USER MANUAL

HH TC-1A Transmitters

USER MANUAL

02/2020

www.hetronic.com

HETRONIC
A METHODE ELECTRONICS COMPANY

Congratulations on purchasing this high quality safety radio remote control system from HETRONIC. You have selected a quality product from a leading manufacturer of safety radio remote control systems and can therefore be fully confident that this product reflects state-of-the-art technology.

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1. SAFETY

1.1. SAFETY OF THIS RADIO REMOTE CONTROL SYSTEM

This radio remote control system is equipped with both electronic and mechanical safety devices.

When allocated, coding applies to one transmitter only, meaning that control commands cannot be received from other transmitters.

THIS CONCERNS YOUR SAFETY

In the event of incorrect operation or misuse, there is a risk of harm to:

- the health of the operator or other persons, and
- the machinery and other property.

All persons working with this radio remote control system

- must be both suitably qualified and have been instructed, as required by regulations, and
- must comply strictly with the contents of these Operating Instructions.

1.2. SAFETY INSTRUCTIONS AND TIPS

The following symbols are used for warnings and advisory notes in these operating instructions, with the following meanings:

DANGER: This symbol is used to warn you of the risk of fatal accidents or serious injuries. Such risks can arise whenever operating or working instructions are not strictly followed.

WARNING: This symbol is used to warn you of the risk of damage to the machinery or to other property if the operating or working instructions are either not followed or are not followed properly. Disregarding these warnings may void your warranty.

NOTE: This symbol is intended to draw your attention to particular features or important information designed to make your work easier.

1.3. SOURCES OF RISK

The system is designed for permitting machinery to be controlled by radio remote control. However, since the control commands are also transmitted beyond your range of vision, and through or around obstacles in the vicinity, you should always:

- disconnect the power supply before you start any installation, maintenance or repair work.
- never remove or modify safety devices!
- place the transmitter on a clean and dry surface and remove the accumulator or the battery box, if you put the transmitter down.

1.4. QUALIFIED OPERATORS

IMPORTANT: See operating instructions for the machinery you intend to operate with this control system!

The operator is responsible for ensuring that when the transmitter is put down, it cannot be used by unauthorized persons.

The user:

- must provide the operator with the operator instructions **and**
- ensure that the operator has read and understood them.

1.5. SAFETY PRECAUTIONS IN THE WORKING AREA

IMPORTANT: Ensure that there is no risk of slipping in the work area.Before each use of the radio remote control system, check that no persons or obstacles are within the working area or swivelling range of your load.

CAUTION: To prevent unauthorized or accidental operation, remove the battery from the battery compartment if you put down the transmitter.

1.6. PROTECTION DEVICES

The machinery will stop:

- If you actuate the red emergency stop button on the control panel of the transmitter
- 450ms (approx. 0.5s) after switching off the transmitter.
- If the range is exceeded.
- If there is receiver interference.

These protection devices:

- Are included for the safety of both persons and property, and
- Must not be modified, removed or bypassed under any circumstances or in any way whatsoever!

1.7. WHAT TO DO IN AN EMERGENCY

In an emergency you should press the emergency stop button immediately. Then proceed as instructed in the operating instructions for your machinery.

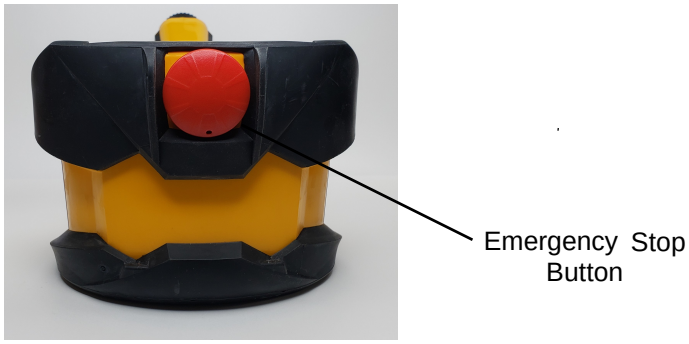


Figure 1

2. OPERATION

Read and understand the Operating Instructions, in particular Section 1 on safety and protections devices. Untrained personnel must not attempt to operate the radio remote control system!

2.1. HANDLING THE RECHARGEABLE BATTERIES

NOTE: Your HETRONIC radio remote control system is delivered with charged rechargeable batteries. The radio remote control system is ready for immediate use.

2.1.1. Replacement of batteries

Proceed as follows:

1. Place the transmitter on a clean and dry surface.

IMPORTANT: Ensure that you only use 3.2 3.3 3 .

2. transmitter's battery tube . 2.1 .
3. . 2.2 .

. (Figure 2.3).

Figure 2.1

Figure 2.2

Figure 2.3

2.1.2. Rechargeable battery

Charging the rechargeable batteries

.

1. .
2. .

Charging Battery in Transmitter

1. .
2. . . .
3. . . .

Charging Single Battery Cell

1. . .
2. .
3. .

2.2. CONTROL ELEMENTS

2.2.1. HH TC-1 Controls

1. Emergency Stop Button
2. Toggle Switch S1 to S7 with function (T-O-T)
3. Battery Compartment
4. Proportional Switch
5. Battery tube for rechargeable battery

Figure 5

2.3. OPERATION MODE

Before you use the system you must carry out the safety checks described in Sections 2.3.1 and 2.3.2 below.

These safety checks must be carried out at least once each day before you start using the system or before each shift change.

IMPORTANT: Refer to the manufacturer's operating instructions for your machinery and the diagram of your transmitter to familiarize yourself with the arrangement of the controls and their functions!

The section below deals with the radio remote control system's controls and special features.

DANGER: Risk to life and property!

Check the emergency stop button each time before starting use, as described in the manufacturer's operating instructions.

2.3.1. Visual checks

Always check the transmitter for damage each time before use!

- Are all safety devices there and do they work?
- Are there any broken parts?
- Are the rubber sleeves crack-free?

Never work with a transmitter that is damaged in any way!

Ensure that any damage is repaired immediately!

2.3.2 Safety checks and starting the radio remote control system

You must check the following:

- Check that there is a charged Hetronic Battery HH LiFePO4 3.2V 3.3Ah (68306000) in the battery tube of the transmitter.
- Operate one of the transmitter's toggle switches. This should result in the activation of the function corresponding to the toggle switch.
- Please check that the transmitter sends a signal only as long as you keep the function toggle switch pressed.
- The radio signal, and with it the emergency stop relay, only remains activated continuously until the transmitter is switched off if you are in continuous transmission mode, available as an option. Please contact your dealer if you require this mode.
- Now actuate one of the functions of the machinery to be operated one of the seven toggle switches on the transmitter, as described below in Section 2.2 Control Elements).
- Check the EMERGENCY STOP FUNCTION as described in the manufacturer's operating manual for the machinery. Use the EMERGENCY STOP BUTTON on the transmitter instead of the EMERGENCY STOP BUTTON on the machinery.
- Press the EMERGENCY STOP BUTTON on the transmitter.

IMPORTANT: Once you have actuated the EMERGENCY STOP BUTTON on the transmitter, it should no longer be possible to exercise control over any of the machinery's functions!

- If the EMERGENCY STOP SYSTEM does not function properly, DO NOT use the radio remote control system. Contact your dealer or Hetronic for repairs.

DANGER: Stop the machinery immediately if a fault is found while checking the system! Inform your dealer immediately so that the cause can be located and repaired!

Never work with machinery for which the EMERGENCY STOP SYSTEM does not function properly!

WARNING: Failure to comply with these instructions could lead to personal injury or damage to property!

All actions that contribute to a failure to comply with these instructions may void your warranty and result in the withdrawal of your operating permit!

2.3.3. Proportional function

The TC 1 transmitter fitted with a proportional trigger switch

The proportional function allows you to control the speed of motion for that function. To execute the proportional function you must operate a toggle switch first. You can then control the function with the proportional switch.

Figure 6

2.4. TROUBLESHOOTING TABLE

Your radio remote control system is designed and manufactured with state-of-the-art technology. Every device is subjected to stringent quality controls at our factory before being released for delivery.

In the event of trouble symptoms, please check the following points:

Trouble symptom	Possible causes	Solution
On/Off function cannot be actuated or controlled.	Self-test routine	The transmitter begins to transmit the signal after a 3 second self-test routine.
	Emergency stop switch pressed.	Check the position of the emergency stop button.
	Battery discharged.	Insert charged rechargeable battery or check batteries.
No reaction to keying the transmitter.	Interruption to receiver power supply.	Switch on the master switch of the machinery. Check connectors. Measure the supply voltage of the receiver. Check the system ground.
	Rechargeable battery or battery compartment is defective (contact corrosion). Batteries have leaked.	Check if the second rechargeable battery / new batteries produce the same results. Check the battery compartment and rechargeable battery compartment. Clean if required. Please contact your dealer.
Operating time too short.	Incorrect or discharged batteries were inserted.	Check if the power supply for the charger is switched on, or if the connection is faulty or loose. Only use rechargeable batteries approved by HETRONIC.
There is interference with the transmission of the control commands to the machinery.	Check to see if there is a large metal surface located between the transmitter and receiver.	Remove the metal obstruction or relocate your position of operation.
	The range has been exceeded.	Please contact your dealer.

FCC Notes

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 TC1 A is shipped with the FCC/IC ID label attached. The FCC/IC ID label must not be removed. See Figure 3 for additional labeling information.

FCC ID Number: LW9-TXMFSTC1A
IC ID Number: 2119B-TXMFSTC1A

This device complies with Industry Canada licence-exempt RSS standard(s). 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.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

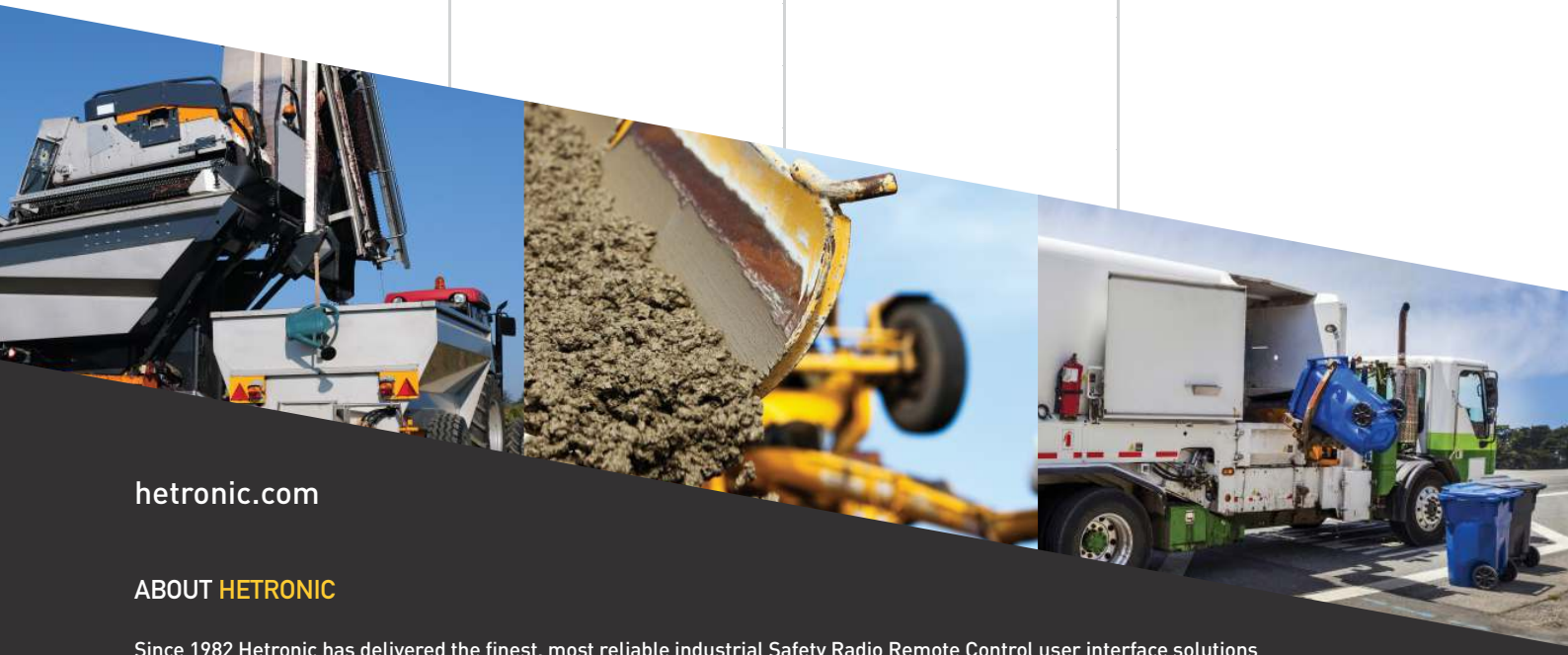
Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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.

- RF link is Direct Sequence Spread Spectrum, using OQPSK modulation. It operates on the 16 Zigbee
- channels ranging from 2405 to 2475MHz.
- The antenna is an etched inverted F style antenna embedded in the circuit board.
- Antenna Gain: 3 dBi

HOUSING	• Impact Resistant • Polymer Composite	**STANDARD CONTROL OPTIONS**	• Variations available depending on transmitter. • Half-duplex communication mode. • Cable back-up.
DIMENSIONS	• H: 225mm x W: 152mm x D: 126mm • H: 8.9" x W: 6.0" x D: 5.0"	**ANTENNA**	• Internal
WEIGHT	• 960g (2.1lbs.) for full configuration incl. battery	**BATTERY RATING/ TYPE**	• 3.2V 3200mAh rechargeable long life Li-ion battery
ENVIRONMENTAL PROTECTION	• Min IP 65 (Exceeds Nema 12/13)	**STANDARD POWER RF OUTPUT EIRP (50 Ohm)**	• 10mW max or subject to country legislation
OPERATING TEMPERATURE/ STORAGE TEMPERATURE	• -20C to +70C (-4F to +158F) • -40C to +85C (-40F to +185F)	**OPERATING VOLTAGE**	• 3.3V to 5.0V
RELATIVE HUMIDITY	• 95% IE C60068-2-78	**OPERATING RANGE**	• Typically 100m LINE OF SIGHT. Varies depending on output.
FREQUENCY RANGE	• 2.4GHz	**OPERATING HOURS**	• >10 hours (depending on configuration
FEATURES	• Removable STOP key cap • Vibration motor feedback • Programmable via H-LINK • Start and function interlock	**OPTIONAL FEATURES**	• Charging cradle with external output • Cable control • 120x32 pixel LCD display



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ABOUT HETRONIC

Since 1982 Hetronic has delivered the finest, most reliable industrial Safety Radio Remote Control user interface solutions for process and equipment control applications in the industry.
We have shipped over 500,000 safe and reliable transmitter/ receiver solutions to customers around the world. Our global network of service locations, in over 50 countries, provides expert service, support and sales when customers need safe, secure and reliable remote control solutions. Contact a Hetronic expert and learn more at www.hetronic.com