

OPERATING INSTRUCTIONS

NOVA-S



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YOUR #1 PARTNER IN RADIO REMOTE CONTROLS

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SAFETY

SAFETY ALERTS

The safety alert symbol is used in decals on the unit and with proper operation procedures in this manual.

Understand the safety message. It contains important information about personal safety on or near the unit.



DANGER:IMMINENTLY HAZARDOUS SITUATION! *If not avoided, WILL RESULT in death or serious injury.*



WARNING: POTENTIALLY HAZARDOUS SITUATION! *If not avoided, COULD RESULT in death or serious injury.*



CAUTION: POTENTIALLY HAZARDOUS SITUATION! *If not avoided, MAY RESULT in minor or moderate injury. It may also be used to alert against unsafe practices.*

NOTATIONS

NOTE: General reference information for proper operation and maintenance practices.

IMPORTANT: Specific procedures or information required to prevent damage to unit or attachment.

PRACTICES AND LAWS

Practice usual and customary safe working precautions for the benefit of yourself and others. Be alert to unsafe conditions and the possibility of minor, moderate, or serious injury or death. Learn applicable rules and laws in your area.

REQUIRED OPERATOR TRAINING

Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.

ALWAYS read and understand the documentation for any machine to be controlled by radio remote control.

POSSIBLE SOURCES OF DANGER

This device is part of a system that makes remote control via radio signals possible. However, the transmission of control commands can take place around obstacles and out of the operator's direct sight. Take the following precautions to prevent accidental start-up and possible injury or damage:

1. Switch "OFF" the transmitter when it is not in use. If equipped, remove the key if the unit is placed any distance away from the operator.
2. Disconnect the power supply from the receiver before any assembly, maintenance or repair work is done.

IMPORTANT: AVOID SYSTEM DAMAGE - ALWAYS disconnect receiver power supply and control wiring before welding on any part of the machine

3. Never remove or alter any of the safety features.
4. **ALWAYS** confirm that the machine and radio remote control Stop functions work properly **BEFORE** beginning any machine operation.

PROTECTIVE FEATURES

This system is equipped with electronic and mechanical safety features. Control signals from other transmitters cannot be processed because transmission coding is unique to each system

TO STOP IN AN EMERGENCY

1. Press the red STOP pushbutton.
2. If equipped, turn the key to "OFF".
3. Wait for all moving machine parts to stop.
4. Refer to machine's operator manual for further instructions.

MAINTENANCE

Always shut off power to the machine, transmitter and receiver before any assembly, maintenance or repair.

NOTE: Operation is subject to the following two conditions:(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. **NOTE:** The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

INTRODUCTION

Thank you for purchasing the Hetronic radio remote control system. Hetronic radio remote controls provide outstanding remote control value, quality, performance, and safety.

YOUR MANUALS

Before operating your machine and radio remote control system, read and understand the manuals for all of your system components.

PRODUCTION AND SYSTEM NUMBERS

Before contacting your dealer or Hetronic about service, repair or replacement parts, note the equipment Production and System numbers. These numbers are located on the label affixed to the unit.

BEFORE OPERATING YOUR SYSTEM

Confirm that installation of all your system components has been properly completed.

Before start up, **ALWAYS** confirm that the machine and radio remote control Stop functions work properly.

Understand all Safety Precautions provided in the manuals and review control functions and operation of the machine and this radio remote control system.

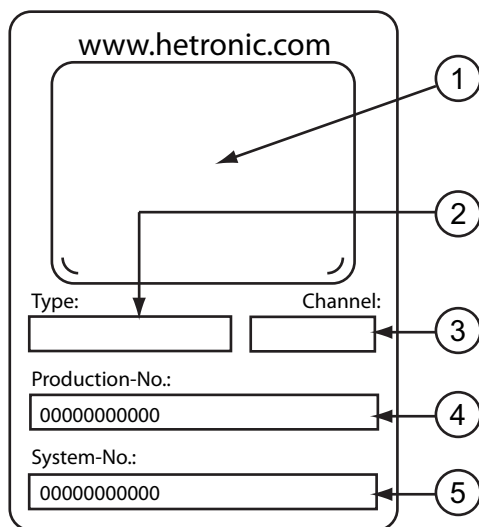
When not in use, turn the transmitter off and store in a safe place to prevent unauthorized use.

If the machine does not respond properly, immediately stop operation. Turn off the transmitter and report the condition to your supervisor.

Turn off the transmitter and remove the key (if so equipped) before any maintenance work is done.

Always have fresh batteries on hand or an optional rechargeable battery pack in the battery charger to ensure the availability of a fully charged battery.

Installation, setup and service must be performed by authorized and qualified personnel only.



Unit Label Areas and Meanings

1. Specific approvals, such as BTZ, FCC, CE, etc.
2. Type of transmitter or receiver.
3. Frequency and RF unit.
4. Eleven-digit Production Number.
5. Eleven-digit System Number.

Figure 1: Unit Label Areas and Meanings

ABOUT YOUR TRANSMITTER

DESCRIPTION AND FEATURES

GENERAL DESCRIPTION

The Nova-S is a radio control transmitter, that is specifically configured for your application.

For configuration details, see the documentation provided with your transmitter.

Your transmitter is encased in a rugged IP65 rated housing, is battery-powered, and comes equipped with built-in low battery detection.

Standard equipment includes a battery charger and 2 rechargeable batteries. For your convenience there is an optional battery adapter case for 3 AA batteries available.

NOVA-S FEATURES

- Five 3-position momentary spring return to center function toggle switches
- STOP pushbutton
- Internal Antenna
- Low battery detection
- Operational LED

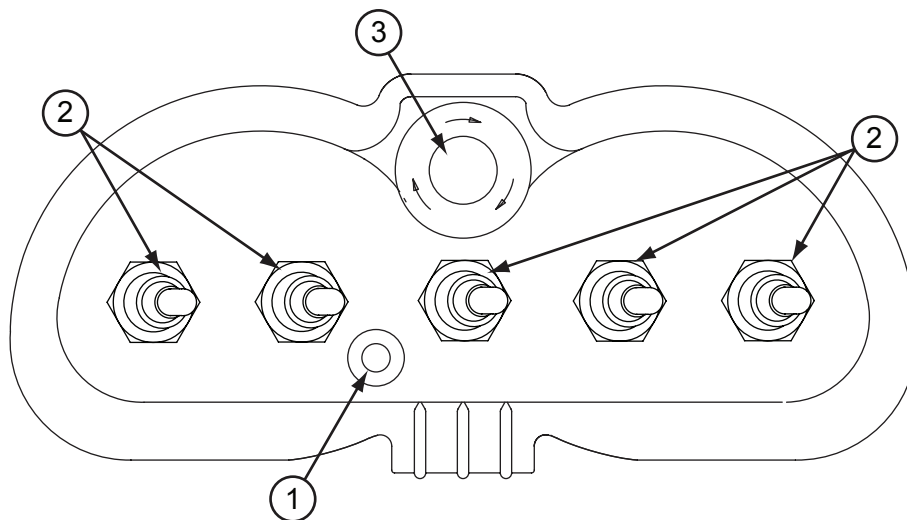


Figure 1: Nova-S Transmitter

Table 1: Nova-S Transmitter

1	Operational LED (location varies per application)
2	Toggle Switches (number and location vary per application)
3	STOP Pushbutton

NOTE: Operation is subject to the following two conditions:(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. **NOTE:** The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

THEORY OF OPERATION

Your transmitter works with a receiving device to transfer machine control commands via radio frequency to your machine.

The transmitter electronically generates a carrier frequency that allows it to communicate with the receiver without the use of cables or wires. The receiver then converts the carrier frequency information into discrete machine control outputs that interface with your machine's controls.

Each transmitter and receiver that comprises a system is programmed with a unique address code. This code ensures that machine operations are safe, and that other remote control equipment cannot unintentionally control your machine.

The receiver only accepts commands from the transmitter with the same address code. The receiver and transmitter have the address code set at the factory.

NOTE: Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. **NOTE:** The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

STOP FUNCTION

The most important feature of the radio remote control system is the Stop function. When the transmitter is turned on, it performs a self-test to confirm that communications are within designated parameters. If an error is detected, the transmitter will not transmit any signals.

The transmitter sends the STOP pushbutton status along with the specified machine functions. This method confirms that ongoing operations are safe.

If the STOP pushbutton is pressed, the data telegram changes so that only the stop command is transmitted. No other motion command data is sent.

This special data telegram places the receiver in Safe Mode, and the E-Stop relay in the receiver opens. All other machine functions are disabled in the receiver.

When the receiver is properly installed the STOP pushbutton will shut down the machine.



DANGER: Pressing the STOP pushbutton does not ensure the machine will stop.

ALWAYS test the STOP function at the beginning of every operation session or when there is change of operator.

CHANGING YOUR BATTERY

You may power your transmitter with rechargeable or disposable batteries. Both types use adapter cases that are inserted into the battery compartment located on the bottom of the transmitter.

Follow the instructions below for your battery type.

DISPOSABLE BATTERIES:

1. Insert 3 AA batteries into the back of the Standard Battery Adapter Case.

NOTE: Battery positions are shown in the battery slots on the back of the Standard Battery Adapter Case housing.

2. Slide the loaded Standard Battery Adapter Case into the battery compartment on the bottom of the transmitter housing and snap into place.

RECHARGEABLE BATTERIES:

1. Confirm that your batteries are fully-charged. See “Recharging Your Batteries (Optional)” on page 5.
2. Slide a fully-charged battery into the battery compartment on the bottom of the transmitter, and snap into place.

RECHARGING YOUR BATTERIES (OPTIONAL)



DANGER:EXPLOSIVE GASES AND FLYING DEBRIS can cause death or serious injury. Use only Hetronic replacement rechargeable batteries. Use of unauthorized replacement batteries can cause a battery explosion, resulting in injury or death of the operator or other people in the work area.

1. Insert the spent optional rechargeable battery adapter case into the battery charger and snap into place as shown.

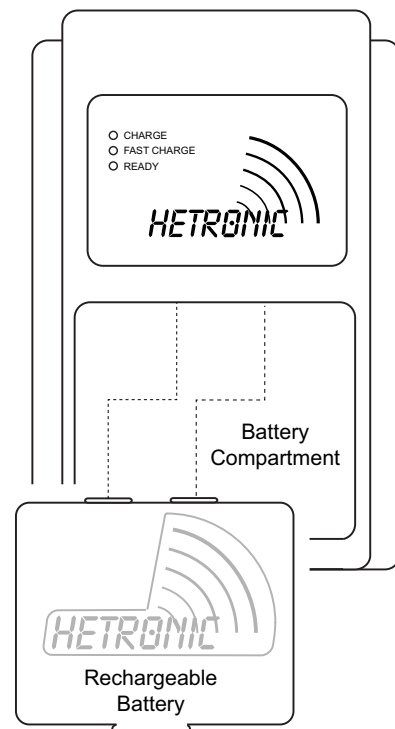


Figure 1: Charger and Rechargeable Battery Adapter Case

The LED labeled “CHARGE” flashes for two seconds, then stays lit during the charging process.

When the battery is fully charged, the “READY” LED lights up and the “CHARGE” LED goes off.

NOTE: Charging time could take up to 5 hours, depending on the condition of the battery.

Leave the battery in the charger until it is needed. The charger supplies a “trickle” charge but will not over-charge the battery.

FAST CHARGE

Insert the battery into the charger as described above. The LED labeled “CHARGE” flashes for two seconds, then stays lit.

Press the “FAST CHARGE” button. The FAST CHARGE LED lights also and stays lit during the charge process.

When the battery is fully charged, the “READY” LED lights up and the “CHARGE” and “FAST CHARGE” LEDs turn off.

BATTERY DISPOSAL

AVOID ENVIRONMENTAL POLLUTION. Recycle your rechargeable batteries according to local recycling rules and regulations.

If you have questions or problems operating your battery charger, please contact your dealer or Hetronic.

Standard Hetronic rechargeable batteries are the nickel metal hydride type. These batteries have no "memory effect" when charging a battery that is not fully discharged.

OPERATING YOUR TRANSMITTER

BEFORE OPERATION



WARNING: Test the STOP function. NEVER operate the machine if the STOP function does not work properly.

Check the condition of your transmitter once a day, before the start of an operation and at shift changes:

- Visually check the transmitter for any physical wear or damage.
- Confirm that you can read and understand all of the safety labels.



WARNING: Never operate a transmitter with worn or damaged parts.

HOLDING YOUR TRANSMITTER

To reduce stress and increase safety, use the belt or strap (if provided).

Position the transmitter upright with the front facing away from you.

Confirm that you are able to easily read and understand all text and symbols.



WARNING: Holding the transmitter improperly while operating your machine could result in unexpected machine response

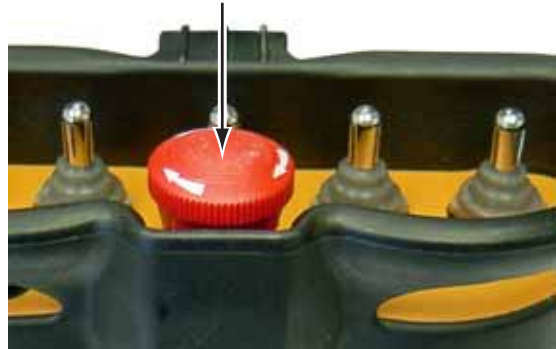
STARTING YOUR TRANSMITTER

1. Confirm that all equipment manufacturer safety measures have been followed.
2. Confirm batteries are fresh or fully-charged.
3. Confirm that all controls for your application are in the OFF (neutral) position.

NOTE: This is usually the center position.

4. Turn ON the transmitter by pressing and releasing one of the switches.
5. Twist and pull out the STOP pushbutton.

STOP
Pushbutton



6. Test the machine functions to ensure that the machine responds as expected.



WARNING: Machine functions operate during this test. Confirm that it is safe to test the functions and there are no obstacles near the machine.

7. Push in the STOP pushbutton and test the machine functions again to confirm that they DO NOT function.



WARNING: If any machine functions operate with the STOP pushbutton depressed, STOP IMMEDIATELY, remove the batteries, and see your supervisor for next steps.

8. Twist and pull out the STOP pushbutton.
 9. Turn ON the transmitter by pressing and releasing one of the switches.
- Your system is ready for operation.

STOPPING YOUR TRANSMITTER

Press the STOP pushbutton.

EMERGENCY STOPPING

Press the STOP pushbutton. Confirm that all dangerous situations are corrected before restarting the transmitter.

NOTE: The STOP function responds faster than any other function. When the STOP is engaged, the system ignores any other signal that is transmitted

STOP must be disengaged before the system will respond to any other signal

UNDERSTANDING THE OPERATION LED

NOTE: The Operation LED exact location is not specified because placement varies per application.

The Operation LED indicates the following operational condition and status.

- Flashing Green - transmitter is operational.
- Steady Green - low battery power.

NOTE: If the battery is low, the transmitter automatically shuts down in 30 seconds, To restart your transmitter, replace the discharged batteries, and see the *Starting Your Transmitter* procedure for next steps.

TROUBLESHOOTING

If the system does not operate after normal start-up, follow the recommended troubleshooting sequence to help isolate the cause and determine corrective action.

If you need more information, contact your dealer or Hetronic.

PROBLEM	PROBABLE CAUSE	CORRECTION
Batteries not charging	No power to the Charger	Supply power
System not initializing after normal START	STOP pushbutton engaged	Disengage STOP pushbutton
	Battery is discharged	Replace battery with a fully charged battery
	Receiver not powered ON	Power ON the receiver
The transmitter is activated, but does not transmit (Operational LED not flashing)	Battery is discharged	Replace battery with a fully charged battery
	Internal failure	Contact your supervisor
Unit is transmitting, but the machine not responding	Out of range	Restart the transmitter within range
	Toggle switch not in OFF (neutral) position	Place all toggle switches in the OFF (neutral) position
	Receiver power off	Turn on power to receiver
	Blown fuse in receiver	Check all fuses and replace if needed
	Transmitter/receiver frequency channels do not match	Contact your supervisor
	Transmitter/receiver addresses do not match	Contact your supervisor
All machine motions operate intermittently	Receiver antenna connection is loose or missing	Tighten or replace antenna
	External antenna (if used) has loose connection, poor grounding or interference	Tighten antenna and ground connection. Contact Hetronic or your Dealer for more information
	Control wiring too close to high power machine wiring	Contact your supervisor
	Connector inside receiver is loose	Check all connectors, reseal if needed
	Another frequency may be interfering with the system	Contact your supervisor
Some machine motions operate intermittently	Loose machine motion wiring	Check wiring from receiver to plug and plug to machine motion actuator
	Loose connector inside receiver	Check all connectors, reseal if needed
	Control wiring too close to high power machine wiring	Control wiring must be run separately from high power machine wiring

SPECIFICATIONS

Housing:	PA + 30% glass fill
Environmental Protection:	IP 65 (Exceeds Nema 12/13)
Weight:	1.3 lbs, 575 g, including battery
Dimensions:	Height: 125 mm (4.9 in.)
	Width: 160 mm (6.3 in.)
	Depth: 70 mm (2.8 in.)
Antenna:	Internal
Power Supply:	3.6V NiMH rechargeable battery
	Optional: 3 AA batteries (3 Mignon LR6-AA 1.5V)
Diagnostics:	Operational LED and low battery detection
Operation Time:	Up to 20 h continuous transmission
Control Configuration:	Five 3-position momentary spring return to center function toggle switches
Frequency Range:	419 MHz, 429 MHz, 434 MHz, 447 MHz, 458 MHz, and 868 MHz
RF Unit:	Type CS synthesized with selectable frequencies
Power (RF Output):	< 10 mW
Typical Operating Range:	Approximately 100 m. (328 ft.)
Safety:	20-bit programmable address concept with up to 1 million combinations
	Hamming Distance 3
Temperature Range:	-25 to +70 degrees C (-11 to +158 degrees F)
Humidity Range:	0 - 97% maximum non-condensing
Response Time:	Approx. 100 msec.
Baud Rate:	4800 Kbps
Standard Features:	Five 3-position momentary spring return to center function toggle switches
	STOP pushbutton
	Low battery detection
	Operational LED



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