired, the transmitter will send the (turn ON) command to the receiver. This transmission will close the relay contacts at the pump to start water. When the pivot is done irrigating or when the safety is tripped, the pivot will open the Hot Shot Transmitter's RELAY Input contacts and send the (turn OFF) relay command to stop water. Battery backup in the transmitter will still allow the HOT SHOT to work in case of a pivot power outage. Each system is coded with its own four digit code so it will not interfere with other systems in the same area. The following manual has been prepared to provide details for Transmitter installation and Receiver installation on electric and engine driven wells.

## MOUNTING

Cabinets are a weatherproof UV protected NEMA 4X cabinet with mounting ears on top and bottom. The transmitter/receiver control box can be mounted on the side of a control panel, pole or any other surface as long as the antenna does not have metal running within 12" of the antenna whip. If longer range is needed, an external long range antenna can be used. Do not mount the HOT SHOT receiver to the well engine or cover because the strong vibrations can be harmful to the unit.

## CODE SWITCH SETTINGS

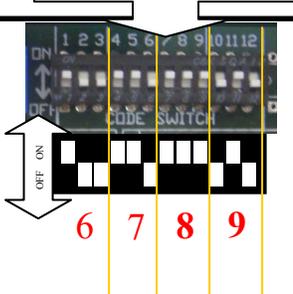
All transmitters and receivers will be shipped from the factory with preprogrammed field codes. This ensures that your neighbor will not duplicate the same field code as your unit. Your field codes already match, so you do not need to program any codes. If you ever need to replace a unit due to servicing, the field code can be programmed to match the existing or new add on units. FOLLOW THE EXAMPLE BELOW...

**FOR CODE QUESTIONS? CALL 785-623-1500**

**EXAMPLE: CODE 6789**

<p><b>KEY</b></p> <table border="0" style="width: 100%;"><tr><td style="text-align: center;">3</td><td style="text-align: center;">4</td><td style="text-align: center;">5</td><td style="text-align: center;">6</td></tr><tr><td style="text-align: center;">7</td><td style="text-align: center;">8</td><td style="text-align: center;">9</td><td style="text-align: center;">0</td></tr></table>	3	4	5	6	7	8	9	0	<p>Use the # KEY to the left to make each digit of the code. It takes three of the switches to make one number of the code.</p>	<p>Use switches 1,2,3 for the first # in the code. Switches 4,5,6 for the second #. Switches 7,8,9 for the third #. Switches 10,11,12 for the fourth #.</p>
3	4	5	6							
7	8	9	0							

Transmitter Code Switches



## BATTERY BACKUP

During a power outage, a gel cell rechargeable battery will supply power to the transmitter for approximately 24 hours. This will allow the transmitter to send a shutdown signal to the receivers when the pivot has lost power. The Hot Shot Transmitter comes with a battery saver feature that will turn off the Hot Shot Transmitter if the voltage drops from 12vdc to 10vdc. This function will add years of life to the gel cell battery.

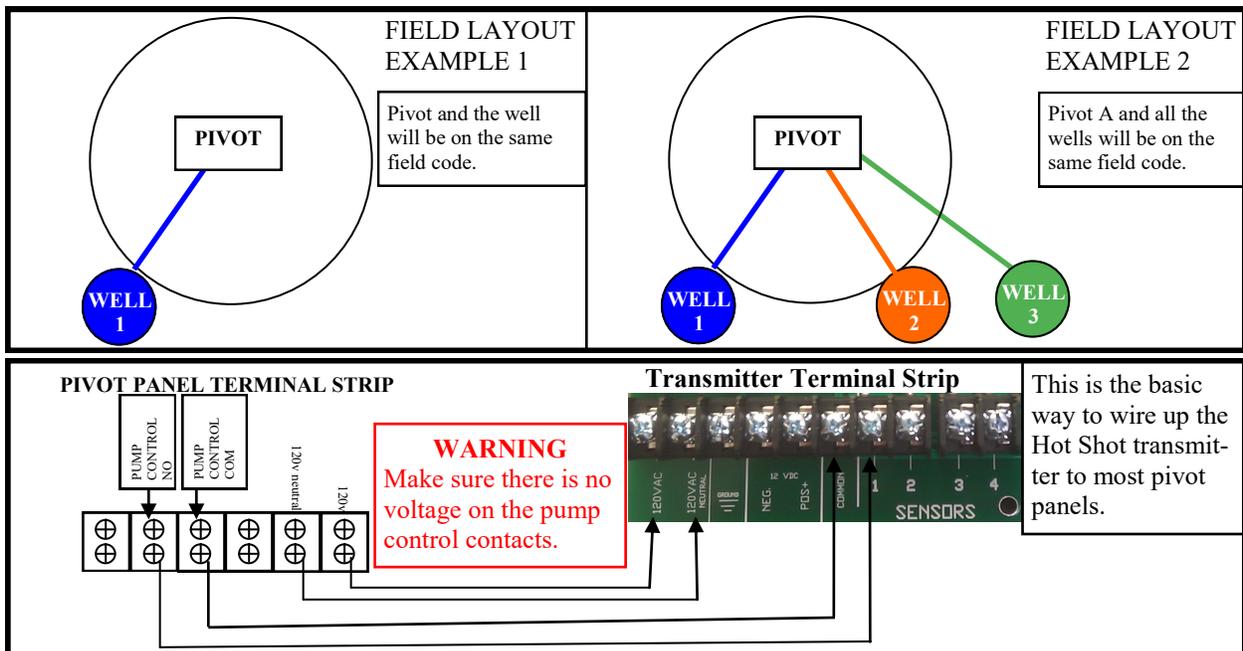
**Important...** When the battery has discharged, it will take approximately 15 to 20 minutes for the battery to charge enough to operate the transmitter in case of another power failure. The battery should be replaced every year for the best reliability during power outages. Call 785-623-1500 for replacement batteries.

# TRANSMITTER UNIT 810-3T-PLUS

## STANDARD OPERATION

The Standard Operation is the default mode for all transmitters. Most pivot installations will use this method because they only have a single throw relay in their panel. (*Single throw relays only have a COM and N.O. contact.*) In Standard Operation Mode Function Switches 1-8 need to all be turned OFF. Standard Operation Mode only uses the SENSOR 1,2,3,4 and COMMON side of the inputs on the transmitter. When there is contact made between the SENSOR and COMMON (*when requesting water*) the transmitter will send out the ON code to the receiver. When contact is opened between SENSOR and COMMON (*such as when the pivot is finished or stop water*) the transmitter will send out the OFF code. This is shown in detail later in this manual under WIRING GUIDES. The transmitter is capable of using all four inputs in this mode. By using the extra inputs (SENSORS 1,2,3,4) the transmitter can control wells that are shared with other pivots. See **Multi Pivot Operation** and **System Configurations** for more details.

Shown in the diagrams below is a generic diagram of how to wire a pivot panel to the Hot Shot Transmitter. This style is used for one pivot with one well or one pivot with multiple wells that will always operate at the same time.

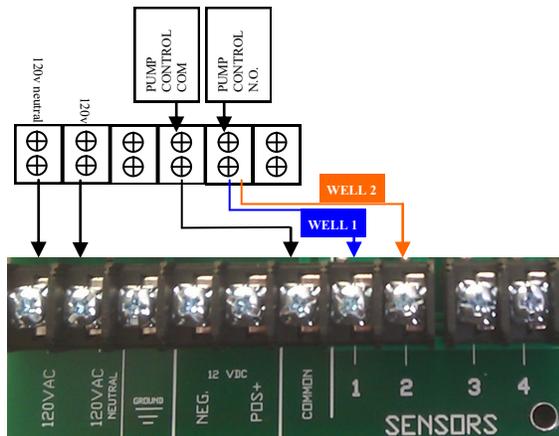
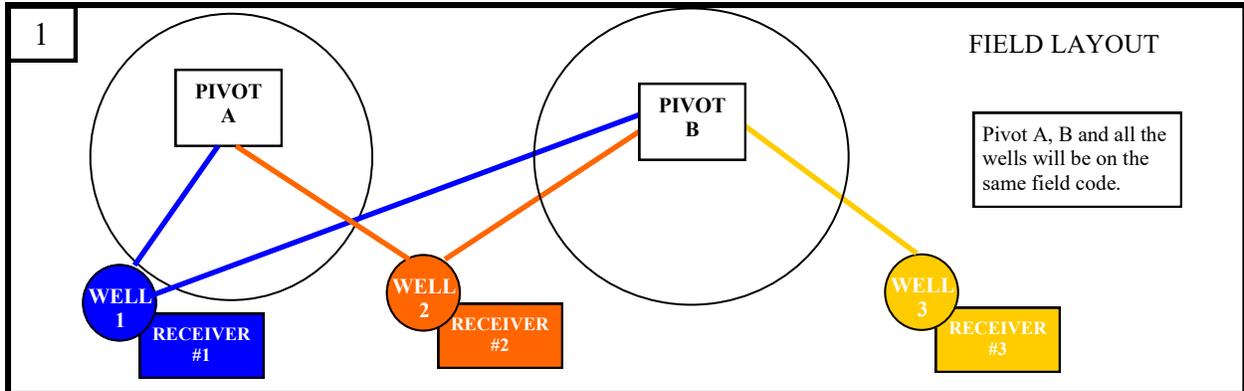


For wiring the Hot Shot receiver to the well refer to the Receiver wiring guide in this manual.

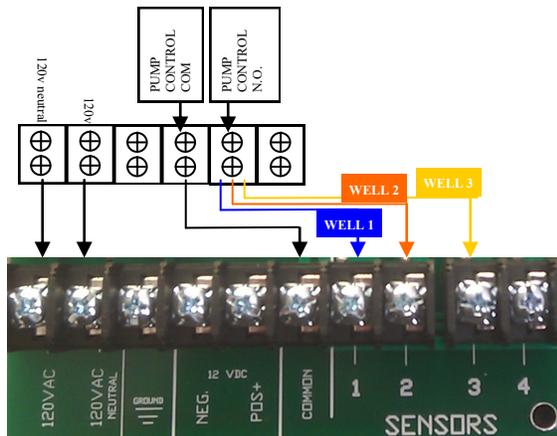
# TRANSMITTER UNIT 810-3T-PLUS

## HOW TO CONTROL AND SHARE MULTIPLE WELLS

The Field Layout diagram below shows an example of how using the different relay inputs on the transmitter can help to split up the wells that will be used for each pivot. Pivot A can use well 1 and well 2 and share it with pivot B. Pivot A will use SENSOR 1 to control well 1 and SENSOR 2 to control well 2. Pivot B uses the same inputs to control well 1 and well 2 but will also use SENSOR 3 to control well 3. The wiring diagram below shows a simple version of hooking up the pivot panel to the Hot Shot Plus Transmitter. See the wiring guides later in this manual for brand specific wiring instructions.



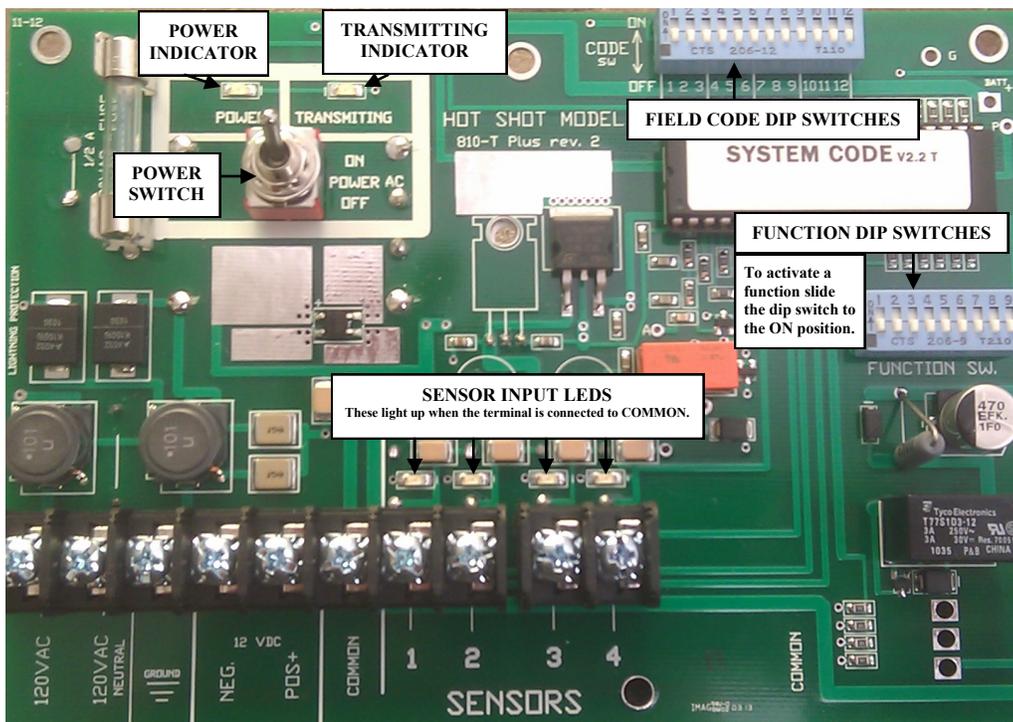
PIVOT A TRANS TERMINAL STIP



PIVOT B TRANS TERMINAL STIP

# TRANSMITTER UNIT 810-3T-PLUS

SWITCH#	<b>TRANSMITTER FUNCTION SWITCH SETTINGS</b>	
<b>1</b>	<b>ON</b>	SENSOR 1 DISABLE
	<b>OFF</b>	<u>SENSOR 1 STANDARD OPERATING MODE</u>
<b>2</b>	<b>ON</b>	SENSOR 2 DISABLE
	<b>OFF</b>	<u>SENSOR 2 STANDARD OPERATING MODE</u>
<b>3</b>	<b>ON</b>	SENSOR 3 DISABLE
	<b>OFF</b>	<u>SENSOR 3 STANDARD OPERATING MODE</u>
<b>4</b>	<b>ON</b>	SENSOR 4 DISABLE
	<b>OFF</b>	<u>SENSOR 4 STANDARD OPERATING MODE</u>
<b>5</b>	<b>ON</b>	SENSOR
	<b>OFF</b>	<u>SENSOR</u>
<b>6</b>	<b>ON</b>	SENSOR
	<b>OFF</b>	<u>SENSOR</u>
<b>7</b>	<b>ON</b>	SENSOR
	<b>OFF</b>	<u>SENSOR</u>
<b>8</b>	<b>ON</b>	ACTIVATES THE TEST BEACON (Used for testing and range finding only.) <b>See directions on the next page.</b>
	<b>OFF</b>	<u>NORMAL OPERATION MODE</u>
<b>9</b>	<b>ON</b>	REFRESH (This function will retransmit the code once every hour.)
	<b>OFF</b>	NO REFRESH (Transmits the code only when there is a change of state on the SENSOR Inputs.)



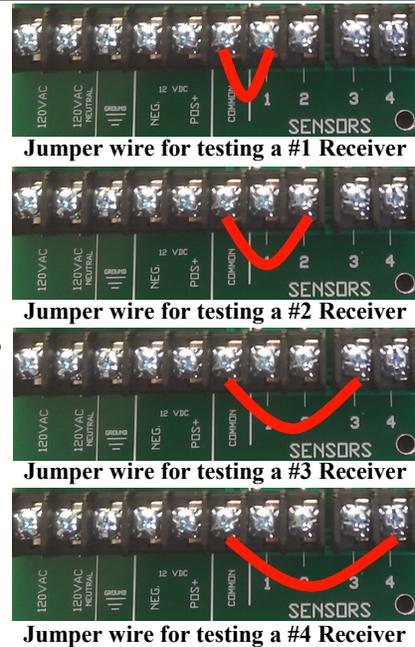
# TRANSMITTER UNIT 810-3T-PLUS

## OPERATING THE TEST BEACON

The Test Beacon function is turned on and off by using FUNCTION SWITCH #8. **This feature is used for testing and range finding purposes only.** To activate the Test Beacon first turn OFF the power to the transmitter. Turn function switch #8 on and connect a small jumper wire from the **SENSOR 1** terminal to the **COMMON** terminal and then turn the power back ON to the transmitter. When turned ON the Transmitting Light will blink and the code will be transmitted every 10 seconds cycling the receiver's relay. Testing a receiver that is either a #2 receiver, #3 receiver or a #4 receiver is done the same as above except that you connect the jumper wire to the corresponding **SENSOR** input and **COMMON**. See diagrams to the right.

**DO NOT have the receiver wired up to the pump during this procedure** because it will continually open the relay for 10 seconds and then close the relay for 10 seconds causing damage to the pump.

**Function switch #8 must be turned OFF and the jumper wire removed for the transmitter to operate normally.**



**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### 15.21 INFORMATION to USER:

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

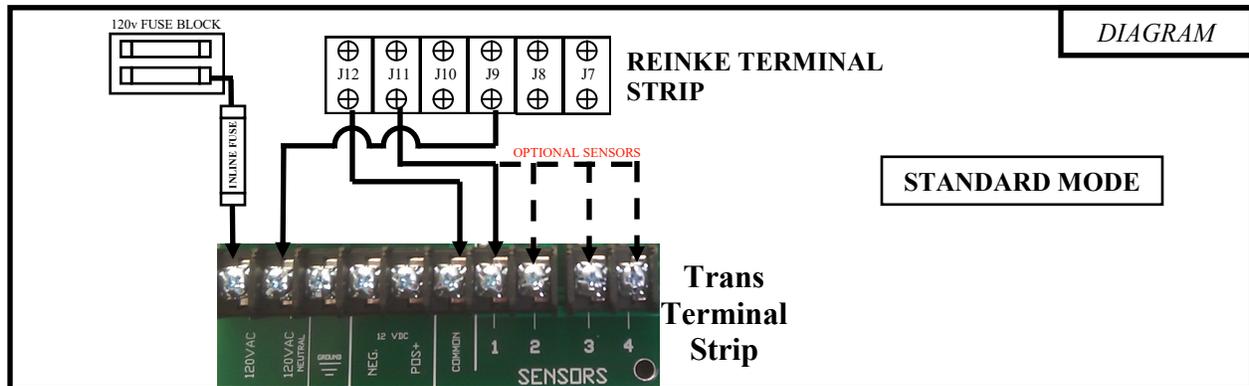
# REINKE PIVOTS

## WIRING INSTRUCTIONS FOR STANDARD OPERATION MODE

**FIRST** make sure all the function switches on the transmitter are in the correct position for this style of operation. See *Standard Operation Mode* on page 3.

To supply the 120vac needed for the Hot Shot Transmitter to operate, run a wire from the pivot panel's 120vac fuse block through an inline fuse holder with a 1.5 amp fuse to the first 120vac input on the transmitter. Run another wire from the pivot panel's neutral terminal (usually #J9) to the second 120vac input (neutral) on the transmitter.

Make sure the pivot's well control terminals DO NOT have any voltage from previously wired configurations. Run a wire from terminal #J12 to the Hot Shot Transmitter's COMMON input. Run a wire from terminal #J11 to the Hot Shot Transmitter's SENSOR input. See diagram below. Use SENSOR's 2,3,4 for other control options.



# VALLEY MODELS

## 4000, 6000, & PANELS WITH 3 SEC DELAY PCB.

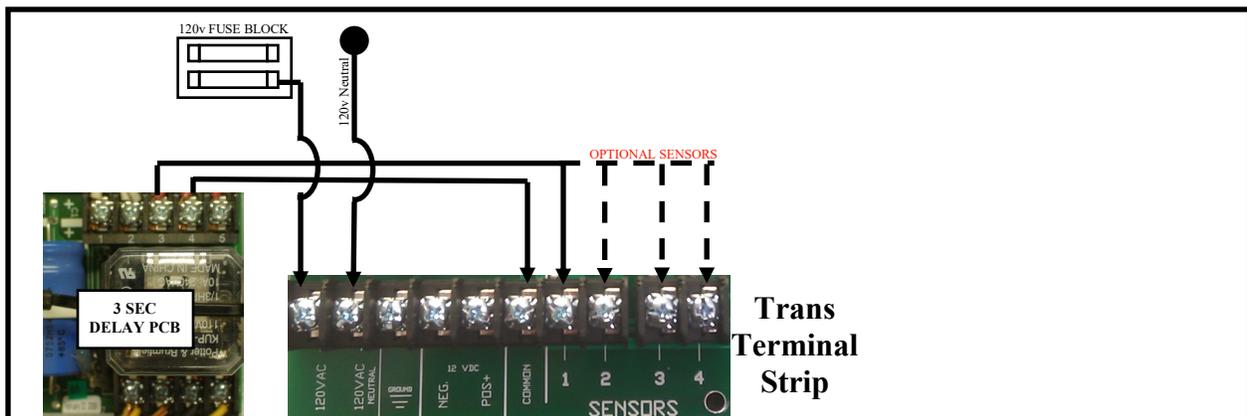
### WIRING INSTRUCTIONS FOR STANDARD OPERATION MODE

**FIRST** make sure all the function switches on the transmitter are in the correct position for this style of operation. See Standard Operation Mode on page 3.

To supply the 120vac needed for the Hot Shot Transmitter to operate run a wire from the pivot panels 120vac fuse block through a inline fuse holder (Valley part #1811175) with a 1 1/2 amp fuse to the first 120vac input on the transmitter. Run another wire from the pivot panels neutral terminal (usually wired with white wires) to the second 120vac input (neutral) on the transmitter.

With these models we recommend that you use terminal #3 and #4 on the 3 Sec Delay PCB to control the Hot Shot Transmitter. Remove the wires that currently go into them and cap them off. Run a wire from terminal #3(NO) on the 3 Sec Delay PCB to the SENSOR input on the transmitter. Run a wire from terminal #4(COM) on the 3 Sec Delay PCB to the COMMON input on the transmitter. See diagram below. Use SENSOR's 2,3,4 for other control options.

When needing to move the pivot with out turning on the pump simply flip the Hot Shot Transmitter's power switch to OFF then power up the pivot and move it.



# VALLEY MODELS

## 8000, PRO PANEL, SELECT PANEL & SIMILAR

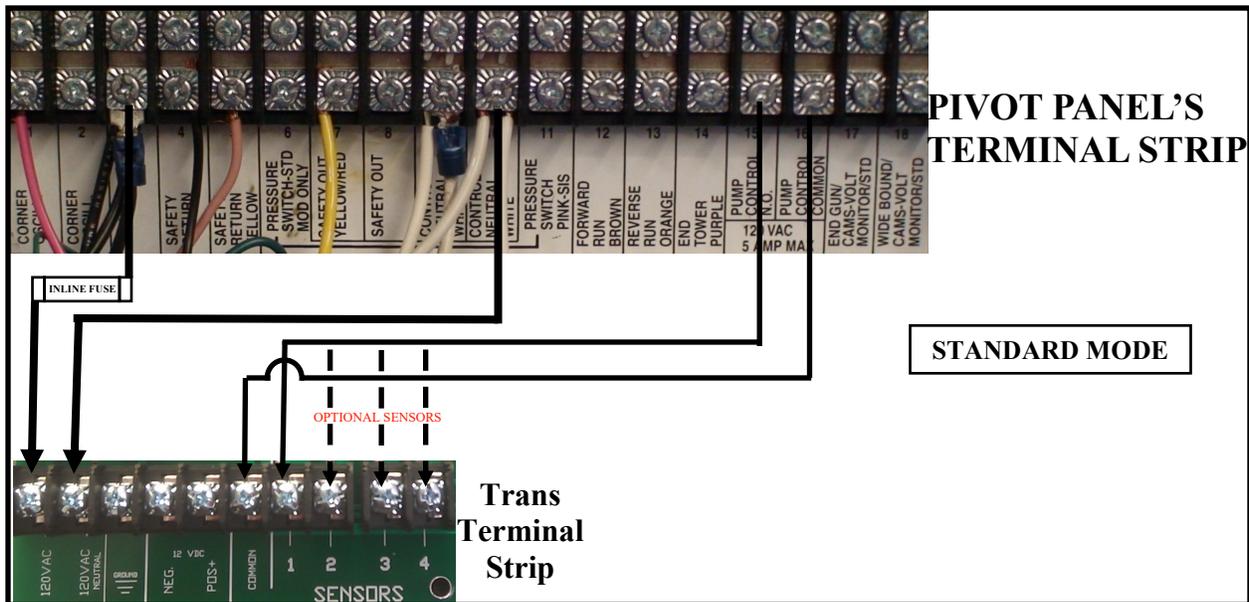
### WIRING INSTRUCTIONS FOR STANDARD OPERATION MODE

***FIRST make sure all to function switches on the transmitter are in the correct position for this style of operation. See Standard Operation Mode on page 3.***

To supply the 120vac needed for the Hot Shot Transmitter to operate run a wire from the pivot panels terminal #3 through a inline fuse holder (Valley part #1811175) with a 1 1/2 amp fuse to the first 120vac input on the transmitter. Run another wire from the pivot panels terminal #9 or #10 (CONTROL NEUTRAL) to the second 120vac input on the transmitter.

To connect the panels well control relay to the Hot Shot Transmitter run a wire from terminal #15 (PUMP CONTROL NO) to the transmitters SENSOR input. Now run a wire from terminal #16 (PUMP CONTROL COMMON) to one of the transmitters COMMON inputs. See diagram below. Use SENSOR's 2,3,4 for other control options.

When needing to move the pivot with out turning on the pump simply flip the Hot Shot Transmitter's power switch to OFF then power up the pivot and move it.

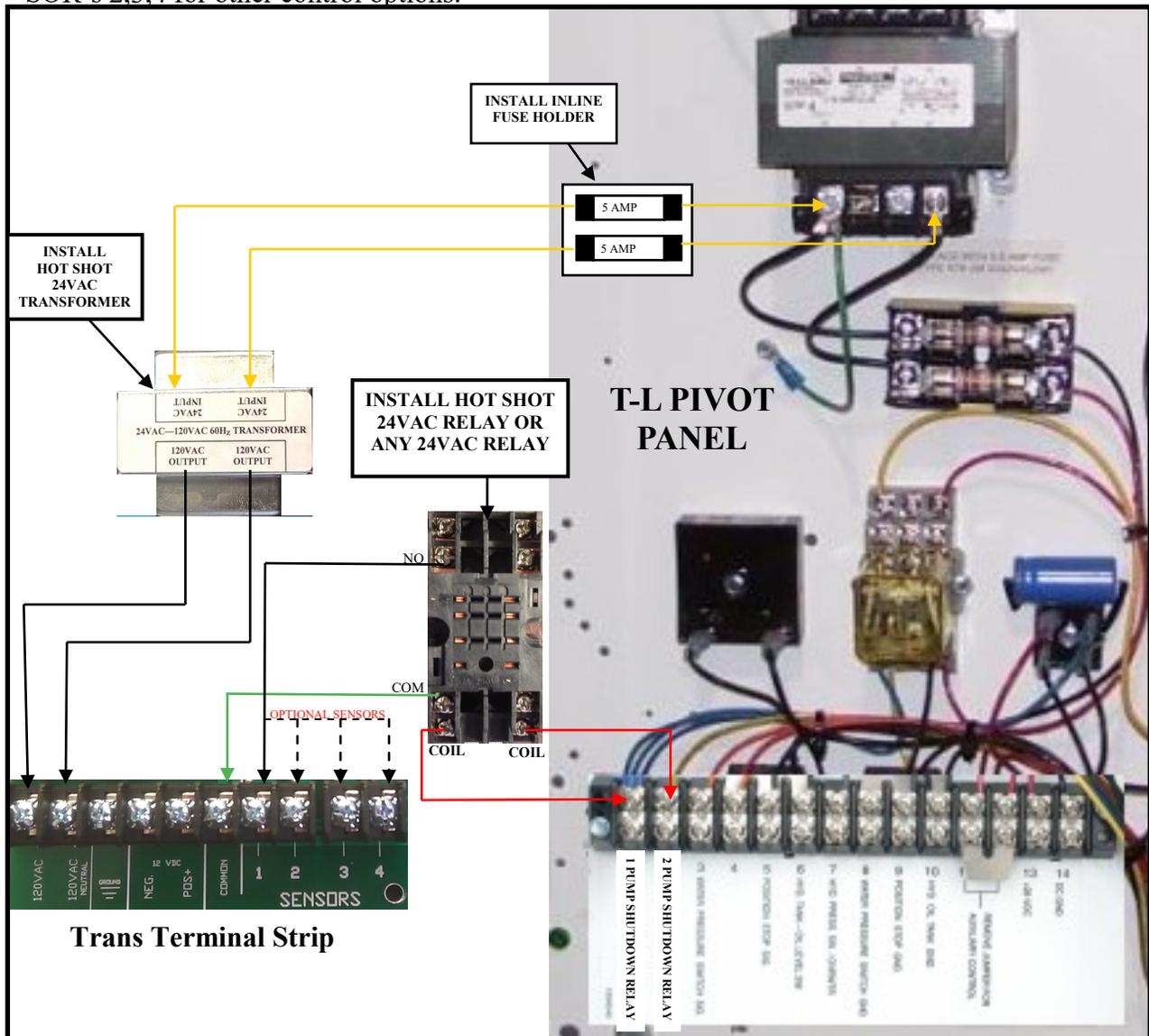


# T-L ELECTRIC PANEL

## WIRING INSTRUCTIONS FOR STANDARD OPERATION MODE

**FIRST** make sure all the function switches on the transmitter are in the correct position for this style of operation. See *Standard Operation Mode* on page 3.

To supply the 120vac needed for the Hot Shot Transmitter to operate, install a 24vac to 120vac step up transformer. These are available to purchase from Hot Shot Systems. Run two wires from the 24vac transformer through inline fuse's (at least 5 amp) to the 24vac to 120vac step up transformer. Then take the 2 wires from the 120vac side and run them to the transmitter two 120vac inputs. **INSTALL** a Hot Shot 24vac relay or a T-L 24vac Interface Relay (Relay Part#EC52201 Base Part#EC53152) to control the RELAY inputs on the transmitter. Power the Interface Relay by running a wire from the pivot panels Water Pump Control terminals (terminal #1 and #2) to each side of the Interface Relays coil terminals. Run a wire to connect the COM terminal on the 24vac Relay to the COM input on the transmitter. Wire up the NO terminal on the 24vac Relay to the SENSOR on the Transmitter. See below. Use SENSOR's 2,3,4 for other control options.

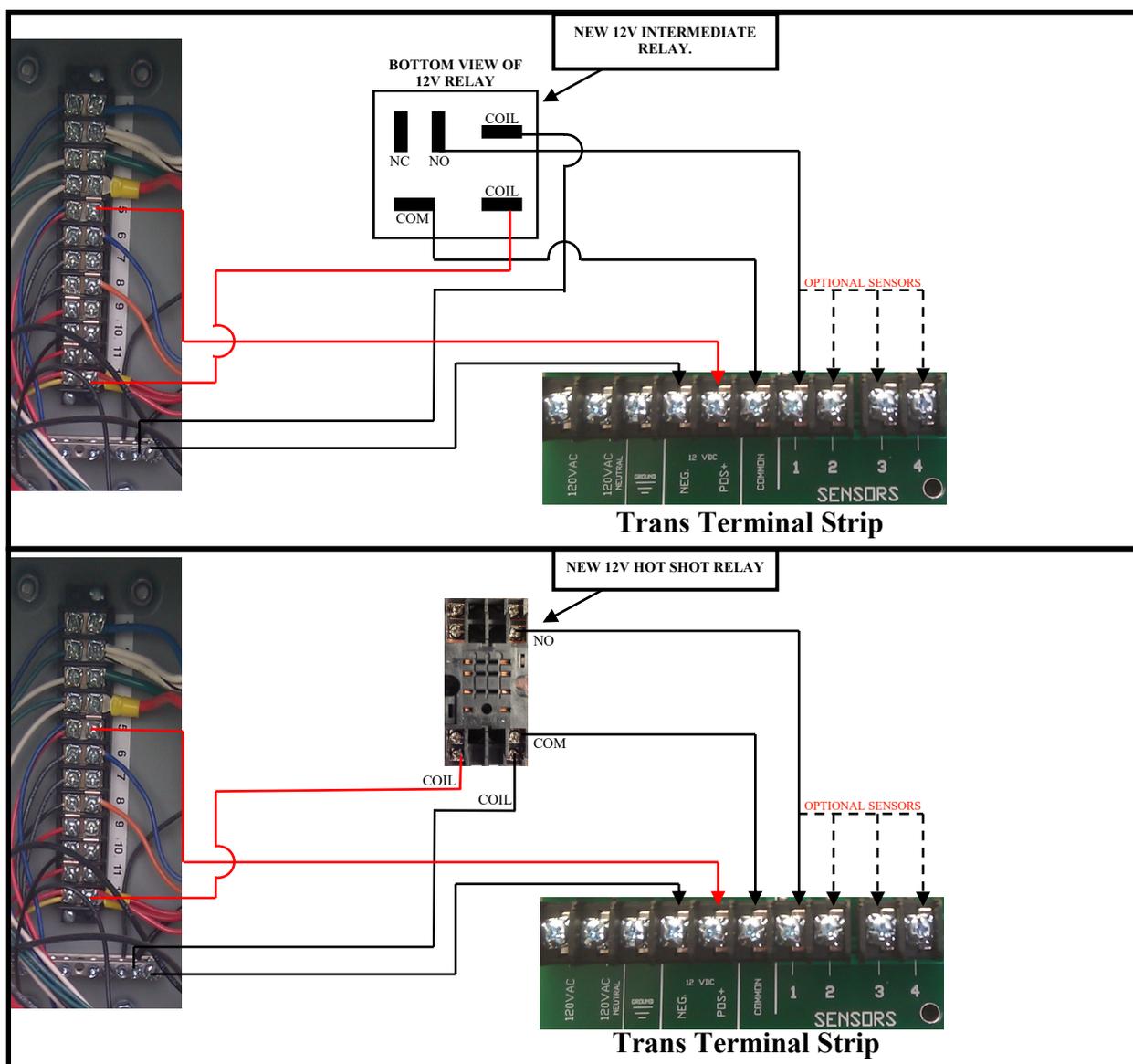


# T-L ENGINE PIVOT (*ISUZU PANEL*)

## WIRING INSTRUCTIONS FOR STANDARD OPERATION MODE

**FIRST** make sure all the function switches on the transmitter are in the correct position for this style of operation. See Standard Operation Mode on page 3.

Run a wire from the +12v terminal on the pivot panels terminal strip (usually terminal #4 or #5) to the +12v input on the transmitter. Run a wire from the pivot panels Ground Strip to the NEG input on the transmitter. Now install a T-L 12v Interface Relay (part# EC52125) to control the RELAY inputs on the transmitter. To control the 12v Interface Relay run a wire from the pivot panels terminal #12 to one side of the relays coil terminals. Run another wire from the pivot panels ground strip to the other coil terminal on the T-L 12v Interface Relay. Now run a wire from the T-L 12v Interface Relay's NO terminal to the SENSOR input on the transmitter. Run another wire from the 12v Interface Relay's COM terminal to one of the COMMON inputs on the transmitter. See diagram below. Use SENSOR's 2,3,4 for other control options.



# ZIMMATIC PIVOTS

## WIRING INSTRUCTIONS FOR STANDARD OPERATION MODE

**FIRST** make sure all the function switches on the transmitter are in the correct position for this style of operation. See Standard Operation Mode on page 3.

To supply the 120vac needed for the Hot Shot Transmitter to operate run a wire from the pivot panels 120vac X3 terminal through a inline fuse holder with at least a 1 1/2 amp fuse to the first 120vac input on the transmitter. Run another wire from the 120vac X1 terminal through a inline fuse holder with at least a 1 1/2 amp fuse to the second 120vac input on the transmitter. Install a Zimmatic 24vac relay in the panel (part# 09-88907). Wire one side of the relay coil to terminal #65 and connect the other side of the relay coil to terminal #4. Wire the N.O. side of the 24vac relay to the SENSOR input on the transmitter. Wire the COM terminal of the 24vac relay to the COMMON input on the transmitter. See diagram below. Use SENSOR's 2,3,4 for other control options.

