

HOT SHOT

IRRIGATION 810-T PLUS TRANSMITTER GUIDE

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Hot Shot Systems Inc. will no longer sell or warranty its products for the use in controlling or monitoring pollutants. However, the use of these controllers in non pollutant applications such as water tanks, water pumps, pivots, irrigation systems and any other monitoring or control applications that do not involve pollutants are suitable for these products.

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 control wire going from the transmitter site to the receiver site. When the Hot Shot Transmitter's SENSOR INPUT is connected to COM, a 10 second delay timer is started. After the delay timer has expired, the transmitter will send the (Relay ON) command to the receiver. This will close the relay contacts between N.O. and COM. When the SENSOR INPUT at the transmitter is opened it will send the (Relay OFF) command to the receiver switching the relay back to N.C. connected to COM. Battery backup in the transmitter will still allow the HOT SHOT to work in case of 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.

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

KEY

3	4	5	6
7	8	9	0

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.

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 #.

Transmitter Code Switches

6 7 8 9

To watch a "How To" video on this feature click on the link below:

["CODE SWITCH SETTINGS"](#)

BATTERY BACKUP

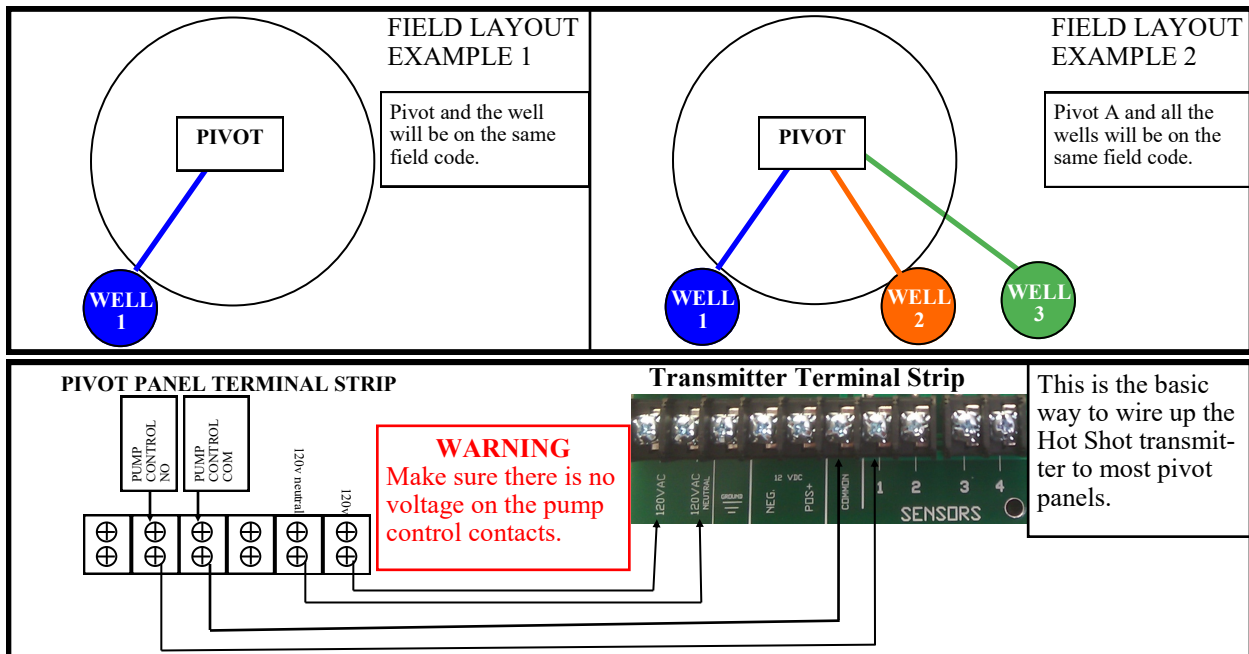
During a power outage, a gel cell rechargeable battery will supply power to the transmitter for approximately 24 hours. This will allow the transmitter to send a shutdown signal to the receivers when the pivot has lost power. The Hot Shot Transmitter comes with a battery saver feature that will turn 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.

BASIC PIVOT INSTALLATION

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.*) Function Switches 1-8 need to all be turned OFF. Basic install use only one of the SENSORS 1,2,3 OR 4 and the COMMON on the transmitter (*see diagram below*). 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 brand specific 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.

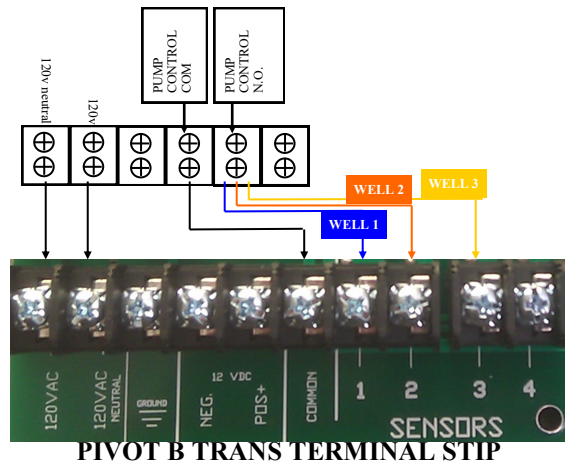
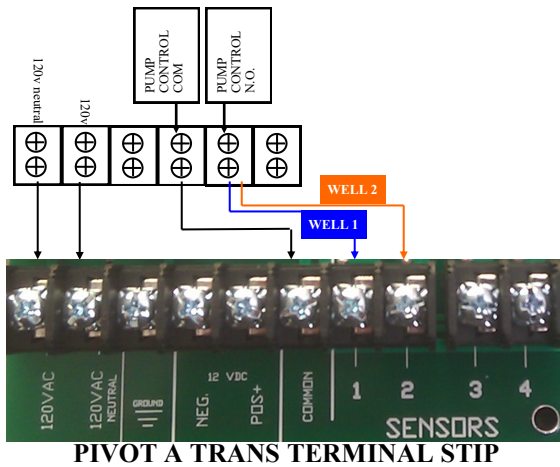
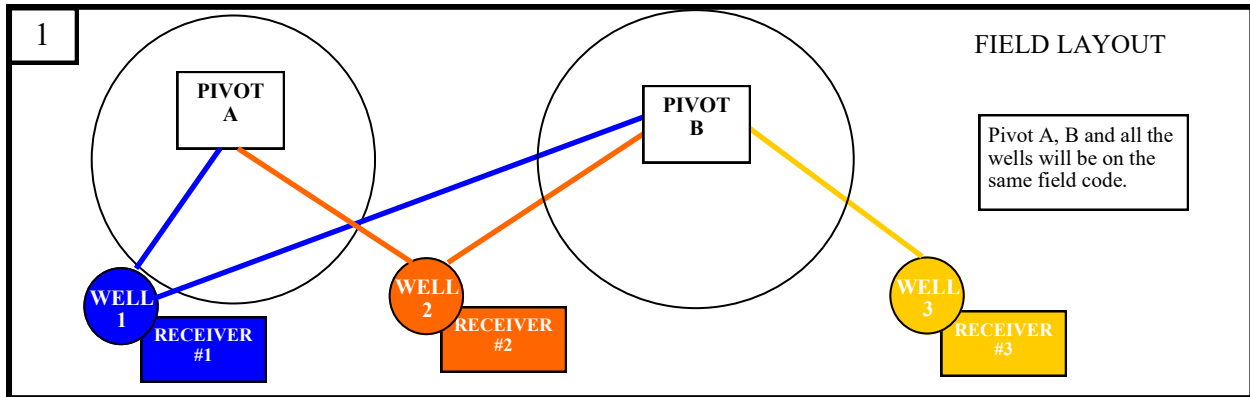
To watch a video on this click on the link below:

[“UNDERSTANDING THE 810-T TRANSMITTER”](#)

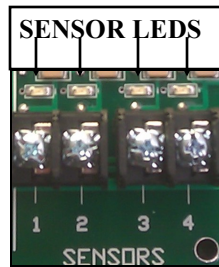
TRANSMITTER UNIT 810-T-PLUS

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.



INDICATOR LEDs



POWER Indicates that the Transmitter has power and _____ is ready to operate.

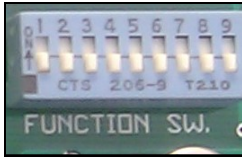
TRANSMITTING Indicates when the Transmitter is transmitting. _____

SENSOR LEDS When these LED's are on it indicates that the terminal below it is connected to the COMMON terminal.

TRANSMITTER UNIT 810-T PLUS

SWITCH#

TRANSMITTER FUNCTION SWITCH SETTINGS

1	ON	SENSOR 1 BYPASS SWITCH	
2	ON	SENSOR 2 BYPASS SWITCH	
3	ON	SENSOR 3 BYPASS SWITCH	
4	ON	SENSOR 4 BYPASS SWITCH	
5	ON	Changers Sensors 1, 2, 3 into Sensors 4, 5, 6	
8	ON	ACTIVATES THE TEST BEACON (Used for testing and range finding only.) See directions on the next page.	
	OFF	NORMAL OPERATION MODE	
9	ON	REFRESH (This function will retransmit the state of Sensor Inputs once every hour.)	
	OFF	NO REFRESH (Transmits the code only when there is a change of state on the SENSOR Inputs.)	

OPERATING THE TEST BEACON

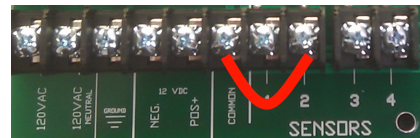
The Test Beacon function is turned on and off by using FUNCTION SWITCH #8. **This feature is used for testing and range finding purposes only.** To activate the Test Beacon first turn OFF the power to the transmitter. Turn function switch #8 on and connect a small jumper wire from the **SENSOR 1** terminal to the **COMMON** terminal and then turn the power back ON to the transmitter. When turned ON the Transmitting LED 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.

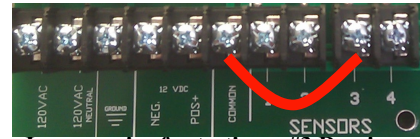
Function switch #8 must be turned OFF and the jumper wire removed for the transmitter to operate normally.



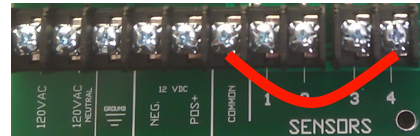
Jumper wire for testing a #1 Receiver



Jumper wire for testing a #2 Receiver



Jumper wire for testing a #3 Receiver



Jumper wire for testing a #4 Receiver

To watch a "How To" video on this feature click on the link below:

["OPERATING THE TEST BEACON"](#)

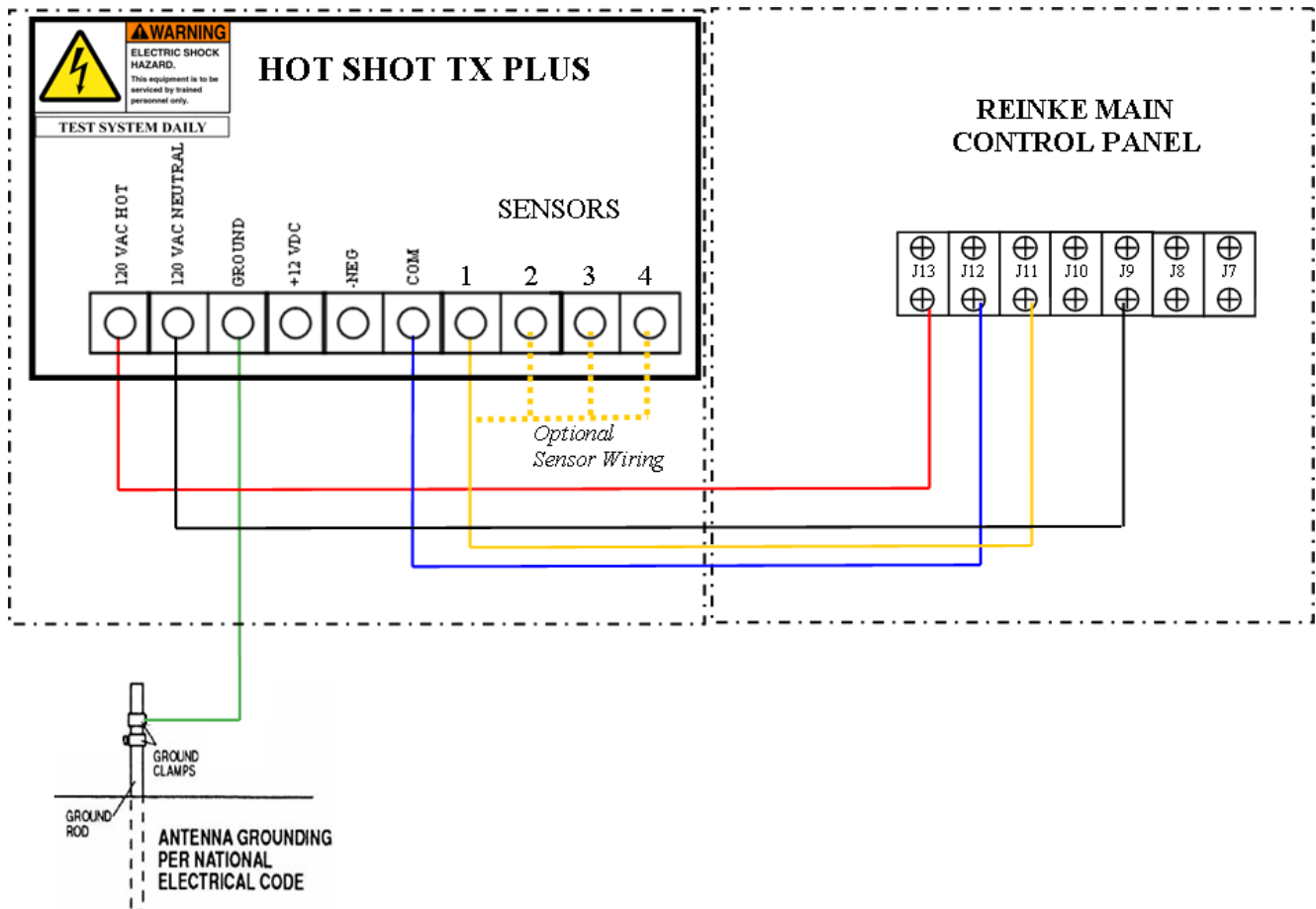
REINKE PIVOTS

WIRING INSTRUCTIONS FOR BASIC OPERATION

Typically all functions switches are off unless advanced features are needed. See function switch setting on page 3 for details.

To supply the 120vac needed for the Hot Shot Transmitter to operate, run a wire from the pivot panel's J13 terminal to the 120vac Hot terminal on the transmitter. Run another wire from the pivot panel's neutral terminal J9 to the 120vac neutral terminal on the transmitter.

Make sure the pivot's well kill terminals DO NOT have any voltage from previously wired configurations. Run a wire from terminal J12 to the Hot Shot Transmitter's COM input terminal. Run a wire from terminal J11 to the Hot Shot Transmitter's SENSOR 1 INPUT terminal. Connect a wire from the Lighting Ground terminal of the Hot Shot Transmitter to an NEC approved earth ground rod. *See diagram below.* Use SENSOR's 2,3,4 for other control options.



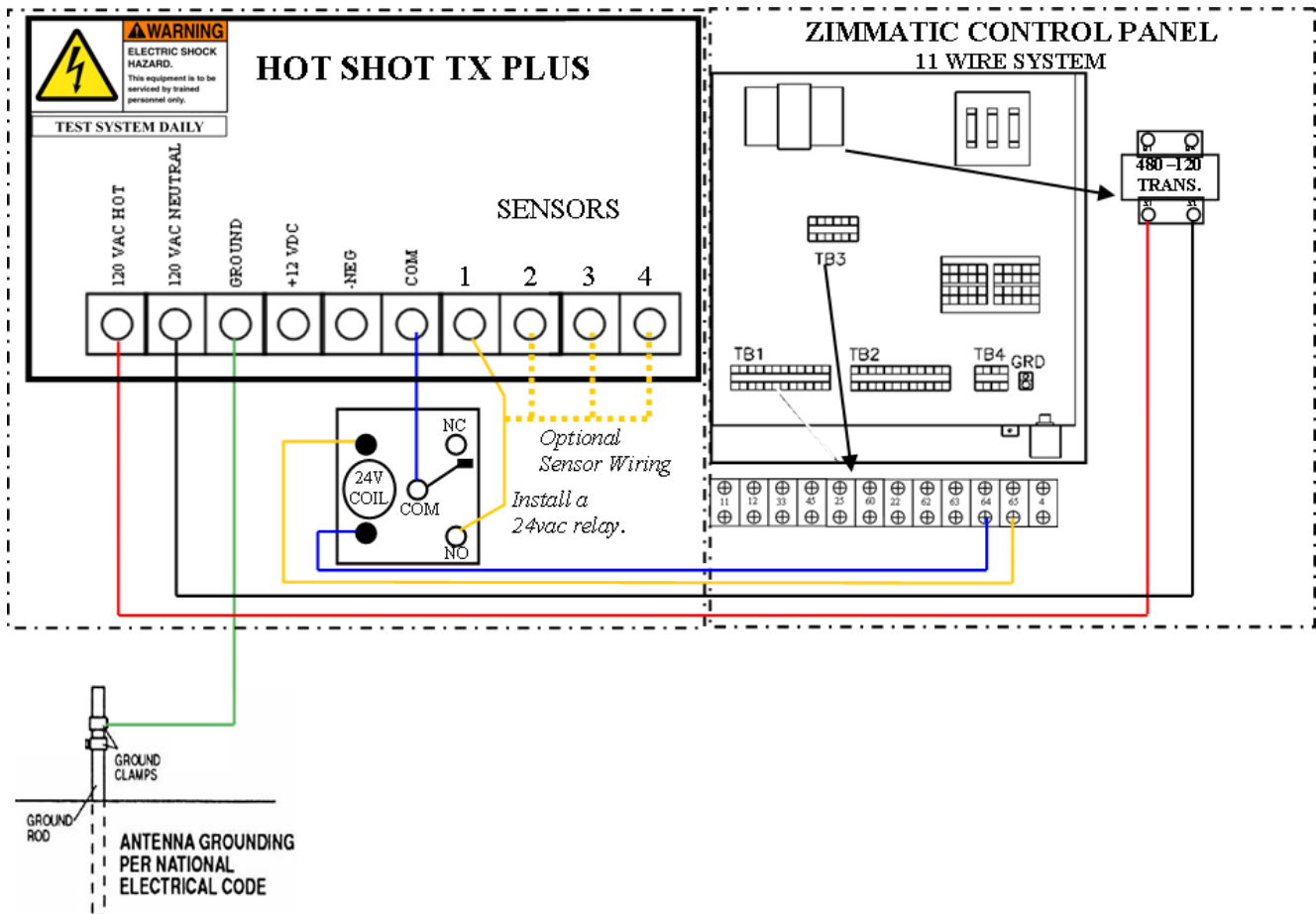
ZIMMATIC PIVOTS

WIRING INSTRUCTIONS FOR BASIC OPERATION

Typically all functions switches are off unless advanced features are needed. See function switch setting on page 3 for details.

Attention: This install requires a 24vac relay.

To supply the 120v needed for the Hot Shot Transmitter to operate run a wire from the pivot panels 120v X1 terminal to the 120vac Hot terminal on the transmitter. Run another wire from the 120v X2 terminal to the 120vac Neutral terminal on the transmitter. **INSTALL** a 24vac relay "Interface Relay" to control the Sensor input on the transmitter. Control the Interface Relay by running a wire from one side of the relay coil to terminal #64 and connect the other side of the relay coil to terminal #65. Wire the N.O. side of the Interface Relay to the SENSOR 1 INPUT terminal on the transmitter. Wire the COM terminal of the Interface Relay to the COM terminal on the transmitter. Connect a wire from the Lighting Ground terminal of the Hot Shot to an NEC approved ground rod. See diagram below. Use SENSOR's 2,3,4 for other control options.



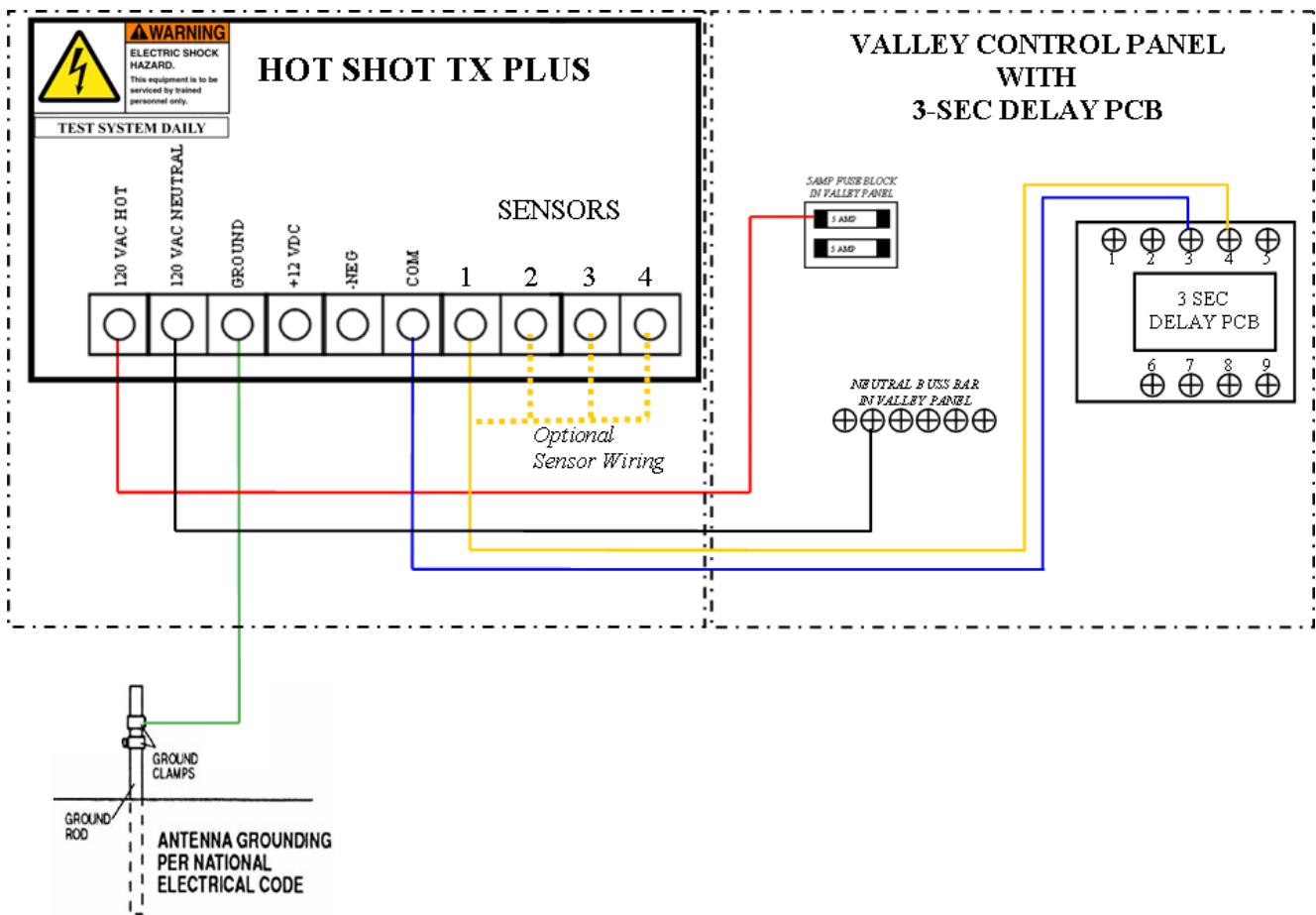
VALLEY MODELS 4000, 6000, & PANELS WITH 3 SEC DELAY PCB.

WIRING INSTRUCTIONS FOR BASIC OPERATION

Typically all functions switches are off unless advanced features are needed. See function switch setting on page 3 for details.

To supply the 120vac needed for the Hot Shot Transmitter to operate run a wire from the pivot panels 120vac hot terminal on the fuse block to the 120vac Hot input on the transmitter. Run another wire from the pivot panels neutral buss bar to the second 120vac Neutral input on the transmitter.

With these models we recommend that you use terminal #3 and #4 on the 3 Sec Delay PCB to control the Sensor on the Hot Shot Transmitter. Remove the wires that currently go into them and cap them off. Run a wire from terminal #3 on the 3 Sec Delay PCB to the COM input on the transmitter. Run a wire from terminal #4 on the 3 Sec Delay PCB to the SENSOR 1 input on the transmitter. Connect a wire from the Lighting Ground terminal of the Hot Shot to an NEC approved ground rod. See diagram below. Use SENSOR's 2,3,4 for other control options.



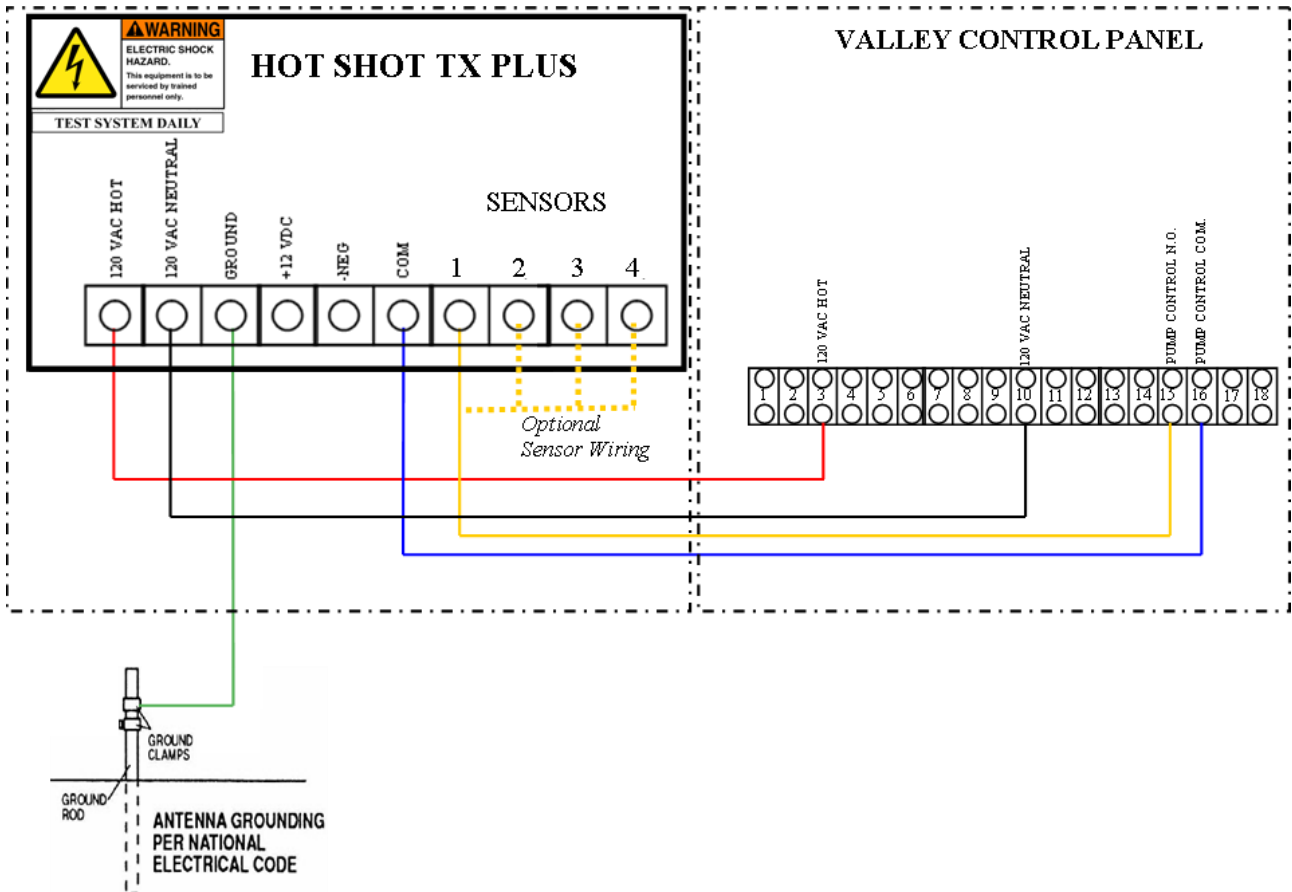
VALLEY MODELS 8000, PRO PANEL, SELECT PANEL & SIMILAR

WIRING INSTRUCTIONS FOR BASIC OPERATION

Typically all functions switches are off unless advanced features are needed. See function switch setting on page 3 for details.

To supply the 120vac needed for the Hot Shot Transmitter to operate run a wire from the pivot panels terminal #3(120vac Hot) to the 120vac Hot terminal on the transmitter. Run another wire from the pivot panels terminal #9 or #10 (120vac Neutral) to the 120vac Neutral terminal on the transmitter.

To connect the pivot panels well control relay to the Hot Shot Transmitter run a wire from terminal #15 (PUMP CONTROL NO) to the transmitters SENSOR 1 input terminal. Now run a wire from terminal #16 (PUMP CONTROL COM) to the transmitters COM input terminal. Connect a wire from the Lighting Ground terminal of the Hot Shot to an NEC approved ground rod. See diagram below. Use SENSOR's 2,3,4 for other control options.



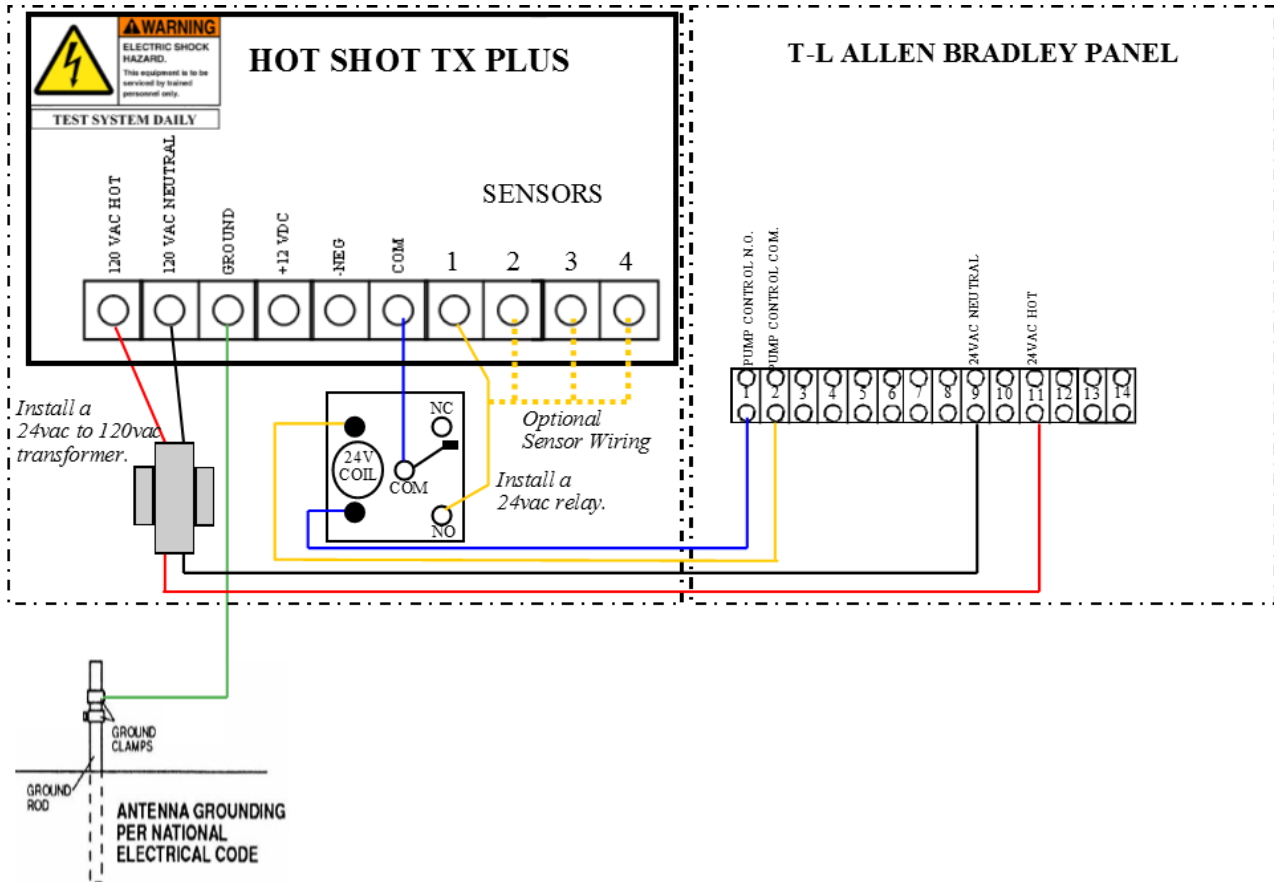
T-L ELECTRIC PANEL (ALLEN BRADLEY)

WIRING INSTRUCTIONS FOR BASIC OPERATION

Typically all functions switches are off unless advanced features are needed. See function switch setting on page 3 for details.

Attention: *This install requires a 24vac to 120vac transformer and a 24vac relay.*

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 24 VAC input on the transformer to terminal #9 and #11 in the T-L Allen Bradley Panel. Then take the 2 wires from the 120VAC output side and run them to the transmitters two 120vac inputs. **INSTALL** a 24vac relay “Interface Relay” to control the Sensor input on the transmitter. Control the Interface Relay by running a wire from the Allen Bradley panel’s terminal #1 and #2 to each side of the Interface Relays coil terminals. Run a wire to connect the COM terminal on the 24vac Interface Relay to the COM input on the transmitter. Wire up the NO terminal on the 24vac Interface Relay to the SENSOR on the Transmitter. See below. Use SENSOR’s 2,3,4 for other control options. Connect a wire from the Lighting Ground terminal of the Hot Shot to an NEC approved ground rod. *See diagram below.*



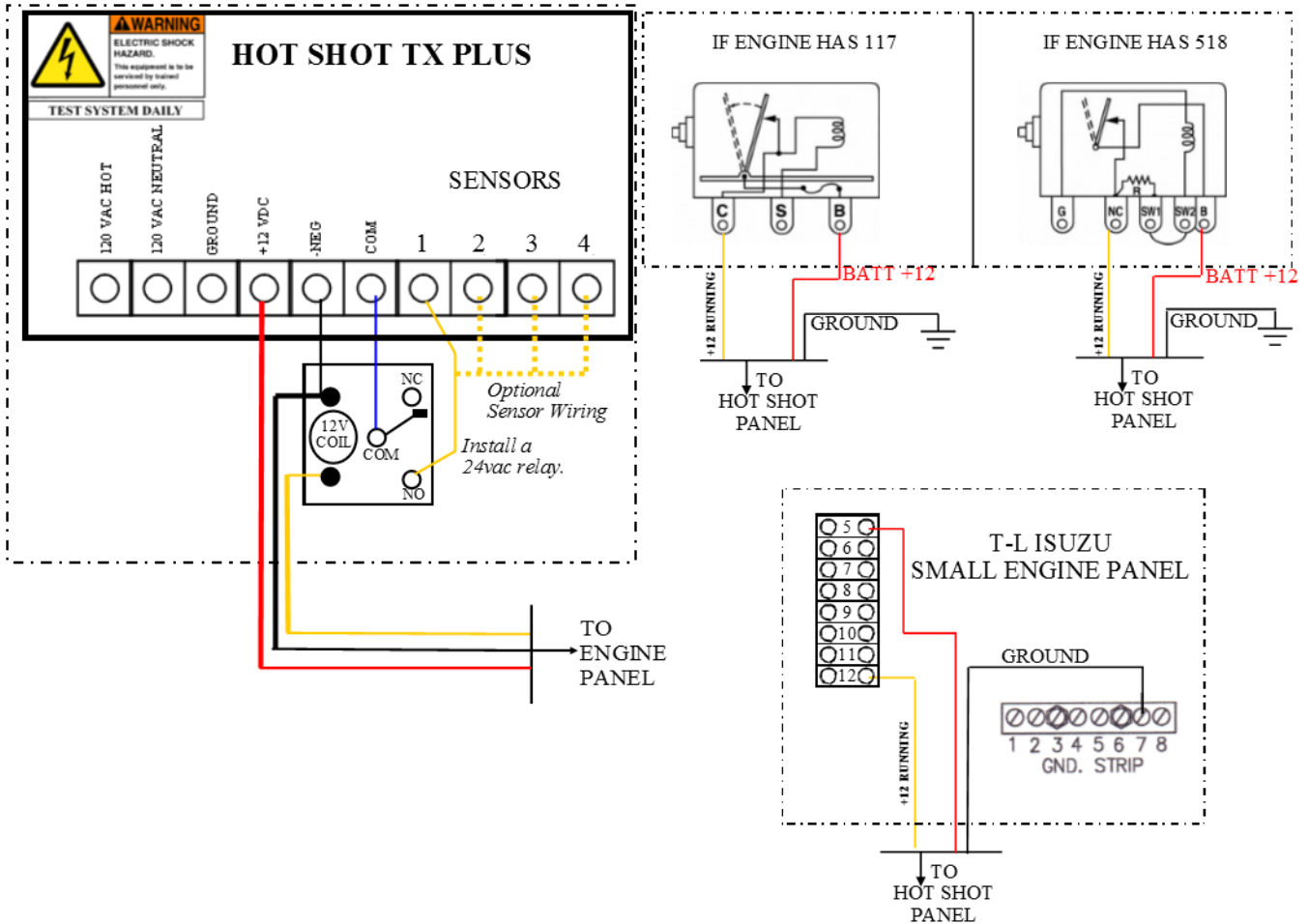
ENGINE DRIVEN PIVOTS

WIRING INSTRUCTIONS FOR BASIC OPERATION

Typically all functions switches are off unless advanced features are needed. See function switch setting on page 3 for details.

Attention: This install requires a 12vdc relay.

Run a wire from the B terminal on the engines Murphy switch to the +12vdc input on the transmitter. Run a wire from the ground on the Murphy or from the NEG of the engines battery to the NEG input on the transmitter. Now install a 12vdc Interface Relay to control the SENSOR inputs on the transmitter. To control the 12vdc Interface Relay run a wire from the engines Murphy switch terminal C on a 117 or from the terminal NC on a 518 to one side of the relays coil terminals. Run another wire from the ground on the Murphy or from the NEG of the Hot Shot Transmitter to the other coil terminal on the 12vdc Interface Relay. Now run a wire from the 12vdc Interface Relay's NO terminal to the ON-OFF INPUT on the transmitter. Run another wire from the 12vdc Interface Relay's COM terminal to the COM input on the transmitter. Connect a wire from the Lighting Ground terminal of the Hot Shot to the ground lug of the panel. See diagrams below. Use SENSOR's 2,3,4 for other control options.

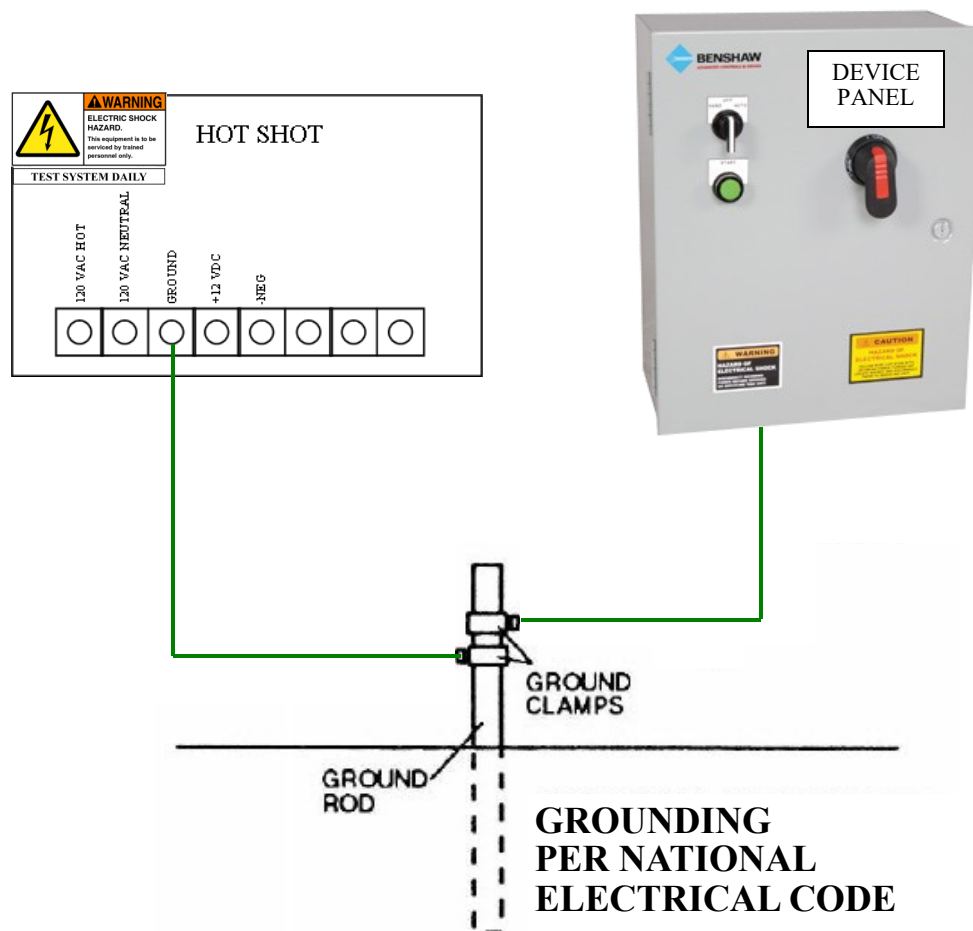


HOT SHOT GROUNDING FOR SAFETY AND PEAK PERFORMANCE

Hot Shot wireless systems are equipped with a GROUND terminal that needs to be connected to an NEC approved ground rod. A Hot Shot has various lightning and static protection devices incorporated on the circuit board that require proper grounding to operate. Any equipment or device panels operating with or near the Hot Shot should also be connected to the grounding system. A good ground will enhance the transmit and receive range of the Hot Shot System.

To watch a "How To" video on this feature click on the link below:

["PROPER GROUNDING"](#)



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.

FCC License is not required. This device operates on frequencies authorized for use in the Multi-Use Radio Service (MURS). MURS frequencies are available for unlicensed business or personal use. Any changes or modifications may void the user's authority granted by the FCC to operate this radio and should not be made. Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

Warranty

The warranty below constitutes the only warranty in connection with any sale from Hot Shot Systems Inc. and is in lieu of all other warranties, express or implied, written or oral. THERE ARE NO IMPLIED WARRANTIES OF MERCHANT-ABILITY OR FITNESS FOR A PARTICULAR PURPOSE THAT APPLY TO ANY SALE FROM HOT SHOT SYSTEMS INC.

Hot Shot Systems Inc., warrants to You that Products (Products meaning any item purchased from Hot Shot Systems) will be free from defects in materials and workmanship under normal use and service for one (1) year from the purchase date. A product issue under this Limited Warranty must be presented during the Limited Warranty period and within thirty (30) days after any covered condition has occurred. A claim under this Limited Warranty shall be satisfied by either, in Hot Shot Systems sole discretion, repairing or replacing the Product. Replacement Products may be new or reconditioned.

To make a claim under this Limited Warranty, Hot Shot Systems must first issue You a Returned Material Authorization (RMA) number. This number can be obtained by calling Hot Shot Systems and a RMA number will be provided over the phone. A copy of the RMA number must be included with any materials shipped to Hot Shot Systems. The entirety of Products must be sent back to Hot Shot Systems and properly packaged to ensure against damage during shipping. If Hot Shot Systems determines that the claim is covered by this Limited Warranty, Hot Shot Systems will either, in its sole discretion, repair or replace the Products and/or part. Any damages not covered under this Limited Warranty will not be repaired until a purchase order is received.

The Limited Warranty period shall not be extended by the replacement or repair of Products or parts under this Limited Warranty but the remaining Limited Warranty period shall continue in effect and be applicable to the replaced or repaired Products or parts under conditions of the Limited Warranty.

The term "Long Range Wireless Control" is not a guarantee of proper radio operation everywhere in all conditions. Radio operation is subject to transmission and receive limitations, customer equipment, weather, topography and other environmental and electrical considerations associated with radio technology also affect radio operation and radio operation may vary significantly within buildings. The radio operation range of Products is not guaranteed, and Hot Shot Systems cannot and does not guarantee or represent that the radio operation will operate correctly in all conditions. It is Your responsibility to determine daily if radio operation is operating correctly and to monitor the Products to determine the communication between Products. You should contact Hot Shot Systems for assistance if needed. As such, Hot Shot Systems is not liable for any causes of action, pollution, incurred costs, losses of any kind or damages of any kind whatsoever arising out of mistakes, omissions, interruptions, errors, customer equipment or defects in the radio operation and or Products.

Intended Use. Products are intended for non pollutant, non hazardous and non critical use only. Products are to be used and installed per the installation guide and any other instructions provided by Hot Shot Systems (collectively, the "Seller's Guidelines"). Any use beyond the intended non pollutant, non-hazardous and non critical use or against the Seller's Guidelines ("Unintended use") are at the End-User's own risk, and Hot Shot Systems does not warrant or make any representations whatsoever regarding the use of Products for any unintended use. Hot Shot Systems' Products are convenience items and are not intended to be a substitute for normal maintenance, monitoring, control and proper upkeep of equipment or property that Products are monitoring or controlling. Hot Shot Systems' Products are convenience items and are not intended to monitor equipment, control equipment, liquids, chemicals or other items which are pollutants, vital, hazardous, necessary, and/or have life-or-death consequences. The End-User should take care to determine prior to use whether Products are suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, Hot Shot Systems makes no representation or warranty as to suitability or fitness of Products for any specific application.

Upon expiration of the Limited Warranty period, all liability of Hot Shot Systems shall be terminated. This Limited Warranty will also be terminated immediate due to any of the following cases: failure to follow installation and operating instructions, misuse or "Unintended use", alteration, abuse, accident or tampering, and repair by anyone other than Hot Shot Systems.

THIS LIMITED WARRANTY IS EXCLUSIVE AND EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS OR LIABILITIES, WHETHER WRITTEN, ORAL, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANT-ABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE. IN NO CASE SHALL HOT SHOT SYSTEMS BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS WARRANTY OR ANY OTHER WARRANTIES WHATSOEVER. This Limited Warranty gives specific legal rights.

No employee, agent, dealer or other person is authorized to give any warranties on behalf of Hot Shot Systems Inc., nor to assume for it any other liability in connection with any of its products, except an officer of Hot Shot Systems Inc., in a signed writing.

LIABILITY

Hot Shot Systems Inc. and its directors, officers, employees, subsidiaries and affiliates shall not be liable for pollution, pollution clean up, personal injury, property damage, hazardous conditions created, fluid spill cleanup, loss of product, loss of profit, or any other loss or expenses based on a claim the product(s) failed to operate properly. Test product daily to see if any malfunctions are present. If using this product in a situation where it is extremely critical to control your device to prevent damage of any kind, you must also use a call out system to notify a person in control of this situation. If this warranty and statement of liability is unacceptable, then do not purchase these products.

Hot Shot Systems makes no representation that Products and Services will reduce any risk of property loss, product loss, loss of profit, pollution or personal injury or prolong the life of any equipment or other property; or that Products and Services will in all cases provide adequate warning and protection. You understand that Products if properly installed and maintained may only reduce the risk of property loss or other loss but Products and Services are not an insurance or a guarantee that there will be no property loss, product loss, loss of profit, pollution or personal injury or other loss as a result. **CONSEQUENTLY, HOT SHOT SYSTEMS SHALL HAVE NO LIABILITY FOR ANY POLLUTION, PRODUCT LOSS, LOSS OF PROFIT, PROPERTY DAMAGE, PERSONAL INJURY OR OTHER LOSS OR EXPENSES INCURRED BASED ON A CLAIM THE PRODUCTS AND SERVICES FAILED TO GIVE WARNING.**